

## Blueberry Insect Pests 101

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For the past three years, spotted wing Drosophila (SWD) has been the most serious blueberry pest and will continue to plague blueberry growers until good control strategies are developed. Pest management decisions for other blueberry pests will be influenced by SWD control decisions. I'll cover other insects first and then return to SWD.

The first step to blueberry insect control is being familiar with potential pests and their life cycles, and knowing when the crop is susceptible. Scouting for insects is essential and may include using insect traps for some insects. Every grower should own a copy of the New England Small Fruit Management Guide, available from Cooperative Extension in all New England states.

**Scale** insects can be found year-round on blueberry canes. In the winter, scout for Putnam and lecanium scales and prune out infested canes. Dormant oil applications can help control scales.

**Winter moth** caterpillars have become a problem in eastern Massachusetts and Rhode Island. Areas not currently infested should be monitored for the small, green inchworms, but no control is needed at this time. Scout surrounding maple trees for typical winter moth foliar damage. Once winter moth is in your area then you can be concerned with controlling it. In winter moth-infested areas, an insecticide should be applied when winter moth eggs begin to hatch and again about 10 days later. Buds and flowers should be monitored for developing larvae since additional insecticide treatments may be necessary. Additional sprays may be needed in blueberry plantings where winter moth populations are extremely high.

**Cranberry fruitworm** caterpillars are found within developing and ripening berries. Caterpillars are ½ inch long and mainly olive-green in color. Larvae will consume 3-6 berries, filling them with frass, and tie together fruit with silk. When damage is severe, treat the following year with insecticide at petal fall and again about 10 days after petal fall. Fruitworms are active for about 5 weeks, so they cannot be controlled with only one spray. In small plantings and light infestations, handpick infested berries. Eliminating weeds help reduce cranberry fruitworm overwintering sites.

**Cherry fruitworm** caterpillars are also found within developing and ripening berries. The orange-red caterpillars grow to ¼ - ½ inches and consume two berries as they develop and these berries are generally joined by silk. Treatment is the same as for the cranberry fruitworm.

**Plum curculio** infestations are more abundant when blueberries are planted near fruit trees. The weevil lays eggs in developing berries and the larvae feed, causing infested berries to drop prematurely. Plum curculio larvae (grubs) are grayish-white, C-shaped, legless and have brown heads. Insecticide sprays, other than Bt products, applied at petal fall and first cover (7-12 days later) will likely control plum curculio.

**White grubs** are the larvae of various beetles that feed on roots of blueberries and other plants. White grubs feeding on blueberry roots in New England are primarily Japanese beetles, rose

chafers, Oriental beetles, Asiatic garden beetles, and June beetles. Feeding by white grubs reduces plant vigor and can eventually kill blueberry bushes. Growers should check new sites for white grubs before planting and control if necessary. Established plantings infested with white grubs can be treated by drenching soil with Admire insecticide. Beneficial nematodes may be effective in controlling white grubs in the soil.

**Blueberry tip borer** moths emerge shortly after bloom and lay eggs on new blueberry shoots. The larvae tunnel into shoots and feed inside the shoot, causing shoots to wilt, arch over, become discolored, and eventually turn brown. By autumn, larval tunnels may extend 8-10 inches before larvae pupate. Manage tip borers by pruning out and destroying damaged canes.

**Blueberry maggot fly** adults look similar to house flies with a dark W pattern on each wing. In late June or early July, female BM lay eggs inside ripening berries. Eggs hatch into white, legless larvae and feed inside the fruit causing berries to become soft and unmarketable. BM adults can be monitored with red sticky spheres or yellow sticky rectangle traps baited with ammonium acetate. In small plantings, it may be possible to trap-out BM with sufficient traps. Sticky traps should be hung on a stake or on an upper branch on the south side of a blueberry bush in a perimeter row. Clear enough foliage from around the trap so leaves don't stick to it. To be most effective, yellow rectangular traps should be placed with the yellow sticky surface directed downward in a V-orientation. Check traps twice each week and apply insecticide 7-10 days after first trap catch. Repeat every 10 days through harvest, minding pre-harvest intervals on labels.

While scouting in blueberry plantings, numerous caterpillars may be encountered. **Yellownecked caterpillar, redhumped caterpillar, and gypsy moth** caterpillars are occasional pests and can be controlled with applications of Bt (*Bacillus thuringiensis*).

**Spotted wing Drosophila** (SWD) are Asian vinegar flies that have invaded all blueberry growing regions of North America, first arriving in New England in 2011. Female SWD have saw-shaped ovipositors that allow them to cut into healthy berries to deposit an egg. Each SWD female is capable of laying 300 eggs and there are many generations per season. Each generation takes about 14 days, depending on temperature.

SWD are being monitored in each state with various traps baited with apple cider vinegar and/or yeast-based baits. Traps appear to be most helpful in determining when SWD are first active in a region. In 2013, SWD were first caught in traps starting mid to late June in southern New England and starting early to mid-July in northern New England. Unsprayed blueberries will become infected, but probably not until after the early season varieties have been harvested. In RI, blueberries were harvested from URI's research plot from June 27 to July 18 with no SWD detected. Berries harvested later had SWD, with 75% of berries infested by August 1. SWD populations continue to build until a frost, so late varieties are more at risk than earlier varieties.

Many universities and growers are researching SWD. Small planting may be protected from SWD with small-mesh netting, but at this time the best control strategy is insecticide applications. Using different classes of insecticides, applications are needed every 7 days starting when SWD begin attacking blueberries, probably 3-4 weeks after early blueberry harvest season begins. Rain washes off insecticide and so applications may be needed more frequently than every 7 days. Adding 2 pounds of white sugar per 100 gallons of spray material encourages

SWD to feed and be killed by insecticide. Advanced planning is essential so label preharvest intervals and maximum allowed pesticide rules are followed.

Some organic and no-spray growers have successfully grown blueberry crops. Blueberries must be harvested thoroughly and often. Consumers must be encouraged to refrigerate or freeze their berries as soon as they get them home.