Controlling Bacterial Canker of Cherry

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Bacterial Canker continues to be a serious bacterial disease of cherry in New Jersey as well as all other regions where the climate is humid. Bacterial canker has been very active this season in both sweet and tart cherry blocks.

Bacterial canker or bacterial gummosis of sweet cherry is caused by several *Pseudomonas* bacteria. This disease infects flower buds and spurs. It can completely kill new spurs and leaves and then move into the trunk on cherry. This is especially problematic with trees on the new Geslia rootstocks, as losing a scaffold or getting infection into the trunk will limit production as the tree rapidly declines. We should avoid large, dormant pruning cuts and use summer pruning to minimize the impact of the disease. For an extensive collection of videos describing how to prune sweet cherry, see http://www.giselacherry.com/

Control with Copper as a Bordeaux Mix is preferred. Cankers get started mainly in the fall after most of the leaves have fallen and the trees are

Bacterial Canker on a 4-year-old sweet cherry tree at the Rutgers Snyder Farm. Note the brown/amber exudate in the trunk at the top of the photo. Photo Credit: Win Cowgill.

beginning to go dormant. The only effective way to control this disease is to reduce the inoculum before the trees enter their susceptible period. The bacteria that start these cankers are found on the surfaces of mature leaves and other green tissues, and do not come from existing cankers.

The only successful control that I have found is repeated applications of the Bordeaux mixture in September, October, and November, repeated again in the spring. Bordeaux Mix consists of hydrated lime (builders lime) and copper sulfate. The rates and methods of mixing are important. We begin our sprays the second week in September.

Note, however, that sprays of Bordeaux applied to green leaves must be saftened with vegetable oil (Canola) to avoid burning the foliage. Four additional sprays 14 days apart will be applied. Bordeaux mix will also be applied in the spring with several applications before bud break.

It is my observation to date that if any bacterial canker is observed in sweet cherry trees, it is best to plan a spray program of Bordeaux Mix.

Mixing Bordeaux. Copper sulfate – Use only powdered copper sulfate (bluestone or blue vitriol), often referred to as copper sulfate "snow," because it is finely ground and dissolves relatively quickly in water. Ordinary lump copper sulfate is not satisfactory. Make sure to store copper sulfate snow in a dry place. Moist snow becomes lumpy and is difficult to work through the screen into the tank. Use copper sulfate registered to make Bordeaux mixture. Lime – To prepare tank-mix Bordeaux, use only good quality *hydrated lime* (calcium hydroxide) also called *builders lime.* The hydrated lime should be fresh, that is, not carbonated by prolonged exposure to air. Hydrated lime is stable and usually is readily available under several trade names. Magnesium lime, a mixture of Ca(OH)2 and Mg(OH)2, may also be used.

Bordeaux formulas are stated as three hyphenated numbers: 8-8-100. The first number refers to the pounds of bluestone (copper sulfate), the second number to the pounds of spray (hydrated) lime, and the last number to the gallons of water to be used. Thus, an 8-8-100 Bordeaux contains 8 pounds of copper sulfate, 8 pounds of spray lime, and 100 gallons water.

Have your tank one half full of water and the agitation turned on, then add the copper sulfate or copper sulfate solution, then the hydrated lime solution, and then add the Canola Oil at 2.8 quarts/100 gallons to saften the mix.

Other Coppers. In a research trial at the Rutgers Snyder Farm, Champ DP copper was also evaluated compared to Bordeaux mix for phytotoxicity on cherry. The oil equally saftened Champ DP as it did Bordeaux. Please note that Champ2 Flowable may not be compatible with the vegetable oils, and all copper mixes should be jar tested before adding to your spray tank. There are numerous other copper formulations. For a complete discussion of copper fungicides, see Dr. Dave Rosenberger's article on the risks and benefits of tree-fruit copper sprays:

http://www.northeastipm.org/neipm/assets/File/TFWG-Rosenberger-3copper.pdf

In our humid climate in New Jersey (and Massachusetts), the cankers can continue to develop in lateral branches and the central leader. In some cases the cankers have grown to girdle and kill 2-year-old wood. I have observed central leader dieback as a result. In older wood, the canker looks very much like a fireblight in apple. In most cases, the canker begins to ooze a brown to amber exudate. It appears that under our humid conditions this disease is very hard to control and can be devastating if control measures and the proper horticultural practices are not followed. This bacterial disease is most troublesome in young plantings where it can cause loses of up to ten percent of the trees. On mature trees, it can reduce yields from 10–50%.

Many growers who did not think they had bacterial canker are beginning to see it on three- and four-year-old trees.

The source of inoculum may come from wild cherry trees in our hedgerows, black cherry; *Prunus serotina,* may be one source of inoculum for *Pseudomonas* during wind and rainstorms in the spring and summer months. Removal may be beneficial.