

WSJM March 29, 2006 – Copper sprays for fire blight

This is Al Gaus the Berrien County Extension Educator for fruit and ornamentals reporting from the Michigan State University Extension office in Berrien County. Today I would like to give you some information supplied by Dr. George Sundin, our tree fruit pathologist. It deals with early season copper sprays for fire blight control.

Warming temperatures, which will occur eventually, favor growth of bacterial pathogens. This is a critical timing period for an early copper application targeted towards reducing the primary inoculum of the fire blight. Primary inoculum refers to the bacteria that cause the initial infections in a growing season. Limiting primary infection by starting control practices early is a critical to season-long control.

Copper is an excellent bactericide for fire blight. The only limitation is application timing. Applications after 1/4 to 1/2 inches green tip could result in fruit russeting. I think that an early season copper application is an important tool for fire blight inoculum management, particularly in orchards known to contain streptomycin-resistant fire blight bacteria.

The predominant location of over-wintering bacterial inoculum for fire blight is in cankers initiated on shoots in the previous season. As temperatures warm up in a growing season, cankers begin to ooze bacteria that can then colonize blossoms.

The best method for lowering initial populations of plant pathogenic bacteria in orchards is to use an early application of copper to cover trees with a "blanket" of copper. Entire trees should be sprayed, not just alternate rows. High rates of copper can be used, with timings immediately prior to budbreak or up to about 1/2 inch green. Be sure that the correct rate of copper is used and that sprayers are properly calibrated. Any formulation of copper should be effective in disease control (copper sulfate, cupric hydroxide, copper oxychloride, etc.). The goal of this management practice is to have copper available to protect the plant tissue from bacterial colonization as the tissue develops, thus lowering initial inoculum levels.

Beware of phytotoxicity! Copper phytotoxicity (fruit russeting) can occur on apple.

That is all for today, this has been Al Gaus for Michigan State University Extension in Berrien County.