Apple Anthracnose Canker in Western Washington

Apple anthracnose canker, caused by *Neofabraea malicorticis*, is a fungal disease that induces cankers that kill newly planted apple (*Malus ×domestica*) trees and structurally weaken established trees in the maritime Pacific Northwest. Three research studies were conducted at Mount Vernon, WA to investigate methods for management and control of apple anthracnose canker. The first study tested if Bordeaux mix (BM) could prevent infection when trees were inoculated with or without wounding. Treatments were applied once, on 25 Nov. 2015, and by l1 wks after inoculation, a canker developed in all treatments except BM + no wound + inoculation. However, due to the low rate of successful inoculations, there was no significant difference among treatments in the number and size of cankers that developed. The second study evaluated the fungicides zinc, copper sulfate, thiophanate-methyl, pyraclostrobin + boscalid, and captan. Treatments were first applied on 18 Mar. 2016 and repeated every 3 wks until 21 Oct. 2016. Size of existing cankers increased by 77% overall but canker size was smaller with copper sulfate (38%), pyraclostrobin + boscalid (17%), and zinc (18%) compared to non-sprayed cankers, while size of cankers treated with thiophanate-methyl was the same. Disease symptoms were visible within all treated cankers 7 months post-treatment application, and new infections developed 1 month after the final treatment application. The third study evaluated cultural treatments commonly used in the region to manage established cankers: 1) Excise canker (EC) + 10% sodium hypochlorite; 2) EC + cauterize (CAU); 3) EC + CAU + copper hydroxide; 4) Completely cover canker with BM; 5) EC + BM; and 6) EC + copper hydroxide. Treatments were applied once, on 16 Dec. 2014, and the study was repeated, on 11 Dec. 2015. Both years, copper hydroxide, 10% sodium hypochlorite, and BM (with and without excision) halted expansion of the treated area, whereas for the two treatments that included CAU, the treated area increased in size by 1 to 8 fold following treatment application. Both years, new infections developed 15 wks after treatment application, and disease symptoms were visible within all treated areas 15 months post-treatment application. In conclusion, results from these experiments indicate that the current cultural and chemical treatments are not effective for preventing new apple anthracnose canker infections or controlling existing infections.