

**Evaluation of chipping (grinding) cankers for management of eastern filbert blight, 2012 - 2014.**

Sporulation and dispersal of ascospores from piles of chipped (shredded or ground) diseased branches was measured. Branches bearing stromata of *A. anomala* were cut from trees prior to bud break on 15 to 17 Feb 2012 and 6 to 8 Feb 2013 and ground using a Vermeer BC 600 brush chipper on 7 Mar 2012 and 7 Mar 2013. Resulting chip size was from 0.5 to 2.5 cm. Only the cankered portion of the branches were chipped and used in the study. An equal number of healthy branches were also chipped. The experiment was replicated four times at separated locations on the Botany and Plant Pathology Field Laboratory. Piles with cankers were compared to chip piles without cankers. At each location, chips were piled loosely in a 2 x 6 foot (0.5 x 1.8 m) area about 4 inches thick on 8 Mar 2012 and 8 Mar 2013. From March to June, spore traps (rain sampling-type) as well as 2-year-old potted hazelnut trees were placed over each pile of chips, 6.4 m upwind and 6.4 m downwind from each source pile. Rainwater samples were collected from spore traps after each major rainstorm and 30 ml of CuSO<sub>4</sub> was added to each collection bucket to inhibit ascospores germination. Rainwater samples were brought back to the lab and stored at 6° C until filtered and evaluated using a compound microscope. After the end of the experiment the 2-year-old potted trees were taken to an outside greenhouse, for dormant season chilling, to incubate for symptoms of EFB. Each tree was examined for canker number and length the following summer on 15 Jul 2013 and 21 Jul 2014. Data analysis of trees was based on three reps due to the close proximity of an infected brush pile.

Intact stromata were easily found in pieces of chipped cankers. Viable ascospores were found within these stromata. Significantly higher ascospores counts were obtained in 2012 above piles with chipped cankers than for piles without cankers (checks) (Figure 1). Although ascospore counts were higher above chipped canker piles, they were not significantly different from check piles in 2013. When compared to non-chipped brush piles with intact cankers (from 2010 and 2011), the number of ascospores detected above chipped piles were lower by 2 to 4 orders of magnitude (Figure 1). No trees exposed in 2012 developed cankers when exposed at any of the source piles (Table 1). Only one tree upwind of one check pile developed one canker. All other trees remained healthy upwind or downwind of any of the source piles. No trees exposed in 2013 above any chip piles developed cankers (Table 2). Although viable ascospores can be detected above chipped EFB cankers, there are not enough to consistently infect potted trees within or downwind of piles.

Figure 1. The number of ascospores found above brush piles in 2010 and 2011 and above chipped piles of cankered or healthy (check) branches in 2012 and 2103.

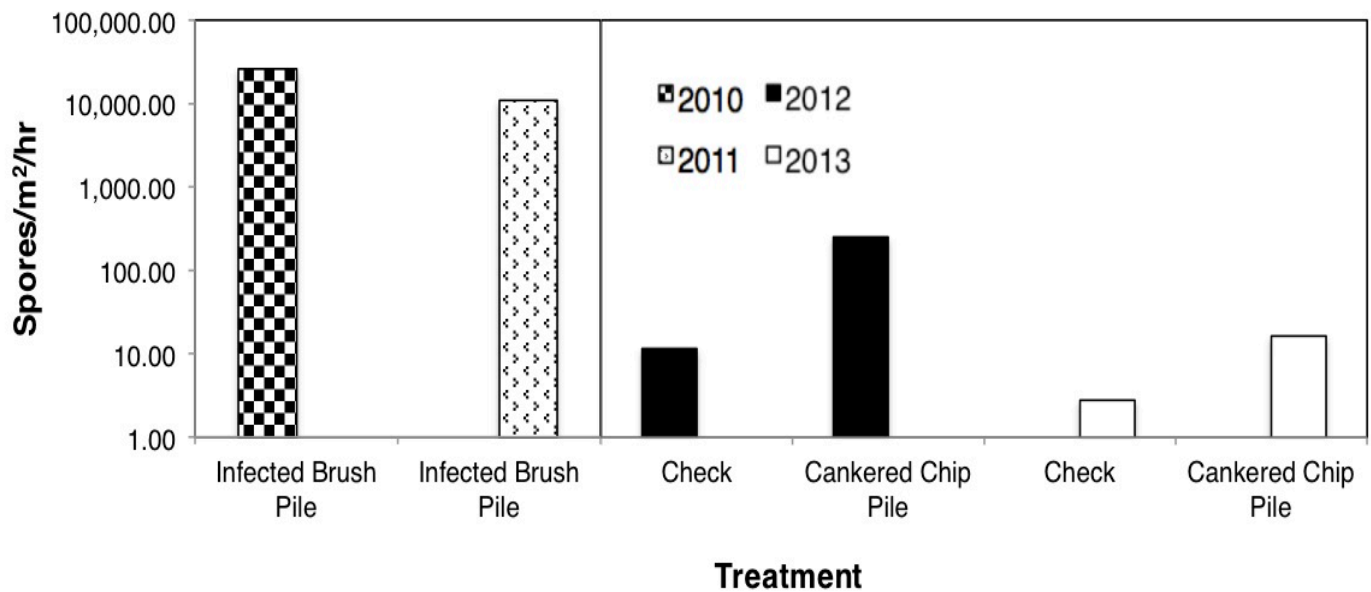


Table 1. Number of infected trees upwind, at and downwind of source piles in 2012.

Treatment	Infected trees (%)*		
	Upwind	Source Pile	Downwind
Chip pile of healthy branches.....	7	0	0
Chip pile of diseased branches.....	0	0	0

\* Analysis based on differences of least square means using a "split-plot-in-time" model in SAS PROC MIXED.

Table 2. Number of infected trees upwind, at and downwind of source piles in 2013.

Treatment	Infected trees (%)*		
	Upwind	Source Pile	Downwind
Chip pile of healthy branches.....	0	0	0
Chip pile of diseased branches.....	0	0	0

\* Data not analyzed.