

Evaluation of Ziram tank mixed with Cabrio for management of eastern filbert blight, 2016 - 2017.

Healthy appearing two-year-old ‘Ennis’ hazelnut trees were planted from 16 to 18 Feb 16 at the Botany and Plant Pathology Field Laboratory, Corvallis, OR. Limbs with EFB cankers were cut from heavily diseased trees during Jan 2016. A total of 500 cankered limbs were placed above test trees on chicken wire frames supported by a wooden trellis, on 1 Mar 16. Treatments were arranged in a randomized complete block design. Each treatment consisted of 8 single tree replicates. Fungicides were applied to trees from two directions, until runoff, using a Solo-Pump-Style backpack sprayer. Approximately 0.25 gal of a spray suspension was used per 8 trees within each treatment. Most fungicide treatments were applied on 18 Mar 16 (bud break), 1 Apr 16, 13 Apr 16, and 27 Apr 16 for a total of 4 applications. Casoron 4G (100 lb/A) was applied throughout the block on 20 Mar 16 and Makaze (at 3%) was applied as a general and/or spot treatment on 5 May 16, 9 Jun 16, 8 Aug 16 and 2 Jun 17 for management of weeds. Trees were fertilized with 46-0-0 at a rate of 0.5 lb/6 trees on 4 Apr 16 and 15 Jul 16. Supplemental irrigation was provided as needed during the 2016 growing season. The number of EFB cankers on the main tree trunk and total length of these cankers/tree was determined on 7 to 8 Aug 17.

Spring 2016 growing conditions were considered warmer and dryer than normal with several heat spikes including 83°F on 7 Apr, 85°F on 18 Apr, 87°F on 2 May, and 95°F on 4 Jun 16. Conditions resulted in accelerated tree growth 2 to 3 weeks ahead of average, however, late planting of these small trees resulted in average bud break and early growth period. Symptoms were first noticed on 12 Jun 17. Overall disease pressure was light as indicated by how few cankers developed throughout the trial and on non-treated trees. Non-treated trees had the most cankers per tree and all fungicide treated trees had significantly fewer cankers than non-treated trees. Many fungicide treated trees did not develop cankers at all or had so few as to not be significantly different from zero. All trees treated with Ziram did not develop cankers. No phytotoxicity was observed in trees treated with any of the various materials used. Highest rate of Ziram left a white residue on leaves.

Treatment and Rate/100 gal water	Ave Number of Cankers/Tree*	Total Canker Length/Tree* (cm)
Non-treated	1.9 a	35.5 a
Cabrio 20 EG at 4.8 oz	0.0 b	0.0 b
Cabrio 20 EG at 2.4 oz	0.1 b	2.8 b
Cabrio 20 EG at 2.4 oz plus		
Ziram 76 DF at 3 lb.....	0.0 b	0.0 b
Ziram 76 DF at 3 lb	0.0 b	0.0 b
Ziram 76 DF at 6 lb	0.0 b	0.0 b

* Analysis of variance is based on log (x+1) transformation. Means followed by the same letter do not differ significantly based on Fisher’s protected LSD ($P=0.05$).