

**Evaluation of fungicide tank mixes for management of eastern filbert blight, 2013 - 2014.**

Healthy appearing two-year-old 'Ennis' hazelnut trees were planted on 4 to 6 Feb 13 at the Botany and Plant Pathology Field Laboratory, Corvallis, OR. Limbs with EFB cankers were cut on 14 to 16 Jan 13 from heavily diseased 'Ennis' trees. A total of 300 cankered limbs were placed above test trees on chicken wire, supported by a 6 wire horizontal trellis, on 25 Feb 13. 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. Fungicide treatments were applied on 15 Mar 13 (bud break), 28 Mar 13, 12 Apr 13, and 26 Apr 13 for a total of 4 applications. Sucker shoots were physically removed on 21 Jun 13. Caseron 4G (100 lb/A) was applied on 26 Feb 13, Roundup (3 oz/gal) was applied on 11 Apr 13 and again 17 May 13, and Rely (1.8 oz/gal) was applied as a spot treatment on 17 Jun 13, 22 Jul 13 and 19 Aug 13 all for management of weeds. Trees were fertilized with 46-0-0 at a rate of 0.5 lb/4 trees on 19 Apr 13, 8 Jun 13 and 16 Jul 13. Supplemental irrigation was provided as needed during the 2013 growing season. Plant growth regulation effects on shoots and phytotoxicity were evaluated on 10 May 13 where 0 = no effect, 1 = slight effect that is not obvious, 2 = obvious darker green leaves and shortened internodes, 3 = Deep green leaves and shortened shoots but no necrosis, 4 = intense symptoms with marginal burning, leaf necrosis and/or possible dead shoots. The number of EFB cankers on the main tree trunk and total length of these cankers/tree was determined on 21 Jul 14.

Although spring growing conditions were unusually dry with 3 weeks of warm 80 F weather starting at the end of April, early hazelnut shoot growth was rainy and relatively warm. Nontreated trees had significantly more cankers than any of the various fungicide treated trees. Lowest canker numbers were found on trees treated with the full rate of Echo 90 DF alone, however, the number of cankers on trees treated with either the half rate of Echo 90 DF alone or the half rate of Cabrio tank mixed with either Echo formulation were not significantly different. No phytotoxicity or growth regulation activity was observed in trees treated with any of the various materials used. Liquid chorothalonil labels (such as Echo 720 or Bravo Weather Stik) do not allow tank mixing with other pesticides, however, Echo 90 DF does allow tank mixing.

Treatment and Rate/100 gal water	Ave Number of Cankers/Tree*	Total Canker Length/Tree* (cm)
Nontreated .....	4.6 a	106.0 a
Cabrio 20 EG at 2.4 oz .....	1.5 b	28.4 b
Cabrio 20 EG at 2.4 oz plus Echo 720 at 16 fl oz .....	1.1 bc	15.9 bcd
Cabrio 20 EG at 2.4 oz plus Echo 90 DF at 0.8 lb.....	0.5 c	8.6 cd
Echo 90 DF at 0.8 lb .....	0.9 bc	20.9 bc
Echo 90 DF at 1.63 lb .....	0.3 c	6.6 d

\* Analysis of variance is based on log<sub>10</sub> (x+1) transformation. Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05).