

**Evaluation of Pentra-Bark for management of eastern filbert blight, 2010 - 2011.**

Healthy appearing two-year-old ‘Ennis’ hazelnut trees were planted on 21 Jan 10 to 3 Feb 10 at the Botany and Plant Pathology Field Laboratory, Corvallis, OR. Limbs with EFB cankers were cut from a heavily diseased ‘Ennis’ orchard near Keizer, OR from 30 Nov 09 to 4 Dec 09. A total of 400 cankered limbs were placed above test trees on chicken wire, supported by a 6 wire horizontal trellis, on 23 Feb 10 and 2 Mar 10. Treatments were arranged in a randomized complete block design. Each treatment consisted of 4 single tree replicates. Some treatments had fungicides applied to the foliage of trees from two directions until runoff using a Solo-Pump-Style backpack sprayer. For other treatments, an equivalent amount was applied with the same equipment only to trunks of trees, allowing excess solution to run onto the ground. Approximately 0.15 gal of a spray suspension was used per 4 trees within each treatment. Fungicide treatments were applied on 14 Mar 10 (bud break), 26 Mar 10, 7 Apr 10, and 21 Apr 10 for a total of 4 applications. Sucker shoots were sprayed using Rely (60 oz/A) on 14 May 10 and 9 Jul 10. Rely (60 oz/A) and Roundup (120 oz/A) plus surfactant was applied to control weeds between trees on 23 Apr 10 and 31 Aug 10. Rely (60 oz/A) and Maddog plus surfactant was applied to control weeds between trees on 6 May 10 and 26 Jul 10. Preen (6 lb/1,000 sq ft, with fertilizer 9-17-9) was used on 30 Apr 10. Trees were fertilized with 29-5-5 at a rate of 1 lb/8 trees on 19 Jul 10. Supplemental irrigation was provided as needed during the 2010 growing season. Plant growth regulation effects on shoots and phytotoxicity were evaluated on 7 May 10 and 24 May 10 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 16 Aug 11.

Trees treated with Orbit alone on the foliage had significantly fewer cankers than nontreated trees. Trees treated with Orbit alone on the trunk did not have had significantly fewer cankers than nontreated trees. Trees treated with both Orbit plus Pentra-Bark on the trunk had significantly fewer cankers than nontreated only at the lower 8 fl oz rate. There was no significant difference in number of cankers on trees treated with Orbit alone or when mixed with Pentra-Bark. Within two weeks of the first application, plant growth regulation (PGR) effects were observed on foliar treated trees. This effect was greatest during applications and declined once applications ceased. Plant growth regulation effects were not observed on leaves of trees treated with Orbit on the trunk. Based on two years data we are not recommending the use of Pentra-Bark and/or trunk applications of fungicides.

Treatment and Rate/100 gal water	Method of Application	Ave Number of Cankers/Tree*	Total Canker Length/Tree* (cm)	Growth Regulation Effect and/or phytotoxicity**	
				7 May	24 May
Nontreated .....	None	3.0 a	80.8	0.0 b	0.0
Pentra-Bark at 2.5 gal .....	Trunk Only	3.5 a	85.3	0.0 b	0.0
Orbit 3.6 EC at 8 fl oz .....	Trunk Only	2.3 ab	73.8	0.0 b	0.0
Orbit 3.6 EC at 8 fl oz plus Pentra-Bark at 2.5 gal ..	Trunk Only	1.0 b	53.8	0.0 b	0.0
Orbit 3.6 EC at 20 fl oz plus Pentra-Bark at 2.5 gal ..	Trunk Only	1.8 ab	36.3	0.0 b	0.0
Orbit 3.6 EC at 8 fl oz .....	Foliar Only	0.3 b	5.0	2.5 a	0.5

\* 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). Means without letters did not differ significantly.

\*\* Plant growth regulation effects of shoots 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.