

**Evaluation of Pentra-Bark for management of eastern filbert blight, 2009 - 2010.**

Healthy appearing two-year-old 'Ennis' hazelnut trees were planted on 3 Feb 09 at the North Willamette Research and Extension Center, Aurora, OR. Limbs with EFB cankers were cut from heavily diseased 'Ennis' at NWREC from Nov to Dec 08. A total of 400 cankered limbs were placed above test trees on chicken wire, supported by a 6 wire horizontal trellis, on 23 Feb 09. 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 volume of fungicide 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 30 Mar 09 (bud break), 15 Apr 09, 30 Apr 09 and 13 May 09 for a total of 4 applications. Sucker shoots were killed on trees using Rely (60 oz/A) on 18 May 09. Honcho (2 qt/100 gal) plus Goal Tender (3 oz/100 gal) was applied to control weeds between trees on 15 Apr 09 and 30 Apr 09. Honcho (2 qt/100 gal) alone was used on 18 May 09, 18 Jun 09 and 24 Aug 09 for weed control. Preen (6 lb/1,000 sq ft, with fertilizer 9-17-9) was used on 13 May 09 and 18 Jun 09. Trees were fertilized with 16-16-16 at a rate of 1 lb/8 trees on 28 May 09, 23 Jun 09 and 16 Apr 10. Supplemental irrigation was provided as needed during the 2009 growing season. Plant growth regulation effects on shoots and phytotoxicity were evaluated on 5 May 09 and 27 May 09 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 15 Jul 10.

Several cankers developed on nontreated trees in comparison to last year when almost no cankers developed despite similar spring weather. Nontreated trees had, on average, over 10 cankers per tree but the number of cankers on trees treated with any material only on the trunk was not significantly different. Trees treated with Orbit alone on the foliage had significantly fewer cankers than nontreated trees. Trees with foliar applied Orbit plus Pentra-Bark had significantly fewer cankers than trees treated with Orbit alone on the foliage. Plant growth regulation (PGR) effects were observed within two weeks of the first foliar applications and on all Orbit treated trees by 5 May. All PGR effects were gone by 27 May except on trees treated with Orbit plus Pentra-Bark. The severe PGR effect observed on trees treated with foliar Orbit plus Pentra-Bark lasted the entire growing season. Although some Orbit may have gotten into trees via trunks (to give a slight increase in PGR) it was not enough to effectively control EFB.

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**			
				5 May		27 May	
Nontreated .....	None	10.3 a	198.0 a	0.0	c	0.0	b
Pentra-Bark at 2.5 gal .....	Trunk Only	10.5 a	163.8 a	0.3	c	0.0	b
Orbit 3.6 EC at 8 fl oz .....	Trunk Only	7.8 a	105.5 a	1.0	b	0.0	b
Orbit 3.6 EC at 8 fl oz plus Pentra-Bark at 2.5 gal ...	Trunk Only	8.0 a	136.8 a	1.5	b	0.0	b
Orbit 3.6 EC at 8 fl oz .....	Foliar .....	3.3 b	36.5 b	3.0	a	0.0	b
Orbit 3.6 EC at 8 fl oz plus Pentra-Bark at 2.5 gal ...	Foliar .....	1.0 c	11.5 b	4.0	a	4.0	a

\* Analysis of variance is based on log10 (x+1) transformation. Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05).

\*\* 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.