

HAZELNUT (*Corylus avellana* 'Ennis')
Eastern Filbert Blight; *Anisogramma anomala*

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Evaluation of fungicide programs for control of eastern filbert blight, 2004 - 2005.

Healthy appearing two-year-old 'Ennis' hazelnut trees were planted on 15 to 16 Jan 04 at the North Willamette Research and Extension Center, Aurora, OR. Limbs with EFB cankers were cut from a heavily diseased 'Ennis' orchard near Keiser, OR on 20 to 21 Jan 04. A total of 500 cankered limbs were placed on top of chicken wire supported by a 6 wire horizontal trellis above test trees on 12 Feb 04. Additional limbs were placed on the wire 8, 15 and 29 Mar 04 and 14 Apr 04. Treatments were arranged in a randomized complete block design. Each treatment consisted of 6 single tree replicates. Fungicide suspensions were applied on two sides of the tree to runoff with a backpack sprayer equipped with a hand wand. Approximately 0.6 gal of a spray suspension was used per 6 trees. Fungicide treatments were applied on 12 Mar 04 (bud break), 29 Mar 04 and 12 Apr 04 for a total of 3 applications. Roundup ULTRAMAX at 2 gal/100 gal water was used between trees to control weeds on 14 Apr 04. Both Roundup ULTRAMAX (2 gal/100 gal water) and Class Crop Protection 40A (1 qt/100 gal water) were applied between trees to control weeds 29 Apr 04. Trees were fertilized with Triple 16 (16-16-16-6) at a rate of 2 lb/6 trees on 21 Apr 04. Tree trunks were painted with a white wash solution on 10 May 04 to prevent summer sunburn. Supplemental irrigation was provided as needed during the 2004 growing season. Shoot length was determined on 16 Nov 04 by measuring only the growth that occurred during the 2004 growing season (from bud scar to terminal bud). The number of EFB cankers on the main tree trunk and total length of these cankers/tree was determined on 7 to 8 Jul 05.

This year so much disease developed that even our best treatments seemed unable to keep canker development below 0.5 cankers per tree as has traditionally been observed in the past. This may have been due to the new practice of placing cankered limbs above trees during early spring growth. This may have artificially pushed spore production past the end of fungicide applications, beyond our data collection information. There were no significant differences among the various treatments with respect to canker number, canker length or shoot length. It would seem that although we observe a growth regulation effect with applications of Orbit the overall shoot length at the end of the year is unaffected by the total number of applications or weather applications occur at the start of the year or near the end of shoot elongation. Programs that contain 4 applications are now recommended and may produce slightly different results.

Treatment and Rate/100 gal water	Application Timing**	Ave Number of Cankers/Tree*	Total Canker Length/Tree* (cm)	Shoot Length (cm)
Nontreated	None	4.7	81.3	28.2
Bravo Weather Stik at 32 fl oz.....	All	1.8	31.8	23.9
Orbit 2.5 fl oz	All	2.8	53.8	22.4
Bravo Weather Stik at 32 fl oz then Flint 50 WG at 1 oz then Orbit 2.5 fl oz	Bud Break 2 wks later 4 wks later..	2.0	47.0	29.0
Bravo Weather Stik at 32 fl oz then Flint 50 WG at 1 oz then Procure 50 WS at 3 oz	BB 2 wks 4 wks.....	2.2	51.3	25.7
Bravo Weather Stik at 32 fl oz then Orbit 2.5 fl oz	BB & 2 wks 4 wks.....	3.8	92.7	28.4
Bravo Weather Stik at 32 fl oz then Orbit 2.5 fl oz	BB 2 & 4 wks...	2.8	51.3	25.0
Bravo Weather Stik at 32 fl oz then Procure 50 WS at 3 oz	BB 2 & 4 wks...	4.5	116.1	22.6
Bravo Weather Stik at 32 fl oz then Flint 50 WG at 1 oz	BB 2 & 4 wks...	4.0	87.1	36.6
Bravo Weather Stik at 32 fl oz then Procure 50 WS at 4 oz then Flint 50 WG at 1 oz	BB 2 wks 4 wks.....	2.3	47.8	29.0
Flint 50 WG at 1 oz then Orbit 2.5 fl oz	BB 2 & 4 wks...	2.7	56.4	22.4
Flint 50 WG at 1 oz then Procure 50 WS at 4 oz	BB 2 & 4 wks...	2.5	57.9	26.4
Flint 50 WG at 1 oz then Orbit 2.5 fl oz	BB & 2 wks 4 wks.....	6.0	141.7	26.9
Orbit 2.5 fl oz then Bravo Weather Stik at 32 fl oz...	BB & 2 wks 4 wks.....	1.5	34.3	22.1
Orbit 2.5 fl oz then Bravo Weather Stik at 32 fl oz...	BB 2 & 4 wks...	3.2	70.4	29.7

* Analysis of variance is based on log₁₀ (x+1) transformation. Means without any letters did not differ significantly.

** Fungicide treatments were applied on BB = Bud Break (12 Mar 04), 2 wks = 2 weeks after bud break (29 Mar 04), and 4 wks = 4 weeks after bud break (12 Apr 04).