

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

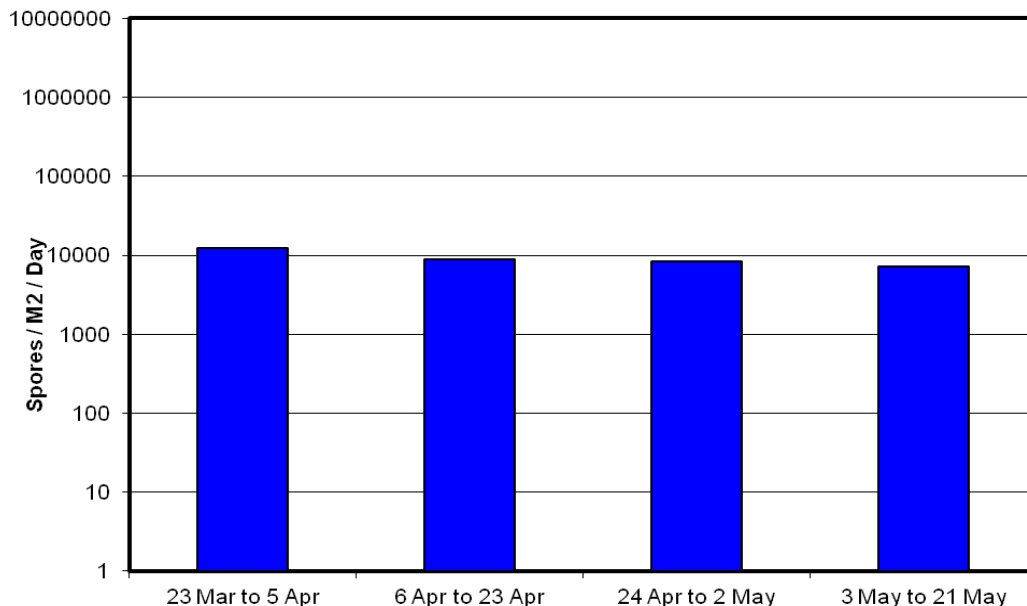
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Evaluation of fungicides for control of eastern filbert blight, 2012 - 2013.

Healthy appearing two-year-old 'Ennis' hazelnut trees were planted on 25 to 27 Jan 12 at the Botany and Plant Pathology Field Laboratory, Corvallis, OR. Limbs with EFB cankers were cut on 15 to 17 Nov 11 from heavily diseased 'Ennis' trees located at the NWREC. A total of 275 cankered limbs were placed above test trees on chicken wire, supported by a 6 wire horizontal trellis, on 27 Feb 12. Treatments were arranged in a randomized complete block design. Each treatment consisted of 7 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 7 trees within each treatment. Most fungicide treatments were applied on 22 Mar 12 (bud break), 6 Apr 12, 20 Apr 12, and 2 May 12 for a total of 4 applications. Regalia treatments were applied weekly starting on 22 Mar 12 (bud break), 2 Apr 12, 6 Apr 12, 13 Apr 12, 20 Apr 12, 27 Apr 12, 2 May 12 and 11 May 12 for a total of 8 applications. Sucker shoots were killed on treatment trees using Rely (60 oz/A) on 29 May 12 and by physical removal on 17 Jul 12. Roundup (120 oz/A) was applied on 19 Mar 12 and 13 Apr 12 for weed control. Trees were fertilized with 46-0-0 at a rate of 0.5 lb/4 trees on 11 Apr 12 and 21 May 12. Supplemental irrigation was provided as needed during the 2012 growing season. Plant growth regulation effects on shoots and phytotoxicity were evaluated on 9 May 12 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 13.

Spring weather conditions in Western Oregon were considered wet with record rainfall in the last week of March. The number of cankers on trees treated the two lower rates of Previsto or with weekly applications of Regalia was not significantly different from the number of cankers on non-treated trees. The number of cankers on trees treated with Echo was not significantly different from the number of cankers on trees treated with Quash plus S-2200, Nu-Cop, Aproach or DPX-Q8Y78. Trees treated with Previsto had significantly more cankers than trees treated with Nu-Cop. Phytotoxicity was greatest on trees treated with Quash although any rating below 3.0 is not considered a problem for this crop. Trees treated with 3 weekly applications of Aproach at 16 or 32 fl oz/100 gal water did not have significantly greater phytotoxicity than trees treated with 4 applications at 8 or 12 fl oz/100 gal water two weeks apart.

Figure 1. B&PP ascospore counts from bud-swell through shoot elongation, 2012 growing season.



Treatment and Rate/100 gal water	Number of Applications ^a	Ave Number of Cankers/Tree ^b		Total Canker Length/Tree ^b (cm)		Growth Regulation Effect and/or Phytotoxicity ^c	
						9 May	
Non-treated	0	4.3	a	105.6	a	0.0	f
Echo 720 at 32 fl oz.....	4	0.1	f	2.1	h	0.1	f
Mettle at 5 fl oz	4	2.1	bcd	50.6	abc	0.1	f
Quash 50 WDG at 3 oz plus Regulaid at 1 qt	4	1.1	de	19.9	cde	2.9	a
S-2200 50 WG at 3 oz plus Regulaid at 1 qt	4	2.0	cd	45.3	def	0.3	ef
Quash 50 WG at 3 oz plus S-2200 50 WG at 3 oz plus Regulaid at 1 qt	4	0.6	ef	8.9	gh	2.7	a
Nu-Cop 50 DF at 12 lb *.....	4	0.4	ef	7.6	fgh	0.4	def
Nu-Cop 50 DF at 12 lb * plus Regulaid at 1 qt	4	0.3	f	6.3	h	0.0	f
Previsto at 64 fl oz plus Regulaid at 1 qt	4	2.7	abc	68.7	ab	0.1	f
Previsto at 96 fl oz plus Regulaid at 1 qt.....	4	2.7	abc	63.0	ab	0.4	cdef
Previsto at 128 fl oz plus Regulaid at 1 qt	4	2.3	bc	47.3	abc	0.4	cdef
Approach at 8 fl oz plus Regulaid at 1 qt.....	4	0.4	ef	5.4	gh	0.7	bcde
Approach at 12 fl oz plus Regulaid at 1 qt.....	4	0.4	ef	5.4	gh	0.9	bcd
Approach at 16 fl oz plus Regulaid at 1 qt.....	3	---		---		0.9	bc
Approach at 32 fl oz plus Regulaid at 1 qt.....	3	---		---		1.1	b
DPX-Q8Y78 at 18 fl oz plus Regulaid at 1 qt.....	4	0.6	ef	9.9	gh	0.7	bcde
Regalia at 1 gal.....	8	2.9	ab	66.4	ab	0.0	f
Regalia at 1 gal plus Nu-Film-P at 6 fl oz.....	8	2.7	abc	60.4	ab	0.1	f

a Most treatments were applied at 2 week intervals starting on bud break (22 Mar 12) for a total of 4 applications. Treatments with the high rates of Approach at 16 and 32 fl oz or Regalia were applied at weekly intervals for a total of 3 or 8 applications, respectively.

b 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).

c 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.

*The first application of Nu-Cop at bud break was mistakenly applied at 24 lb/100 gal water. All subsequent applications were at 12 lb/100 gal water.