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

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Whole orchard evaluation of fungicides for control of eastern filbert blight 2005.

The goal of this trial is to evaluate fungicides for EFB control and yield protection on mature, commercial sized hazelnut trees (rather than 2 to 3 year old transplants). A 1 acre block of Ennis hazelnuts with Butler pollenizers (every 3rd tree in every 3rd row) planted in 1986 was selected at the Botany and Plant Pathology Field Laboratory. Trees had been planted on a 10 X 20 foot spacing but every other tree was removed in Dec 99 for a final spacing of 20 X 20 feet. This block was selected since it had been sprayed 2 to 3 times each year with chlorothalonil since 2000 for EFB before any known infections had occurred. EFB cankers discovered during the 2004 growing season in a nearby block planted at the same time with identical stock indicate that these trees have been exposed to ascospores each year since 2001 or 2002. In the spring of 2004, a fungicide trial was established in this block. Treatments were arranged in a randomized complete block design. Each treatment consisted of 4 blocks (replicates) containing a group of 9 trees, (8 Ennis and 1 Butler). Each set of 9 trees was composed of 3 consecutive trees in a row and in 3 consecutive rows. Fungicide treatments consisted of nontreated trees, trees treated with 3 applications of Bravo Weather Stik at 32 fl oz/100 gal water, and trees treated with the Best Management Practice. For 2005, the best management practice consisted of an application of Bravo Weather Stik (32 fl oz/100 gal water) at bud break, then Flint 50 WG (2 oz/100 gal water) 2 weeks after bud break, then Orbit (4 fl oz/100 gal water) 4 weeks after bud break, and then Cabrio EG at (4.3 fl oz/100 gal water) 6 weeks after bud break. Past fungicide treatments can be found in Table 1. Fungicides were applied using a hydraulic handgun sprayer at 150 psi and at a rate of 76 to 91 gal water/A depending on time of year. Approximately 6.3 to 7.5 gal of a spray suspension were applied per set of 9 trees. Fungicide treatments were applied on 9 Mar (bud break), 24 Mar, 6 Apr, and 21Apr. Weeds were controlled with Buccaneer (2qt/A) plus Goal 2XL (2 qt/A) on 20 Apr and with Rely (4 qt/A) on 8 Jun. The 8 Jun application of Rely was also directed to the base of trees to control suckers. Tetrasul 4S (27% lime sulfur) was applied at 2.5 gal/A on 22 Apr for control of big bud mite. Asana XL (11 oz/A) was applied on 11 Jul for filbert worm control. Individual trees were scouted for EFB cankers with the aid of ladders from 15 Dec 04 to 4 Jan 05. Scouting for flagging branches or cankers was also accomplished during the 2005 summer growing season. Trees were pruned from 4 Jan to 15 Feb to allow equipment movement down rows. Plots were harvested on 12 Oct 05 by raking or blowing nuts into windrows and then picked up with a Flory Hazelnut Harvester. The harvester was designed to allow soil and dirt to fall between conveyor belt chains and to blow or suck away leaves, husks and some blank nuts. Nuts were then conveyed into large wooden bins and weighed on 13 Oct using a First-weigh, model DL-12, scale located at OSU Surplus Dept. A set of 100 nuts was collected from one bin, weighed on the day of harvest and again 14 days later after drying at ambient room temperature.

Cankers of eastern filbert blight have not yet been observed in this block. Cankers were found in a nearby block of identical trees during the summer of 2004 and again in 2005. Average yield per tree was lower for 2005 and was not significantly different among the various treatments (Table 2). Also, average change in yield per tree from 2004 to 2005 was not significantly different among the various treatments. Based on nut weight before and after drying, nuts had 20% moisture. Yield presented in this report have been adjusted to the clean dry weight.

Table 1. Best Management Practice used each year.

Year	Best Management Practice
2004	Bravo Weather Stik at 32 fl oz/100 gal then Flint 50 WG at 1 oz/100 gal then Orbit 4 fl oz/100 gal (1 application each)
2005	Bravo Weather Stik at 32 fl oz/100 gal then Flint 50 WG at 2 oz/100 gal then Orbit 4 fl oz/100 gal then Cabrio at 4.3 oz/100 gal (1 application each)

Table 2. Fungicide treatments and clean dry weight yield for 2004 and 2005.

Treatment and Rate/100 gal**	Ave Yield/Tree 2004* (lbs)	Ave Yield/Tree 2005* (lbs)	Ave. change from 04 to 05* (%)
Nontreated ……...……..…….	34.1	28.5	-19.8
Bravo Weather Stik at 32 fl oz.....	31.7	27.7	-15.0
Best Management Practice Bravo Weather Stik at 32 fl oz then Flint 50 WG at 2 oz then Orbit 4 fl oz then Cabrio at 4.3 oz ……..	32.5	28.9	-13.3

*Means without letters are not significantly different.

** Original target application rate was to be 200 gal water solution/A for all treatments. Lower per gal rates resulted in lower per A rates than target for all chemical applications. Rates of water used were 76 gal/A (1st application), and 91 gal/A on all subsequent applications.