

**Whole orchard evaluation of fungicides for control of eastern filbert blight 2007.**

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 3<sup>rd</sup> tree in every 3<sup>rd</sup> 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 non-treated trees, trees treated with 4 applications of Bravo Weather Stik at 32 fl oz/100 gal water, and trees treated with the Best Management Practice (BMP). For 2007, the best management practice consisted of an application of Bravo Weather Stik (32 fl oz/100 gal water) at bud break, then Gem 500 SC (8 fl oz/A) plus Silwet L-77 (6.4 oz/100 gal) 2 weeks after bud break, then Orbit (8 fl oz/A) 4 weeks after bud break, and then Cabrio SG at (8 oz/A) plus the surfactant Silwet L-77 (6.4 oz/100 gal) 6 weeks after bud break. Past fungicide treatments can be found in Table 2. Fungicides were applied using a hydraulic handgun sprayer at 150 psi and at a rate of 150 gal water/A. Approximately 20 gal of a spray suspension were applied per set of 9 trees. Fungicide treatments were applied on 13 Mar (bud break), 28 Mar, 10 Apr, and 25 Apr. Weeds and suckers were controlled with Buccaneer Plus (2 qt/A) plus Rely (32 oz/A) applied on 11 May 07. Tetrasul 4s5 (3 gal/A) was applied on 27 Apr 07 for control of big bud mite. Asana XL (16 oz/A) was applied on 10 Jul for filbert worm control. Supplemental irrigation was applied on 19 Jun 07 and 11 Jul 07. Individual trees were scouted for EFB cankers with the aid of a Tree Squirrel on 1 Dec 06. Scouting for flagging branches or cankers was also accomplished during the 2007 summer growing season. Plots were harvested on 2 Oct 07 by raking nuts into windrows, then placed in wooden tote boxes using 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 using a Vishay Celtron model Digital Summit 3000 scale.

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. An increasing number of cankers have been found in that block each year since. Growth regulation activity of Orbit was first observed on 16 Apr. Average yield per tree was lower for 2007 and not significantly different among the various treatments (Table 1). Wet harvest conditions increased the amount of orchard debris so nut yields were adjusted to the clean dry weight. Field run weight was 51.2, 48.9, 51.7 lb/tree for the nontreated, Bravo and BMP treatments, respectively.

Table 1. Fungicide treatments and clean dry weight yield for 2006 and 2007.

Treatment	Ave Yield/Tree 2006* (lbs)	Ave Yield/Tree 2007* (lbs)	Ave. change from 06 to 07* (%)
Non-treated .....	38.9	29.1	-24.9
Bravo Weather Stik (4 applications).....	37.6	27.9	-25.9
Best Management Practice.....	38.0	29.4	-22.2

\*Means without letters are not significantly different.

Table 2. 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 3.6 EC at 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 3.6 EC at 4 fl oz/100 gal then Cabrio at 4.3 oz/100 gal  (1 application each)
2006	Bravo Weather Stik at 32 fl oz/100 gal then Flint 50 WG at 4 oz/A then Orbit 3.6 EC at 8 fl oz/A then Cabrio at 9.5/A plus Break-Thru at 4 oz/100 gal  (1 application each)
2007	Bravo Weather Stik at 32 fl oz/100 gal then Gem 500 SC at 8 fl oz/A plus Silwet L-77 at 6.4 oz/100 gal then Orbit 3.6 EC at 8 fl oz/A then Cabrio SG at 8 oz/A plus Silwet L-77 at 6.4 oz/100 gal  (1 application each)

### Hazelnut mean yield from 2004-2007

