

Deciduous Orchard Diseases—Chemical Control

Systemic Fungicides for Control of Eastern Filbert Blight

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Two-year-old hazelnut trees (cv. 'Ennis') were interplanted during November 1989 in a 49-yr 'Barcelona' orchard heavily infected with eastern filbert blight. The experimental design was a randomized block with 6 replications. There were 2 trees per plot and the design included two sets of nontreated controls. All plots that received treatments were sprayed on 28 March and 13 and 30 April 1990, which corresponded to partial leaf emergence, full leaf emergence and shoot elongation, respectively. Fungicides were applied to runoff with a backpack sprayer equipped with a hand wand. Nufilm-17 was used with all treatments at a rate of 1 tsp/3.17 gal.

Eastern filbert blight has an incubation period of 13-15 mo from inoculation to symptom expression. Canker development was first observed in late spring of 1991. Disease incidence and number and total length of cankers per tree were measured on July 25, 1991. Plots treated with Banner, Elite, Nustar, Nustar plus Benlate, Rally, or Rubigan had significantly ( $P=0.05$ ) lower disease incidence, fewer cankers per tree, and less total canker length per tree than nontreated controls. Recent research has shown that infection of hazelnut by *A. anomala* occurs on vegetative tissues in the period from bud break through shoot elongation. Nustar, Rubigan, and Rally were applied in another experiment in this orchard conducted over the same time frame. In that experiment, treatments were applied on 28 March and 9 April but control of EFB was not satisfactory. Thus, for this experiment, the applications on 13 and 30 April probably contributed significantly to the relatively high degree of disease control that was obtained.

Treatment and rate/100 gal	Incidence of disease <sup>1,2</sup>	No. cankers/tree <sup>1,3</sup>	Total canker length/tree (cm) <sup>1,3</sup>
Nontreated I	93.3a	3.6a	15.0a
Nontreated II	98.2a	3.2a	14.1a
Elite 1.2EC 4.0 fl oz	25.0b	0.5b	1.5b
Rally 40W 2.5 oz	25.0b	0.5b	1.9b
Nustar 20DF 2.0 oz	6.6b	0.2b	0.3b
Rubigan 1EC 4.0 fl oz	1.7b	0.1b	0.5b
Nustar 20DF 2.0 oz + Benlate 50W 0.75 lb	0.0b	0.0b	0.0b
Banner 1.1EC 4.0 fl oz	0.0b	0.0b	0.0b

<sup>1</sup>Treatment means followed by the same letter are not significantly different at the 5% level ( $P=0.05$ ) according to Duncan's Multiple Range test.

<sup>2</sup>Analysis of Variance was based on arcsine (square root (x)). Values presented as back transformed means.

<sup>3</sup>Analysis of Variance was based on log (x+1). Values presented as back transformed means.

This report contains information concerning experimental use of nonlabeled fungicides on hazelnuts. The results should not be interpreted as recommendations for use. Use of fungicides on commodities for which they are not labeled is against both federal and state law.