HAZELNUT (*Corylus avellana*)
Kernel Mold; *undetermined fungi*

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Effect of fungicides on kernel mold of hazelnut, 2002 - 2003.

The objective of this trial was to determine if kernel mold could be reduced through the use of fungicides. A block of 4 hazelnut selections (379.050, 380.057, 385.013, and 391.001) planted in 1994 on a 10 x 20 ft spacing at the Botany and Plant Pathology Field Laboratory, Corvallis, OR was selected for this trial due to a consistent high production of moldy kernels. Treatments were arranged in a 2 factor randomized design with fungicide treatment as one factor and hazelnut selection as the other factor. Each fungicide treatment was applied to 4 single trees on each of 4 hazelnut selections for a total of 16 trees. Fungicide treatments consisted of either Bravo Weather Stik at 32 fl oz/100 gal water, Flint 50 WG at 1 oz/100 gal water, or Ziram 76 DF at 4 lb/100 gal water. Fungicides were applied on 1 Nov 02 (early leaf fall), 5 Dec 02 (Catkins still closed), 7 Jan 03 (Catkin elongation) and 4 Feb 03 (flowering) at a rate of 100 gal/A. Trees were fertilized with 46-0-0 at a rate of 1 lb/tree on 21 Apr 03. Supplemental irrigation was provided once during the growing season on 29 Jul 03. Insecticides were applied on 24 Apr (Sulforix 3 gal/A) and on 4 Jul (Asana XL 10 oz/A) to control big bud mites and filbert worm, respectively. Nuts were hand harvested off of trees between 3 and 18 Sep 03. A total of 100 nuts were collected from each tree, dried at 110^0F for 72 hours, cracked open and evaluated for tip discoloration (associated with *Ramularia* sp in the past) and/or mycelial growth (associated with *Cladosporium cladosporioides* in the past).

Dormant weather conditions in Western Oregon were variable with below normal rainfall during Nov, Jan and Feb and above normal rainfall during Dec. No significant interactions were detected between the fungicide and hazelnut selection factors. Main effects for fungicide treatment were not significant at the 5% level for either tip discoloration or mycelial growth (Table 1). Main effects were significant for hazelnut selection. Selections 380 and 385 developed significantly more tip discoloration than selections 379 or 391 (Table 2). Selection 379 developed a significantly higher number of nuts with mycelical growth than the other selections. Selection 380 had the highest number of nuts with mycelical growth than the other selections. None of the trees showed any phytotoxicity during the growing season.

Table 1. Fungicide treatment effects on kernel mold.

Treatment and Rate/100 gal water	Tip Discoloration or Decay (% kernels)*	Mycelial Growth (% kernels)*
Nontreated……	21.4	9.3
Bravo Weather Stik at 32 fl oz……	22.1	9.7
Flint 50 WG at 1 oz ……	17.6	11.2
Ziram 76 DF at 4 lb…….	21.3	11.5

* Means were not significantly different based on Fisher's protected LSD (P=0.05).

Table 2. Hazelnut selection effects on kernel mold.

Selection	Tip Discoloration or Decay (% kernels)	Mycelial Growth (% kernels)
379.050……	7.6 a	13.8 c
380.057……	36.5 c	11.5 bc
385.013……	30.7 b	5.9 a
391.001……	7.6 a	10.5 b

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05).