

Early season fungicide use for management of hazelnut kernel mold, 2017.

The objective of this trial was to determine if early spring applications of fungicide could result in less kernel mold at harvest. A block of 4 hazelnut breeding 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 randomized complete block design. Fungicide treatments were applied to 4 single-trees in each of 2 hazelnut breeding selections (379.050 and 391.001). The fungicides Luna Tranquility or Switch were tested on selection 379.050 while the fungicides Rovral 4F and Elevate 50 WDG were tested on selection 391.001. Fungicide treatments were applied using a hydraulic handgun sprayer at approximately 100 psi such that 2 to 4 gal of a spray suspension was applied per 4 trees (109 to 218 gal/A). Treatments were applied on 12 Feb (bloom), 28 Feb, 10 Mar (early bud break), and 23 or 28 Mar (shoots starting to elongate). The orchard floor under trees was cleared and prepared for nut drop using a leaf blower on 15 May and then “floated” on 14 June to remove old nuts and plant debris. There were no applications of herbicides, insecticides, or fertilizer in this block during the trial. Trees were pruned on 22 to 25 May by selectively removing the tallest branch(es) to bring down the overall height of trees. Suckers were cut by hand on 17 Jul. Nuts were allowed to fall naturally onto bare soil. A total of 300 nuts were collected from under each tree on 3 Nov. A set of 200 nuts from each tree was cracked open and evaluated for kernel defects from 3 to 8 Nov. Scoreable “mold” included any kernel with visible mycelial growth.

Spring weather conditions for 2017 were considered cool and wet but with more normal plant growth and disease pressure relative to time of year. Fall rains returned by 21 Oct. Trees treated with Switch or Luna Tranquility had significantly less kernel mold than non-treated trees. Kernel mold from trees treated with Rovral or Elevate was not significantly different from kernel mold found on non-treated trees. No phytotoxicity was observed in trees treated with any of the various materials used.

Hazelnut Selection and Treatment & Rate/100 gal	Time of Application*	Mold (% kernels)**	
Hazelnut Selection 379.050			
Non-treated.....	None.....	35.9	a
Switch at 14 oz/100 gal.....	A, B, C, D.....	25.8	b
Luna Tranquility at 27 fl oz/100 gal..	A, B, C, D.....	25.0	b
Hazelnut Selection 391.001			
Non-treated.....	None.....	34.0	a
Rovral 4F at 2 pt/100 gal.....	A, B, C, D.....	27.4	a
Elevate 50 WDG at 1.5 lb/100 gal....	A, B, C, E.....	24.0	a

* Treatments were applied on A = 12 Feb (bloom), B = 28 Feb, C = 10 Mar (early bud break), D = 23 Mar and E = 28 Mar (shoots starting to elongate).

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