

**Early season fungicide use for management of hazelnut kernel mold in Lewis and Santiam, 2020.**

The objective of this trial was to determine if early spring applications of fungicide could result in less kernel mold at harvest. Treatments were arranged in a completely randomized factorial design in a commercial block of Lewis alternated with Santiam hazelnuts located near Carlton, OR. Factor 1 was cultivar and factor 2 was fungicide treatment. Each cultivar x fungicide treatment consisted of 8 single-trees replicates. Fungicide treatments were applied using a Stihl SR 450 backpack mist blower such that 0.5 to 1 gal of a spray suspension was applied per tree. Treatments were applied on 28 Feb (Lewis 60% bud break, Santiam still dormant), 12 Mar (Lewis 100% bud break, Santiam 15% bud break), 26 Mar (Santiam 85% bud break), 9 Apr (Santiam 100% bud break), and 23 Apr (shoot elongation). The grower’s standard herbicide, insecticide and fertility program was implemented during the course of this trial. Nuts were allowed to fall naturally onto bare soil and collected just prior to first commercial harvest. A total of 400 nuts were obtained from under each tree on 10 Sep. A set of 200 nuts from each tree was cracked open and evaluated for kernel defects within 2 weeks after harvest (16 to 21 Sep). (Note: 1 Santiam tree had too few nuts for this first analysis so an average was used but it did have enough for the incubation on wet soil.) Another set of 200 nuts from each tree was incubated on wet orchard soil within moist chambers where nuts were always in contact with wet soil from 22-24 Sep to 6-8 Oct. Orchard soil was collected from the field and dried by allowing it to sit open in a greenhouse exposed to ambient temperature (60°F) and low humidity. This air-dried soil was placed into moist chambers and saturated by adding water until visibly saturated. Moist chambers were then carefully tipped onto their sides to pour off any excess water. After 2 weeks incubation at ambient room temperature, nuts were cracked open with a hammer and evaluated for kernel defects. Scoreable “mold” included any kernel with visible mycelial growth.

Rainfall for the growing season (Oct 2019 to Sep 2020) was about 10 inches below the 115 yr average while spring and fall rainfall was close to normal. There was no interaction between the cultivar and fungicide factors which allowed pooling of the data to test for main effects. There were no significant differences in kernel mold between cultivars or fungicide treatment at harvest. Lewis has slightly more kernel mold than Santiam after incubation on wet soil for 2 weeks. There were no significant differences in kernel mold between fungicide treatments after incubation on wet soil for 2 weeks. No phytotoxicity was observed in trees treated with any of the various materials used.

Factor	Kernel Mold Incidence (%)*	
	Harvest (10 Sep)	After 2 weeks on wet soil - lab
Cultivar		
Lewis.....	0.8	12.2 a
Santiam .....	0.6	9.9 b
Fungicide Treatment & Rate/100 gal		
Non-treated.....	0.7	11.2
Ziram 76 DF at 8 lb/100 gal.....	0.8	10.2
Approach at 12 fl oz/100 gal.....	0.6	11.8

\* Means followed by the same letter do not differ significantly based on Fisher’s protected LSD ( $P=0.05$ ). Means without letters are not different.

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