

HAZELNUT (*Corylus avellana* ‘Ennis’ and ‘Butler’)
Kernel mold; *undetermined fungi*

J.W. Pscheidt and S.A. Cluskey
Dept. of Botany and Plant Pathology
Oregon State University
Corvallis, OR 97331-2903

Hazelnut storage conditions relative to kernel mold development, 2007.

The goal of this trial was to determine if hazelnut storage conditions before and after rainy weather would affect kernel mold development. A 1 acre block of Ennis hazelnuts with Butler pollenizers (every 3rd tree in every 3rd row) planted in 1986 was selected at the Botany and Plant Pathology Field Laboratory. Nuts were harvested on 26 Sep 07 and 2 Oct 07 by raking nuts into windrows, then placed in wooden tote boxes using a Flory Hazelnut Harvester. A single ¾ filled tote from each harvest date was stored inside a garage sheltered from the weather and another tote was stored outside exposed to rainfall. The four treatments were NOT replicated. A total of 100 nuts were collected from each tote, 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). Evaluations for moldy nuts occurred on 4 and 23 October, 7 and 20 Nov and 5 Dec 07.

Conditions around the state were considered dry up until 28 Sep 07 when fall rains returned to the western region. Harvest on 26 Sep 07 was dry and dusty resulting in generally clean totes. A total of 1.83 inches rain occurred between harvests. Harvest on 2 Oct 07 was slightly muddy and resulted in considerable leaf and twig debris combined with mud clods and soil in the totes. Rainfall from harvest on 2 Oct until 23 Oct was 2.6 in, from 23 Oct to 7 Nov was 0.04 in, from 7 Nov to 20 Nov was 3.33 in, and from 20 Nov to 5 Dec was 4.01 in. Without replication it is hard to make any specific conclusions. However, in general, nuts harvested early had less mold than nuts harvested after the fall rains returned. Nuts processed quickly after harvest generally had less mold than nuts allowed to sit in totes for several week. Nuts harvested early and stored dry had the least amount of mold.

The hazelnut industry already knows the importance of quickly processing (cleaning and drying) harvested nuts for a high quality product. Nuts are generally stored such that totes are protected from rainy weather. The data may help this industry decide (if they have the choice) between harvesting early in dry conditions or allow more nuts to fall from the trees and harvesting late during rainy conditions. From the processor perspective if 5 to 10% of the nuts are left in the trees then harvesting early would help reduce mold. From the grower perspective it would not matter as they would loose as much to mold later when the nuts came down as they would leaving them in the orchard harvesting early.

Treatment*	Kernel Mold (%)**				
	4 Oct	23 Oct	7 Nov	20 Nov	5 Dec
Harvested Dry, Stored Dry	1	0	1	0	1
Harvested Dry, Stored Wet	0	4	0	7	14
Harvested Wet, Stored Dry	0	4	8	11	18
Harvested Wet, Stored Wet	0	8	8	5	12

* Harvested dry = harvested 26 Sep 07 before fall rains; Harvest wet = harvested 2 Oct 07 after 1.83 inches rain.

** Local processor reported an average of 7% mold from the whole lot of nuts.