Studies on Development & Management of Almond Brown Rot, Scab, and Other Almond Diseases in California

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PROJECT SUMMARY

Objectives:

- Evaluate new fungicides, including organic, and fungicide combinations to develop efficacy data based on spectrum of activity, systemic action, and persistence for the following diseases: brown rot, jacket rot, shot hole, gray mold, scab.
- Establish baseline sensitivities of fungal pathogen populations against new fungicides and determine shifts in fungicide sensitivity.
- Evaluate almond genotype susceptibility to foliar diseases that develop naturally in the almond variety orchard at UC Davis (UCD) under simulated rainfall.
- Seek cultural practices and fungicide treatments for reducing hull rot.

Background:

A range of fungal pathogens affecting leaves and fruits can negatively affect tree health and/or yields in almonds in California. This project is a continuing effort to maintain a wide-range of approaches for almond growers to control plant diseases.

The strategy includes assessing the efficacy of new and existing fungicides, avoiding resistance development, better understanding of the biology of the fungi and their interactions with the trees, disease prediction tools, as well as breeding almond trees with resistance to the diseases.

Discussion:

The current effort continues to focus on field and laboratory studies to evaluate new treatments against major foliar and fruit diseases of almond in California. Highly effective single-fungicides and pre-mixtures were identified for the management of brown rot blossom blight, gray mold, shot hole, scab, rust, and hull rot.

Several natural products and a biocontrol compounds were evaluated as alternatives to synthetic fungicides.

This arsenal of treatments will help to prevent the selection and build-up of resistant pathogen populations when applied in rotation or mixture programs. Resistance to date has not been found in almond populations of *Monilinia laxa* (brown rot), *Botrytis cinerea* (gray mold), *Wilsonomyces carpophilus* (shot hole), or *Rhizopus stolonifer* (hull rot), but is common in *Cladosporium carpophilum* (scab) and *Alternaria* spp. against the QoI class of fungicides and in *Alternaria* spp. against SDHI class of fungicides.

In addition, studies were initiated on the management of hull rot, a disease with an increased occurrence in recent years. The most sensitive time for infections to occur was assessed along with potential fungicides for control.

Project Cooperators and Personnel: Helga Förster, Tom Gradziel, University of California, Davis; David Thompson, Dan Felts, and J. Enns, UC, Riverside; Joe Connell, University of California Cooperative Extension Butte County; Roger Duncan, UCCE Stanislaus County; John Edstrom, UCCE Colusa County; Brent Holtz, UCCE San Joaquin County; L. Wade, Arysta LifeScience

For More Details, Visit

- Poster location 34, Exhibit Hall, Session 1; or on the web (after January 2011) at AlmondBoard.com/AICposters
- 2009-10 Annual Report CD (09-PATH4-Adaskaveg); or on the web (after January 2011) at AlmondBoard.com/ResearchReports
- Related Projects: 10-HORT -Gradziel; 10-PATH - Holtz