Determining the Causes, Development and Management of Lower Limb Dieback and Canker Diseases of Almonds

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PROJECT SUMMARY

Objectives:

Lower Limb Dieback (LLD)
- Survey orchards for LLD and determine common characteristics
- Conduct experiments to determine if herbicide drift could be a factor

Canker Diseases
- Survey orchards statewide for cankers resulting from pruning wounds
- Determine susceptibility of wounds to canker cause by Botryosphaeriaceae fungi
- Perform band canker control experiment in the field

Background:

Lower Limb Dieback – Pathogens and irrigation management may both play a factor in development of lower limb dieback. This project led by Themis Michailides is investigating the role of pathogens, while project 10-PATH6-Lampinen is investigating the role of irrigation management.

In 2010, observations suggest fungi infecting roots may be predisposing the limbs to infection by other fungi leading to what we call LLD syndrome. Fungi infecting roots included *Acremonium, Phaeoacremonium,* and *Cylindrocarpon*. These fungi infecting the roots first may be predisposing the limbs to infection (colonization) by other fungi (*Phomopsis* or *Botryosphaeria*) leading to LLD symptoms.

The above are initial observations and more extensive sampling and confirming studies need to be done before making strong conclusions. Growers who have blown over trees with LLD symptoms are encouraged to contact their farm advisors so the trees can be sampled.

To date field studies to determine if herbicide drift causes LLD symptoms are inconclusive, but the trees will be followed.

Canker Diseases – Samples submitted to our lab show that band cankers and other Botryosphaeria cankers were initiated from pruning cuts. Often samples are from young trees and disease is from large cuts made to develop the canopy or from splits in the trunk as a result of vigorous growth. As a rule, the young trees are vigorous and fast growing and the cankers can grow rapidly to kill trees. Older trees are not as susceptible.

In addition, *Eutypa* and a wood rotting fungus have also colonized splits in trunks and broken scaffolds. Therefore, the disease that was known as band canker thought to be caused by *Botrysphaeria dothidea* is now considered to be a very complex disease with multiple causal agents, new phases and new infection sites.

Fungicide treatment of young trees in an orchard where band symptoms were low neither reduced existing symptoms nor protected trees from further infection. Fungicides were painted on with latex paint. As the trees age, they have naturally become more resistant to disease.

Project Cooperators and Personnel: Cooperating Personnel at Kearney: D. Morgan, R. Puckett, H. Reyes; Cooperating UC Farm Advisors: Bob Beede, Rick Buchner, Joe Connell, Carolyn DeBuse, Roger Duncan, Brent Holtz, David Doll, John Edstrom, Bill Krueger, Elizabeth Fichtner, Franz Niederholzer, Paul Verdegaal; Cooperating UC Researchers: Jim Adaskaveg, Bruce Lampinen, Greg Browne; Cooperating Pest Control Advisors: Wes Asai, J. Post, D. McCoy, Robert Sanders

For More Details, Visit

- Poster location 19, Exhibit Hall, Session 1 at the conference; or on the web (after January 2011) at AlmondBoard.com/AICposters
- 2009-10 Annual Report CD (09-PATH5-Michaildes); or on the web (after January 2011) at AlmondBoard.com/ResearchReports