Lower Limb Dieback in Almonds

Project Leader: Bruce Lampinen
Dept. of Plant Sciences, University of California, Davis, One Shields Ave., Davis, CA 95616
(530) 752-2588, bdlampinen@ucdavis.edu

PROJECT SUMMARY

Objectives and Background:

- This is one of two continuing projects working to determine the factors causing lower limb dieback (LLD) and working to develop methods to overcome the problem.
- The focus of this project led by Bruce Lampinen is on the role water management plays in lower limb dieback, while the focus of Project 10-PATH5 led by Themis Michailides is the role pathogens play.
- In 2007-08 this project monitored soil moisture and tree water status in 5 orchards with a history of LLD. In 2009-10 the objective has been to set up a differential irrigation trial in an orchard with LLD.

Discussion:

Work to date indicates both pathogens and irrigation management may both contribute to development of lower limb dieback.

Results of this project led by Bruce Lampinen continue to support a hypothesis that water management plays a role in development of lower limb dieback. All of the 5 orchards monitored had excessively wet conditions early in the season. This was indicated by plant based monitoring using pressure chambers measuring midday stem potentials. These measurements showed conditions in these orchards early in the season were wetter than the fully watered baseline.

These early season wet conditions lead to shallow rooting and sensitivity to water stress as the season progresses. In fact, measurements done in the monitored orchards during the times there was a rapid drop in soil shallow moisture support this. Trees in these orchards become stressed at soil moisture levels that would normally be considered adequate.

Water management has been a problem in all of the lower limb dieback orchards monitored. Growers experiencing LLD problems in their orchards should make sure that irrigation management is not a problem. It is important to point out that it would be difficult to manage water optimally in these orchards without a combined approach using soil and plant based measurements.

Project Cooperators and Personnel: Themis Michailides, University of California Kearney Ag Center; Jim Adaskaveg, University of California, Riverside; Greg Browne, USDA/ARS – UC Davis; Joe Connell University of California Cooperative Extension, Butte County; Roger Duncan, UCCE, Stanislaus Co., Paul Verdegaal, Brent Holtz, UCCE San Joaquin Co.

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For More Details, Visit

- Poster location 25, Exhibit Hall, Session 1 at the conference; or on the web (after January 2011) at AlmondBoard.com/AICposters
- 2009-10 Annual Report CD (09-PATH6-Lampinen); or on the web (after January 2011) at AlmondBoard.com/ResearchReports