

Real-Time Weather Monitoring for Frost-Protection Sprinkler Operations in Almond Orchards

Project Leader: Richard L. Snyder

Dept. of Land, Air and Water Resources, University of California, Davis, One Shields Ave., Davis, CA 95616
(530) 752-4628, rlsnyder@ucdavis.edu

PROJECT SUMMARY

Objectives:

- Develop and test an automated computer-based model to monitor real-time weather conditions in orchards as a basis for managing sprinkler operations for frost protection.
- Develop guidelines for using the model to manage sprinkler operations on radiation frost nights.

Background:

A perennial question that besets almond growers seasonally is whether to use sprinklers to protect against frost, and when to turn the frost protection system on and off.

Making poor decisions about sprinkler usage can lead to significant crop losses. Not protecting or turning on too late has obvious consequences.

Running a frost protection system more than necessary results in excessive energy consumption, the potential for waterlogged soils, and a potential increase in disease pressure.

This project is designed to assist growers in making prudent decisions about sprinkler usage for frost protection. It calls for developing a customized computer model for tracking and estimating wet-bulb temperature trends during radiation frost nights. The field data will be transferred real-time and the model will adjust as updated meteorological information becomes available.

The model will provide guidance on whether to use sprinklers and, if used, when to start and stop them. Temperature and dew point forecast data are either input directly or downloaded from the National Weather Service to develop an initial temperature trend forecast. Then, field data for the model are automatically transferred using hardware or wireless technology from a remote, sensor-equipped weather station to a computer to update forecasts during the night.

Project Cooperator: Joseph H. Connell, University of California Cooperative Extension, Butte County

For More Details, Visit

- Poster location 7, Exhibit Hall, Session 2; or on the web (after January 2012) at AlmondBoard.com/AICposters
- Project Progress Report on 2010 – 2011 Annual CD (10-HORT10-Snyder); or on the web (after January 2012) at AlmondBoard.com/ResearchReports