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

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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 them on and when to turn them off.

Making poor decisions about sprinkler usage can lead to significant crop losses. Insufficient usage has obvious consequences. Under severe conditions, it is better not to use sprinklers. Excessive usage can lead to excessive energy consumption and possibly waterlogged soils and eventually to shortages of irrigation water.

This project is designed to assist growers in making prudent decisions about sprinkler usage. It calls for developing a customized computer model for tracking and estimating wet-bulb temperature trends during radiation frost nights. The 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, starting and stopping them.

Data inputs for the model will be provided by a remote, sensor-equipped weather station set up at an orchard location. The data will travel to the computer by wireless or wire.

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

For More Details, Visit

- Poster location 9, Exhibit Hall, Session 3; or on the web (after January 2011) at AlmondBoard.com/AICposters