

Mechanical Hedging to Manage Mature Almond Orchards

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PROJECT SUMMARY

Objectives:

This study is designed to assess the impacts of an unhedged control versus four different levels of hedging on midday canopy light interception and yield. Current year objectives are:

- Conduct pretreatment measurements of midday canopy light interception and yield in 2013 season
- Hedging treatments will be imposed in November or December 2013

Background and Discussion:

Density of California almond planting has been increasing in a linear fashion from about 80 trees per acre in the early 1980s to 112 trees per acre in 2012. 112 trees per acre corresponds to a spacing of approximately 15 x 21 feet. However, when you consider that there are still many traditional planted orchards embedded in those statistics, the average new orchard is likely being planted at even higher densities than 15 x 21 feet. Although orchards at these close spacings tend to come into production earlier than those at more traditional spacings, there are often problems with lower canopy shading and difficulty with getting adequate sunlight to the orchard floor to dry the nuts at harvest as they mature. This likely results in increasing food safety risk suggesting there is a tradeoff between maximum production and food safety risk in almond. Recent recommendations from the author suggest that orchard photosynthetically active radiation interception at maturity should not be above 80%. This should still result in a yield potential of about 4000 kernel pounds per acre.

This is substantially higher than the statewide average per acre yield of about 2500 kernel pounds per acre in 2012. This suggests that crowding related issues will continue to increase in the years ahead as average tree density continues to increase.

The current study is designed to assess the impacts of an unhedged control versus four different levels of hedging on midday canopy light interception and yield in a 13 year old orchard with 50% Monterey, 25% Nonpareil, and 25% Wood Colony. Yield data will be collected on Nonpareil only. Trees are planted at a spacing of 21' x 24'.

Preliminary light interception data showed light interception levels were just below 80% and that there were no significant differences across the orchard before treatments were imposed. 2013 season yield data had not been processed at the time this report was written.

Hedging treatments will be imposed in November or December 2013 and simulated hedging will be done. Impacts of the hedging treatments on yield and midday canopy light interception, midday stem water potential (approximately every 3 weeks) and yield/quality data will be collected in 2014. Quality of nuts at the upper and lower portions of the canopy will be assessed by sampling nuts from these locations before the time of shaking. Frequency of hedging treatments will be determined based on growth of regrowth during the 2014 season.

Project Cooperators and Personnel: Sam Metcalf, University of California, Davis; Paramount Farming Co.

For More Details, Visit

- Poster location 48, Exhibit A and B during conference; or on the web (after January 2014) at www.almondboard.com/researchreports
- Related project: 13-HORT13-Lampinen