Field Evaluation of Almond Rootstocks

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PROJECT SUMMARY

Objectives:

This project evaluates the field performance of several alternative rootstocks. It encompasses six different trials planted in different almond growing locations in California. These locations present different production challenges and include the following:

- Evaluate alternative rootstocks irrigated with low quality (saline) irrigation water in low pH sandy soil (Merced County) and in high pH, loamy clay soil (west side, Stanislaus County).
- Evaluate alternative rootstocks under high boron conditions (Yolo County).
- Continue evaluation of alternative rootstocks for tolerance to Armillaria root and crown rot (Butte & Stanislaus Counties).
- Continue evaluation of variety compatibility with rootstocks for almond, particularly compatibility with Nonpareil.
- Continue evaluation of alternative rootstocks in a sandy, unfumigated replant location (Stanislaus).

Background and Discussion:

Rootstocks are literally the foundation of California's almond industry. Most of the commercial almond trees grow atop two specific peach rootstocks, Nemaguard and Lovell. These rootstocks have some very positive attributes but also have some well-known weaknesses. Both perform poorly in heavy, alkaline soils and are susceptible to Phytophthora, oak root fungus, crown gall and other diseases. Nemaguard is also susceptible to ring nematode and bacterial canker while Lovell is highly susceptible to rootknot nematode.

Although a third rootstock, Marianna 2624, is in standard use in areas with heavy or Armillaria-infested soils, it has low vigor, suckers profusely, it can fail under replant conditions, and is incompatible with Nonpareil and other varieties.

One major component of this long term project consists of a broad-based effort to improve and expand the almond industry's stock of alternative rootstocks. It includes the evaluation of candidate stocks, including some from Europe and Asia, under California conditions. Through these trials, our understanding of newer rootstocks, like Viking, Atlas, Krymsk 86, and a list of peach almond hybrids is increasing.

This evaluation process involves a number of separate rootstock trials by UC Cooperative Extension personnel including Joe Connell (Butte County), Brent Holtz (San Joaquin County), Roger Duncan (Stanislaus County), David Doll (Merced County), and Franz Niederholzer (Colusa and Sutter/Yuba Counties). These individual trials target specific conditions and the project objectives as outlined.

Project Cooperators and Personnel: Joseph H. Connell, UCCE - Butte County; Franz Niederholzer, UCCE - Colusa County & Sutter/Yuba Counties; Stan Cutter, Leslie J. Nickels Trust; David Doll, UCCE - Merced County; Brent Holtz, UCCE - San Joaquin County

For More Details, Visit

- Poster location 67, Exhibit Hall A and B during conference; or on the web (after January 2014) at www.almondboard.com/researchreports
- 2012.2013 Annual Report CD (12-HORT4-Duncan); or on the web (after January 2014) at www.almondboard.com/researchreports
- Related Projects: 13-HORT10-Gradziel; 12-HORT16-Aradhya/Ledbetter; 12-PATH7-Baumgartner; 13-PATH1-Browne