Assessment, Survey, and Documentation of Challenges Facing the Almond Industry in Kern County

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Introduction

California is considered the number one producer of almond, which is one of the most important crops in California ranking in the first place. The bearing acreage in Kern county significantly increased reaching 210,000 acres in 2015. The economic value of almonds in Kern County in 2015 was estimated at approximately $1453 accounting for much of production in the southern San Joaquin valley. understanding challenges and evaluating the industry needs for research and educational programs will help address those needs to improve almond production in Kern County.

Objectives and Procedures

The objective of this project is to assess research and educational needs, and document challenges facing the local almond industry in Kern County using a survey in collaboration with the almond industry and growers in Kern County. understanding challenges and evaluating the industry needs for research and educational programs will help address those needs to improve almond production in Kern County, and keeping the almond growers and industry in Kern and Kings Counties competitive and up to date on the latest research issues.

A survey has been prepared and responses being recorded during farm calls and grower meetings. information is being collected from farm visits and direct interactions with growers, managers, and PCAs/CCAs and some of the information collected is presented.

Preliminary Results

Case 1: Bacterial spot of almonds caused by *Xanthomonas arboricola* pv. *pruni*

During the months of April and May, I received several calls regarding gumming on almond fruits in several parts of Kern county. Samples were collected and sent for diagnosis at UC Kearney Ag center. The results from some of the samples confirmed late season infections with Botrytis (the causal agent of jacket rot) Figure 1A. Later in May, however, I collected a sample from an orchard in southern Kern County with extensive amber-colored gum exuding from spots (lesions) on the hull of infected Fritz variety (Figures 1B and 1C). The disease was first confirmed in Kern County in 2013, and we confirmed it only from one orchard in 2016 during many orchard visits this season.

Figure 1. A. Late season Jacket rot of almond fruits. B and C Bacterial spot on almonds (cv. Fritz) in Kern County.

Preliminary Results

Case 2: A farm call during the bloom season 2015 regarding deformed pistils predominantly on Nonpareil blossoms (Figure 2). This was also observed in an experimental plot as well in the UCCE Kern Co. experimental orchard. A quick survey was done at UCCE Kern Co. experimental orchard in Shafter, CA by randomly collecting 10 branches from Nonpareil and Monterey cultivars and evaluating 10 blossoms for pistil deformation. We found that 80% and 44% of the blossoms of Nonpareil and Monterey respectively had deformed pistils (Figure 3).

Did this affect fruit set and yield? Fruit set at the experimental orchard looked normal (Figure 4) and there was no effect on yield in experimental plots in a commercial orchard.

Figure 2. Deformed pistils observed during 2015 on Nonpareil and Monterey cultivars

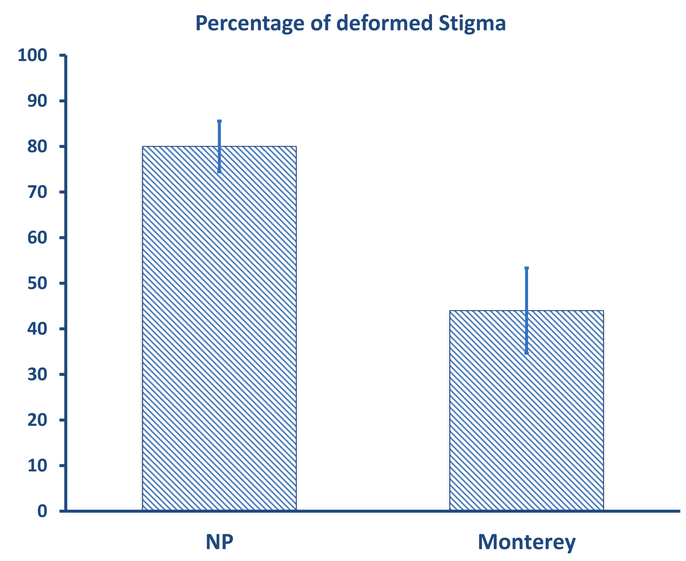

Figure 3. Percentage of deformed pistils in Nonpareil and Monterey cultivars

Figure 4. fruit set of blossoms with deformed pistils in Nonpareil and Monterey cultivars

Examples of Major Challenges to growers in Kern Co.

- Boron Toxicity on almond in Kern County (Figure. 5A)
- Herbicide Toxicity (Figure. 5B)
- Canker diseases (Figure. 5C)
- Hull Rot (Figure. 5D)
- Alternaria leaf spot (Figure. 5E)

Figure 5. Documentation of the challenges that face almond growers in Kern County.

Current Projects

whole orchard recycling (WOR) trials and anaerobic Soil Disinfestation (ASD)

The orchard systems program at UCCE Kern Co. is a major participant and collaborator on this project to look at the effect of WOR and ASD using rice bran and almond meal on tree and soil health such as replant disease, nematodes, etc. There are two experiments in two sites.

Figure 6. Anaerobic soil disinfestation (ASD) using almond meal.

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