

Field Day: Fresno County

Title: Spring Almond Nutrient and Water Management Field Day

Exact Location: Chandler Farms - West of McCall on Adams Avenue (Del Rey, CA)
(36.63425, -119.613639)

Timing: Tuesday, March 14th (8:30-12:30pm)

9:00-9:30

1. Welcome! Grower/management conversation about goals and practices

Description: This session will 1) provide the method of developing the farm's almond nutrient plans, 2) describe how and when nutrients are applied, 3) discuss the results of the farm's nutrient and irrigation plan and implementation with detail about the farm's irrigation scheduling procedure.

Bio: Patrick Brown, Mae Culumber and Tom Chandler, farm owner.

9:30-9:50

2. ABC Overview and Almond Sustainability Program (large group talk)

Description: The ABC Overview and Almond Sustainability program will be an overview of the current industry as well as look at why being involved in the Almond Sustainability Program is so important to the entire supply from the grower to the consumer.

Bios: **Spencer Cooper** is the Senior Manager of Irrigation and Water Efficiency with the Almond Board of California. He works with growers on increasing water efficiency through adoption of irrigation technologies. Spencer also works with growers on the California Almond Sustainability Program.

Rotating Stations (10:00-12:30) each 30 minutes.

3. Soil and water testing for planning and feedback

Description: This station will explain when, where and how to take annual soil and water samples for nutrient management planning.

Bio: **Mae Culumber** is the Nut Crop Advisor in Fresno County, assisting the almond, pistachio, and walnut farming communities.

4. Forward tissue sampling and overview of BMP trials to manage N and water

Description: Dr. Brown will present results from trials in Almond contrasting different approaches to N management and the implementation of the improved nutrient management protocols (early leaf sampling, yield based nutrient forecasting, 4 R's nutrient management).

Patrick Brown is Professor of Plant Nutrition at the University of California, Davis specializing the management of nutrients in Almond, Walnut and Pistachio. With 30 years of experience at UC Davis, Dr. Brown has been at the forefront of research to increase the efficiency of nutrient use in orchards.

5. Barriers to Adoption of Nitrogen Management Practices

Description: This group share findings from grower surveys on nitrogen management collected by UC Davis in winter 2017 in the northern Central Valley. We will discuss nitrogen management practices and barriers to adoption of those practices. This will be an interactive session in which we facilitate conversation between participants on how these barriers may be experienced in their own operations.

We will discuss the next stages in our research project, that includes a large survey UC Davis is fielding in 2018 to ask growers across the Central Valley about barriers and motivations to adopting N management practices, including fertilizer, soil and irrigation management practices, and their experiences with education, outreach and policy around N management.

Bio: **Sat Darshan S. Khalsa** is a Project Scientist in the Department of Plant Sciences, UC Davis.

6. High Frequency Low Nitrogen (HFLC).

Description: Growers face emerging regulatory requirements to minimize nitrogen fertilizer use and to monitor impacts on groundwater quality. In this session, we will talk about a ongoing trial aimed to improve groundwater sustainability using "high frequency low concentration" (HFLC) fertigation in orchards, and by performing a comparative assessment of three monitoring models that measure nitrate loss to groundwater: 1.mass balance (NUE), 2.water and nitrogen flux monitoring in the vadose zone, and 3. groundwater quality monitoring.

Bio: **Hanna Ouaknin and Thomas Harter.** Hanna Ouaknin is a Post. Doc. Hydrologist working with Professor Thomas Harter to reduce groundwater nitrate leaching using High Frequency Low Nitrogen fertigation practices.

7. Nutrient management in first year recycled orchards

Description: The grinding and incorporating into soil of whole almond trees, during orchard removal, could provide a sustainable practice that enhances both air and soil quality. This session will be located across the street from Chandler Farms where a trial has been established in a first year orchard after being recycled. Nitrogen dynamics as well as soil and plant nutrients corresponding to fertigation and irrigation events in recycled and conventional orchards will be discussed.

Bios: **Mae Culumber** is the Nut Crop Advisor in Fresno County, assisting the almond, pistachio, and walnut farming communities. **Brent Holtz** is the County Director and Farm Advisor for the Cooperative Extension in San Joaquin County.