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Submitted by:

**Luke Milliron**  
UCCE Farm Advisor Butte, Glenn, Tehama Counties

## 2024 Sacramento Valley Orchard Meeting Save the Dates!

Th Jan 18, 12 - 2 PM	<b>NEW!</b> Third Thursday Things in the Field*	Orland, CA
Tue Jan 30, AM, Time TBD	Colusa Winter Almond Meeting	Arbuckle Golf Club Arbuckle, CA
Wed Jan 31, 7 AM - Noon	North Valley Nut Conference	Silver Dollar Fairgrounds Chico, CA
Th Feb 1, 7:30 AM - Noon	Northern Sacramento Valley Prune Day	Elk's Lodge Red Bluff, CA
Tue Feb 20, 7:30 AM - Noon	Northern Sacramento Valley Olive Day	Orland, CA
Th Feb 22, 7:30 AM - Noon	Northern Sacramento Valley Walnut Day	Elk's Lodge Red Bluff, CA
Tue Feb 27, AM, Time TBD	Southern Sacramento Valley Prune Day	Sutter County Ag Yuba City, CA

\*Starting in 2024, the recently-expanded Sac Valley Orchards team will host a regular meeting every Third Thursday of the month to provide timely updates on current orchard topics and to engage with clientele in the Sacramento Valley. The meeting location will alternate monthly between Glenn County and Sutter-Yuba Counties. The January topic and more details will be announced post-harvest.

### Tomato Following Walnut: Considerations and Tips

*Patricia Lazicki UCCE Vegetable Crops Advisor for Yolo, Solano, and Sacramento Counties*

Walnut prices have greatly declined in recent years. As a result, we're seeing walnut orchards pulled with the expectation that several thousand acres may be removed over the coming years. Some of that ground will be going into tomato.

There are some concerns about growing tomatoes on old walnut ground, but very little formal research exists in this area. To support grower decision-making in the absence of this information, I reached out to processors and growers for their thoughts on how to make the transition successfully.

**Processors' concerns**

Old walnut ground presents some special challenges for tomato harvest. I spoke with representatives from several canneries to get their thoughts on what to be aware of, and tips for avoiding expensive problems.

**What are some of the issues you've seen with harvesting and processing tomatoes that have come out of walnut:**

Woody material can both slow down the harvest and end up in the load. Canneries have zero tolerance for woody materials, as they can damage processing equipment, plug sieves, and can cause plant shut-down for cleaning. Nuts in the load will also cause it to be rejected, as potential allergens. Roots are especially an issue, since a field may look clean but have many roots below the surface that will be brought up by the harvester. Roots may also not be recognized by the dirt sorters. If detected as MOT (material other than tomato), large wood chunks mean a big deduction for the grower. Wood or nuts not showing up in the Processing Tomato Advisory Board (PTAB) sample but detected while the load is being dumped can lead to the load not being processed. As well as being a financial hit for the grower (\$138/ton\*26-ton trailer= \$3,588 if reconditioning isn't an option), rejected loads also mean more scrutiny in the future.

**How does walnut differ from almond or other crops that leave woody residue?** Sunflower, corn, and tomatoes can also leave woody residues in the field. However, woody orchard debris break down more slowly in soil. It can also be less likely to float, making it harder for the processor to sort it out from a load. Walnut orchards are more challenging than almonds as roots can be larger (a 40-year-old orchard can have roots that are 12 feet long and 8 inches in diameter). Large pieces are especially dangerous as they're the most liable to break equipment. They also take more labor to remove and persist longer in the soil.

**Have you worked with any fields where the biomass has been chipped and then returned to the soil? Are there any special considerations for these fields?**

This practice isn't common, so no specific advice. It would probably depend on how finely the material is chipped. Likely, if chips end up on the harvester they will be more difficult to sort out than roots and more likely to migrate to the top of the load, therefore they are more likely to show up as MOT.

**Any tips for growers to avoid costly penalties?**

- Consult first with the processor. Consider growing another crop before putting in tomato.
- Due diligence in root removal. The more labor put in on the front end, the cleaner the loads will be at harvest.
- If tomato is the first crop after a walnut orchard, consider hiring extra sorters to help prevent woody material from entering the load.

***Grower Experience***

Bullseye Farms is a large Yolo County operation that has experience successfully transitioning fields from walnut to tomato. Their take is that it's expensive and laborious to clean the ground well, but they haven't had problems with the harvest. Higher yields (likely due to low disease pressure) will make it profitable over time.

**How do you remove woody materials from the fields?** Push the trees over, grind them up, and haul the biomass off. After this, run a ripper through to 2.5 feet and have hand crews pick up the roots, repeat until the field is clean. It's a significant cost; about \$850/acre in labor on top of the cost of the ripping, grinding, and hauling (\$1400-\$1500/acre). The older the orchard is, the more laborious it will be to remove the roots.

**What are some issues to watch for when transitioning ground from walnut to tomato?**

- **Pre-emergent herbicides** used in orchards can have plant-back restriction periods of up to 18-20 months; it's important to check the dates and products used.

- **Nutrient tie-up** hasn't been a problem when the field was well cleaned and biomass was removed. Fertility needs haven't differed so far from those of other fields. However, tie-up will likely be more of an issue if chipped biomass is returned to the field.

**Any issues that you have had or would foresee where the biomass has been chipped and incorporated?** So far, all biomass has been removed. In one field, piles of chips from an orchard that was ripped out in January sat from June to October before removal. In a tomato crop planted the following April, there were poorly performing patches in the areas where the piles had been placed. However, it was unclear if this was due to allelopathy (live walnut trees produce a chemical called juglone that has a negative effect on tomatoes planted near them), nutrient tie-up, or some other cause. The Yolo-Solano Air Quality District Agricultural Chipping Program is offering monetary incentives to use chips on-farm, and there are plans to experiment next year on a limited scale.

**How have you seen this transition be most successful?** Just put in the labor to really get the roots out and be cautious about incorporating materials.

#### ***Take-home points***

- Tomatoes have been successfully grown directly following walnut.
- There are risks, and it's important to put in the work after orchard removal to avoid problems at harvest.
- If planning to follow walnut with tomato, it could be a good idea to discuss with the processor how you plan to clean the field.
- Allowing a transition period of 1-2 years before planting tomato in old walnut ground will reduce the associated risks.

For more information, please contact Patricia Lazicki at 530-219-5198 or [palazicki@ucanr.edu](mailto:palazicki@ucanr.edu)

## **Introducing a Butte County Walnut Variety Trial**

*Becky Wheeler-Dykes, Orchard Systems and Weed Ecology Farm Advisor, Glenn, Colusa, and Tehama Counties*

A ten-acre Butte County Walnut Variety Trial was planted at the Chico State Farm in May of this year. A collaboration between Chico State, UC Davis Walnut Improvement Program, and UC Cooperative Extension, this variety trial aims to identify new varieties that will perform exceptionally well in this region. The orchard is being managed using conventional practices that are currently industry standard for Chandler production. Eighteen new selections developed by the UC Walnut Improvement Program are planted in the replicated trial, along with Solano, Wolfskill, Howard, and Chandler. All trees are planted on RX1 rootstock on a 26' X 26' spacing with micro-sprinklers. The selections were chosen for qualities including kernel color and size, yield, blight ratings and late flowering dates in preliminary greenhouse and small plot field trials. Early bearing, long-term yield and nut quality, resistance to and avoidance of walnut blight, as well as heat tolerance will be monitored over the next several years.

Generous support from the Walnut Board of California, Sierra Gold Nurseries, Crain Ranch, M&T Chico Ranch, and the staff and management at the CSUC University Farm made this project possible. Additionally, the variety trial was recently awarded funding by the CSU Agricultural Research Institute, which will support ongoing field operations, student involvement and training on the farm, and data collection and testing in the field. We will provide periodic updates on

the progress of the variety trial and host field meetings in the years to come, but if you'd like to learn more please contact Clarissa Reyes, Orchards Farm Advisor based in Yuba/Sutter Counties at [clareyes@ucanr.edu](mailto:clareyes@ucanr.edu) or Becky Wheeler-Dykes, Orchard Systems and Weed Ecology Farm Advisor based in Glenn County at [bawheeler@ucanr.edu](mailto:bawheeler@ucanr.edu).

## New Orchard Advisor Introduction

*Ryan Hill; UCCE Weed Science and Agronomy Advisor; Tehama, Shasta, and Glenn Counties*

My name is Ryan Hill and I am the new UC Cooperative Extension Weed Science and Agronomy Advisor for Tehama, Shasta, and Glenn counties.



My education and professional background is in weed science and plant genetics. I received a B.S. in Biology from George Fox University in 2014 and an M.S. in Plant Breeding and Genetics from the Department of Horticulture at Oregon State University in 2020. Following graduation with my masters, I took on a faculty research assistant role in Dr. Marcelo Moretti's perennial weed science lab at OSU. In this role I conducted weed research in horticultural crops including several projects on herbicide-induced crop injury. Additional projects included sucker control in hops and hazelnuts, pollinator habitat establishment with pre-emergent herbicides, and electrical weed control of Italian ryegrass.

My family and I have already been blessed by the welcome we have received since we arrived in Tehama county. I look forward to meeting as many members of the walnut-growing community as I can in the coming months. Currently my main objective is to learn as much as I can about weed control in walnuts and identify areas where research and extension can make a difference in the day-to-day operations of growers. I encourage you to reach out with ideas, requests, or questions relevant to

weed science or agronomic crops as I develop priorities to pursue in my new position. You can reach me at [rjahill@ucanr.edu](mailto:rjahill@ucanr.edu) or (530) 527-3101.

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