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### Submitted by:

**Clarissa Reyes**  
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Sutter, Yuba, Butte, Placer Counties

## Walnut Management Considerations- Budbreak through Early Summer

*Jaime Ott, UCCE Orchard Advisor, Tehama, Shasta, Glenn, and Butte Counties*

*Clarissa Reyes, UCCE Orchard Advisor, Sutter, Yuba, Butte, and Placer Counties*

*Luke Milliron, UCCE Orchard Advisor, Butte, Glenn, and Tehama Counties*

As we endure another year of high input costs and low prices, we've tried to whittle our considerations to the highest priority issues and tasks that will give an adequate return on your investment of time and products, rather than enumerating best practices to create a beautiful, pristine orchard.

### Mid-April

- With adequate rainfall in early 2024 soil rootzones are recharged. With adequate moisture already, spring storms can lead to waterlogging and infection by *Phytophthora* species. Take photos to document any flooding in your orchard. Check out the Flood Damage articles available at [SacValleyOrchards](http://SacValleyOrchards) for more information.
- Keep an eye on the weather to prepare for a potential [spring freeze](#). If a freeze is in the forecast, ensure that your orchard soil is moist, and that any groundcover is mowed to below 2". This allows sunlight to heat the orchard floor during the day, warming the orchard at night. Running sprinklers during the frost can also provide some protection.
- Scout for limbs killed by [Bot canker](#), which are easy to identify between budbreak and full leaf expansion. Wait to prune out this dead wood until there is no longer rain in the forecast.
- If last year's leaf analysis indicated zinc deficiency, apply foliar zinc when shoots are 6-10 inches long, when zinc can easily be absorbed by the leaf surface. This will ensure the maximum benefit from your investment. Blends with additional micronutrients will likely not show a return for the additional cost. Zinc is critical for carbohydrate production that leads to nut fill and stress responses that can avoid other quality issues. It's worthwhile to correct a deficiency, but for orchards that are not deficient, a spray is probably not worth the investment this year.
- If you're going to invest in applying water and nutrients this year, make sure it will get where it is needed through irrigation system maintenance. Check your irrigation system and [address maintenance issues](#) now, before they cause tree stress and reduced yields, and before expensive nutrients get concentrated in some zones and shorted in others. Check for broken or clogged emitters, splice new line into sections with temporary repairs from last season, and replace/refill filter media if needed. Contact your county's Resource Conservation District Mobile Irrigation Lab for a free assessment of your irrigation system.

## May

- Time first and subsequent irrigations to when trees reach mild stress levels. If using a pressure chamber, wait to begin irrigating until stem water potential is 2-3 bars drier than the baseline. If relying on ET information, allow ET totals to accumulate to 3 to 5 inches greater than rainfall received after leafout and monitor soil moisture by feel with a soil auger. The soil moisture should at least show significant drying into the first and second foot of soil in the rootzone to trigger the first irrigation. Ongoing research has found that irrigation can be delayed until late May or even June in some years, saving water and pumping costs (e.g. \$50-\$100/ac) with minimal or no effect on nut yield, size, and quality. This can also improve [root development](#) and water uptake later in the season. Refer to a recent [Growing the Valley Podcast episode](#) for more information.
- May is the time for an initial nitrogen application, but only if necessary. Given the high cost of nitrogen, this is an important year to consult last year's leaf nitrogen results before investing in additional fertilizer. Research in the 1980s indicates that trees have a large buffer of nitrogen than can help supply a large portion of the nitrogen budget to muddle through these high cost, low price times. See this article on [considerations for skipping or shorting nitrogen](#).
- Consider adapting your [IPM program to find some cost savings](#), emphasizing control of direct pests that will lower your grade quality (i.e. codling moth, husk fly, NOW, mold) rather than indirect pests like scale. Monitoring for pests is less expensive than treating for pests you don't have. See this article on [prioritizing sprays](#) for more information
- Walnut blight remains a concern through May. Advisors received a number of calls about [late-season blight](#) last year, so consider the amount of inoculum in your orchard, and check the [Xanthocast](#) model to decide if you can skip a spray. The first blight spray should be when 30-40% of the buds reach the "prayer" stage, and follow-up sprays should be applied every 7 to 10 days if rainfall continues. If you are going to skip any walnut blight sprays the later ones are the ones to skip – research has shown that the first two sprays at the start of the season are the most critical and each spray after has reduced impact. For each spray, follow a rotation using the four registered materials available for [walnut blight management](#). Check with your PCA if including recently registered Dodine in place of Manzate may save costs this year. Make sure that your sprayer is [calibrated](#) and that you spray every row—if something isn't covered, it isn't protected.
- Survey weeds to assess the efficacy of your fall and winter weed control treatments. Use the [UC Weed ID Tool](#) for identification (select California in the upper right corner), and the [Herbicide Chart](#) for weed control information.

## June

- Monitor stem water potential or soil moisture to avoid overwatering. If using a pressure chamber, continue to wait to begin irrigating until stem water potential is 2-3 bars drier than the baseline. If relying on ET information or soil moisture, consider using [drought irrigation strategies](#) to achieve cost savings while minimizing yield impact. Avoid long irrigation sets that lead to standing water and increased risk of *Phytophthora* infection.
- Hang walnut husk fly traps by June 1<sup>st</sup>. Yellow sticky traps charged with an ammonium carbonate lure work best. Check traps 2-3 times per week and treat based on detection of eggs in trapped females, overall trap catch numbers, or the first flies caught depending on the [spray material used, husk fly population, and previous damage](#).

- Continue monitoring codling moth traps to determine subsequent biofixes. Use trap catches, dropped nut evaluation, canopy counts, and orchard history to determine the need to [treat the second flight](#).
- Spider mite treatment might not be worth the investment in all circumstances this year, but if forgoing treatment leads to severe defoliation, sunburnt nuts, and decreased quality ratings, it may still pencil out. If necessary, monitor for [spider mites and their predators](#) weekly through August because treatment decisions should be based on thresholds of numbers of mites and their predators. Consider just treating hot spots to avoid severe defoliation while still being cost conscious.

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### **New Advisor Introduction: Domena Agyeman**

I am excited to join the University of California Cooperative Extension as an Agriculture and Natural Resources Economics Advisor. I will be stationed at the UCCE office in Oroville, delivering services to Butte, Glenn, and Tehama Counties. I earned a B.S. in Agricultural Science from the University of Cape Coast in Ghana and an M.S. in Agricultural Economics from Mississippi State University. I obtained a Ph.D. in Agricultural Economics from the University of Kentucky. Prior to my current position, I worked as a Postdoctoral Associate at Virginia Seafood Agricultural Research and Extension Center at Virginia Tech University. My research interests encompass natural resources and environmental policy impact assessments, economic contributions and impacts analyses, producer decision-making assessments, and consumer preference assessments. In my advisor role, I aim to enhance economic viability in agricultural production, forestry, and other natural resources-based businesses, while also promoting broadband access and online resource utilization to support these sectors and contribute to regional economic development.



I am excited to leverage my expertise to highlight the economic contributions and impacts of the agriculture and natural resources industries in Butte, Glenn, and Tehama Counties and to provide producers and other stakeholders in the region with research-based information that will help them navigate their business challenges and opportunities.

I am eager to engage in collaborative learning with all of you and anticipate the opportunity to establish a research program tailored to address your specific needs. Kindly reach out to me with ideas, requests, or questions related to the economics of agriculture and natural resources. I can be reached at [dagyeman@ucanr.edu](mailto:dagyeman@ucanr.edu) or 530-552-5812.

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### **Perspectives on Walnut Economics Panel Discussions: A Recap**

*Clarissa Reyes, Orchard Systems Advisor, Sutter-Yuba, Butte & Placer Counties*

*Jaime Ott, UCCE Tehama, Shasta, Glenn & Butte Counties*

*Becky Wheeler-Dykes, UCCE Glenn, Colusa & Tehama Counties*

In February 2024, the Sutter-Yuba and Tehama Walnut Day meetings featured panel discussions focused on the current economy of the walnut industry. We hoped these panels would address common questions we have been receiving from growers and other industry members. Each panel featured representatives from different industry sectors: Robert Verloop from the California Walnut Board and Commission, Brittney Goodrich from the UC Davis Agricultural and Resource Economics Department, a local grower, and a local processor/handler. The discussions varied slightly at each meeting due to different panelists and audience questions. Still, they shared themes addressing the importance of maintaining walnut quality, marketing to US consumers, and maintaining

international markets. The panels offered useful information about where the walnut industry stands, how it got where it is today, and what to expect for the future. This article is a condensed recap of the discussions.

*The Sutter-Yuba panel included Brian Dunning from ShoEi Foods USA and Davin Norene from Big Time Farming, along with Robert Verloop and Brittney Goodrich.*

**Q: What is the most pressing challenge facing your specific segment of the industry or your operation?**

The panelists agreed that price is the primary concern—current prices are too low to sustain operating costs. Robert touched on challenges with quality and edible yield—too many processors/sellers are selling lower-quality product to make sales.

**Q: What are the notable changes between the 2018 and most recent 2022 cost studies?**

Brittney: Increase in all input costs, including labor, fertilizer, and energy costs for irrigation. High interest rates make the cost of establishing an orchard higher than it used to be. Current break-even prices to cover: Operating costs: \$0.57/lb; Total Costs: \$1.24/lb. Cost studies can be found at <https://coststudies.ucdavis.edu/current/commodities/walnuts>

**Q: How are low prices affecting walnut processors? What changes have you been making to accommodate the prices?**

Brian: Working harder to go out and build relationships with buyers. Chilean handlers have been really good about talking about their products, being out there and checking in with buyers. They have been excellent salesmen, and we need to follow their lead. We are also trying to get rid of inventory so that we don't still have it when Chile's harvest comes into the market (buyers want the freshest nuts, so once Chile's harvest comes around, our crop will be worth less than it is now).

Robert: Over the last decade, Chinese walnut production has increased—they used to be an importer of CA walnuts and are now exporting. However, the quality they are producing is low, so they can't sell into many of the markets we are working in. Input costs in CA are too high for us to be competitive in the low-quality sectors of the market, so it is crucial to focus on maintaining quality, as that is where we can get the price premium required to cover our higher input costs.

**Q: Describe the history/scale of your operation, potentially any other crops you're farming, and how these factors fit into your considerations for farming walnuts.**

Davin: I'm focused on maintaining quality, so it's hard to cut back on inputs. I'm still doing high-input farming - not cutting back on water or sprays - but focusing on increasing efficiency: spreading the fertilizer additions out to reduce loss, and irrigating efficiently so that we don't water more than we need to. Pre-emergents have helped with weed control before it gets out of hand. Canopy management is important to maintain the health of the tree – we're still taking the time and labor to cut out diseased and dead branches so that we reduce the spread of disease and keep healthy branches that will produce good nuts and healthy trees that will stay in production for longer.

**Q: We've received questions from smaller-acreage or older growers about what to do with their current orchards. What should growers consider when deciding whether to maintain/harvest their trees or pull them out?**

Davin: Don't wait for a tree pull program to save you. We really don't know if one will come down the line, but if it does, it likely won't pay to take out old trees. Every grower knows their own operation best and must decide to keep or take out their trees based on whether the numbers make sense to them.

Brittney: There's an Excel spreadsheet included on the cost studies website that growers can use as a tool to help inform these decisions. It doesn't contain everything, but can give a better idea of the big picture.

*The Tehama panel included Chuck Crain from Crain of California and Tyler Christensen from TC Farming, along with Robert Verloop and Brittney Goodrich.*

**Q: What is the most pressing challenge facing your specific segment of the industry or your particular operation?**

Chuck Crain provided a detailed history of how we got into this low price situation:

- Increase in operating costs: up 10% last year, 20% since Covid.
- Increased pressure on growers because commodity prices are not rising with these costs.
- Clonal rootstocks made it easier for everyone to grow trees worldwide, including CA, China, Chile, and Ukraine. We went from a 500,000-ton crop to an 800,000+ crop and then were hit with trade barriers in India in 2019: retaliatory tariff from +33% to +120%.
- Import/export problems from COVID – 70% of demand for CA is from exports, but COVID stopped that and created a holdover.
- Surplus inventory due to Chilean crop growing. As prices fell, buyers became more conservative and pulled back their demand.
- 2022 quality disaster + China crop + Chile high-quality crop à CA entered 2023 with a large carryover of poor quality.
- 2023 quality was good + China crop had frost damage à demand and monthly shipments starting to increase again.
- Retailers were not reducing their prices with wholesale (increasing their profit margins); we lower price to move product at wholesale level, but that doesn't reach consumers.
- Retailers are starting to adjust their prices, which is helping demand grow over the last few months. China's short crop increased our exports to the Middle East.

Right now, the January and February shipments look good. Prices are still depressed, but now there's demand/movement. Global overproduction needs to change. 38k acres were pulled last year, but those were primarily old or non-bearing, so will not have much of an effect on production.

Brittney: same as above - low prices are obviously the biggest challenge facing the industry

Tyler: Trees are a permanent crop, which is a long-term investment.

- We've cut back on some inputs – fungicides, insecticides, hedging cutbacks; fewer replants; hairier orchard floor; less hand labor in harvest, only doing a single pass. With increased supply and reduced price, quality is even more important, so we're not dropping the Ethephon. Water management is important, so can't cut back on that. Cut back to the bare minimum on Potassium. PG&E rewrote their rules after we made an investment in solar, so that hasn't helped much.
- No new equipment, working to maintain what they've got.
- I have savings, but it was hard to save with taxes when times were good. Ideally, we would defer capital to our accounts and pay taxes as we pull it out.



- Regarding oversupply, we should look at prune farmers. I don't feel like tree pull programs work; we should apply prune lessons to the walnut industry

Robert: Prune growers seem split on the success of the tree pull program. On March 13, there will be a meeting to decide whether or not to move forward with a tree-pull program [the tree-pull program was not approved; see the Tree Pull Program Update in this newsletter for more information]

- The walnut industry was built on a distribution model – all walnuts found a home, which attracted acreage. Now, we need to shift and look at how handlers/processors market the crop. Also, we aren't caught up with the current needs – there are still value-added and high-value markets.
- There are too many sellers – we currently have >72 handlers. Good handlers are price setters, but others are just price takers.
- Underserved domestic market – historically, 65-70% of our crop went overseas, and the worst quality was kept for the domestic market. This has reduced our ability to sell “at home” with all of the logistical and regulatory benefits that would provide.

**Q: How are low prices affecting walnut processors? What changes have you been making to accommodate the prices?**

Chuck: It was easy to sell for a while (for years). What creates value? Differentiation and matching product with the right buyers. With a surplus, buyers move toward both higher quality and lower prices. There *is* a market for darker nuts, but not at a price that CA can sustain their production. Don't cut costs so much that it impacts quality.

Handlers with enough capital in the bank can set their price. But for smaller processors, they must accept low prices to make sales, and we're waiting for those suppliers to drop out. High-value products will eventually succeed. Input costs in CA are too high for us to be competitive in the low-quality sectors of the market, so it is crucial to focus on maintaining quality, as that is where we can get the price premium required to cover our higher input costs.

Looking forward: knowing where we've been, where we are going, and how it will improve. CA produces 33% of the walnut supply (it used to be 50%). China's industry has grown, but we don't know how much it has in production. We think they produce ~50% of the world's supply and have 60% meat yield sold at less than CA's production cost.

Chile's harvest is coming up, but we expect a 10% drop, so no carryover. New Chilean pricing is ~\$0.75-0.80 to growers – above CA. Buyers are holding back because they're waiting on CA supply. 2023 crop will be able to compete [with Chile's quality], and we will reduce carryover. We are hoping to increase demand to keep selling both our and Chile's crops. But we don't know how China will recover from their frost-damaged year – sometimes, the following year's crop is big.

**Q: Over the next 3-5 years, what can growers do to improve their economic situation?**

Tyler: Need to acknowledge that handlers can add value to product. Think about your handler's ten-year average [pricing] and pick accordingly. Your responsibility as a grower is to choose a handler who is adding value to your product and the industry, not someone looking to turn over product as quickly as possible at the expense of the industry as a whole. You can change handlers.

Robert: There are too many players with no skin in the game, like brokers and traders. Negotiate with your crop to sell to handlers who are partners in marketing and the industry, not just someone who supplies a commodity. Good examples of handlers who are industry/marketing partners are Blue Diamond with almonds and Wonderful with pistachios—they have both built reputable brands. We need to invest in consumer packaging and value-added products. There are plenty of good handlers who want your crop—shop around.

Brittney: Scrutinize your business decisions: maximizing profit is NOT the same as minimizing cost, and likely not the same as maximizing production. Don't sacrifice where it affects quality.

### **Audience questions from both panels:**

#### **What are we doing to address allergies?**

Many handlers have strict cross-contamination reduction protocols. In the longer term, medical advances are coming into play that would reduce/eliminate nut and other food allergies.

#### **Why have I seen commercials for almonds but not walnuts? Would it help to advertise to our domestic consumers?**

Commercials can help, but there is a lot of other work to do that will give us more bang for the buck—think grocery store promotions with paired sales and eye-catching displays. Commercials are expensive, so with our advertising budget, we need to focus on these other methods, which have been proven to substantially increase sales at a much lower cost.

#### **Is there a future for alternative varieties, like Tulare, that are more heat tolerant?**

For Tulare, there's a good crop for one out of every three years, but the other years aren't better in color. Howard really needs Ethephon to get crop off, and as the trees get older, the kernel gets darker. And leaving these nuts on the ground reduces their quality.

#### **Can you predict a trend in supply with planting and pulling acreage?**

Robert: From the last land IQ survey, most of the acreage that was pulled was old, so it won't really affect the current crop. 2023 had a large crop and large carryover.

Chuck: Tendency will be for larger crops. Cutting input may affect this, but there are currently a lot of young orchards in the ground.

Robert: The newer plantings also are planted at higher density.

#### **Will there be tiers for the tree pull program? More money for younger orchards than older ones?**

If a tree pull program is approved, we would consider this approach. Ag economists say we need to pull 100k acres of high-producing acreage, but it's not practical to ask USDA for help on that scale. [Note: a tree pull program was not approved. See the tree-pull program update in this newsletter for more information]

#### **COVID/shipping messed with prices. Any sign that this is behind us?**

Chuck: Record demand in Jan, good in February, give signs that we'll get rid of volume. Chile and CA produce the top third of the market in terms of quality. Retailers are finally starting to pass lower prices on to consumers, which increases demand. Domestic demand is up 25%, and the EU demand is up 40%. We need to keep producing high-quality crop. China is unknown, and they undercut price. They'll take the Iranian market back (but that market is for lower-quality product, so not where CA will find its success anyhow).

## Tree-Pull Program Update

Robert Verloop, Executive Director/ Chief Executive Officer  
California Walnut Board & Commission

[On March 13, 2024] the California Walnut Commission Board of Directors reached a final decision to **not** pursue a walnut tree pull program. In an effort to ensure the many aspects of a tree pull program were considered and discussed, the California Walnut Commission Board of Directors and staff reviewed this topic over the span of several meetings and many months of data / information gathering.

While global demand for walnuts has been relatively flat over the last 5 years, global production increased significantly. Complicating matters the industry has had to navigate the COVID pandemic, supply chain and logistics interruptions, global economic downturn/high inflation, tariffs and trade barriers, high value for the US dollar, two regional “wars” and in 2022 a major crop disaster (heat wave). These and more, created significant shifts in consumer buying patterns and wide-reaching marketplace disruptions, causing sluggish walnut sales, larger inventories, and caused grower returns to fall below the cost of production.

It was against this backdrop that there was interest to seek financial assistance from the USDA to help growers remove walnut acreage from production, thereby reducing the overproduction challenges we are facing as an industry. It was understood that a request for financial assistance would undergo an informal rule making process (4-8 months minimum) and there is no guarantee that funds would be available, nor would the program be approved.

There are compelling reasons both for and against a tree pull program. Examples of the success or non-success of the Cling Peach and Prune (Plum) tree pull program from 2002 & 2006 respectively, were discussed. Industry members (growers and handlers) all expressed concern that a walnut tree pull program would send the wrong message to the global markets about the long-term viability of the California walnut industry and incent other producers to not reduce their acreage. While California growers have and will experience financial challenges due to low prices and lack of access to capital, many growers see this as a natural cycle in agriculture businesses, where growers overplant a crop and then there are mid-course corrections to “right size the industry”.

Importantly, it has been noted that any tree pull program by itself would not solve the current in-balance between production and consumer demand. Such a program would not become effective until after the 2024 crop is harvested and would impact the 2025 harvest at the earliest. The 2023 California Walnut Industry strategic plan outlines six core strategic priorities that the industry needs to be addressed. Work is fully underway to implement corrective actions in these areas, but this is a long-term pathway with the focus on ensuring premium quality walnuts to customers and consumers. The second imperative is to activate more sales to consumers via enhanced programs with retailers, foodservice (restaurant operators) and food manufacturers (ingredients), trading partners (global). For example, we recently applied for a new USDA export market development program, the Regional Agricultural Promotions Program (RAPP). This would provide significant funding to develop eight new markets for California walnuts with a special focus on the Southeast Pacific & North Africa, and expand demand in existing programs in India, Turkey, UK, the Middle East, Japan and Korea.

The excellent quality of the 2023 record crop, and strong sales for the first six months of the crop year, demonstrates that our industry has the capacity and commitment to satisfy the international and domestic trading partners and consumers. There is widely held acknowledgement that there is a lot of work to be done to increase demand. We have a plan that is focused on macro and micro topics to increase the velocity of sales in order to achieve the right value. The California walnut industry as a whole must address key issues to move



forward, and the CWB and CWC Boards of Directors are leading the discussions to identify and implement a host of corrective actions that drive overdue and much needed changes.

In the end the CWC Board of Directors **did not** move forward with a tree pull program, believing that, although there are some merits to such a program, it would not provide overarching industry wide benefits to balance global supply and demand and improve California grower returns.

**Up-to-date orchard-related events, news & articles from UC Cooperative Extension farm advisors from the Sacramento Valley.**



The screenshot shows the header of the Sacramento Valley Orchard Source website. On the left, the text reads "Sacramento Valley Orchard Source" with the tagline "Your source for orchard news & information in the Sacramento Valley" below it. In the center is an image of a walnut branch with green leaves and walnuts. On the right is the "University of California Agriculture and Natural Resources" logo. Below the header is a navigation menu with the following items: HOME, BLOG, ALMOND, PISTACHIO, PRUNE, WALNUT, ET REPORTS, PEST REPORTS, EVENTS, ABOUT US, and a search icon. At the bottom left of the navigation bar is a button that says "Follow @SacOrchards" with a Twitter icon.

Visit: [sacvalleyorchards.com](http://sacvalleyorchards.com)

# THIRD THURSDAYS: THINGS FROM THE FIELD



## WHAT IS IT?

A new, monthly event in 2024 to meet Sac Valley orchard advisors and other industry members in a casual setting and get timely updates on issues we've been seeing in the field.

### Orchard management topics (earn CEUs):

The first hour will feature lunch, a UCCE talk and Q&A on an orchard topic relevant to the time of year. In April, Curt Pierce will focus on on start-of-irrigation considerations for walnut. Learn about what recent research has shown about the potential benefits to walnut tree health and production factors from delaying the start of the irrigation season into May or later.

### Open discussion:

After the talk, bring observations, questions, and pictures about your orchards for UCCE advisors and the group to address.

## WHEN & WHERE?

The next Third Thursday is:

**April 18, 1:30 PM - 3:30 PM**

**UCCE Sutter-Yuba**

**142A Garden Hwy, Yuba City, CA**

Location will alternate monthly between UCCE offices in Sutter and Glenn counties.

### UCCE Sutter-Yuba Office

June 20 • Aug 15 • Oct 17 • Dec 19

### UCCE Glenn Office

May 16 • July 18 • Sept 19 • Nov 21

Lunch generously provided by



## APRIL TOPIC

*1 HOUR CCA CEU APPROVED,  
1 HOUR DPR CEU PENDING*

**Start of Spring Irrigation in  
Walnut**  
**Curt Pierce, UCCE Irrigation  
and Water Resources Advisor**

**CLICK TO RSVP**

*AND CLAIM YOUR FREE LUNCH*

Questions? Email  
Clarissa Reyes, [clareyes@ucanr.edu](mailto:clareyes@ucanr.edu)