UC Cooperative Extension
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Agriculture & Natural Resources

April 2026 – Spring/Summer Walnut Newsletter

Sutter-Yuba Counties
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What's Inside

2026 Walnut Orchard Considerations - Spring/Summer

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April/May

- Irrigation Management:
  Consider conducting a irrigation maintenance check on your orchard. Replace filters, account for any broken or clogged emitters, and install new lines if damaged. This will ensure water and added nutrients are flowing properly throughout the orchard with no nutrient concentrated zones or reduced yields due to water stress. A free irrigation system analysis via Mobile Irrigation Labs is also available to farmers to run efficiency and performance tests throughout the entire system. If you are interested in more information, you can learn more here.

  Before starting irrigation, taking plant water stress measurements and soil moisture sensor readings can help provide an appropriate baseline for what the trees require. Refer to the articles Planning Your First Spring Irrigation in Walnut and New Stem Water Potential Calculator Available Online in this issue. Also, refer to the Weekly ET Reports to help determine irrigation volumes needed each week.

- Plant Nutrition:
  If last year's leaf analysis indicated a zinc deficiency, apply foliar zinc when shoots are 6-10 inches in length which allows for zinc to be easily absorbed by the leaf surface.

Start nitrogen applications in May to prevent leaching due to rain or irrigation. Walnut trees uptake nitrogen at a steady and efficient rate throughout the season, which can allow for nitrogen to be applied in 3 to 4 doses between May and mid-August compared to 1-2 applications.

- Pest Management:
  - Codling Moth: Consider establishing first flight biofix by mid-April to begin tracking degree days and assess pest pressure in the orchard. Once established, continue to monitor traps to verify flight activity and determine treatment plans and timings effectively.
  - Navel Orange Worm (NOW): Consider placing NOW pheromone traps for monitoring male and egg traps baited with ground pistachio or almond meal for female moth populations.
  - Aphids: Conduct aphid sampling in May and continue throughout the summer. Obtain samples from the 5 first subterminal leaflets (one back from the last leaflet) from ten trees, checking the top for dusky-veined aphids and the underside for walnut aphids. Guidelines and thresholds for treatment considerations can be found here.
  - Scale: If scale has been a problem and treatment was not applied during the dormant season, consider putting out a double-sided sticky tape by early to mid- April to monitor crawler emergence and time treatments.
- Disease Management:
  - Bot Canker: Limbs that have been affected by Bot Canker can be easily identified between budbreak and full leaf expansion but ensure that no rain is forecasted before pruning dead wood.
  - Blight: Applications of walnut blight spray should be based on the disease history of the orchard and forecast weather. If rain is forecasted and disease prevalence is high, consider applying as early as bud break or catkin emergence and then an additional spray 7 to 10 days later. If no rain is forecasted and the disease prevalence is low, consider applying at 20% leaflet expansion. See article on Walnut Blight management, 2026 in this issue for more information.
- Weeds Management:
  Survey for any weeds that survived pre-emergent herbicide protocols and apply post-emergent when necessary. To reduce herbicide resistance in your orchard, make an application rotation with different herbicides. Always read and follow the label!

June/July

- Irrigation: monitoring of soil moisture and stem water potential can assist in avoiding overwatering. Drought irrigation strategies can be used once trees are in need of irrigation. These strategies help avoid unintended water loss and overapplication due to deep percolation. Adding excessive or insufficient amounts of water can diminish the quality of the walnut and lead to stressed trees. During

excessive heatwaves, providing trees with the adequate volume of water decreases nut darkening and stress in trees. A pressure chamber is a great tool to aid in determining when to time irrigations and Weekly ET Reports can help determine how much water trees need. Aim to irrigate once trees reach 2-3 bars drier (more negative) than baseline. Refrain from long irrigation sets that could result in standing water and elevated risk of Phytophthora infection.

- Insect & Mite Management:
  - Walnut Husk Fly: traps for walnut husk fly are hung up by June 1st or earlier. Monitoring can be done using yellow sticky traps baited with ammonium carbonate. Inspect traps 2-3 times per week and determine treatment based off of any eggs detected in trapped females, the overall number of insects trapped, or the first flies that are caught depending on husk fly population, previous damage, and the spray material used.
  - Spider Mites: the same leaflets being used to inspect for aphids can be used to look out for spider mites and their predators. Weekly monitoring is done in July and August. Every time monitoring is conducted, 10 leaflets are examined (5 of these leaflets from branches higher in the canopy) from 10 trees. When there aren't any predators for more than half of the examined leaflets containing spider mites, treatment for these insects can be taken into consideration. Weekly monitoring done through August.
  - Codling Moth: monitor codling moth traps to establish subsequent biofixes. Trap monitoring is paramount when it comes to determining when to treat for this insect. To decide the need to treat the second flight, utilize canopy counts, orchard history, dropped nut evaluation, and trap catches. Late July or early August is when the third biofix occurs (around 1100-1200 degree days after the second biofix). Treat if evidence is found that there is more than 2% of canopy infestation. Take into consideration that nearby mating disruption can impact trap catches.
- Disease Management:
  - Botryosphaeria (Bot) or Phomopsis: Bot can cause walnut blight and/or cankers. Control of Bot of walnut includes pruning dead branches and removing from your orchard to reduce inoculum, and fungicide sprays. Sprays can be applied in May, mid-June, and mid-July, but if you only apply one fungicide spray for Bot canker, an application in mid-June to mid-July has shown to substantially reduce blighted shoots in comparison to no spray at all.

New Stem Water Potential Calculator Available Online

Curt Pierce, Irrigation and Water Resources Advisor, Glenn, Tehama, Colusa, and Shasta Counties

Ongoing research has continued to demonstrate the benefits of delaying the start of irrigation (SOI) in walnuts. Locations with favorable soil profiles and good winter

precipitation have had SOI dates in May and even June. This is while maintaining (and often improving) on production factors.

Recommendations provided in this newsletter and others typically mention using a pressure chamber to time that first irrigation, with a stem water potential (SWP) target of “2 bars below [more negative than] baseline”. Tables have been developed and published by UC to determine baseline, which depends not only on crop, but temperature and relative humidity (RH) at the location where SWP samples are being taken. Once you cross-reference your temperature and RH on the appropriate table, you can determine the baseline value for that sample and compare the SWP from the pressure chamber to it. When the sample SWP is 2 bars more negative than the baseline, you start irrigating.

Now, we have created an online calculator that you can use instead of the tables. Simply 1) select your crop, 2) enter the temperature and RH, and 3) enter the SWP reading you get from your sample. The tool will output both the baseline value, and your sample’s deviation from it.

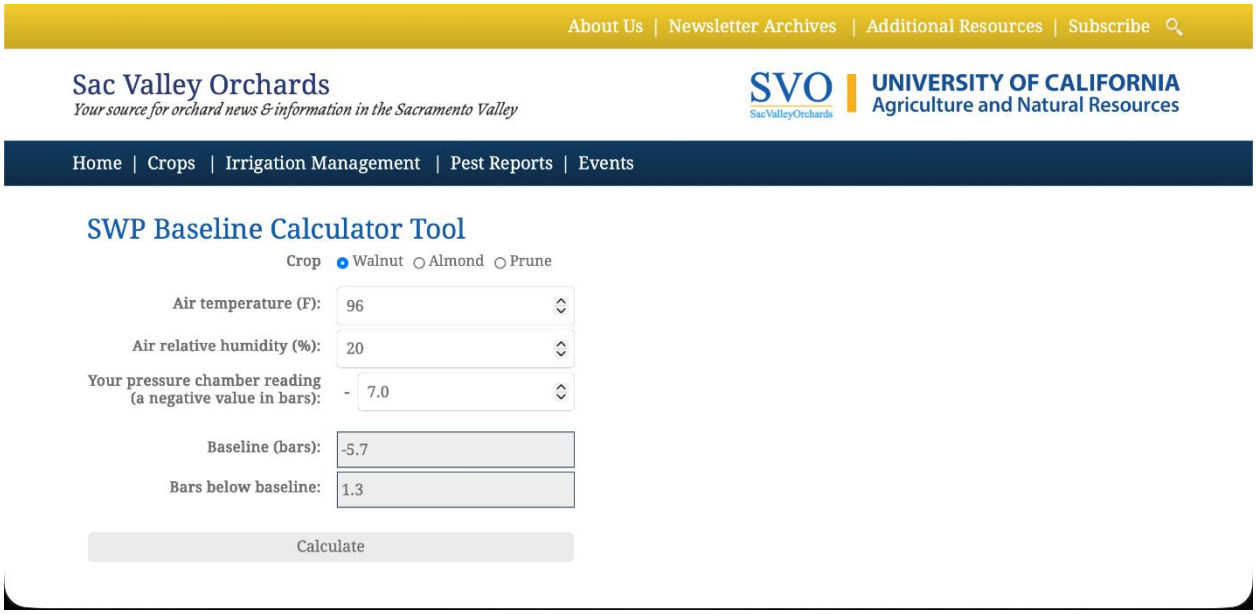

Figure 1. The new online SWP calculator at https://www.sacvalleyorchards.com/swp-baseline-calculator-tool/ provides both baseline and bars below baseline values for SWP samples provided with temperature and relative humidity data

In the example shown in the screenshot (Figure 1), we had a pressure chamber reading of -7 bars, and a baseline of -5.7 bars. The deviation from baseline is -1.3 bars, so the tool displays that your pressure chamber reading is 1.3 “bars below baseline.” In this case, it would be advised to hold off on starting irrigation until that “bars below baseline” value was approximately -2 bars or above (more negative).

See the *Planning Your First Spring Irrigation in Walnut* article in this issue for more detailed information.

Planning Your First Spring Irrigation in Walnut

Clarissa Reyes, UCCE Orchards Advisor, Sutter-Yuba, Butte, & Placer counties

Walnut leaf-out has advanced earlier than usual with temperatures coming in hot at the start of spring. But don't jump the gun! With walnut, you don't need to start watering as soon as there are leaves. As growers plan when to begin irrigating their orchards, they should consider the rainfall we've received over the winter as a factor in this decision. At the time of writing this, Verona CIMIS station in Sutter county has reported 16.3" precipitation from Dec 1, 2025 – Mar 23, 2026 (last year was 10.1" for the same date range). This amount of rainfall should be considered a reserve of water that growers can use to delay the start of irrigation for some time after leaf-out in walnut.

Among the major tree crops grown in the Sacramento Valley, walnut is especially sensitive to overwatering. During the spring, trees have a period of new fine root growth, which are responsible for most nutrient and substantial water uptake. Too much soil water early in the spring can suppress this root growth, which will then impact water and nutrient uptake potential during the hottest and driest weeks of summer, and potentially cause tip burn, leaf damage, and dark kernels.

Prior UC research has shown that vegetative tree growth and production in walnut is favored when irrigation is managed to sustain low levels of tree stress. The most effective method to ensure that trees experience a low level of tree stress is to determine plant-water status with a pressure chamber by measuring stem water potential (SWP). SWP measurements taken at mid-day are compared to a "baseline" value, and the recommended time to irrigate is not until your walnut trees are 2-3 bars more negative than the baseline. SacValleyOrchards.com now has an online tool that can help easily calculate the difference between your SWP and baseline, or you can also print the pdf tables to use in the field.

A new research project in walnut was started in 2025 by the Shackel Lab at UC Davis, with collaborators throughout the state. The project covers ten sites between Tehama to Stanislaus counties and examines the effects of holding off on irrigation after leaf-out until the trees reach a SWP of 2 bars below baseline. Each week from April through November SWP from five trees at each site will be measured using the pressure chamber, and irrigation will not be initiated in those fields until trees have reached 2 bars below baseline.

This approach of measuring plant-water status uniquely integrates and quantifies how an orchard responds to its specific soil, water, and environmental conditions. Irrigating based on SWP can ensure that trees have adequate oxygen for root growth and nutrient transfer, prevent detrimental leaf symptoms (yellowing, collapsing canopy) of overwatering, and reduce risk of tree loss. Over the past few years, a grower in Sutter county using stem water potential for irrigation management has been able to push their first irrigation of the season out past April – from early May in a drought year, up to early June after a wet winter. This timing not only helps tree health and longevity but also results in cost-savings as pump and energy use is delayed.

If you do not own a pressure chamber, your PCA may be able to add this service. More information about irrigation management using a pressure chamber and other methods can be found in UC ANR Publication 8503: Using the Pressure Chamber for Irrigation Management in Walnut, Almond and Prune and in our Stem Water Potential series of blog posts on SacValleyOrchards.com

Walnut Blight management, 2026

Jaime Ott, UCCE Tehama, Shasta Glenn, Butte Counties

Given the early bloom and leaf-out of our walnuts this year, spring rain will put us at risk of blight. At the time of writing, we are already past catkin expansion and into leafout in the orchards I monitor. This would be a year to have started your blight spray at prayer stage (when female flowers emerge), and to spray based on the weather.

- With little or no rain predicted during early bloom, start spraying at prayer stage (when female flowers emerge). This is the single most effective spray timing for blight control.
- Ensure you are getting good coverage—blight materials are preventative and can only protect what they cover.
- Use tank mixes and rotate materials between each spray.

Walnut blight, caused by the bacterial pathogen *Xanthomonas arboricola pv. juglandis* (Xaj), is a major disease affecting walnuts in our region. Xaj infects young tissues (leaves, catkins, female flowers) as they emerge in the spring and is favored by rainy weather. In years like 2026, with our strangely dry spring weather, most growers will be able to hold off on their first blight spray until the female flowers emerge, which coincides with prayer stage for the leaves. After that, spraying can be done based on the weather, or every 7-10 days if we go through a rainy period during the remainder of bloom and leafout.

Figure 2. When the weather is dry at the beginning of bloom and leaf-out, many growers can wait to begin blight spraying until the leaves reach prayer stage (pictured).

The materials we use to control blight are all preventative and require excellent coverage to work—if tissue is not covered, it is not protected. Generally, failures in blight management can be traced to one or more of the following mistakes: **wrong timing** (first spray too late), **poor coverage** (every-other row application, poor coverage at the bottom from aerial sprays or at the top from ground sprays), and **wrong material** (using a single material instead of tank mixing, using less than the labeled rate, using a weak material in an orchard with high blight pressure). UC researcher Dr. Jim Adaskaveg recommends always using a tank mix, and rotating mixes with every spray. This will provide you with the best blight control and help prevent resistance developing in Xaj. Note that copper resistance is already common in Xaj throughout the state, but tank mixing copper with mancozeb or kasugamycin can overcome that resistance*. See the UCIPM Fungicide and Bactericide Efficacy Table for more information.

For more information on walnut blight, see these article at SacValleyOrchards.com:

Walnut Blight Management, posted 2025

Walnut Blight Management, posted 2020

*any mention of a pesticide product is for illustration only and is not an endorsement or a pesticide recommendation, simply the sharing of research results. Consult your PCA and always read the pesticide label; the label is law.

Announcement: Clarissa on Leave

Clarissa will be out of office on maternity leave from April 27 – approximately October 5, 2026. For any orchard-related questions or farm calls during this time, please contact Franz Niederholzer at 530-218-2359 or fjniederholzer@ucanr.edu for assistance.