



Vina Subbasin Demand-Reduction Pilot Programs

Extend Orchard Replacement (EOR) & Precision Irrigation (PI) *Pilot Program Introduction for Landowners & Stakeholders*

The Vina Subbasin GSAs received state funding to **pilot two practical ways to reduce groundwater use without affecting yields**. One focuses on extending the fallow period for 1-2 years between orchard removal and replanting; the other explores precision irrigation. Representative orchards that fit the Eligibility Criteria (see below) were selected for one or both pilots. **We're aiming to develop about 10 case studies per pilot using information shared by participating landowners**. The insights gained will help shape a long-term groundwater management strategy for the Vina Subbasin.

This **pilot program is supported by a trusted team of experts**, including **Tom Devol**, a leader in sensor-based irrigation technologies; **Allan Fulton**, a veteran UC advisor with decades of experience in efficient orchard irrigation management; **Joel Kimmelshue**, a Butte County-area native and soil scientist specializing in agricultural water systems; and **Joe Connell**, a former UC Cooperative Extension advisor known for his long-standing service to North State growers.

Program Benefits and Participant Expectations

Extended Orchard Replacement Benefits

- Free, field-specific ET data and professional input
- Anonymously compare results to peer orchards
- Explore rotational and fallow strategies that may cut costs and water use

Extended Orchard Replacement Participant Expectations

Participating landowners will tell us what they're doing during the replacement period—irrigation method, cover crops, tillage, chipping, pest and nutrient practices, etc.

Optionally, **we'll brainstorm alternative rotational fallow practices** (e.g., summer annuals, cover crops).

Precision Irrigation Benefits

- See ET and canopy data
- Identify "non-beneficial" water losses and adjust scheduling without affecting yield
- Potential power-cost savings with PG&E ag rates

Precision Irrigation Participant Expectations

Participating landowners will share current irrigation setup and historical practices, and provide past yield records for the study blocks (*kept strictly confidential*). **Pairing yield with ET helps maximize the "crop per drop" production approach and increases grower profit margins.**

We're exploring whether changes to irrigation (and possibly fertilization) can reduce non-beneficial ET without affecting yield. Even **small field-level savings can add up to meaningful basin-wide reductions and lower costs.**

This season, we'll help landowners test simple ways to optimize ET without affecting yield. We'll also consider PG&E's ag rates to cut power costs, and provide free guidance plus detailed ET maps of each orchard.

How We Protect Landowner Information



Confidentiality Agreement

Before any data exchange, we'll sign a simple agreement with the landowner stating that block-level yield and management details stay with a landowner and is **never shared** outside the research team.



Anonymous Reporting

Final reports present only aggregated, de-identified results—no grower names, ranch locations, or block identifiers.

What We'll Do on Our Side



Measure Field-Level ET

Combine ground stations with high-resolution satellite imagery for every study block



Canopy & Light Interception Analysis

Link canopy cover to ET and yield potential



Economic Evaluation

An economist will compare costs and returns of the tested practices, using only anonymous data



Year-End Summary

Deliver a concise report to the participating landowner plus the subbasin-wide findings (again, fully anonymous)

Eligibility and Orchard Selection Criteria

- **EOR Criteria:** Removed within the past 18 months
- **PI Criteria: Almonds:** 7–20 years old (planted 2006–2019); **Walnuts:** 9–25 years old (planted 2001–2017)
- **Other Considerations:** 1) Geographic distribution to represent entire subbasin; 2) soil types.

Next Steps for Selected Orchards

Initial Meeting with Landowner

Sign Confidentiality & Participation Form

Discuss Irrigation Practices & Yield Information

Kick Off

For more information, visit www.vinagsa.org or contact info@agubc.org.