



Vina GSA Grant

Demand Reduction Strategies Update

November 20, 2024



Vina SGM Grant Background

- DWR awarded a **\$5.5m grant** to the Vina GSA
- To lead portions of the grant funded work, the Vina GSA partnered with:
 - Butte County Department of Water and Resource Conservation (**BCWRC**)
 - Agricultural Groundwater Users of Butte County (**AGUBC**)



Area	Key Activities	Budget
Admin and Outreach	Grant administration, invoicing, stakeholder outreach	\$365,000
GSP Updates, Data, and Outreach	Well monitoring, data visualization, GSP evaluation, community engagement	\$1,070,000
Demand Reduction Strategies	Orchard and precision irrigation pilot programs, stakeholder engagement	\$2,440,000
Surface Water & Groundwater Recharge Projects	Lindo Channel recharge, feasibility studies, project identification	\$1,180,000
Interbasin Coordination, Modeling, and Reporting	Fee study, annual reports, groundwater model update	\$480,000

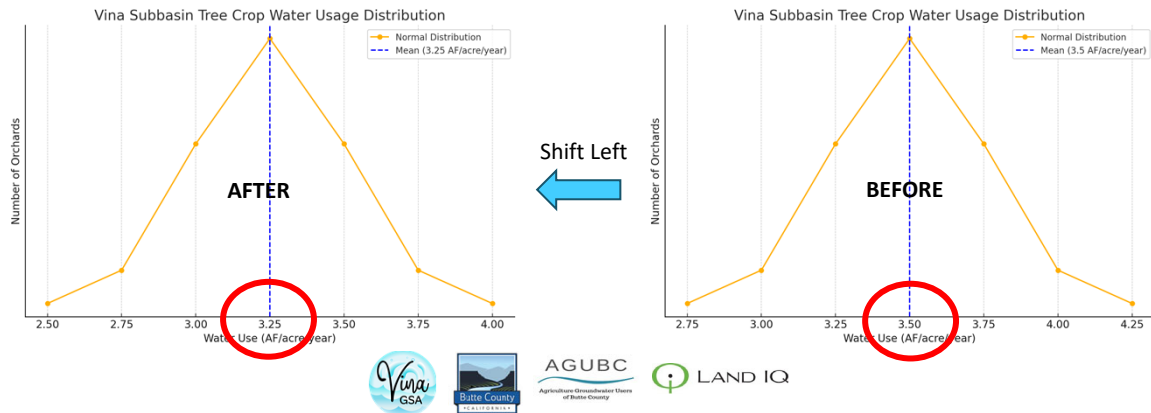




Demand Reduction Strategies

Goal: Reduce Agricultural Groundwater Pumping

3.0 and 3.25 af/ac/yr are representative and only used to conceptually illustrate the goal of reducing water use per acre per year.



Demand Reduction Strategies

How will this be accomplished?

Through two **voluntary, incentive-based** programs that **reduce consumptive and non-beneficial consumptive use**:

1. Extend Orchard Replacement Pilot Program
2. Precision Irrigation Pilot Program

Partnering with Land IQ to develop the programs.





Demand Reduction Strategies

If successful,
how much less pumping?

If 60,000 acres of Walnuts & Almonds:

- ~3.5 AF/Yr x 60,000 = 210,000 AF/Yr

If Successful Program Implementation:

- ~3.25 AF/Yr x 60,000 = 195,000 AF/Yr (-7.5%)

What's the Scale of the Potential Benefit:

- 15,000 AF/Yr reduction or 7.5% reduction

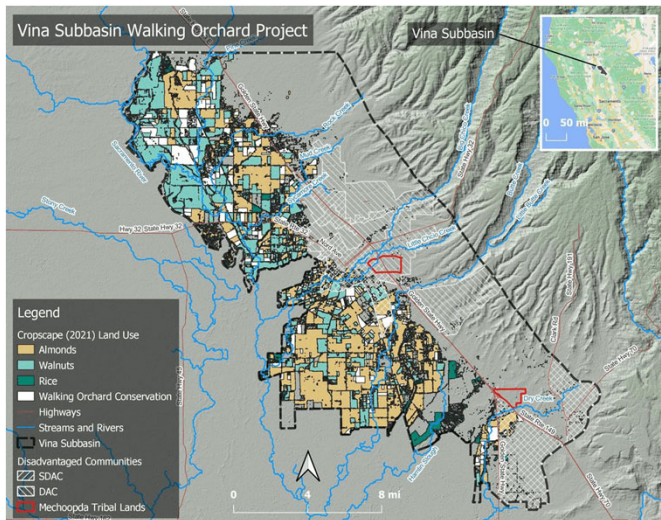
Table 2-8: Water Budget Summary: Groundwater System

Component	Historical (AFY)	Current (AFY)	Future, No Climate Change (AFY)	Future, 2030 Climate Change (AFY)	Future, 2070 Climate Change (AFY)
Inflows					
Subsurface Inflows	137,400	143,200	142,800	144,600	145,500
Footfall Area	45,700	50,100	49,700	50,600	50,600
Los Molinos Subbasin	65,000	67,900	67,300	67,900	68,100
Butte Subbasin	28,600	25,900	25,500	23,800	26,600
Wyanette Creek Subbasin	200	300	200	300	300
Deep Percolation	192,700	191,800	189,300	194,500	196,800
Precipitation	120,200	123,400	120,400	123,500	123,600
Applied Surface Water	4,500	5,600	5,600	4,900	4,500
Applied Groundwater	67,600	60,900	63,300	66,100	68,700
Storage	24,000	27,700	27,800	27,800	27,400
Streams	20,800	24,100	24,200	24,600	24,400
Canals and Drains	3,200	3,600	3,600	3,200	3,000
Total Inflow	354,100	362,700	359,900	366,900	369,700
Outflows					
Subsurface Outflows	78,400	76,200	72,800	78,700	87,800
Footfall Area	300	200	200	200	200
Los Molinos Subbasin	4,700	900	900	900	900
Butte Subbasin	65,400	73,100	70,800	69,500	66,600
Wyanette Creek Subbasin	0	0	0	0	0
Groundwater Pumping	243,500	209,200	215,800	225,900	238,000
Agricultural	209,100	185,500	184,600	194,700	206,600
Urban and Industrial	26,500	20,100	27,500	27,500	27,500
Managed Wetlands	8,600	3,500	3,500	3,600	3,700
Stream Gains from Groundwater	3,700	1,100	1,000	1,000	1,000
Western Boundary Net Outflows	56,100	77,400	73,000	71,000	65,600
Total Outflow	378,700	363,900	361,600	380,600	427,400
Change in Storage (Inflow - Outflow)	-19,600	-1,200	-1,900	-1,700	-2,700

Notes:
AFY = Acres feet per year.
1. Totals are the sum of numbers in bold



Extend Orchard Replacement Program



What:

Incentivize local growers to **extend the duration of their current fallowing practice** between orchard removal and replanting by one or more growing seasons.

Why:

Extra time allows the soil to fallow and **reduces the overall demand** on groundwater.

Goals & Benefits:

- Temporarily fallow between 1,600 and 3,200 acres per year.
- Reduce groundwater use by 4,000 to 8,000 acre-feet per year in the Subbasin.





Extend Orchard Replacement Program

DWR's Response to our request to use Direct Incentives (i.e. direct payments to farmers)

Dear Ms. Buck:

Please be advised that you have been informed correctly (three times) by program staff that DWR grant funds to provide incentive payments as part of the implementation of the EORPP are not eligible to be paid under your grant. DWR has a multitude of grant programs and while some may seem similar, they all operate under their own guidelines or regulations.

Summary:

1. **No direct** Incentive payments to farmers.
2. Vina GSA **can** purchase equipment and/or provide services or subject matter expertise to farmers to incentivize participation.



Demand Reduction Strategies

How does DWR's response impact the DRS Programs?

For Extend Orchard Replacement Program:

- **Pilot Program:**
 - Spatial analysis look-back at past 2-3 years for water savings based on fallowed acreage.
 - ID and highlight certain representative orchards.
- **Long-term Program:**
 - Land IQ: Identify water saving potential over 25 to 30-years.
 - ERA Economics: Conduct Economic Analysis to determine range of incentives.
- **Funding & Subbasin Implementation:**
 - Pilot: No need for additional funds.
 - Long Term: Use Prop 4 funds or other.

For Precision Irrigation Program:

- **Pilot Program:**
 - Option 1 – Spatial analysis – individualized mgmt/scheduling feedback for growers.
 - Option 2 – Spatial analysis/feedback + provide selected subbasin growers with access to advanced irrigation technologies for 1-2 years. Go from 40% adoption to > 80% adoption in subbasin during Pilot, at no cost to grower.
- **Long-term Program:**
 - Further develop selected option.
- **Funding & Subbasin Implementation:**
 - Pilot: SGM Implementation Grant
 - Long Term: Prop 4 funds or other





Demand Reduction Strategies

“Precision”

In the context of agricultural Precision Irrigation strategies, “precision” refers to the use of **advanced tools and techniques** to deliver the right **amount of water** to the right **place** at the right **time**, tailored to the specific needs of crops.

1. Targeted Water Application

- Delivering water directly to the root zone of plants, minimizing evaporation, runoff, and water loss.

2. Site-Specific Management

- Adjusting irrigation practices based on soil type, topography, crop type, growth stage, and local climate conditions.

3. Data-Drive Decisions

- Utilizing real-time data from sensors, weather stations, and satellite imagery to inform irrigation schedules and volumes.

4. Use of Technology

- Leveraging tools like soil moisture sensors, remote sensing, drip irrigation systems, and smart controllers to achieve accuracy.

5. Efficiency Optimization

- Potential cost-savings by ensuring water is used efficiently by avoiding over-irrigation or under-irrigation, which could affect crop yield.



Demand Reduction Strategies

Next Steps

For Extend Orchard Replacement Program:

- **Pilot Program:**
 - Revise Grant Guidelines after 30-day public comment period closes on November 25.
 - Potentially re-open Public Comment Period for extended review in 2025.
- **Long-term Program:**
 - Land IQ: Identify water saving potential over 25 to 30-years.
 - ERA Economics: Conduct Economic Analysis to determine range of incentives.
 - Describe in Long-Term Program Technical Memo (TM).
- **Funding & Subbasin Implementation:**
 - Watch for release of Prop 4 Grant Guidelines.

For Precision Irrigation Program:

- **Pilot Program:**
 - Finalize approach – Option 1 or Option 2 or Hybrid.
 - Consider developing Grant Guidelines & Releasing for Public Comment.
 - Gain DWR approval on use of funds.
 - Implement Pilot Program in 2025.
- **Long-term Program:**
 - Land IQ: Analyze Pilot data and develop Long-term Program TM.
- **Funding & Subbasin Implementation:**
 - Utilize SGM Implementation Grant funds for technology and/or Subject Matter Experts.
 - Watch for release of Prop 4 Grant Guidelines.





Questions

