



Napa Valley Subbasin Groundwater Pumping Reduction Workplan

Napa County GSA TAG Meeting

Overview

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2. Water Practices Matrix
 1. Approach and Key Assumptions
 2. Draft Results
3. Next Steps



GROUNDWATER PUMPING REDUCTION WORKPLAN

Groundwater Pumping Reduction

- Guiding Framework:
 - Focus on voluntary actions that achieve groundwater benefits for the Subbasin
 - Assess the costs and benefits of alternative actions and focus on those that are most cost-effective
 - Leverage existing programs and opportunities to generate value from a suite of voluntary actions
 - Include adaptive management to adjust the program as data and sustainability indicators evolve

Groundwater Pumping Reduction Workplan



Voluntary Approaches to Reduce Pumping

Field-level measurement
Best management practices
Education
Benchmarking
On-farm practices
Other practices
Adaptive management



Subbasin Use Benchmarking and Tracking

Remote sensing, metering
Well permitting
Groundwater trends



Communications and Engagement

Outreach and engagement
Technical Advisory Group
Education and resources



Steps for Implementation

Assess effectiveness
Implement adaptive measurement and potential mandatory measures, pending effectiveness of voluntary efforts



WATER PRACTICES MATRIX

Background

- Analyzing voluntary practices and technologies to achieve water savings for vineyards and wineries
 - Costs of adoption
 - Scaling potential (% who have not adopted)
 - Water savings potential (% reduction from baseline)
 - Water savings potential (total acre-feet per year)
 - Implementation timeline
 - Overall feasibility

Background: Vineyard Pumping

- According to the GSP:
 - 13,000 AFY (average historic pumping for agriculture) on around 23,000 acres
 - Applied water is approximately 6 – 7 inches/acre
- UC Crop Extension estimates an applied water requirement for Napa vineyards of:
 - 5 – 6 inches/acre (varies based on variety, soil type, slope, etc.)
- Represents about 10 – 15% less than current approximate use
 - Key Point: voluntary actions could have the potential to achieve the GSP pumping reduction target if they can be incentivized and implemented effectively

Background: Winery & Landscaping

- Winery and landscaping water use is another opportunity to conserve water
- Potentially limited opportunities to improve winery water use, but larger opportunities for winery re-use on landscaping
 - Water quality considerations
 - Winery operations
 - Capital costs
 - Other site-specific considerations

Approach and Key Assumptions

- Data were collected from the following sources:
 - Published studies
 - Industry resources
 - Interviews of industry experts
 - Synthesis and analysis of data to calculate present value of life-cycle costs
- We are documenting and data gaps and assumptions for future efforts

Water Practices Matrix – DRAFT

Practice	Estimated Annualized Cost* per AF Conserved	Estimated Potential Total Water Savings	Implementation Timeline	Overall Feasibility (Preliminary)
Unit:	\$/AF	AFY	Years	Ranking
On-Farm Practices (Established)				
Water Measurement	\$40 - \$50	200 – 400	1 year	Low
Distribution Uniformity	\$30 - \$50	500 – 1,500	1 year	High
Irrigation System Efficiency	\$75 - \$100	500 – 1,000	1 year	Medium
Soil Moisture Monitoring				
High Tech / Low Labor	\$5 - \$10	1,000 – 2,000	1 year	High
Medium Tech / Medium Labor	\$10 - \$20		1 year	High
Low Tech / High Labor	\$15 - \$30		1 year	High
Soil Management	\$400 - \$450	250 – 400	1 year	Low
Conjunctive Management	In Progress	In Progress	1 year	In Progress
On-Farm Practices (New Plantings)				
Canopy Management	\$175- \$250	150 – 400	5+ years	Low
Row Orientation	In Progress	1,000 – 2,000	5+ years	High
Rootstock Selection	In Progress	In Progress	5+ years	In Progress
Regional Water Management Practices				
Recycled Water	\$600 - \$750	In Progress	5+ years	Medium
Other Water Management Practices				
Processing Water Treatment and Reuse	\$1,000 - \$1,500	In Progress	5+ years	Medium
Waterless Barrel Sanitation	\$1,900 - \$2,800	In Progress	1 year	Low
Benchmarking	\$2 - \$10	In Progress	1 year	High

* Includes preliminary capital and O&M costs; costs are currently being refined

Note on Interaction Between Practices

- The water savings potential is typically expressed as an “up to” value for that practice alone
- Adoption of multiple practices does not necessarily yield additive water savings
 - For example, improved applied water measurement would not generate additional savings if soil moisture monitoring is being implemented
- Still, the preliminary data suggest there is significant potential for water savings

Priorities for Voluntary Practices

- We propose focusing on those practices with the highest impact potential and lowest cost:
 - Established Plantings:
 - Distribution Uniformity
 - Soil Moisture Monitoring
 - New Plantings (tailored to vineyard operations):
 - Row Orientation
 - Rootstock Selection
 - Other Water Management Practices:
 - Benchmarking



Are the preliminary matrix findings consistent with your experience? Do the practices listed on the previous slide seem like the right ones to prioritize?



STEPS FOR IMPLEMENTATION

Steps for Implementation

- The GPR Workplan will include an implementation plan covering:
 - Voluntary practices, education, and benchmarking
 - Assessing effectiveness
 - Adaptive management, with potential mandatory measures if ineffective
- A next and important step is to develop the “how” of the implementation plan.
 - Incentives for participation (certification, cost-share, rate structure, other)
 - Funding (GSA, County, grant)
 - Educational programming
 - Other program considerations (e.g., benchmarking)
 - Defining metrics for success, and processes in the event they aren’t met



What approaches should be considered for the Implementation Plan?

How should options identified in the GPR Workplan (e.g., water conservation, certification, benchmarking) be selected for implementation?

Should other factors in addition to groundwater metrics trigger certain implementation actions?



SUMMARY AND NEXT STEPS

Looking Forward to Next Steps

June 2023

- Refine voluntary water practices matrix
 - Finalize cost calculations and follow up with industry experts
- Conceptualize implementation plan with broader team
 - Voluntary approaches
 - Benchmarking
 - Education and engagement
 - Adaptive management framework

July 2023

- Finalize the suite of options to include in the GPR Workplan
 - Voluntary and potential mandatory actions
 - Receive and incorporate TAG feedback
 - Finalize implementation plan