

FINAL REPORT

Grower Irrigation Efficiency Outreach and Multi-Benefit Pilot Implementation

Resource Conservation District of Tehama County

Project Overview

The Resource Conservation District of Tehama County (RCDTC), in partnership with Luhdorff & Scalmanini Consulting Engineers (LSCE), implemented a comprehensive program of outreach, technical assistance, and irrigation infrastructure improvements to support groundwater sustainability in the Red Bluff Subbasin. This work was funded through the Department of Water Resources (DWR) and administered through the Tehama Groundwater Sustainability Agency (GSA) to advance implementation of the Sustainable Groundwater Management Act (SGMA).

The project was designed to address both immediate and long-term groundwater challenges by combining grower education with direct technical assistance and on-the-ground infrastructure improvements. By integrating these approaches, RCDTC worked to ensure that outreach efforts translated into measurable changes in water management practices across the region.

A Notice of Exemption for the project was filed in December 2025 with Tehama County and the State Clearinghouse providing CEQA compliance documentation for the pilot project.

Grower Outreach and Education

RCDTC conducted a robust and multi-faceted outreach program targeting growers and ranchers throughout Tehama County. Outreach efforts focused on increasing awareness of irrigation efficiency practices, available technical resources, and funding opportunities to support implementation.

Printed materials, including resource flyers and Mobile Irrigation Lab (MIL) program information, were developed and distributed to producers. Digital outreach included website content, social media messaging, and local engagement efforts, ensuring information was accessible across multiple platforms.

RCDTC also developed and maintained a comprehensive mailing and email contact list of local producers, which supported targeted communication and increased participation in project activities. An outreach schedule was established early in the project to align messaging with key agricultural timelines and events.

Outreach activities included participation in and hosting of multiple workshops, conferences, and community events. These included the Manton Apple Festival, Corning Olive Day, a Tehama GSA presentation, the Chico Nut Conference, and Tehama County Prune Day, as well as additional engagement at farmers markets and field days. Through these events, RCDTC provided educational materials, discussed irrigation efficiency strategies, and connected growers with available programs and resources.

Participant engagement was tracked through sign-in sheets, surveys, and follow-up communication. Pre- and post-outreach surveys were used to assess changes in grower knowledge and awareness, providing valuable insight into the effectiveness of outreach efforts.

Technical Assistance and Irrigation Evaluations

A key component of the project was the delivery of direct technical assistance through the Mobile Irrigation Lab (MIL). RCDTC completed ten on-site irrigation evaluations for growers in Tehama County, meeting the project target for individualized technical support.

Each evaluation included field-based assessment of irrigation systems, identification of inefficiencies, and development of tailored recommendations to improve water use efficiency. Following site visits, RCDTC provided individualized reports outlining recommended system upgrades, operational improvements, and potential cost savings.

In addition to technical recommendations, RCDTC worked closely with partner organizations—including NRCS, UCCE, CAFF, and the Farm Bureau—to connect growers with funding opportunities such as EQIP and SWEEP. This coordination helped ensure that recommendations could be implemented by reducing financial barriers and providing clear next steps for growers.

Follow-up support was provided to assist growers in navigating funding applications and implementing recommended improvements, further strengthening the impact of the technical assistance program.

Multi-Benefit Pilot Construction Implementation

Through coordination with LSCE and the Tehama GSA, RCDTC supported the implementation of multi-benefit irrigation infrastructure projects under the Red Bluff Subbasin Component 3 funding.

Construction efforts focused on improving irrigation system efficiency and reducing groundwater demand through modernization of existing infrastructure. Projects included upgrades such as drip system replacement, valve and pump automation, and improved system control and monitoring.

One representative project involved the J. Garcia Olive Company, where approximately 175 acres of olive production were upgraded. This project included replacement of aging drip irrigation infrastructure with pressure-compensating double-line systems, installation of automated valves, and implementation of remote pump and system controls. These improvements addressed issues related to leaks, inconsistent pressure, and manual operation, significantly improving system efficiency and enabling more precise irrigation management.

Construction contract development and coordination were completed and implementation work finalized within the grant period (through 3/31/2026). All construction invoicing was complete, with invoices submitted through the Red Bluff Progress Report 9 process. Final contract closeout activities were completed by 4/15/2026.

Project 1, Lindauer River Ranch, 440 acres

A network of soil moisture sensors (5 total) was installed to aid with efficient irrigation scheduling along with 2 flow meters to track pumping water use. Two automated and remote-controlled fertigation pumps for increased fertilizer application efficiency. Two In-field valves were replaced, and 14 total valves were retrofitted with remote control capabilities and at 4 pump stations. All monitoring equipment and automation are compiled in a digital network allowing farm managers hands-on control for precision irrigation scheduling.



Project 2, Pacific Farms, 210 acres

Replacement of 7 buried and antiquated valves with a new above ground (Nelson hydraulic) that includes remote automation and retrofitting valves in 4 other locations. Replacement of one failed soil moisture sensor (part of an existing monitoring network) and the installation of 2 automated flow meters to track pumping water use.



Project 3, River Oaks Farm, 217 acres

The existing irrigation system, which operated as two interconnected blocks with variable soil characteristics, was retrofitted to enhance operational efficiency and adaptability. Two new mainline pipelines were installed and equipped with automated Nelson hydraulic control valves, subdividing the existing system into four independently controlled irrigation blocks. The existing single-line drip hose was buried to reduce maintenance work, minimize wildlife damage and limit water losses due to leaks. The existing spin clean filter was replaced with a sand media filter station, providing higher-quality filtration for the drip irrigation system, improved backflush water efficiency, and reduced maintenance requirements. The pump station also included the installation of two injection pumps—one for fertilizer and one for acid—allowing greater precision and control over application rates. Both injection systems are equipped with sensors that enable remote monitoring and control.



Project 4, J Garcia Olive Company, 175 acres

Antiquated drip line (20+ years) was replaced with .61 gph pressure-compensating double line drip. Remote control equipment was installed at 2 pump stations and on 19 valves to allow farm managers hands-on control of irrigation schedules that will be incorporated with previously installed monitoring equipment.



Project Outcomes and Benefits

The project resulted in measurable benefits for both the individual grower level and across the broader groundwater system.

Growers participating in the program gained increased knowledge of irrigation efficiency practices and access to technical and financial resources. The completion of ten irrigation evaluations provided direct, actionable recommendations that support improved water management and reduced operational costs.

Infrastructure improvements implemented through pilot construction projects reduced water loss associated with aging systems and improved irrigation uniformity and control. Automation and system upgrades allow for more precise irrigation scheduling and management, contributing to long-term reductions in groundwater demand.

Collectively, these efforts support progress toward SGMA compliance and demonstrate scalable approaches for improving groundwater sustainability in the Red Bluff Subbasin.

Challenges and Lessons Learned

Several challenges were encountered during implementation. Tight grant timelines required rapid coordination between RCDTC, LSCE, contractors, and growers, particularly for construction activities. Delays in receiving final invoices impacted the timing of construction closeout and reporting.

Grower participation varied depending on timing, operational demands, and individual readiness to adopt new practices. These challenges reinforced the importance of flexible outreach strategies and ongoing engagement.

Key lessons learned include the importance of early coordination with contractors, integrating outreach with direct technical assistance to increase adoption, and maintaining consistent communication with growers throughout project implementation.

Recommendations and Future Work

Based on project outcomes, RCDTC recommends continued investment in integrated outreach and technical assistance programs that directly support implementation of irrigation efficiency practices.

Expansion of the Mobile Irrigation Lab program would allow RCDTC to reach additional producers and provide ongoing support. Development of a comprehensive “whole farm health” assessment program could further integrate irrigation efficiency with soil health and overall farm management practices.

Continued funding for infrastructure improvements, particularly when paired with technical assistance, will be critical to achieving long-term groundwater sustainability goals. Increasing incentives for adoption of automated irrigation technologies may further accelerate improvements across the region.

Conclusion

This project successfully demonstrated the effectiveness of combining outreach, technical assistance, and infrastructure implementation to support groundwater sustainability. By working directly with growers and addressing both knowledge and infrastructure barriers, RCDTC contributed to meaningful improvements in irrigation efficiency and water management practices in the Red Bluff Subbasin.

The outcomes of this project provide a strong foundation for continued efforts to improve agricultural water use efficiency and support long-term groundwater resilience in Tehama County.

Figure 1. Comprehensive map of orchards flown.



Figure 2. Example multispectral scan from a field within Lindauer River Ranch. Bright green coloration indicates chlorophyll levels to determine vegetation health.

