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Collaborative BOR–NRCS Agricultural Water Conservation & Efficiency Projects

The Bureau of Reclamation (Reclamation) and the Natural Resources Conservation Service (NRCS) have joined forces to increase and align Federal and State water conservation efforts using demonstration projects in regions served by the Central Valley Project (CVP) and State Water Project (SWP), the two major water conveyance systems in California. These efforts support the Interim Federal Action Plan providing support for the water and habitat resources of California's Bay-Delta watersheds.

The CVP and SWP projects recognize that all who handle water — from the point of diversion (water agencies) to the application on crops (farmers) — must cooperate and join efforts for optimal water conservation.

Reclamation provided funding for projects at the water purveyor or District level that conserved water, improved water management, created new supplies for agricultural irrigation, or improved energy efficiency. Selected projects also increased the capability or success rate of on-farm water conservation.

NRCS provided technical and financial assistance made available through the Environmental Quality Incentives Program (EQIP), for farmers that complemented infrastructure improvements in areas where Reclamation projects were selected.

Project	Year			
	2011	2012	2013	2014
Buena Vista Water Storage District	X			
South San Joaquin Irrigation District	X			
Firebaugh Canal Water District	X	X	X	X
Henry Miller Reclamation District	X	X	X	X
Semitropic Water Storage District	X	X		
Central California Irrigation District		X	X	X
Tulare Irrigation District		X	X	X

Overall Benefits

- Water use efficiency on farms improved by an average of 25%
- Monitoring equipment provides feedback and education for continued improvement
- Shifted some growers from impaired groundwater to surface water
 - Decreases aquifer overdraft
 - Improves quality of water for crops
- Water District savings of 38,223 acre feet/year
- On-demand pressurized system (District and on-farm)
 - Increased control allows improved irrigation scheduling
 - Reduces energy and air emissions of on-farm pumping

**Overall Funding
for 2011-14:
\$20.79 million**

	2011	2012	2013	2014
USDI-Reclamation	\$4.10 million	\$1.7 million	\$414,000	—
USDA-NRCS	\$6.46 million	\$4.3 million	\$1.67 million	\$2.15 million
Total	\$10.56 million	\$6 million	\$2.08 million	\$2.15 million

Semitropic Water Storage District



The Semitropic Water Storage District's Reclamation funding provided for infrastructure improvements that will make

it possible to operate the District's recharge facilities in a more effective and economic manner. These improvements include a meter vault to improve monitoring, a new generator, and two new water pumps.

A new turbine generator will provide adequate energy to convey water from the California Aqueduct to the Semitropic Water Storage District's inlet and water distribution points.

Approximately 16 growers have benefited from the grant and nearly 2,217 acres of irrigated orchards of pistachios and almonds achieved water efficiency improvements of 20% or greater.

Steve Paul of Paul Farms, a family operation in Wasco, has benefitted from the Reclamation/ NRCS funding



by installing a micro-irrigation system for an almond orchard on approximately 150 acres that were previously being flood irrigated.

Under micro-irrigation, Paul's almond trees have developed deeper, more stable root systems. Additionally, he has been able to apply water more evenly, "like giving the trees constant sips of water throughout the day, rather than sporadic gulps all at once," Paul says.

After installation, Paul received an irrigation system evaluation from the Northwest Kern Resource Conservation District that determined his new system has achieved a 97% efficiency.

South San Joaquin Irrigation District



Through Reclamation funding, the Irrigation District replaced an open channel system with a state-of-the-art, pressurized irrigation system, to irrigate approximately 3,800 acres. The new system captures agricultural run-off for re-use and uses automated water delivery controls and metering technology, allowing for precise measurement and accounting of water use.



NRCS carried these infrastructure benefits onto the farm, permitting 32 growers to realize an average of 25% increase in water use efficiency, shifting from flood irrigation systems to micro-irrigation.

All farms were equipped with flow meters for monitoring and management feedback to better track water usage.

South San Joaquin Irrigation District Project Benefits

- Conserves 3,498 acre-feet of water/year at district level alone
- Improves irrigation efficiency 25 percent at farm level
- Conserves energy
- Reduces air emissions
- Farmers in this area are now able to grow 30% more food, using 30% less water (according to General Manager Jeff Shields)
- Improves water quality
- Permits monitoring & continual feedback