

## Major Renovations Planned for Mendota Dam

■ WORK TO ADDRESS UNDERSEEPAGE SCHEDULED TO BEGIN MID-NOVEMBER.



THIS HISTORICAL PHOTO TAKEN OF THE MENDOTA DAM IN 1919 SHOWS THE ORIGINAL STRUCTURE, AT RIGHT, JUST BEFORE IT WAS REMOVED, AND THE CURRENT DAM JUST AFTER IT WAS CONSTRUCTED. THE DISTRICT IS PLANNING SIGNIFICANT RENOVATIONS TO THE DAM THIS YEAR.

CCID this winter plans to invest \$1.2 million in upgrades and retrofits to the Mendota Dam that may eliminate the need for biannual dewatering for regular maintenance and inspection.

Among the projects, the District is planning a major renovation to address the underseepage problems in the dam that require inspection every two years. Over the last quarter century, seepage, or piping, started to occur under the 90-year-old structure, which then led to gaps under the floor and even more piping. The District every decade or so has injected grout to fill those gaps, but this year has developed a more permanent solution.

“If we fix this problem once and for all, we shouldn’t have to dewater every other year for inspection, which will be a great improvement for the

District and its partners,” said CCID General Manager Chris White. “In the past we have had to interrupt service to refuges and pool users during this dewatering period so this will fix a lot of those problems.”

The District will also take advantage of the biannual dewatering to repair worn out gates and modernize the system to bring all gates online so they can be operated remotely from the CCID office computer system.

“With this year’s flood flows we were operating the gates on the dam two or three times a day for the last six months, so they need to be revamped or replaced,” White said. The six rectangular gates were originally installed on Mendota Dam in the 1930s. Two modernized gates are operated by remote access

from the CCID District office in Los Banos. The District this year will update the remaining four gates to make them remotely operable as well.

“Being able to pull each of the six gates up from the office computer and operate them will give us better flexibility and allow us to respond to flood events and downstream water orders, and accommodate restoration flows more easily and promptly,” White said.

“All together these upgrades, retrofits and improvements will eliminate the biannual dewatering and give us long-term 20- to 30-year fixes to problems we have to deal with every other year.”

Consumers in the south division will be out of water service within a few days of the November 15 dewatering date.

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CONSERVATION SPOTLIGHT:  
FORTUNE FARMS



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RESTORATION IMPACTS

# Finding Fortune in Drip Irrigation

■ FORTUNE FARMS REVAMPS SANTA NELLA DAIRY INTO DRIP-IRRIGATED ALMOND ORCHARD.

Jeff Fortune has been a CCID landowner for nearly two decades but for the first time this year will be a CCID grower, farming almonds on 180 acres in Santa Nella.

The four-generation farming family, which up until three years ago had grown cotton every year since the civil war, now grows processing tomatoes, garlic, and permanent crops on the Valley's Westside. Jeff is currently involved in a farming partnership with his father and brothers on 3,000 acres near Five Points.

Farming in CCID is decidedly different than in other water districts, he said. The water supply is dependable and high quality. But the diversity of soils on the property, even within the 154-acre almond block, makes growing almonds a challenge. There are at least three different soil types ranging from gravelly loam to heavy loam in the orchard.

Low-volume irrigation, in addition to improving irrigation efficiency, makes managing those challenges doable.

"I would not even have planted almonds here if it were not on drip," Fortune said. "The soils here are very porous, which is good for the almonds, but water applied conventionally would seep right through it."

Fortune Farms for the last 20 years has leased the 180 acre site to a

dairyman and last March planted the first almonds on the property.

It took several months to clear the dairy structures off the land and then another few months to reclaim the soil, some of which had been planted to forage crops. By planting almonds on drip, Fortune estimates water use on the acreage will drop by about 77 acre-feet per year.



JEFF FORTUNE OF FORTUNE FARMS HAS OWNED THE 180 ACRES OF LAND IN SANTA NELLA FOR ABOUT TWO DECADES, AND THIS YEAR CONVERTED THE DAIRY TO A DRIP IRRIGATED ALMOND ORCHARD.

The 154 acres of Nonpareil, Butte and Wood Colony almonds are irrigated with a double line of heavy mil drip tubing. In-line emitters are offset every 68 inches along the tree row, emitting at a rate of .032 inches per hour to create a linear wetting pattern along the tree line.

While the trees are young, Fortune said he is running long 24-hour sets, applying a total of .77 inches of water per set. Next year he plans to install soil probes to more finely tune irrigation sets.

An additional 14 acres where the dairy facility once sat will also be planted to almonds next year once final rubble removal and ground prep is complete.

The drip system is controlled from a single filtration station, where 10 sand media filters operate under an automatic flush system. It is designed to irrigate the whole orchard at once to accommodate the longer sets. A bypass also gives Fortune the option to use wells on the

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— Jeff Fortune, Fortune Farms

property to irrigate one-third of the acreage at a time.

The CCID Water Conservation Program awarded a \$51,350 cost-share grant to cover 25 percent of the system's \$245,000 cost. Fortune said he was impressed with how easy the District was to work with and how much assistance he received both technically and financially in putting the system together.

"CCID is absolutely the best organization we have dealt with, without a doubt. It was just so easy and they were very helpful," he said.

Fortune Farms chose drip over micro sprinklers because he says the drip delivers more of a pyramid shaped wetting pattern deeper into soil profile to develop a stronger root system.

"Where we are here (along the I-5 corridor) in Santa Nella, it gets really



IN-LINE EMITTERS PUT OUT .032 INCHES PER HOUR TO CREATE A PYRAMID OF SOIL MOISTURE INTO THE ROOT ZONE.

windy so it's important to have that root structure so the trees don't blow over," he said.



JEFF FORTUNE SAID WORKING THROUGH CCID'S WATER CONSERVATION PROGRAM WAS THE BEST EXPERIENCE HE HAS HAD WITH PROGRAMS THAT SUPPORT CONSERVATION EFFORTS.

Most of the 3,000 acres the family farms is on drip and he planted his first almonds to drip in a neighboring district about nine years ago. The only real challenge for Fortune is coyotes, which bite through the emitters looking for water. Rather than fight the problem, he actually alleviates it by providing an alternate drinking source for the coyotes.



DOUBLE DRIP LINES WITH OFFSET EMITTERS CREATE A LINEAR WETTING PATTERN ALONG THE TREE ROW.

"Drip has worked really well for us, we use drip on everything," Fortune said. "We save a little water, but more importantly we are using our water more strategically, getting more bang for our water buck."

# Monitoring Shows There Will Be Restoration Impacts

Conditions that led to some of the heaviest snow pack and flood flows in memory have given CCID and other members of the Exchange Contractors a rare opportunity to see what impact those significant

flows would have on seepage and other factors downstream.

It's been about 25 years since conditions were such that flood flows down the San Joaquin and Kings rivers were still coming into the Mendota Pool through July.

"It was wet enough this year to completely fill all the reservoirs on the San Joaquin River and Kings River systems and spill about 1.2 million acre feet of water down river," said CCID's Chris White. "It started spilling in December and it lasted through the middle of July."

White said that, as a result of those extreme flood flows, the Exchange Contractors was diverting that flood flow water instead of Delta-Mendota Canal water to its members.

White said that conditions this year illustrate the need for additional storage to capture some of the runoff, particularly in light of growing demands on that water

for restoration and other purposes. It also highlighted concerns for the District if the Restoration Program moves forward with plans to release peak flows of up to 4,500 cfs in the future.

"We monitored flood flows very closely this year so that we could apply lessons learned to the Restoration Program," White said. "We did see additional seepage and some fields that couldn't even be accessed to disk or cultivate until mid-summer."

*"We know what would happen to neighboring ground under these high-flow conditions. We know that they need to install some projects to mitigate these impacts and we also know precisely where they need to install these projects. And now so does the Restoration Program."*

— Chris White, CCID

In late July, CCID summarized its findings on the impacts of these types of flows and sent results to the San Joaquin River Restoration Program. White said the monitoring and analysis clearly showed that significant work needs to be done by the Bureau of Reclamation before it considers sending peak restoration flows of 4,500 cfs during the spring in the future.

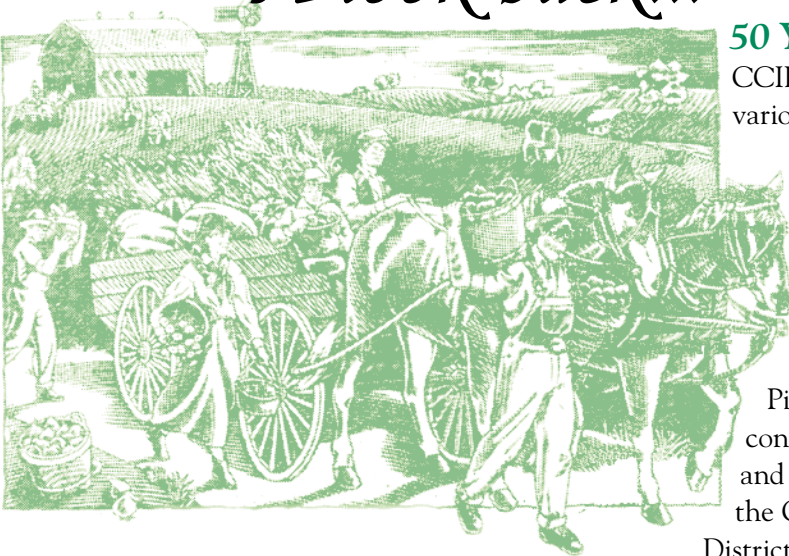
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## *A look back...*



### **50 Years Ago – Summer 1961**

CCID's Board of Directors reached agreement with various landowners and Merced County to straighten the alignment of two sections of Los Banos Creek northwest of Los Banos, upstream of the Main Canal, and directly below Highway 33.

### **25 Years Ago – Summer 1986**

The Army Corps of Engineers announced in early June that it would release 4,920 cfs of flood flows from Pine Flat Dam into the North Fork of the Kings River, contrary to its own operating criteria. CCID management and attorneys meet with the other Exchange Contractors, the Corps of Engineers, Lower San Joaquin Levee District, Kings River Water Association and Tulare Lake Basin interests to ensure that the operating criteria would be properly followed in the future.

### **10 Years Ago – Summer 2001**

In a three-month period, the District purchased land or 50-year easements for three key components of its initial long-term water conservation program: the Colony Reservoir, the Parsons Spill Ditch, and the Helm-Sierra Spill Ditch. Together, these projects were expected to conserve up to 19,800 acre-feet of water per year.