



# TRANSPORTING THE LIFEBLOOD OF CALIFORNIA'S CENTRAL VALLEY

What's known as the Central Valley in the geographical center of California is the most important agricultural region in the state and one of the most productive in the world. This vital area, covering some 18,000 square miles, produces more than 360 varieties of crops and provides more than half of the fruits, vegetables and nuts grown in the United States.

There's only one problem. Although the area boasts acres upon acres of rich, fertile soil, it doesn't get enough rainfall to naturally supply water to all the crops now grown here. Fortunately, the answer lies just to the north, where water is more plentiful.

This life-giving water from Northern California makes its way to the fields and spigots of the Central Valley via a 117-mile system aquaduct called the Delta-Mendota Canal. This canal plays a major part of the Central Valley Project (CVP), a federal water management project in California under the supervision of the United States Bureau of Reclamation. In any given year, the Delta-Mendota Canal is responsible for watering more than 1.2 million acres of farm land, as well as 180,000 acres of wetlands and over 1 million acres of population and industrial use.

Helping steward the water's journey is Larry Marques, a weed control specialist with the San Luis & Delta-Mendota Water

Authority, a Joint Powers Authority responsible for the operation and maintenance of key CVP facilities. "Our main goal is to get water from Northern California to Central California," Marques says. "Specifically, we convey water from the Delta to the Mendota Pool. Without that connection, things would be pretty bleak here."

The Delta he refers to is the Sacramento-San Joaquin Delta, which is formed by the Sacramento River flowing south to meet the San Joaquin River, which flows north, near Sacramento. This is where the Delta-Mendota Canal begins, and the Mendota Pool is where it terminates. The Mendota Pool is the confluence of the Delta-Mendota Canal, the San Joaquin River and the north fork of the Kings River, and serves as a small irrigation reservoir.

In all, there are 29 federal agencies that purchase water from the San Luis & Delta-Mendota Water Authority. The vast majority is used for agriculture — statewide the CVP delivers some 5 million acre-feet of water for farms. Another 600,000 acre-feet is used by municipalities for things like urban landscaping, and 800,000 acre-feet per year is dedicated to preserving fish and wildlife and their habitat, including several state and federal wildlife refuges and wetlands.



Concrete-lined irrigation canals transport precious water from Northern California to the state's Central Valley, one of the most productive agricultural regions in the world.

### WATER CANALS NEED TO BE WEED-FREE

There is no tolerance for weeds or any vegetation growing in, on or around these miles of the cement-lined water canals that stretch through the water authority's management area. But that doesn't mean they don't try. Marques names short pod mustard, Russian thistle, marestail and fleabane as the most problematic species he treats.

"We spray the inner slopes and to the water's edge with herbicides to keep the canals clear," Marques says. "Then, we also spray out 10 feet on either side of the canal. It's all managed to bareground, so we can easily maintain accessibility to the canals. We also want to keep the spread of seeds down, as they'll travel right down the canals and cause issues further down the line."

Marques is responsible for all the herbicide treatments done in and around the canals, covering approximately 1,200 acres. For this, injection spray trucks are used to treat the canals, and applicators rely on handgun work only around pumping plants and turnout gates, where the truck can't reach.

An annual preemergent treatment goes out in December, consisting of Milestone® specialty herbicide at 7 ounces per acre, Dimension® herbicide at 1 quart per acre and 0.5-to-1 quart of glyphosate. It's expected to deliver six to eight months of residual control, which it's consistently done.

As a postemergent treatment, Marques swaps out Milestone for 1 to 2 pints of Capstone® specialty herbicide and makes the application in May.

"We only go out with our postemergent treatment as needed," Marques says. "If there is breakthrough for any reason, Capstone works great to clean up the resistant weed species that we see a lot of, like marestail."

### TRIALS LEAD TO NEW TOOL FOR CONTROLLING WEEDS AND RESISTANCE

Marques understands that when applying herbicides, there are certain responsibilities that must be assumed. These can be magnified when working around water.

"We always have to be on our toes when making applications, especially when it comes to drift caused by high winds," Marques says. "However, we consider the herbicides we use to be environmentally friendly, in part because they just don't move at all. Dow AgroSciences really comes through with good formulations."

Beyond being careful to minimize off-target damage, there's a larger responsibility applicators need to consider: fighting weed resistance.



Service roads along irrigation canals must also be kept free of vegetation.

“Every couple years you really need to tweak things to fight off resistance, especially when working in bareground,” Marques says. “It’s always a good idea to change things up when you can.”

Looking to do just that, late in 2016, Marques worked with his Dow AgroSciences territory manager, Beau Miller, to put out trials of a new herbicide mix he was considering adding to his rotation. The mix consisted of 7 ounces per acre of Milestone® specialty herbicide, 32 ounces per acre of glyphosate and three different rates (32, 48 and 64 ounces per acre) of a new herbicide, Cleantraxx™ herbicide. Cleantraxx provides residual control of many annual grasses, which when mixed with the residual broadleaf and invasive weed control of Milestone, forms the foundation of a potent treatment for total vegetation control.

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Larry Marques  
Weed Control Specialist

“Looking at the trial results this year, we found that the material worked very well,” Marques says. “When comparing the three rates of Cleantraxx we tested, for us the 48-ounces-per-acre rate seemed to be the sweet spot, and it’s what we will be moving forward with this spray season.”

Starting with December’s preemergent treatment, Cleantraxx will be introduced to the spray mix.

“We’re going to use the Cleantraxx and Milestone mix on around 40 percent of our treated acres this season,” Marques says. “It gives us an effective new tool to work with and provides us with more options in terms of herbicide blends we use.”

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