

Dairy Cares News, July 2021

Advancing Water-Smart Dairy

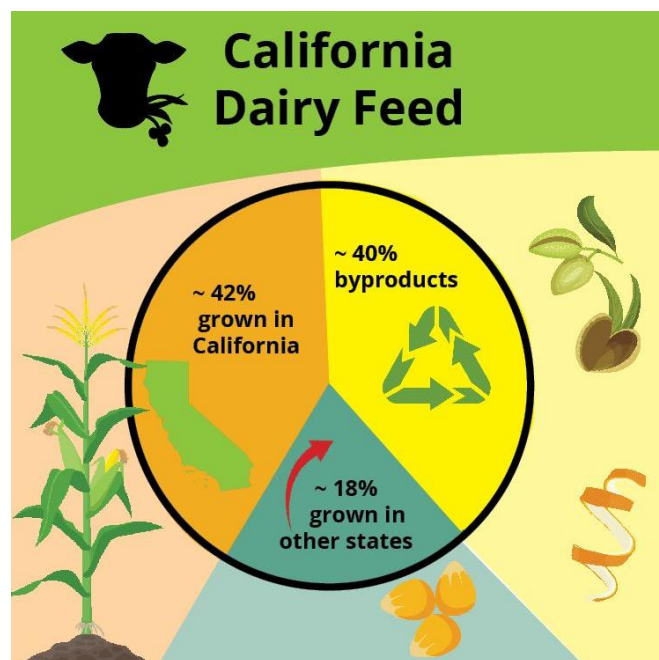
California dairy families protect increasingly scarce water resources

Water is an increasingly scarce resource, an issue exacerbated by severe drought conditions facing California and most of the western U.S. The state's family dairy farmers are doing their part to preserve and protect this precious resource. Through innovative, water-smart management practices and participation in local drinking water programs, they are further advancing water conservation and ensuring clean water supplies for all residents.

A Shrinking Water Footprint

For California dairies, smart water use includes [reuse](#), conservation, research and innovation, and ongoing efficiency gains. The amount of water used to produce each gallon of California milk has **decreased more than 88 percent over the past 50-plus years¹**. This is primarily due to improved feed crop production, use of byproducts as feed, and water use efficiency.

Reducing the need for in-state water resources is a key strategy for dairy farmers. **Roughly 40 percent of feed ingredients used on California dairies today are byproducts** from other agricultural production streams, such as almond hulls, cotton seed, and citrus pulp. Of the remaining feed ingredients—crops that are grown to be used as dairy feed—an estimated 18 percent are grown in other states. This further limits in-state water use. For feed crops that are grown here in California, innovative technologies and practices are being adopted to further improve water conservation and protection.



Feeding byproducts to dairy cows (about 40% of California dairy rations) further reduces the water footprint of dairy feed.

(Data from 2020 Journal of Dairy Science study)

Innovative Irrigation Saves Water

Using drip irrigation and [other water-efficient practices](#), a growing number of California dairies are reducing farm-water use and improving water quality protection, while also reducing greenhouse gas emissions. This includes the adoption of a subsurface drip irrigation system that [applies the farm's manure effluent](#) directly to the root zone. The approach has demonstrated a 38 percent increase in water efficiency (yield per unit of water used), using about 36 percent less water, while maintaining or increasing crop yields.² Initially demonstrated on three farms, more California dairies are now implementing the system or other drip irrigation strategies.

Research Paves the Way

California's dairy farmers have a long history of supporting research and pioneering new practices. They are open to all kinds of cutting-edge ideas to help solve water scarcity challenges. For example, River Ranch dairy

¹ From a [2020 UC Davis study published in the Journal of Dairy Science](#), which examined California dairies in 1964 and 2014. Additional water conservation has been achieved since the scope of this study.

² From the [Manure Subsurface Drip Irrigation Summary Evaluation](#), published by [Sustainable Conservation](#).

in King's County will soon be building a resource-efficient [indoor vertical feed production](#) center. Additionally, the [California Dairy Research Foundation](#) is currently supporting a variety of research projects that will help continue to advance water conservation and protection, including the following:

- Assessing the use of sugarbeets and safflower as alternative feed crops that improve water and nitrogen management on California dairy farms.
- Evaluating the use of automated surface irrigation systems to increase water-use efficiency.
- Exploring electricity- and water-saving potential of an optimized control system for fans and misters used to cool cows.
- Investigating the recycling of dairy manure and almond stick-twig waste on almond orchards as nutrient-rich, organic soil amendments. This project is part of a broader effort to explore ways to create cost-effective, transportable, and value-added manure-based soil amendments for use on other agricultural crops—expanding manure's benefits and further reducing the potential for nitrate leaching.

Drinking Water for All

California's dairy farmers know that being good stewards of water resources also means ensuring the protection of groundwater. For nearly 15 years, they have been conducting regular testing, monitoring, and reporting, as part of the nation's most comprehensive dairy water quality program. Dairy farmers have also been participating in the [Central Valley Salinity Coalition](#), and working closely with regional and state officials, to be a part of the incredible stakeholder effort to better address water quality challenges. Farms located within the state's six top-priority zones are already contributing to local efforts to ensure residents have immediate access to safe drinking water—either via free bottled water delivery or access to free drinking water bottle-filling stations. Working alongside other water users, dairy farmers in local nitrate management zones across the Central Valley will also be developing and implementing longer-term projects to reduce impacts to groundwater.



Understanding Progress, Challenges, and Opportunities

Through collaborative partnerships with researchers and scientists, non-profits, and technology providers, California's dairy farmers have developed a comprehensive understanding of their water footprint. They have demonstrated incredible progress, and continue to do their part to address the state's broader water challenges. It will take a wide array of new technologies and valuable partnerships to help make further advancement in water-smart farming practices. Through these efforts, California's family dairy farms can continue producing nutrient-rich, affordable milk and dairy foods that support the health and livelihoods of local communities.

With a solid foundation to build upon, dairy farm families will continue contributing to efforts to protect California's precious water resources.

Dairy Cares is a statewide coalition supporting economic and environmental sustainability and responsible animal care. Our members include Bar 20 Dairy Farms, California Dairies Inc., California Dairy Campaign, California Dairy Research Foundation, California Farm Bureau Federation, Dairy Farmers of America-Western Area, Dairy Institute of California, F & R Ag Services, Hilmar Cheese Company, Joseph Gallo Farms, Land O'Lakes, Milk Producers Council, Ruan Transport Corp., Yosemite Farm Credit, Zenith Insurance Company, and others. For information, visit [DairyCares.com](https://dairycares.com) or call 916-441-3318. To subscribe to the newsletter, contact news@dairycares.com.