



Technology Helping Drive California's Planet-Smart Dairy Future

Milk and dairy products play an important role as one of the most cost-effective sources of underconsumed nutrients—including potassium, calcium, and vitamin D—in the United States. It is critical that milk remains affordable for consumers, especially today as one in six Americans and one in four children may be experiencing food insecurity. While milk is used in a wide variety of foods, its journey begins on family-run dairy farms. For those dairy families, “sustainability” is a challenging task. Efficiency is critical in keeping up with rising production costs, and they must identify the right solutions to help them keep the farm in operation for the next generation.

This is where new and exciting technologies comes into play—with potential to help dairy farm families further advance their planet-smart practices, producing even more with a smaller environmental footprint. Here are a few of the most recent technologies being explored and adopted on California dairies.

Robotic feed pushers: One of the daily tasks on a dairy farm is to push the feed closer within the cows' reach, encouraging them to eat more before feed is replaced with a fresher batch. Feed pushing is typically done about every four to six hours by an employee using a small diesel-powered tractor. As an alternative option, a self-driving, electric-powered robotic feed pusher can complete this task on a more frequent basis—encouraging cows to eat more, while saving time and fuel. The exhaust emissions from the tractor are now reduced to zero, providing a significant clean-air and climate benefit.



As it turns out, the new robotic feed pusher at Godinho Dairy can also deliver coffee.

Electric feed mixers: Electrifying even larger pieces of farm equipment—such as feed mixers—can provide even greater environmental benefits. Cows' meals, known as total mixed rations, are traditionally blended in diesel-powered box mixers attached to tractors. Diesel trucks or tractors are used to deliver the feed to animals throughout the farm. By [switching to stationary, electric mixers](#), time spent operating diesel-powered equipment is essentially cut in half. Depending on the size of the farm, this can mean reducing diesel fuel use by 40 to 60 thousand gallons a year.

Robotic milking equipment: Milking parlor technology has always been a major factor in a dairy farm's overall productivity and efficiency. Retrofitting milking equipment or building an entirely new parlor are significant investments that may only happen once every 20 years or longer. The [most high-tech option for dairies today](#) is an automatic system, in which cows voluntarily access full-service milking robots. A recent national Dairy Herd Management Pulse Poll found that dairy farmers are most interested in investing in robotic milking technology versus other options to improve farm efficiency.

These are just a few options on a long list technologies and strategies for dairy farmers to evaluate as they look for ways to combat rising costs and improve environmental performance. California dairy farmers already have an [impressive track record](#) for reducing greenhouse gas emissions (45 percent) and water usage (88 percent) per gallon of milk produced over the past 50 years, but more progress must be made to meet the state's

environmental goals. This includes the state’s goal of reducing livestock methane emissions by 40 percent by 2030 and the implementation of lower-emission tractors in the San Joaquin Valley by 2023. California dairy farmers have to make strategic decisions that will help keep their businesses afloat while working toward multiple environmental goals.

“As dairy farmers we are always looking at ways to reduce our environmental footprint,” said David Godinho of Godinho Dairy. “Anytime I can implement technology on the dairy that helps the environment and the efficiency of our operation, I’m all for it.”

Godinho runs his family dairy along with his mom and two brothers in Los Banos, California. A month ago, the farm started using robotic feed pushers. They are also in the process of building a new rotary milking parlor that will allow for greater efficiencies. As another recent improvement, the farm built a compost bedded pack barn in 2019 to reduce methane emissions, a project funded through the [Alternative Manure Management Program](#). The Godinho family says they decided to make these investments in hopes of improving workforce efficiency, better protecting the environment, and improving overall productivity.

Incentive programs help make it possible for dairies to make these investments. The San Joaquin Valley Air Pollution Control District’s [Electrified Dairy Feed Mixing Program](#) is an example of an incentive program that has helped to greatly increase the adoption of clean-energy technology. It provides dairy farmers with up to 65 percent of the total cost of eligible equipment and infrastructure—which could include electric feed pushers and low-emission feed delivery vehicles, in addition to the electric feed mixer—up to a maximum cost effectiveness of \$30,000 per ton of smog-forming emissions reduced. In general, the voluntary, incentive-based approach has been helpful in allowing California dairy farms to advance many of their planet-smart practices over the past 20 years, from electrifying irrigation pumps to installing on-farm solar panels, to methane reduction projects, and more.

Dairy families in the Golden State are among the most planet-smart, sustainable producers of milk anywhere in the world. They have a long history of demonstrating continual improvement in producing more milk using fewer natural resources. As they work to meet ambitious goals, including world-leading clean air and climate initiatives, it will be critical for the state’s dairy families to keep improving their overall efficiency, so they can continue providing sustainable, affordable, highly nutritious, and locally produced food for consumers.

California’s increasingly tech-savvy dairy farm families remain dedicated to providing nutrient-rich foods, while protecting our precious natural 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 or call 916-441-3318. To subscribe to the newsletter, contact news@dairycares.com.

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**- David Godinho
California Dairy Farmer**