

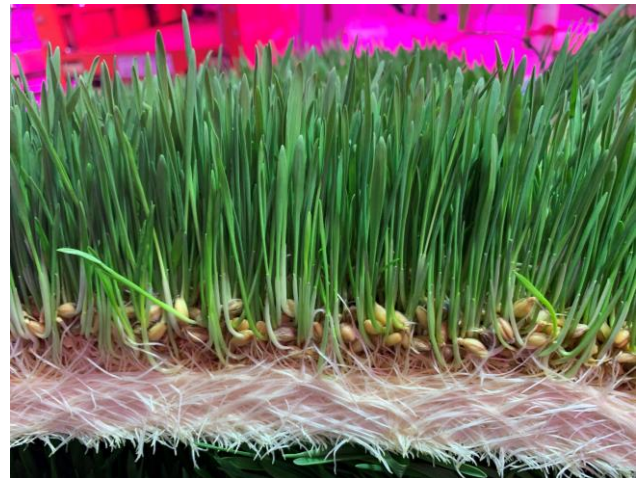
New Planet-Smart Feeds Coming Soon to California Dairies

Farmers and tech companies turn sprouted grains and aquatic plants into environmental solutions.

Animal nutrition is a major driver in dairy sustainability and a key factor in how California dairies have [already significantly reduced](#) their environmental footprint. As groundwater sustainability policies are implemented, dairy farmers are looking for new ways to grow highly nutritious feed using even less water and land. Through partnerships with tech companies, new 'super plants' (farmed by robots) are making their way onto California dairies, and into the mouths of cows and heifers. These new farming models offer tremendous potential to save water, curb greenhouse gas emissions, improve protection of water quality, reduce the need for diesel, and more.

Automated Indoor-Growing Feed Mills

Forever Feed Technologies, based in Hanford, CA and American Fork, UT, secured a [multimillion-dollar investment](#) in 2023 from dairy and agriculture leaders. The company is gearing up to develop large, environmentally controlled, on-farm buildings or "feed mills" to produce sprouted grains that are harvested and fed fresh daily. Located on or near dairy farms, these buildings will be filled with automated growing trays, stacked vertically, where a high-quality wheat crop will grow in just five days.



Automated sprouted grains or ASG's grow in five days, using 95 percent less water than the field crops they replace. ASG's are highly nutritious and digestible for cows, providing feed efficiency benefits.

Preparing for drought and increased water scarcity, California dairy farmer Jack de Jong was searching for alternative ways to grow high-quality feed when he came across this model in 2018. A subsidiary of a cosmetic company, Grōv Technologies, had built an indoor growing system that was providing feed to dairy and beef operations in Utah, using about 95 percent less water than traditional field crops. After visiting with the farmers and their nutritionists, de Jong knew there were huge benefits to be gained, not just for the environment, but also for cows. When the parent company discontinued Grōv, de Jong teamed up with the former president, Steve Lindsley to co-found, Forever Feed Technologies and start developing the next version of the system. The first Forever Feed Technologies mill in California is expected to be operational in the fourth quarter of 2024 on de Jong's dairy in Hanford.

"I'm looking forward to seeing this solution come to life on my dairy and many more," said de Jong. "I think it will help meet a critical need in California and worldwide. With great scalability and flexibility, Forever Feed provides an environmentally and economically sustainable model for dairy operations everywhere."

Steve Shehadey, owner of the award-winning Bar 20 Dairy in Kerman, is next in line for a mill to be built on his dairy. He and his farm's nutritionist are very excited about having consistent, fresh feed available daily. He's also thrilled to know that the potential to reduce diesel fuel is significant, especially when reducing the amount of alfalfa needed—no longer needing to cut, bale, and haul this feed.

"Our farm is committed to building a sustainable future for generations to come," Shehadey said. "The Forever Feed mill will provide a predictive water-saving and decarbonizing solution that we believe will enhance welfare for our animals while further reducing our environmental footprint."

A Nutrient-to-Feed Solution

While some dairies look to grow new feed crops indoors, others are transitioning existing cropland to systems that use effluent and digestate to grow floating plants in lined aquatic rows. In 2023, the California Department of Food and Agriculture (CDFA) awarded \$2 million dollars to tech company Fyto for a research demonstration project titled, “Aquatic Crop Production as a Nutrient-to-Feed Solution for California Dairies.” The project aims to boost the State’s innovative manure recycling efforts by growing *Lemna*, also known as duckweed, for use as a high-protein dairy feed ingredient. Fyto’s aquatic crop platform utilizes multiple times more nutrients per acre than the most efficient land cropping systems, eliminates nutrient leaching, and can reduce the import of nutrient-dense agricultural inputs.



Fyto employee oversees automated aquatic crop harvesting of lemna grown on dairy effluent in 2023. Image Credits: Fyto.

The company has been [piloting their system](#) on and near California dairies since 2020, growing plants in shallow lined aquatic rows with solar-powered robots tending to and harvesting the crop. Results have been [very promising](#), producing several times more protein per acre with the potential to use significantly less water versus land crops, such as alfalfa. The plants produced are rich in amino acids, energy, vitamins, minerals, and fatty acids, and are shown to be highly palatable and digestible for cows.

“People have known that aquatic plants have extraordinary potential for centuries,” says CEO Jason Prapas. “Fyto’s angle is to deliver purpose-built systems to grow these crops in a cost-effective way while helping to solve multiple operational and environmental challenges for the dairy.”

The CDFA-funded project will now demonstrate the installation of a commercial-scale, automated aquatic crop farm on a dairy farm in Tulare, CA in 2024. Plant science and engineering experts at Fyto will work with academic and dairy industry partners to measure and validate environmental outcomes, economic feasibility, and how this approach can help the dairy sector best utilize manure supplies.

Cow-Approved with Boundless Environmental Potential

Aquatic plants and sprouted grains are starting to make a splash, demonstrating significant potential to further advance California's planet-smart dairy efforts. Importantly, cows and heifers find them tasty, indicating potential to boost milk production and growth efficiency. Early tests also show that both the Forever Feed and Fyto feeds could potentially reduce the amount of enteric methane emitted by cows. These companies are committed to ongoing research efforts to fully assess advancements in sustainability.

California dairy farms continue to innovate—now using new crops and robots to boost planet-smart practices and resiliency.

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, Inc, Milk Producers Council, Ruan Transport Corp., Valley Milk, LLC, Yosemite Farm Credit, Zenith Insurance Company, and others. For information, visit DairyCares.com. To subscribe to the newsletter, contact news@dairycares.com.