

Dairies cooperating to reduce water quality impacts while providing safe drinking water

Overview

Widespread testing has shown that groundwater in the San Joaquin Valley frequently contains unsafe levels of pollutants. Some of these are naturally occurring, such as uranium, arsenic, and chromium, while others, such as nitrates and pesticides, largely result from human activities. Like other necessary human activities in the state – including farming, food processing, municipal waste treatment, manufacturing, oil and gas extraction, composting, and more – dairy farming can impact water quality. Similar to other farms, dairy farms grow crops with fertilizers (manure and synthetic). While much of these nutrients go into the growing plants as intended, some nutrients move with irrigation water to escape below the crop's root zone, carrying pollutants like nitrate to groundwater.



California's dairy industry is heavily regulated to reduce nitrate impacts to groundwater, with even more stringent regulations on the way. Meanwhile, dairies and other water quality permit holders in the Central Valley are also cooperating through the comprehensive Nitrate Control Program to reduce overall impacts to groundwater while ensuring all residents have access to free well testing, free replacement drinking water, and are moving toward long-term permanent water supply solutions where needed.

Present dairy water quality regulation

Central Valley dairies operate under the most comprehensive water quality regulations in the nation. Under Central Valley Water Board rules, dairies must:

- Prepare and follow certified Nutrient Management Plans and engineered Waste Management Plans (plans prepared by experts to ensure that manure is stored safely until it can be used as a crop nutrient, and that it is applied at the proper rates and times for growing crops);
- Test all wells on their property and report results;
- Participate in regional representative groundwater monitoring programs;
- Export surplus manure for use on other farms; and
- Sample and analyze soil, manure, and harvested crops as part of nutrient management.



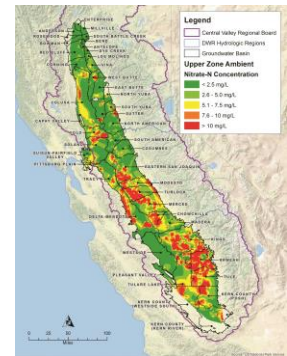
Dairies are also prohibited from discharging manure or other waste off their property or into any waterways. These are just a few of the many rules California dairies are required to follow. Dairy farms submit annual reports to verify they are performing these required activities, and dairies are routinely inspected by Central Valley Regional Water Quality Control Board staff to ensure compliance. New or expanding dairy farms face even more stringent requirements, such as installing synthetic liners in manure retention ponds.

[Tighter dairy regulations expected soon](#)

The State Water Resources Control Board has announced plans to further revise Central Valley dairy regulations this fall. While the exact nature of the revisions remains unknown, at minimum the State Board is expected to make rules more stringent by updating reporting requirements and timelines for further improvements in nutrient management, increasing scrutiny for manure ponds, and accelerating lining requirements for ponds that are known to affect groundwater quality. The dairy industry is cooperating with this effort by developing improved education and outreach to dairy producers (through the California Dairy Quality Assurance Program) and by developing a more robust reporting and data management system for dairies to document their improved water quality protection efforts through the Central Valley Dairy Representative Monitoring Program.

[Nitrate Management Zones/Nitrate Control Program](#)

The State Water Board and Central Valley Regional Board have also implemented the Nitrate Control Program, which requires the formation (in phases) of local Nitrate Management Zones, in which water quality permit holders work together (under regulatory oversight) to address water quality concerns. Management Zones must provide free well testing and safe replacement drinking water to affected residents. Management Zones are also required to submit and implement plans to reduce nitrate impacts in their areas over time. Priority 1 Management Zones (located throughout the San Joaquin Valley, more information and maps at links below) are currently offering free well testing and replacement drinking water while developing longer-term plans. Even as these efforts continue, Priority 2 Management Zones are forming and expected to begin offering services in one to two years. Nearly all San Joaquin Valley dairies are located within Nitrate Management Zones and help financially support the activities of those Management Zones.



[Cooperation with SAFER](#)

The State Water Board administers the Safe and Affordable Funding for Equity and Resilience (SAFER) program, which provides about \$130 million annually from the Greenhouse Gas Reduction Fund to improve drinking water systems throughout the state. SAFER funds help water systems provide safe, accessible, and affordable drinking water to communities by accelerating implementation of short- and long-term drinking water solutions, making water systems operate more efficiently, providing short-term operation and maintenance support as a bridge until long-term sustainable solutions are in place, and providing long-term operation and maintenance support when necessary. The Fund was established by Senate Bill 200 (Monning, 2019) to address funding gaps and provide solutions to water systems, especially those serving disadvantaged communities, to address both their short- and long-term drinking water needs.



Several Nitrate Management Zones have applied for and received SAFER funding to accelerate well testing and drinking water replacement efforts. This allows the Management Zones' testing programs to expand beyond nitrates and check water for natural contaminants such as arsenic, chromium 6 and uranium. This helps ensure that water supplies are truly safe and allows for drinking water to be replaced even when it is only affected by natural contaminants.

Other efforts to reduce dairy water quality impacts

The California Department of Food and Agriculture (CDFA) recently launched the Dairy Plus program, providing up to \$75 million in federal funding and tens of millions in state matching funds for dairy projects that reduce both nitrates and greenhouse gases. Applications are being accepted now, and the program is expected to fund improvements on up to 60 dairies.

CDFA also convened in 2021 the Manure Recycling and Innovative Products Task Force, with representatives from state and federal agencies, academia, and the dairy industry. The Task Force's ongoing goal is to promote research and development of innovative, cost-effective strategies for manure management, toward creating value-added manure-based products, which can be used to build soil health on other farms while reducing dependence on synthetic fertilizers and also reducing water quality and other environmental impacts related to surplus manure.

Learn more about these regulatory efforts, funding programs, Nitrate Management Zones and dairy industry initiatives to reduce nitrate at the following links:

1. Dairy General Order, Central Valley.
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0122.pdf
2. State Water Board review of petition on Dairy General Order R5-2013-0122.
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2018/wqo2018_0021.pdf and
https://www.waterboards.ca.gov/public_notices/petitions/water_quality/wc_13287_disclosures.html
3. Nitrate Management Zones/Nitrate Control Program
 - a. General information <https://www.cvsalinity.org/nitrate-program/management-zones/>
 - b. Valley Water Collaborative <https://valleywaterc.org/>
 - c. Chowchilla Management Zone <https://chowchillamanagementzone.com/>
 - d. Kings Water Alliance <https://kingswateralliance.org/>
 - e. Kaweah Water Foundation <https://kaweahwater.org/>
 - f. Tule Basin Management Zone <https://www.tulemz.com/>
4. SAFER <https://www.waterboards.ca.gov/safer/>
5. Dairy Plus Program <https://www.cdfa.ca.gov/oefi/dairyplus/>
6. Manure Recycling and Innovative Products Task Force <https://www.cdfa.ca.gov/oefi/mrip/>
7. California Dairy Quality Assurance Program <https://cdqap.org/>
8. California Dairy Research Foundation <https://cdrf.org/>
9. Central Valley Dairy Representative Monitoring Program <https://cvdrmp.org>
10. Dairy Cares www.dairycares.com