California Dairy Methane Reduction Efforts

Overview of Program Success, Benefits, and Efficiency

California's largest-in-the-nation dairy sector accounts for about 4 percent of the state's total greenhouse gas (GHG) emissions. Roughly half of the dairy sector's GHG emissions come from manure management (storage, handling, and utilization) and half come from enteric emissions (direct emissions from the cow, primarily belching). California's dairy farm families have substantially reduced the carbon footprint of each gallon of milk produced largely through improvements in nutrition, cow health, and efficient farm management practices. More milk from fewer cows has led to more than a **60 percent reduction in GHGs per gallon of milk produced**. California dairy operators are now working closely with state agencies to achieve even greater reductions in dairy methane through research, methane avoidance, and methane capture and utilization.

California's Short-Lived Climate Pollutant (SLCP) Plan calls for a 40 percent decrease in dairy manure methane, and the state's family dairy farms are making great progress toward this goal. The California Department of Food and Agriculture (CDFA) continues to implement the Dairy Digester Research and Development Program (DDRDP) and the Alternative Manure Program (AMMP), two highly successful programs funded under the California Climate Investments program (GGRF Fund). CDFA has awarded more than $145 million under both programs and recently released a solicitation for up to $94 million in new projects.

Dairy Digester Research and Development Program

Since 2015, CDFA has awarded more than $114 million to 64 digester projects. These funds are being matched approximately 2 to 1 by private investment. **California is on path to have 100-120 digesters funded and operational by 2022, achieving 40-50 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) over the next 20 years—an annual reduction equal to removing more than 420,000 cars from the road.**

"Dairy biogas-to-transportation-fuel projects can provide tremendous environmental co-benefits. Replacing diesel fuel with dairy RNG has the potential to significantly reduce transportation emissions in the San Joaquin Valley and other regions of the state."

- Samir Sheikh, Executive Director, San Joaquin Valley Air Pollution Control District

Alternative Manure Management Program

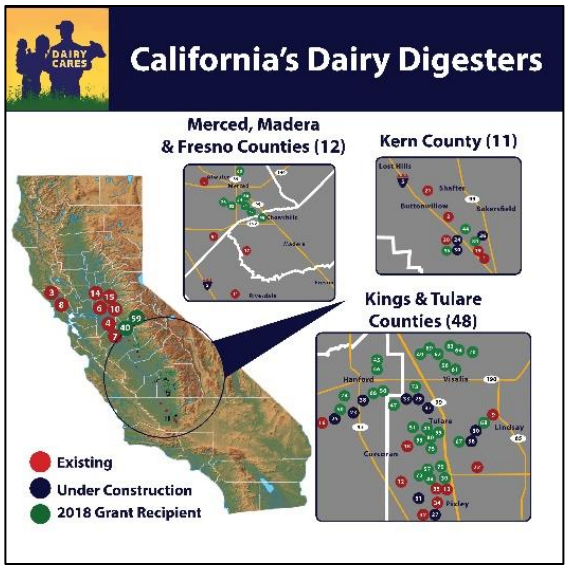
Since 2017, CDFA has funded 57 AMMP projects with a total investment of $31.2 million. Funded projects include conversation to dry-scrape or vacuum systems, installation of manure separators, and composting projects. **California is on a path to have 100-120 AMMP projects operating by 2022, achieving 4-5 million metric tons of GHG reduction ($MMTCO_2e$) over the next 20 years—an annual reduction equal to removing more than 42,000 cars from the road.**

Report and graphics provided by Dairy Cares. Learn more at **DairyCares.com**.

Key Highlights of California's Dairy Methane Reduction Efforts Include:

- The DDRDP is the state's most effective investment to date in terms of total GHG (CO_2e) reductions.[1]
- The DDRDP is among the most cost-effective programs (ranked second of 60 climate programs), providing one ton of GHG reduction (CO_2e) for every $9 invested by the state.[1]
- The AMMP follows the DDRDP as one of the most cost-effective programs (ranked seventh of 60 climate programs), providing one ton of GHG reduction (CO_2e) for every $43 invested by the state.[1]
- Total investment in dairy methane reduction is approaching and will soon exceed $1 billion.
- California is now leading the nation and world in overall dairy methane reduction efforts.
- All projects must demonstrate protection of water and air quality, including compliance under CEQA.[2]
- All digester projects must conduct outreach to local communities and work to mitigate any identified impacts.[1]
- Dairy methane reduction projects expected to be online by 2024 are anticipated to achieve a cumulative reduction of more than 50 million metric tons of GHG reduction ($MMTCO_2e$) over the next 20 years—an annual reduction equal to removing more than a half a million cars from the road.
- Replacing diesel fuel in heavy duty trucks with dairy biogas-to-transportation fuel (dairy RNG) will significantly reduce transportation emissions and dramatically improve air quality.[3]
- Dairies are a tremendous source of negative-carbon transportation fuel (with a score of -255 CI), making dairy RNG 10 times more effective than electric vehicles at reducing carbon emissions from the transportation sector.[3]
- Dairy digesters provide significant odor reduction, reduce impacts to groundwater, and are not expected to create local air quality impacts.[2]
- While digesters capture methane emissions, AMMP projects are designed to avoid methane production on dairy farms.
- AMMP projects promote dry handling of manure, which can be a significant first step in producing a valuable and exportable source of organic matter for building healthy soils.
- Dairy methane reduction efforts provide significant benefits in/and for disadvantaged communities.[1]

Sources: *[1] California Climate Investments, 2019 Annual Report, March 2019; [2]CDFA, Report of Funded Projects, January 2019; [3] Assessing California's Climate Policies – Transportation, LAO, December 2018*



***Climate-Smart Dairy* Video** Watch the video at YouTube.com/DairyCares or by clicking **here**.