



Dairy Cares Policy Comments on the Proposed Low Carbon Fuel Standard Amendments

February 20, 2024

Dairy Cares¹, appreciates the opportunity to provide these comments on the California Air Resources Board's (CARB) proposed, Low Carbon Fuel Standard (LCFS) amendments. Dairy Cares represents the California dairy sector, including dairy producer organizations, leading cooperatives, and major dairy processors.

Introduction

While the comments following are designed to provide a complete overview of California's comprehensive and highly successful efforts to reduce dairy methane in the state, two foundational conclusions remain indisputable:

1. California cannot achieve the 40% target in livestock methane reduction by 2030 without the continued implementation of dairy digesters which capture enormous quantities of methane on dairy farms in the state.
2. The continued implementation of dairy digesters in California hinges on the incentives provided by continued avoided methane crediting in the LCFS program.

Put simply, without appropriate avoided methane crediting and continued participation in the LCFS, California cannot successfully achieve 40% reductions in dairy and other livestock emissions by 2030 and will fail to achieve the state's overall short-lived climate pollutant (SLCP) targets as sought under SB 1383 and will fail to achieve the state's overall 48% targeted reduction in carbon by 2030.

These conclusions are consistent with any credible analysis of the state's climate strategies and policies, including the CARB 2022 Scoping Plan Update, as well as other CARB analysis², and those by UC Davis researchers.^{3, 4}

Moreover, continued avoided methane crediting by digesters under the LCFS is fully consistent with CARB's stated goals as outlined in the Initial Statement of Reasons (ISoR) as follows:

¹ For more information about Dairy Cares, visit www.dairycares.com

² CARB [Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target](#)

³ Analysis by UC Davis researchers: [Meeting the Call: How California is Pioneering a Pathway to Significant Dairy Sector Methane Reduction](#)

⁴ Analysis by UC Davis researchers published in CABI Reviews: [The path to climate neutrality for California dairies](#)

4. “Supporting methane emission reductions and deploying biomethane for best uses across transportation.”

Discussion

Livestock’s essential role

California nation-leading dairy sector plays a vital role in providing essential nutrition and supporting the livelihoods and resilience of countless families and communities in rural California. California dairy farms are the most productive and important agricultural commodity in the state and directly and indirectly account for over 180,000 well-paying, year-round, and benefited jobs, most of which are in the eight county San Joaquin Valley.

California dairy farms also play an integral role in California sustainable food systems. Dairy cattle upcycle agricultural and food waste from other agricultural commodities, food and wine processing, and urban food waste. Approximately 40% of California’s dairy feed is from agricultural and food waste, representing 5.5 million tons of feed that has zero additional carbon footprint, and would otherwise need to be landfilled or disposed, leading to significant additional methane and carbon avoidance. Upcycling agricultural and food waste also dramatically reduces land use, water use, use of fossil fuels, pesticides and synthetic fertilizer, as well as resulting in less energy needed to produce traditional feed crops. From 1964 to 2014 the increased use of agricultural byproducts and food waste, as well as improved animal nutrition and animal welfare, contributed to California’s rapidly rising milk product production efficiency, resulting in 89% less land, 88% less water, 45% less greenhouse gases, including reduced methane emissions and fewer fossil fuels used.

California’s dairy farms also provide a critical source of organic fertilizer that dramatically reduces the need for synthetic fertilizer production and use. Manure from California’s dairy farms is a tremendous source of crop nutrients for the state’s growing organic and regenerative farm practices and the advancement of healthy soils, a leading state priority.

When managed properly, dairy farms can reduce their footprint on the planet. California’s dairy farms play a vital role in developing sustainable food systems, a healthier environment, enhanced nutrition, and a better quality of life for all.

California’s comprehensive dairy methane reduction approach

The emission intensity, as well as emission sources of dairy production varies significantly across dairy livestock management practices, and even across regions in California. “Organic pasture-based” operations on California’s North Coast produce more enteric emissions than conventional “free-stall” farming operations in the San Joaquin Valley, while conventional operations in the San Joaquin Valley generally produce more manure methane emissions. “Dry-lot” farming operations generally found in the Chino basin and on older dairies in the San Joaquin Valley also tend to likely produce more enteric than manure methane. Each of these production systems possess unique characteristics, cost/benefits, interactions, and trade-offs. The size of dairy farm operations, while all owned by families, also varies greatly from a few hundred cows to several thousand cows. Recognizing these unique characteristics, CARB and CDFA have correctly recognized that there is no universal one-size-fits-all solution to lowering methane emissions from California’s dairy sector. CARB and CDFA also have correctly recognized that California is not building new dairies. California’s comprehensive approach has appropriately been tailored and designed to work with California’s unique and existing mix of

pasture-based, dry-lot and conventional free-stall-barn dairy operations. California's comprehensive approach also recognizes that the effectiveness of intervention options depends on factors such as location, access to services, farmers' willingness to implement interventions, economic considerations, and uncertainty surrounding the efficacy of certain measures.

CARB and CDFA have designed a comprehensive five-part strategy to reduce dairy and other livestock sector methane. CARB and CDFA did not arrive at this comprehensive strategy alone. The strategy was developed with significant input from stakeholders representing broad and diverse interests, including the dairy and other livestock sectors, environmental and environmental justice NGOs, air and water quality regulators, leading scientists and academics, and other state agencies. Multiple stakeholder group meetings were conducted and followed by several public hearings held throughout California, as required by Senate Bill 1383.



The comprehensive approach that has emerged correctly recognizes the broad adoption of sustainable best management practices across California's diverse dairy and livestock farming systems and is crucial to delivering lower emissions and mitigating the environmental impact of dairy and other livestock systems. The approach also correctly recognizes that dairy methane comes from both manure (back end) and enteric (front end) sources and solutions for both are distinct, but necessary since both contribute significantly to the state's methane inventory. In fact, enteric methane counts for slightly more overall methane from the combined California livestock sectors (12 million metric tons) versus methane from livestock manure management (10 million metric tons).

California's Dairy Cow Population Continues to Decline

Fact: no new dairies in California of any significance have been built in the past 7 to 8 years and the state's cow population continues to steadily decline.

California's milk cow population peaked at 1.880 million cows in 2008 and since that time has declined by over 10% to 1.688 million cows in 2022, according to the USDA's recently published Census of Agriculture (2017-2022). This significant decline is expected to continue and accelerate in the future due in large part to the lack of available water supplies⁵ resulting from surface water curtailments and implementation of the Sustainable Groundwater Management Act (SGMA). Increased regulation, high feed costs, skyrocketing energy costs and rapidly rising cost of labor, coupled with historically low milk prices will further accelerate the decline.

The decline in California's milk cow population has already resulted in an estimated 2 million metric tons (MMT) reduction as each fewer milk cow represents an average reduction of about 10 metric tons of CO₂e reduction in the state's annual inventory⁶. Continued reductions in the

⁵ [Economic Impacts of SGMA on San Joaquin Valley Dairies and Beef Cattle](#) – analysis by ERA Economics

⁶ Analysis by UC Davis researchers: [Meeting the Call: How California is Pioneering a Pathway to Significant Dairy Sector Methane Reduction](#)

milk cow herd in California, similar to the 2017, 2022 reductions, which averaged approximately 13,000 cows per year, will lead to an estimated additional 100,000 cow attrition over the next eight years. (2023-2030). This continued reduction in cow herd will add another 1 MMT of CO₂e reduction in California's inventory or more than 3 MMT of CO₂e since 2008. These reductions will be higher if accelerated attrition occurs as no new dairies are expected to be built in the state and the number of operating dairies in the state continues to steadily decline. This latter trend is evidenced by the latest USDA Census of Agriculture, which showed the number of operating dairies in California declined by over 500 dairies from 2017 to 2022.

CDFA's Grant programs

These comments focus primarily on manure methane emissions, due to the important role played by the LCFS in incentivizing sustainable manure methane practices. As part of the comprehensive strategy, CARB and CDFA have designed two primary programs to address manure methane. These programs can broadly be characterized as methane avoidance and methane capture and beneficial use mitigation programs.

CDFA's Alternative Manure Management Program or AMMP has historically provided grants up to 100% of project cost to incentivize farmer adoption. AMMP projects are designed to work on dairies of all sizes and encourage adoption of alternative practices that avoid methane production on dairy farms. Practices include solid-liquid separation systems, conversion from flush to scrape or vacuum systems, conversion to pasture-based systems, or the adoption of compost pack barns. All of these practices avoid manure methane creation by limiting manure in anaerobic conditions where methane production increases. CDFA, with significant financial support from USDA (\$85 million), has also recently deployed the Dairy-Plus Program which is designed to maximize methane avoidance on dairy farms. To date, CDFA has funded more than 185 AMMP (170), or Dairy-Plus (15) projects on California dairies. It should be noted, the incentives and funding for these alternative methane avoidance projects has grown substantially, and the number of grants awarded each year now exceeds both the number and dollars awarded under the Dairy Digester Research and Development Program. While AMMP methane avoidance projects are highly cost-effective compared to other programs funded by the state's climate investments, they currently only account for about 10% of the state's manure methane reductions. CDFA's implementation of the Dairy-Plus Program and funding more alternative projects each year will increase the contribution of AMMP projects in overall methane reduction efforts.

DDRDP – Methane Capture and Utilization

CDFA's Dairy Digester Research and Development Program (DDRDP) provides grants to dairy digester projects in California that are designed to buy down the capital cost of the technology. The program only funds a small portion (generally 25% or less) of the overall cost of a typical project. Total project costs can easily exceed \$8 - \$10 million per dairy farm or more. Additional revenue streams associated with the beneficial use of the captured methane, such as the LCFS, federal Renewable Fuel Standard, as well as the CPUC Biomat and RNG procurement programs, are also needed to incentivize investment.

The LCFS has become the primary program to fully incentivize the development of dairy digesters in the state. This investment has paid significant dividends in California, leading to an estimated 2.4 MMT of CO₂e annually in dairy methane reductions from the 140 projects funded to date. These reductions represent about 90% of the total dairy methane reduction from projects funded by the state. These significant reductions are critical to the state's dairy methane reduction efforts, and without these reductions, the state's overall 40% SLCP and 48% GHG reduction targets cannot be met by 2030. The state's DDRDP is also highly cost-effective,

returning 1 MT of CO₂e reduction for each \$9 invested by the state. The return on investment is greatly magnified by the fact that the reductions are methane emissions and more valuable in short-term efforts to limit additional global warming. As a result, the state's DDRDP is widely regarded as the most cost-effective program. Equally important, the DDRDP is by far the most effective in achieving overall emissions reductions. According to the most recent California Climate Investments 2023 Annual Report produced by the state, the DDRDP accounts for 23% of GHG reductions from all climate programs invested in by the state with just 1.6% of total funds awarded. Moreover, the report highlights that 68% of funds expended on dairy digesters are benefiting priority populations, including disadvantaged communities.

Without participation in the LCFS, these projects are simply not economically feasible and will not be financed in California. Preclusion from participation in the LCFS, or the loss of avoided methane crediting would not only jeopardize existing dairy digester projects but would foreclose the ability to finance the additional 100 or so projects that will be necessary to achieve the state's methane reduction and climate targets.

Direct Regulation Will Prevent Achievement of Targets

While direct regulation of dairy methane reductions is outside the scope of this proceeding, we offer the following comments in response to repeated efforts by environmental justice organizations to directly regulate the dairy industry.

SB 1383 only authorizes CARB to implement regulation of the dairy and livestock sectors after January 1, 2024, and only after key conditions and considerations are met. These conditions and considerations include the determination by CARB and CDFA that any proposed regulations are technologically and economically feasible, cost-effective, and mitigate and minimize (prevent) leakage. SB 1383 also mandates an evaluation of progress made by incentive-based programs.

While none of these mandated considerations have been undertaken and the conditions cannot be met at this time, any effort to impose direct regulation will simply delay further progress toward the goals and ensure they will not be met. Efforts to develop regulations will take years, face significant legal challenges, and only ensure the state's methane reduction targets are not met. Efforts to directly regulate the dairy and beef cattle sectors only in California will also lead to massive methane leakage to other states, which is contrary to SB 1383 and California's leadership role in climate policy. Moreover, the existing comprehensive incentive-based program is clearly achieving the targeted reductions. Throwing out a successful program in search of a new, unproven direct regulatory scheme would be foolish and would ensure the state's climate policies are not followed by jurisdictions.

Conclusion

California's comprehensive approach to reducing methane from dairy operations is widely recognized as an effective model and fully consistent with national efforts being implemented by USDA and other federal agencies. The state's dairy methane reduction strategies are designed to provide cost-effective options and incentives for the state's diverse array of dairy farms. Continuation of these programs and efforts are critical to achieving the state's methane reduction and overall climate goals by 2030. In December 2022, a UC Davis report, *Meeting the*

*Call: How California is pioneering a pathway to significant dairy sector methane reduction*⁷, summed it up as follows:

“Our analysis shows that continued implementation and commitment to the incentive-based climate-smart solutions that are currently driving voluntary dairy methane reduction in California should by 2030 achieve the full 40% reduction in dairy methane sought by the state’s regulators without the need for direct regulation.”

⁷ Analysis by UC Davis researchers: [Meeting the Call: How California is Pioneering a Pathway to Significant Dairy Sector Methane Reduction](#)