



DAIRY METHANE REDUCTIONS: CDFA PERSPECTIVE

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Recent CDFA Activities around Methane Reductions

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- Incentive Programs
 - ▣ Dairy Digester Research and Development Program
 - ▣ Alternative Manure Management Practices Program
- Support of Research on Methane Reduction Strategies
- Climate Smart Agriculture Webinar -
https://www.cdfa.ca.gov/climatesmartag/recap_nl_dairy.html
- Synergies with the Healthy Soils Initiative
 - ▣ Development of compost application rates for a soil health incentive program through the Environmental Farming Act Science Advisory Panel

Dairy Digester Research and Development Program

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Objective: Implementation of dairy digesters that result in long-term methane emission reductions on California dairies and minimize or mitigate adverse environmental impacts.

- \$11.1 million to 6 digesters in 2015
- \$29-\$36 million available in Request for applications released on May 3, 2017, Applications due June 28, 2017
- Required minimum 50% cost match
- Community outreach is required – applicants may apply for facilitation assistance regarding outreach requirements.

Dairy Digesters Funded through DDRDP in 2015

Project	Amount awarded	Biogas end-use	Status
Verwey-Hanford Dairy Digester	\$3,000,000	Electricity	Completed
Open Sky Ranch	\$973,430	Electricity	Completed
Verwey-Madera Dairy Digester	\$2,281,091	Electricity	In progress
West-Star North Dairy Biogas Project	\$1,837,005	Electricity, RCNG in future	In progress
Lakeview Dairy Biogas Project	\$2,000,000	Electricity, RCNG in future	In progress
Carlos Echeverria & Sons Dairy Biogas Project	\$1,000,000	Electricity, RCNG in future	In progress

Alternative Manure Management Practices Program

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Objective: To incentivize the adoption of alternative (non-digester) manure management practices that reduce greenhouse gas emissions through financial assistance for California's dairy and livestock operations.

- ❑ \$9-\$16 million in funding is available
- ❑ Request for applications anticipated in summer 2017
- ❑ \$1 million maximum award per project

Management Practice for Evaluation

Conversion to scrape, followed by open solar drying, closed solar drying, forced evaporation with natural gas, composting with a bulking agent

Solid/liquid separation

Conversion to pasture

Daily spread, solid storage, dry lot, liquid/slurry, pit storage below animal confinements, cattle and swine deep bedding/bedded pack manure, composting (in-vessel/ static pile/intensive windrow/passive windrow)

Gasification, pyrolysis

Recycling of manure into cattle bedding

Current Research Efforts

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- DDRDP Research Project:
 - ▣ **Converting Manure to Reduce Greenhouse Gas Emissions, Minimize Environmental Impacts, and Enhance the Economic Feasibility of Dairy Operations: 2016-17**
 - Project leads: Dr. William R. Horwath and Dr. Xia Zhu-Barker, UC Davis

- Projects funded through the CDFA Dairy Marketing Branch:
 - ▣ **Producing Valuable Co-Products and Improving Nutrient Management for Dairy Manure Digester Systems: 2014-16**
 - Project lead: Dr. Ruihong Zhang, UC Davis
 - ▣ **Effect of Solid Separation on Mitigation of Methane Emission in Dairy Manure Lagoons: 2016-17**
 - Project lead: Dr. Ruihong Zhang, UC Davis