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DAIRY METHANE REDUCTIONS: CDFA PERSPECTIVE

GEETIKA JOSHI, PH.D.
SENIOR ENVIRONMENTAL SCIENTIST

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Sacramento, CA

Recent CDFA Activities around Methane Reductions

- Incentive Programs
  - Dairy Digester Research and Development Program.
  - Alternative Manure Management Program.
- Support of Research on Methane Reduction Strategies.
- International Climate Smart Agriculture Webinars - 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

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 Program

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.
- Achieve permanent, measurable. reduction in baseline GHG emissions.
- Maximize protection of water and air quality.

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

- 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.