

California Dairy Greenhouse Gas Overview

**Climate Smart Agriculture:
Dairy Sector**

California-Netherlands Webinar

J.P. Cativiela

Dairy Cares


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Pressure increasing on California dairy farms to reduce GHG, especially methane


- ▶ Dairy farms represent <5 percent of state's GHG inventory
- ▶ However, dairies are 45 percent of state's methane¹
 - ▶ 20 percent from enteric fermentation
 - ▶ 25 percent from manure storage
- ▶ Senate Bill 1383 (Lara) signed into law September 2016
 - ▶ Requires 40 percent reduction in statewide methane from 2013 levels by 2030
 - ▶ Authorizes regulation of dairies after 2024

¹BASED ON 2013 INVENTORY. SOURCE: "REVISED PROPOSED SHORT-LIVED CLIMATE POLLUTANT REDUCTION STRATEGY," NOVEMBER 28, 2016, CALIFORNIA AIR RESOURCES BOARD

Biogas digesters (capturing methane) a key part of strategy

- ▶ 16 dairy digesters operating in California presently; four additional digesters under construction
 - ▶ AB 1613, signed into law 2016, authorizes \$50 million for dairy-related methane emission reduction projects
 - ▶ Approximately \$36 million is proposed for dairy digester projects (not to exceed \$3 million or 50 percent of project cost, whichever is lower)
 - ▶ Up to \$9 million for alternative manure management projects
 - ▶ Digester opportunities could improve with long-term contracts for biofuels
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Other efforts being pursued to avoid (rather than capture) methane

- ▶ Basic research to identify and quantify opportunities across the manure management cycle
 - ▶ Practices that reduce the amount of manure, and residence time of manure, under anaerobic conditions
 - ▶ Improved efficiency of solids separation in flush systems, with faster drying of separated solids
 - ▶ Conversion of flush systems to mechanical collection (scrape, vacuum) with solar drying, composting, or other handling with reduced methane
 - ▶ Other manure management? Enteric?
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Methane not sole consideration

- ▶ Climate-smart efforts not limited to methane capture/avoidance
 - ▶ Energy and fuel efficiency, including irrigation efficiency
 - ▶ Installation of solar panels
- ▶ Effort to improve nutrient balance (whole farm) and nutrient use efficiency of crops and animals need to be considered
 - ▶ The specific needs and conditions of the farm should be considered before practices are selected

