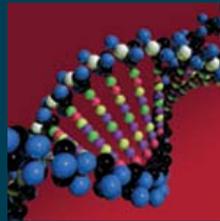


# Dairy Research Priorities and Coordination: A Dairy Industry Perspective



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## Overview



- **Community Alliance for Responsible Environmental Stewardship (CARES)**
  - Dairy producer trade associations
  - Milk processors
  - Allied businesses and community members
  
- **Where we all have been**
  - SJVAPCD DPAG and rulemaking processes
  - SJV Dairy Manure Collaborative, Dairy Manure Technology Feasibility Assessment Panel
  - Air Emission Action Plan for California Dairies
  
- **Where we all are going – building on our foundation**
  - Short and long-term priorities
  - Coordination process
  
- **Summary**



## Research Priorities – Emissions



- **Better understanding of emissions from all dairy sources**
  - Research should focus on highest ranking sources
  - May need scoping level research and then more intensive follow-on for high-ranking sources
  - Dairy operator input in site selection process
- **Seasonal and temporal variability**
  - Crucial for highest ranking sources
  - All ambient and manure variables should be recorded
- **Quicker and less expensive test methods**
  - First: review current dairy sampling / lab methods, results
  - Priority: high ranking sources where more study(ies) for substrate/seasonal/temporal variability are needed
  - New method validation and comparison crucial



## Research Priorities – Mitigation/Control



- **Quantifying emission benefits of practices/technologies**
  - Consistent test methods (either in lab or in situ)
  - Research parameters should reflect real dairy conditions
  - Multi-media impacts should be part of any protocol
  - Impact on other dairy process should be evaluated
- **Identification of validated practices / technologies**
  - Must involve all stakeholders
    - Existing process: SJV Dairy Manure Collaborative
  - Should be evaluated on multi-media basis
- **Multi-media impacts (air, soil, water, nutrients, GHGs)**
  - Crucial
  - Add State and Regional Water Quality Control Boards to stakeholder and peer review lists



## Research Priorities – Dairy Models



- **Emission models vs. emission factors**
  - More information for industry and agencies on technical foundations, limitations, and potential applications of these models
  - Multiple models/approaches exist or are being developed – they should all be reviewed
  - Dairy operator input
- **Results from previous emission studies should be incorporated as much as possible**
- **Multi-media considerations should be incorporated into the models where possible**
- **Proactive stakeholder involvement crucial in development of the models**



## Research Priorities – Funding



- **What is needed?**
  - Current studies only the beginning and should be replicated for verification and better understanding of emission variability
  - Targeted dairy air/water quality research, based on agency/stakeholder needs
- **Recent studies: lessons learned and conclusions**
- **Impact of controls should be proportional to the research certainty**
- **More emphasis on demonstration projects at real dairies**
  - Streamlining of permitting and other regulatory issues (SJVAPCD Rule 2021, SCAQMD Rule 441)



## Research Priorities – Other



- **Overall dairy emission impact on air basins**
  - Well established regional AQ models exist
    - ❖ More use of probing tools in SIP development
  - Incorporation of recent research into AQ model inputs (including updated source profiles, dairy locations, emission seasonality)
  - Early stakeholder participation in SIP technical working groups
- **Education/outreach to industry on rules / practices / controls**
  - Existing CDQAP process



## Better Stakeholder and Research Coordination Efforts



- **CARB and SJVAPCD should be more engaged in the National Air Emissions Monitoring Study (NAEMS) process**
  - Proactive rather than reactive commenting, particularly on sampling and lab methods
  - Industry would like to partner with local and state agencies on these technical review efforts
- **All stakeholders should be more aware of existing USDA Agricultural Research Service (ARS) efforts**
  - Mechanisms (?)
- **Dairy Industry-sponsored Western Region Air Research Symposium**
- **Agency-sponsored Research Conferences**



## Summary



- **The dairy industry strongly supports the collaborative stakeholder approach to technical/research issue**
  - Separate from policy discussions but results communicated to policy makers
  - Existing process helpful and should be expanded (USEPA - national and Region IX, ARS, WQCBs)
- **Resources to build up from current foundation**
- **Encourage process-based rather than “typical or model” farm approach, recognizing process interactions**
- **Multi-media impacts (water, soil, nutrients, GHGs) must be considered from the beginning**
  - Conserve nutrient value of manure when possible
  - Solutions must not impact animal health / welfare / food safety