

Research Symposium

Dairy Emissions: Recent, Ongoing, and Future Research in California

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Short-Term Research Priorities

- Total emissions from dairies
- Obtain better understanding of emissions from all sources of a dairy
 - Feed – Various types of Silage Piles (Corn, Alfalfa, etc.), Feed Additives, Altering of Feed ration to improve digestion while minimizing emissions
 - Land Application – Solid manure application, semi-solid or slurry, and liquid manure application (pre and post treatment)



Short-Term Research Priorities

- Evaluate and Quantify emissions benefits of various manure management practices & control technologies
- Obtain a better understanding of emissions from different types of cows (heifers, calves, etc.)



Short-Term Research Priorities

- PM10 and PM2.5 Research
 - Accurately quantify emissions from various types of housing (freestalls, open corrals, etc) and types of cows (Mature cows, heifers, calves)
 - Evaluate and quantify the effects of mitigation measures in reducing PM10 and PM2.5 emissions (shades, frequent scraping, sprinkling, shelter belts, etc.)



Long-Term Research Priorities

- Develop a total systems approach for VOCs that accounts for loss pathways and optimizes emissions management
- Understand seasonal and temporal variability of emissions
- Anticipate research needs and priorities



Coordination of Research

- Interagency Coordination of Research
 - Establish clearinghouse for dairy research
 - Ensure quality, consistency, relevancy, and compatibility of research results,
 - Maximize use of available funds,
 - Requires allocation of staff support time
 - Secure sources of funding for dairy research



Coordination of Research

- Provide guidance on research testing protocols and measurements
 - Recognize complexity of dairy emissions and adjust test methods accordingly
 - Identify pollutants of interest
 - Encourage accurate testing
 - Cover all VOCs – SCAQMD Method 25.3
 - Speciation may still be important
 - Quality Assurance/Sample Handling

