

Measuring Gas Emissions from Manure Sources

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One of the major sources of air pollution is decomposition of livestock wastes. According to the Census of Agriculture, currently, there are approximately 55,000 dairy and beef cattle (including calves) in Cache County. Air emissions from animal operations include ammonia (NH_3), nitrous oxide (N_2O), nitrogen oxides (NO_x), methane (CH_4), volatile organic compounds (VOCs), hydrogen sulfide (H_2S), particulate matter (PM_{10} and $\text{PM}_{2.5}$), and odor. Most emissions are from area sources such as cattle feedlots, wastewater lagoons, or from agricultural fields amended with manure or sewage.



Dairy cows in freestall barns with ready access to feed bunks, water sources, and stalls for resting.



Cattle manure from feedlots is commonly stored either in piles on concrete (above) or in a lined lagoon.



A closed dynamic chamber measures gas buildup to estimate emissions from soil surface-applied manure.



A multiplexed automated chamber system is employed for evaluation of manure management practices.