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AMMONIA EMISSIONS FROM U.S. POULTRY HOUSES: PART II – LAYER HOUSES

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ABSTRACT

An ongoing project of monitoring ammonia (NH₃) emissions from U.S. layer houses with two different housing and management schemes is reported in this paper. Ammonia and carbon dioxide concentration levels were collected bi-weekly from each house with portable monitoring units (PMUs). There existed substantial seasonal variations in NH₃ emission from the layer houses. Specifically, daily mean NH₃ concentrations ranged from 1 to 7 ppm in the manure belt house and from 9 to 108 ppm in the high-rise house. The NH₃ emission rates averaged 6 mg/hr-hen or 44 g/d-500kg over a 12-month monitoring period (February 2002 – March 2003) for the manure belt house and 44 mg/h-hen or 331 g/d-500kg over a 10-month monitoring period (February – November 2002) for the high-rise house. Ammonia emission rates are higher in summer than in winter, although NH₃ concentration may be much lower in summer.

KEYWORDS. Ammonia, Emission rates, Ventilation rate, Layer houses, Poultry.

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