

Odour Measurement: Measuring Odour Emission Rates from Pig Barns and Manure Storages

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Typical sources of odour on pig farms are barns, manure storage facilities and manure spread on land. Odourous gases are generated and emitted at different rates from each source. Emission rates are also influenced by the type of manure management and odour control systems used on the farm.

During the summer's of 1999, 2000 and 2001, the odour emission rates from pig barns and manure storage facilities were measured at various pig production sites in Alberta. Emission rates from the barns were determined by multiplying the odour concentration at the exhaust fans by the ventilation rates of the fans.

Similarly, emission rates from the manure storage facilities were determined by multiplying the odour concentration of known manure surface areas and the airflow rates across the surfaces. A vented-hood and wind tunnel were used to determine odour emission rates from manure storage facilities.

Implications

Odour emission rates from different barns and manure storage facilities shall be used to develop:

- Odour dispersion models - these models are used to predict the environmental impact of odours downwind from pig production sites.
- A database of information that can be used in odour dispersion models to aid in properly siting new or expanding pig facilities.