

Odour Measurement: Developing a Technique for Measuring Odour Directly in the Field

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The performance of odour-reducing technologies is evaluated by measuring odour strength before and after odour reducing technologies are applied. Olfactometry is a widely accepted method for measuring odour strength. However, it cannot be used to measure odours directly in the field, at or away from the source of the odours. Furthermore, samples collected away from the source are often weak and do not represent the actual strength of odours perceived directly in the field.

An alternative method for direct field measurement of odour strength is the odour intensity referencing scale (OIRS). However, since olfactometry is the more popular method of the two, measurements obtained using the OIRS method need to be compared to measurements obtained using olfactometry.

During the Summer of 2001, staff from the University of Alberta and Alberta Agriculture used the OIRS method to measure odour strength directly at two pig production sites in Alberta. Odour strength was measured between 10 to 25 metres from the barn or manure storage facilities. In addition, odour samples collected in bags at both sites were analyzed in the laboratory using the OIRS method and olfactometry. A formula was obtained to relate the OIRS measurements to olfactometry measurements.

Implications

Development of a reliable, cost-effective alternative method to evaluate:

- Performance of odour-reduction technologies.
- Environmental impact of odours in relation to proper siting of pig facilities.