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ASSESSING ODOUR PLUMES SURROUNDING SWINE OPERATIONS

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ABSTRACT Instantaneous downwind odour plumes were measured on two 3000-sow swine farrowing farms located in a flat area of southern Manitoba, one with open earthen manure storage (EMS) and other with negative air pressure (NAP) covered EMS. The downwind odour plumes were quantified by 15 trained human odour sniffers using an 8-point n-butanol scale. Downwind odour intensity peak-to-mean ratios were computed from field odour intensity measurement and analysed against downwind distances, atmosphere stability class and averaging time. The peak-to-mean ratio increases with downwind distance and averaging time; higher peak-to-mean ratios occurred under unstable atmosphere conditions.

Keywords: odour, dispersion, swine operation, human sniffer.