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ABSTRACT

THE ODOUR IMPACT OF BROILER CHICKENS – COMPARISON OF THE THEORETICAL APPROACH WITH FIELD PANEL MEASUREMENTS ACCORDING TO EN16841-2

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In the Flemish legislation, no assessment framework concerning odour is implemented. Nonetheless, it is necessary to include an odour impact study within almost every odour-related permit application. For livestock farming, odour emission factors, derived from olfactometric measurements (ou_E), are widely used. Contrastingly, the available assessment tools, based on earlier odour impact research, utilize sniffing measurements (se). To allow comparison between the two units of odour, it is assumed that 1 ou_E equals 1 se. For most groups of livestock animals with a rather constant growth cycle (e.g. pigs), this comparison is deemed valid and thus is the method suitable to evaluate the odour impact. However, the theoretical assessment of broiler chicken emissions can be questioned. Using the olfactometric emission factor (0,33 ou_E/s.animal), almost no odour impact is calculated. Nonetheless, with several permit applications involving this kind of stables, action groups are often established and the odour complaints are numerous. Therefore, the Province of West-Flanders (Belgium) ordered an odour study to compare the theoretical approach with the infield experience (based on sniffing measurements). The biggest problem with the breeding of broilers is the short growth cycle (approx. 6 weeks), resulting in an very discontinuous emission rate. To account for this short growth cycle, 14 sniffing measurements each were performed in the vicinity of 8 broiler chicken farms, and these were equally divided over the breeding schedule (age of the broiler). Using this large amount of collected data, several scenarios were compared (e.g. average value, value in function of stable type, value in function of age, and so on). The different scenarios based on the sniffing measurements resulted in a comparable impact on the environment of the farm. But compared to the theoretical value, the main conclusion of the study was that the theoretical approach can be considered as a major underestimation of the real odour emission. The theoretical average value of 0,33 ou_E/m^3 was almost 4 times lower than the real average value of 1,22 se/m^3 according to the sniffing measurements. As of now, the Flemish government is still discussing how the emission factor should be adjusted and how it should be implemented in the permit applications. Additionally, a follow-up study is in progress, involving other animal categories, in order to finetune the odour impact assessment of livestock farming.

Indicate preference of kind of presentation

¤ Oral Communication
☐ Poster

Indicate topic of your work for the conference:

☐ Policy and associated regulations for odour and air quality.
¤ Odour/VOC measurement, monitoring&sensor technologies.
☐ Odour/VOC perception, impact, formation and dispersion.
☐ GHG emissions particulate matter and industrial emissions.
☐ Source characterization and odour/VOC mapping.
☐ Odour/VOC abatement, mitigation and neutralization.
☐ Odour/VOC from waste water, sewer systems and livestock.
☐ Air emissions and sustainable solutions for waste handling
☐ Community engagement, social media and citizen action.
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