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One Health

L'Animal et l'Homme, une même santé

Posters

47. Impact of the amount of straw on emissions of ammonia and greenhouse gases associated with fattening pigs kept on deep litter

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The aim of this essay is to study the effect of the amount of straw on emissions of ammonia (NH₃) and greenhouse gases (nitrous oxide, N₂O; methane, CH₄; carbon dioxide, CO₂) during the fattening of pigs kept on deep litter. Two successive batches of 30 fattening pigs (Piétrain x Belgian Landrace) were divided into 3 groups kept in separated pens of 12.6m² of surface area (1.26m²/pig). At the beginning of each fattening period, 250kg of whole wheat straw were used to constitute the initial bedding. Thereafter, straw were supplied once a week in each pen to amount 500, 750 and 1000 kg of straw at the end of each fattening period (after about 100 days), in the 3 pens respectively. Experimental rooms were automatically ventilated with continuous recording of ambient temperature and ventilation rates. Gaseous concentrations were measured by photo-acoustic detection during 3 periods of 6 consecutive days throughout each fattening period. Increasing the amount of straw from 0.5 to 1.0kg/pig.day allowed to decrease NH₃- and N₂O-emissions by 24 and 31% respectively, but increased the CH₄-emissions by 90%. CO₂-emissions seemed unaffected by the amount of applied straw.

48. Influence of the void percentage of the floor on ammonia and greenhouse gas emissions for group-housed gestating sows

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According to EU legislation, group-housed gestating sows must have a minimum of 2.25 m² floor area *per* sow with at least 1.3 m² of continuous solid floor of which a maximum of 15% is reserved for drainage openings. Furthermore, if slatted floors are used for the remaining floor area, the maximum width of the opening must be 20 mm and the minimum slat width must be 80 mm. The aim of this work was to investigate the influence of void percentage of the floor on gas emissions (nitrous oxide-N₂O, methane-CH₄, carbon dioxide-CO₂, ammonia-NH₃ and water vapour-H₂O). Two trials were carried out. For each trial, three successive batches of ten Belgian Landrace gestating sows were used. Each batch was divided into two homogeneous groups randomly allocated to a treatment: 15% or 9% of void percentage of the floor for the first trial and 9% or 6% for the second trial. The groups were kept separately in two similar rooms. The pens were equipped with five individual feeding stalls with rear gates allowing or not permanent access to the stalls outside of feeding times. In the first trial, the void percentage of slatted-floor and thus the floor fouling influence the NH₃- and greenhouse gases-emissions, with lower emissions observed with an increased void percentage from 9 to 15%. In the second trial, the void percentage (9% vs. 6%) did not significantly influence NH₃-, CH₄-, CO₂- and H₂O-emissions. N₂O-emissions were 8% greater with the highest void percentage and, in consequence, CO₂eq-emissions were 5% greater.