

Session 05

Theatre 7

Growth, health and body condition of piglets fed 100% organic diets

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The organic regulation in the EU will implement the 100% organic feeding for monogastric animals in Organic Agriculture from 2019, and high quality potato and corn gluten from conventional sources will be banned. In preparation, it is necessary to generate optimized feed rations especially for young animals, which will not compromise animal health and growth. The aim of the current study was to conduct feeding experiments with piglets on-farm, investigating three different optimized 100% organic diets formulated by a feed company. From a usual commercial piglet diet (A) with 95% organic components consisting mainly of barley, oat flakes, horsebean, protein peas, soy cake and conventional potato protein (4%), an optimized 100% organic diet (B) with changed ratios of the same components was created excluding potato protein. Two further 100% organic diets, one (C) with milk powder (3%) and another one (D) including fermentatively produced lysine (0.3%), both based on diet B, were investigated. Instead of rapeseed cake diet D contained sunflower cake. In 5 subsequent sample periods a total of 400 piglets, 100 for each of the 4 diets, were studied from birth until an age of 9 weeks. The respective diets were offered *ad libitum* to piglets during this period. Each litter was stabled with its sow in single pens until weaning at 6 weeks, thereafter piglets were separated. Piglets were weighed after birth and in week 3, 6 and 9 with simultaneous assessment of body condition score (BCS) and health status. One-way ANOVA was employed to compare means of daily weight gain for 2 different periods (DWG1 between birth and 6 weeks and DWG2 between 6 and 9 weeks) and showed no significant difference between treatments ($P=0.782$; $P=0.057$). Regarding the final weight at 9 weeks no significant difference was found ($P=0.503$). Also BCS showed no significant difference between treatments ($P=0.391$). Diet C tended to result in an improved health status of piglets was observed. The lowest mortality was found for treatment B (3.6%), the highest mortality was observed for treatment D (16.5%) while treatment A and C resulted in 11.8 and 10.9% deceased animals. In conclusion, 100% organic diets for piglets with and without milk powder are feasible without impacts on performance and health.

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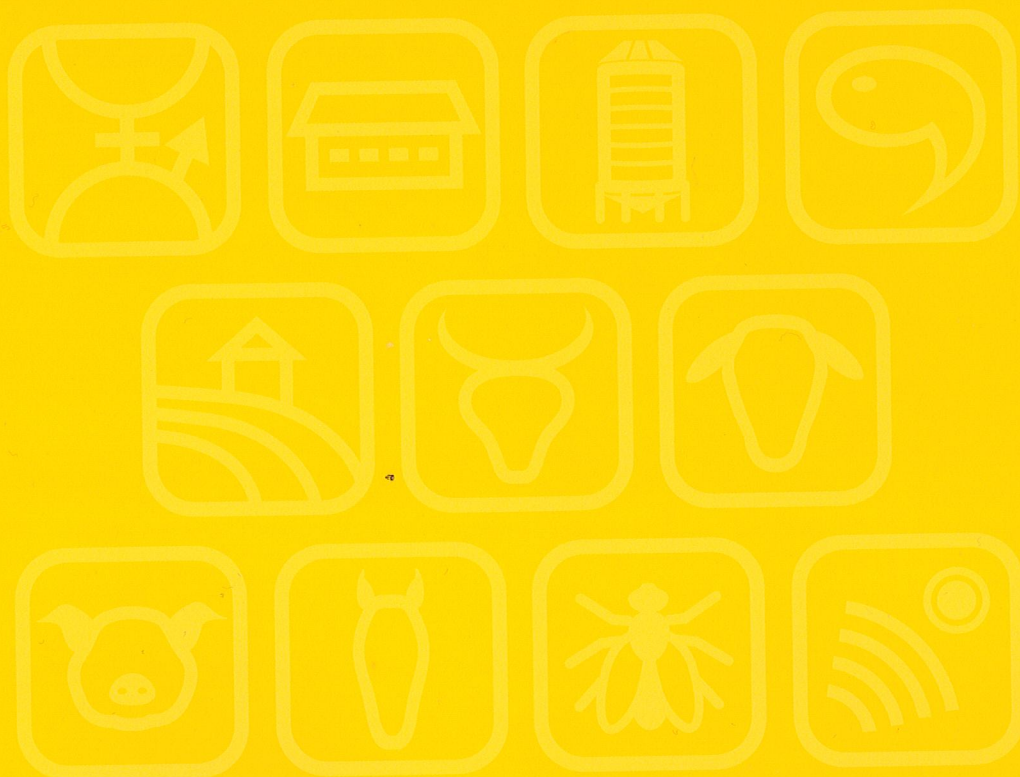
Effects of various feed additives in growing pigs

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Experiment 1 was a feeding trial in which 75 (Landrace × Yorkshire) × Duroc pigs with average initial body weight (BW) of 26 ± 1 kg were used. It was assigned to three pigs/pen and five pens / treatment. Experiment 2 was a metabolic trial in which 25 (Landrace × Yorkshire) × Duroc pigs with average initial body weight (BW) of 36 ± 1 kg were used. The basal diet consisted of maize (57.71%), soybean meal (32.45%), and wheat bran (5%). Treatments consisted of (1) CON (control diet); (2) OE (organic acid + essential oils), that is, CON + 0.05% OE; (3) OC (organic charcoal), that is, CON + 0.1% OC; (4) AE (anise extracts), that is, CON + 0.015% AE; and (5) PB (probiotics), that is, CON + 0.1% PB. Average daily gain and gain/feed ratio were significantly higher in the OE and AE groups than in the others ($P < 0.05$). Average daily feed intake for OE, OC, and AE treatments was significantly higher than that for CON and PB treatments ($P < 0.05$). Dry matter digestibility was significantly higher in AE than CON ($P < 0.05$). Crude protein was significantly higher in OE, AE, and PB than CON ($P < 0.05$). Ammonia emissions were significantly lower in all treated groups than in CON ($P < 0.05$). Among the treatments, ammonia emissions were lowest in OE and AE. Hydrogen sulphide emissions were significantly lower in OE, AE, and PB than in CON ($P < 0.05$). Among the treatments, OE and AE were most effective at reducing hydrogen sulphide emissions. In conclusion, this experiment was shown to be more effective on growth performance, malodour emission, blood profiles, and nutrient digestibility in OE and AE than other additives.

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