

Fungal fermented product reduced post-weaning diarrhoea and increased growth performance

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Background and objectives

Fungal fermented products and their derivatives contain several compounds and may play a role in replacing antimicrobials in piglet diets. During fermentation, microbial enzymes produced by fungi will degrade feed material and fungal cell wall material is produced. In our study, fungal fermented rye is evaluated, which showed to bind pathogens and exhibit a prebiotic effect in the intestinal tract. Moreover, the fungal material is known for its immunomodulatory properties. This study investigates the effect of supplementing fungal fermented rye (FR) in the diet to improve weaning transition, post-weaning performance and gut health.

Material and methods

Eight and six litters were randomly assigned to control (CON) or treatment (FR), respectively. Treatments were provided from 7 days after birth until 7 days post-weaning and pigs were followed until 6 weeks post-weaning. The control diets were based on standard nutritional requirements (125 ppm zinc) and provided as a milk supplement (5-14 days), a creep meal (14-20 days) and weaner diet (21 days until 7 days after weaning). Treatment contained 2.5 kg/mt FR replacing corn. After weaning, piglets were housed with 3 or 4 pigs per pen (n= 38 or 31, CON and FR respectively). Animals were housed under optimal and sub-optimal conditions, i.e. with lower temperature setting, dust creation and no cleaning. Faeces consistency was scored daily for 14 days following weaning. Growth performance was analysed with the PROC GLIMMIX procedure with the repeated statement. Faecal scores were evaluated with the χ^2 homogeneity test of the GENMOD procedure in SAS. Pen was the experimental unit.

Results

Housing conditions were included in the final model but did not interact with treatment. At weaning (24 ± 1.0 days), no significant differences between treatments were observed; average weaning weight was 6.8 ± 1.45 kg. During the first week after weaning, feed intake and body weight gain improved with FR by 12.6% and 14.7% respectively ($p < 0.05$). The final body weight of the pigs was 25.4 ± 3.23 kg (CON) and 26.5 ± 3.7 kg (FR; $p = 0.319$). Post-weaning FR showed an improvement in faecal consistency over the first seven ($p = 0.006$) and 14 days post-weaning ($p = 0.001$) (Figure 1).

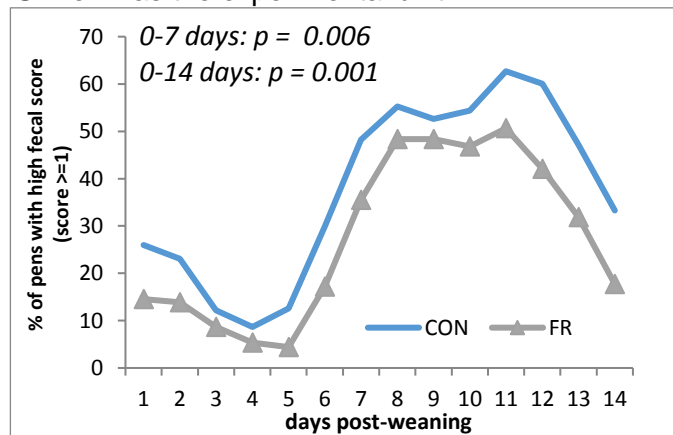


Figure 1: The development of fecal consistency (expressed as % of pens with score 1, 2 or 3). Experimental diets were fed from 1 week of age until 7

Conclusion and discussion

The data obtained indicate that fermented rye (FR) can support feed intake and growth performance immediately after weaning. Moreover, supplementing diets of pre- and post-weaning piglets with fungal fermented components might improve faecal consistency or support gut health during the immediate post-weaning period.