Effects of partial feeding fermented wheat grain with *Lactobacillus reuteri* on nutrient digestibility, growth performance and diarrhoea incidence in weaned pigs

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Feeding fermented feed to weaned pigs may improve gut health and thus reduce diarrhea incidence. The effects of partial feeding fermented wheat grain with *Lactobacillus reuteri* was evaluated using 36 weaned pigs (BW 7.26 kg). The fermented wheat grain tested (dry matter basis) 14.3% CP, 0.45% chemically-available Lys, 1.4% ether extract, 1.9% crude fibre, 2.6% ADF, 7.8% NDF. Pigs were fed 6 mash wheat-based diets over 2 phases: Phase 1 diets fed for 1 wk (d 0-7) included 20% unfermented/fermented wheat, Phase 2 diets fed for 2 wk (d 8-21) included 50% unfermented/fermented wheat. Six diets included negative control (non-fermented), positive control (non-fermented + organic acids), and 4 fermented wheat grain diets (*L. reuteri 3028* and *L. reuteri 3033* with or without added sucrose). Diets were formulated to provide 2.5 and 2.4 Mcal NE/kg and 5.3 and 5.0 g standardized ileal digestible (SID) Lys/Mcal NE for Phase 1 and 2 diets, respectively. Faeces were collected weekly for 48 h. Feeding fermented wheat grain reduced ($P<0.05$) the apparent total tract digestibility of diet DM, GE, and CP for week 3 by 0.9, 1 and 2%, respectively. Weaned pigs fed fermented wheat grain diets with *L. reuteri* had 16% lower ADFI than controls (non-fermented and organic acids added; $P<0.05$) for week 1 and 10% lower for the entire 3-week experiment. There was no difference in ADG and G:F of pigs fed fermented wheat diets vs. controls ($P>0.05$) for the entire trial despite lower ADG ($P=0.04$) and G:F ($P=0.06$) of pigs fed fermented wheat diets in week 3. No diarrhoea was observed during the entire experiment.

Implications: Preliminary results showed that weaned pigs fed fermented wheat grain diets had reduced overall growth performance and slightly lower apparent total tract digestibility of diet DM, GE, and CP only for week 3.