

**Impact of high-wheat bran diet on sows' microbiota, performances and progeny's growth and health**

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Finding alternatives to antimicrobial growth promoters is part of the goal of improving sustainability in pig production. Dietary fibres are considered as health-promoting substances acting on pigs' microbiota. This study aimed to investigate whether the enrichment of sows' diet with high levels of wheat bran (WB) could impact the performances of sows and piglets' health. Seven sows were fed a control diet (CON) and 8 sows a WB diet from day 43 of gestation (WB 240 g/kg DM) until the end of the lactation period (WB 140 g/kg DM). Diets were formulated to be iso-energetic and iso-nitrogenous by changing the proportions of some ingredients. Faeces were sampled at different time points (before treatment, during treatment: in gestation and lactation) to determine microbiota composition (sequencing with Illumina MiSeq). Milk was sampled weekly to determine lactose, fat and protein concentration by mid-infrared technology and IgA and IgG contents by ELISA. Before weaning (d26-27), piglets were euthanized, intestinal contents and tissues sampled for further analyses. Zootechnical performances of sows and piglets were recorded. Statistical analyses were performed using the SAS MIXED procedure and repeated measurements. Treatment never impacted piglets' weight ( $P=0.51$ ). Sows' ingestion during the lactation period was comparable between both treatments until the last 4 days of lactation where the percentage of target ingestion was significantly ( $P<0.001$ ) lower for the WB (66%) compared to the CON group (89%). No effect on sows' backfat and weight changes was observed. An increased abundance of *Lactobacillus* spp. in feces of the WB group was observed in gestation before and after diet change (8.8% vs 15.1% of total bacteria). However, for the overall genera changes between treatments, it only seems to occur for minor groups of bacteria. Milk protein, fat, IgG and IgA were not affected by treatment, but a time-effect ( $P<0.001$ ) was observed while treatment impacted ( $P<0.05$ ) lactose content. In conclusion, sows' performances were not affected by the high WB diet and more research on the piglets' samples is foreseen.