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PSVI-11 Leveraging Former Food Products (FFPs) as sustainable replacements in pig diets: impact of 20% and 40% inclusion on growth, feeding behavior, and carcass quality.

Meta Čandek-Potokar[1], Martin Škrlep[1], Klavdija Poklukar[1], Roxana Elena Amarie[2], Giuseppe Bee[3], [1]*Agricultural Institute of Slovenia,* [2]*Dipartimento di Scienze Agrarie Alimentari e Agro-ambientali (DiSAAA-a) Università di Pisa,* [3]*Agroscope*

Abstract: Although the use of food waste for animal feed is limited in the EU, there are some exceptions. One of these is leftovers from the food industry, known as former food products (FFPs). The nutritional characteristics of FFPs (high energy, low protein) make them an ideal grain replacement in pig diets. This study investigates the effects of two inclusion levels of FFPs on growth performance, feeding behavior, and carcass composition of heavy pigs. FFPs were included at three levels: 0% (C = control), 20% (FFP20) and 40% (FFP40) in the diets of grower (G: 20-60 kg BW), finisher I (FI: 60-100 kg BW) and finisher II (FII: 100-140 kg BW) pigs. The iso-caloric and iso-proteic diets were offered ad libitum to 36 pigs (12 pigs per dietary treatment) during the entire growth period. The BW was measured weekly, while feed intake was determined at each feeder visit. To determine nutrient composition, cold carcasses were scanned by dual-energy x-ray absorptiometry the day after slaughter. Data were analyzed using the Proc MIXED procedure of SASV9.4 with diet treatment as a fixed effect and litter origin as a random effect. Linear (L) and quadratic (Q) effects were run to test the effect of FFPs inclusion levels. In the grower period, average daily feed intake and average daily gain decreased (L; $P< 0.001$) with increasing FFPs inclusion by up to 14 and 12%, respectively. Because average daily feed intake was lower (L; $P\leq0.110$) in the FFP20 and FFP40 treatments in both finisher periods, these pigs consumed on average up to 10% less feed (L; $P< 0.001$) throughout the G, FI and FII periods. Compared to the control pigs, the reduced feed intake had no effect on growth in both finisher periods, but FFP20 and FFP40 pigs were up to 9 and 7% more efficient (L; $P< 0.001$) in the FII and total periods, respectively. In the FI period, FFP20 pigs spent the least time at the feeder, consumed more feed per minute, had a longer interval between visits to the feeder (Q; $P\leq0.023$), but tended (Q; $P=0.070$) to go more often to the feeder compared to the control and FFP40 pigs, which showed a similar feeding behavior. The protein and water content, expressed as a percentage of the total carcass weight, increased by up to 3% (L; $P< 0.001$) and the fat content decreased by up to 6% (L; $P\leq0.009$) compared to the control. The FFPs inclusion of up to 40% had limited effect on the growth, improved feed efficiency and resulted in a lower carcass fat deposition. Thus, the replacement of cereals with FFPs seems to be a valuable and sustainable solution for the reduction of feed-food competition also in heavy pig production.

Keywords: carcass composition, growth, feeding behavior