

Nutritional value of flaxseed meal for swine

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Flaxseed meal (FSM) is a by-product of the flax crushing industry and contains an average of 34% crude protein (CP) and 13% fat on a DM basis. The CP fraction is characterized by a low lysine content (4.1% of CP) but is high in tryptophan (1.2%), methionine (1.9%) and threonine (3.7%).

Two experiments were conducted to determine the nutritional profile of FSM for pigs. In Exp. 1, apparent nutrient digestibilities (AD) and the digestible (DE) and net (NE) content of FSM were determined using 24 gestating sows (P2-P4) and 32 barrows (70 kg). Pigs were fed one of 4 diets containing 0, 10, 20 or 30% FSM at the expense of barley, wheat and soybean meal in a completely randomized design. Celite was included as a source of acid-insoluble ash (AIA). Fecal grab samples were collected for 3 d following a 9 d acclimation period and were analyzed for DM, gross energy (GE), fat, ash and AIA. Calculated by regression, the AD coefficients for DM, ash, and GE were 72, 28 and 71% respectively for growing pigs and those of DM, ash, fat and GE were 68, 22, 49 and 73% for sows. The DE and NE contents were 3.52 and 2.46 Mcal/kg DM for growing pigs and 3.58 and 2.49 Mcal/kg DM for sows, respectively. In Exp. 2, 5 barrows (38 kg) were fitted with T-cannulas at their terminal ileum to determine the standardized ileal AA digestibility (SID) of FSM. Pigs were fed a semi-synthetic diet containing 40% FSM as the only source of CP for 7 d (4 d acclimation, 3 d digesta collection) followed by a similar 7 d period in which an N-free synthetic diet was fed. Both the diets and digesta samples were analyzed for their amino acid content and chromic oxide levels. The SID AA content (g/kg dry FSM) was 29.6, 5.7, 12.1, 16.8, 10.3, 5.3, 14.0, 9.4, 2.9, 13.8 and 12.2 for Arg, His, Ile, Leu, Lys, Met, Phe, Thr, Trp and Val respectively.

Implications: FSM contains a comparable nutritional value to that of canola meal for pigs but with a lower lysine content and higher DE and NE content, due to its high fat content. The main limiting factor for its use in swine nutrition could be its low lysine content.