

## ABSTRACT OF THESIS

### NUTRITIONAL EVALUATION OF EUROPEAN SOYBEAN MEAL PROCESSED WITH NOVEL TECHNOLOGIES AS REGARDS THE ILEAL DIGESTIBILITY OF AMINO ACIDS IN WEANED PIGLETS

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In this study, we compared the nutritive value of novel soy products, flaking cooking pressing, and extrusion pressing process of dehulled beans (FCP-DH and EP-DH, respectively), and flaking cooking pressing and extrusion pressing process of whole beans (FCP-WB and EP-WB, respectively) to a high-quality commercial soybean meal (CNTR) and casein (Casein). For that purpose, performance trials, nitrogen (N)-retention, and *post-mortem* digestibility, that is, Apparent Ileal Digestibility (AID), and Standardized Ileal Digestibility (SID) trials were carried out. The trial products were formulated from soybean of European origin, and the commercial soybean meal was from the USA. Casein was chosen as a reference protein source. The study was conducted with a total of 70 Danbred weaned (5-week-old) barrows, within 2 replicates. Piglets were randomly allocated to each of the 7 treatments (5 animals/treatment/replicate). The experiment consisted of a 28-day-long performance trial and a 5-day-long retention trial.

During the performance trial, two groups (10 pigs/replicate) received the control diet, and the others were assigned to diets containing soybean meal (SBM) from each novel technology or casein. During retention studies, either of the groups that received commercial SBM diets was fed N-free diet to determine endogenous amino acid losses. At the end of the retention study, the ileal digestibility of amino acids was determined *post-mortem*. The experimental data were analyzed with two-way ANOVA (SAS, 2004). It was observed that except for FCP-DH, all the other European soya products were as good as the commercial SBM. In general, except for FCP-DH, there was no difference in the impact of the feed processing methods on the nutritive value of soya products. In conclusion, inadequate thermal processing of FCP-DH could have negatively affected the nutrient digestibility of the feed. I recommend the need for further studies to explain the possible mechanisms of ensuring adequate thermal processing of FCP-DH.