THEME 7 | NONRUMINANT NUTRITION AND PRODUCTION

Piglet's performance submitted to different diets based on soybean: data validation by INRAPORC® software

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The efficiency of post-weaning piglet's diets is usually evaluated through performance experiments. Nonetheless, this type of evaluation can be performed through different nutritional modeling software, such as INRAPORC®. The present study aimed to evaluate the INRAPORC® software to predict the performance at the lower limit of its simulation capacity (piglets from 15 kg body weight). Input data was obtained from an experiment presented in a literature article ("Piglet performance in nursing phase when fed diets containing soybean protein concentrate"). Data from 64 piglets divided into two treatments have been inserted in the software modules to evaluate average daily feed intake (ADFI), average daily weight gain (ADWG) and feed conversion ratio (FCR). The diets used in the experiment included in their composition one of two soy sources, differing between them with respect to the processing: high protein soybean meal (SM) and soy protein concentrate (SPC), with 48% and 60% of crude protein, respectively. The piglet's growth was simulated and performed based on an average body weight from 15.72 to 24.96 kg (50 to 64 days of age). The experimental data showed an ADFI of 1.19 kg per piglet considering both diets and the INRAPORC® prediction presented an ADFI very similar to the experimental data (1.20 kg and 1.17 kg per piglet for the SM and SPC diets, respectively). The ADWG in the experiment was 0.671 and 0.667 kg per day for piglets fed the SM and SPC diets, respectively, while the ADWG predicted, on average, was 113 g more per piglet per day than the observed in both diets. The difference between the ADWG estimated by the program and the observed in the experiment may be due to the assumption in the model used that all feed has been fully consumed, determining the expected gain for the nutrients contained in the diets and disregarding the possible feed waste. Regarding the FCR, both experimental diets showed a value of 1.78 while the FCR predicted by INRAPORC® was lower, with values of 1.53 and 1.50 for piglets fed with SM and SPC diets, respectively. Since the FCR depends on the ADWG, the lower value estimated at INRAPORC® was due to the higher estimation of ADWG than the observed in the experiments. The study showed that INRAPORC® software is an accurate tool to predict the piglet's performance based on the lowest body weight recommended for the simulation (15 kg), and it can be used in the future for piglets growth simulation studies.

Keywords: modeling, nursery phase, pigs, simulation