

Contribution to the study of lysine feeding standards for bacon pigs

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Four feeds based on barley and soybean meal were compared. Their lysine concentration were: 0.62-0.66-0.78 and 0.84 p. 100, i.e. 2.0-2.15-2.5 and 2.7 g Lysine/1 000 digestible Kcalories.

These feeds were offered simultaneously to females and castrated males, either *ad libitum* or according to a progressive feed restriction plan which varied according to sex (maximum 2.5 kg/day for males and 2.9 kg for females).

Restricted feeding led to a decrease in growth rate and to a marked improvement of body composition.

The sex influence appeared above all on the carcass quality.

There was a significant interaction between these two factors. It was due to a larger improvement of body composition in castrated males subjected to restricted feeding. For these animals, the feed restriction was more important than for females.

In *ad libitum* feeding, the optimal lysine level was inferior or equal to 2.0 g/1 000 digestible Kcal during the finishing period. During the growing period it was 2.15 for castrated males and 2.5 for females.

With a restricted feeding, Lysine levels of 2.5 and 2.0 g/1 000 digestible Kcalories seem to be correct for growing and finishing periods in females and castrated males respectively. These results justify the use of the same lysine feeding standards for the two sexes in relation to the energy level of the ration.

Optimal dietary level of balanced protein after amino acid supplementation in growing pigs between 20 and 50 kg weight

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An experiment was designed to study the possibility of reducing the dietary protein level in growing pigs between 22 and 52 kg live weight, after correcting the deficiencies in essential amino acids. Six groups of 12 animals each (half females and half castrated males) in individual pens were fed maize-soybean meal diets containing one of the following crude protein levels (18.7, 17.7, 15.5 and 13.4 p. 100 air dry diet). At the two lowest protein levels (15 and 13 p. 100 the diets were supplemented with L-lysine, with or without addition of supplementary L-lysine, with or without addition of supplementary L-tryptophan. The animals were moderately restricted to the same scale of feeding according to live weight and received pelleted diets. They were slaughtered at 100 kg body weight after receiving a common finishing diet beyond 52 kg live weight.

A positive response to supplementary tryptophan, after addition of lysine (first limiting amino acid), in castrated males like in females, was only found at the level of 13 p. 100 protein, which appeared to be suboptimal for growth performance. That means that the level of non essential nitrogen is the second limiting factor for growth, after lysine and before tryptophan, in the case of a maize-soybean meal mixture. Lysine supplementation is enough by itself for providing a maximal saving of protein supplement in this type of diet.

Lysine supplementation in the diet of castrated males allowed to decrease the protein level to 15 p. 100 in a diet containing 89 p. 100 dry matter, corresponding to 45 g crude protein per Meal digestible energy.