

But when free lysine was added to the cereal, the performances (growth rate, feed efficiency) were significantly higher (+ 8 p. 100) than those obtained in pigs when lysine was added to the oil-meal.

Effect of dietary amino acid balance (lysine deficiency) and protein level on growing pig performances

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Three groups of 20 animals were kept in individual pens (between 24 and 100 kg live weight) in order to study the consequences of dietary protein reduction after amino acid supplementation, on growth performances and body composition of pigs under restricted feeding conditions and according to sex.

-- Group BL, lysine deficient (0.6 p. 100 up to 45 kg live weight and 0.4 p. 100 beyond that weight), but with a suitable protein supply (17.2 until 45 kg, then 19.5).

-- Group HL, receiving a lysine supplementation, the total lysine contents being 0.80-0.65 and 0.60 p. 100 respectively before 45 kg, between 45 and 70 kg and after 70 kg live weight.

-- Group BN, receiving a reduced supply of protein (13.5 p. 100 up to 45 kg and 12 p. 100 beyond that weight), but suitably supplemented with essential amino acids.

The diets were composed of a mixture of cereals (barley, wheat and maize) providing a digestible energy value of 3 100 kcal/kg.

The favourable influence of lysine supplementation showed that the requirement was higher in the females than in the castrated males.

Likewise, a difference between sexes was noted in the response to crude protein reduction, *the requirements for essential amino acids being anyhow satisfied*. In the case of castrated males subjected to usual feed restriction (progressive supply up to 2.7 kg/day at 80 kg live weight), the total requirement for crude protein seemed to be satisfied by the levels : 14 p. 100 during the growing period and 12 p. 100 during the finishing period (over 50 kg), corresponding to 45 and 40 g crude protein/1 000 kcal digestible energy. This leads to a sparing of 15-20 p. 100 protein as compared to the recommended standards. However, in the females subjected to a more liberal feeding level (until 2.95 kg/day), the supply of crude protein must be maintained at a higher level, notably during early growth, to prevent excessive carcass adiposity.