

Compensatory growth – after low-protein diets for weaners

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Background and objectives

Low-protein diets are known to efficiently reduce diarrhoea but also growth in newly weaned pigs [1][2]. The purpose was to investigate whether a large extra amount of protein and amino acids from 30-115 kg can compensate for lower productivity as weaners due to feeding low protein diets.

Material and methods

A total of 1,965 pigs in 60 repetitions were followed from weaning (at 28 days = week 0) until slaughter. This trial included 2 groups: control (C) i.e., Danish standards [3] and protein level trial group (PL). The pigs were fed 4 phases: control (18,7%) vs low (16,5%) protein 7-9 (week 0-2) and control (18,2%) vs low (16,1%) protein 9-15 kg (week 2-4), same protein level (18,6%) 15-30 kg (week 5-8), control (15,8%) vs high (16,6%) protein 30 kg - slaughter. From week 9 (app. 30 kg) until slaughter, C and PL were offered diets with 15.5 and 17.2% protein, respectively.

Results

In the entire period from weaning until slaughter the PL pigs had lower feed intake and daily weight gain, a better feed utilization and a higher lean meat. Reducing the protein level from 18.5 to 16.4% in week 1-4 reduced daily weight gain by 62 g/day. After 28 days PL was 1.6 kg lighter than C. In week 5-8, when the pigs were fed identical protein levels, PL had a lower feed intake, a 14 g lower daily weight gain and a better feed utilization compared to C. From week 9-13 (approximately the 30-60 kg period), PL had lower feed intake, 44 g higher daily weight gain and better feed utilization. C and PL almost grew and ate equal from week 14 until slaughter even though PL had a 1.8 kg lower insertion weight. At slaughter, PL had a 0.5% higher lean meat, and 1.1 kg lower slaughter weight. In total (weaning till slaughter) the PL group ingested 2.4 kg (6%) extra total protein and 0.29 kg (+12%) extra total lysine.

Conclusion and discussion

The results showed that it is possible to compensate reduced growth caused by low protein diets for weaners by increasing protein in diets from approximately 30 kg until slaughter. This supports earlier results [4]. Overall, if the feed prices were identical, PL had the same gross margin compared to C. However, the low-protein feed was cheaper, and the high-protein finisher feed was more expensive, i.e., the total cost was approx. € 1 higher for the trial group considering current feed prices (2020) and total feed consumption.

References

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