

Reducing the dietary protein content of the weaning diet

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Background and objectives

Considering the interest of dietary protein reduction as a valuable alternative to the use of antibiotics and therapeutic zinc oxide at weaning, its consequences on pig performance during the few weeks after weaning (4 weeks old) were studied.

Material and methods

The reduction of the digestible lysine content (1.3, 1.2, 1.1 and 1.0 g digestible lysine per MJ of net energy (NE)) induced by diet protein reduction at weaning (respectively 20.3, 19.0, 17.5 and 16.4%) was observed in a first trial (360 piglets, 6 pens per diet). Diet protein reduction was concomitant with that of soybean meal content (respectively 19, 15, 11 and 8%). The second trial compared, three associations of raw concentrated protein materials in a context of a low protein (17.0%) and low digestible lysine (1.0 dig. lysine/MJ NE) diet contents and a control diet (19.0% protein, 1.2 dig. lysine/MJ NE) in normal and degraded rearing conditions (480 pigs, 6 pens per diet and rearing conditions) at weaning. In degraded rearing conditions, the use of antibiotics was forbidden and the room was not cleaned. In this trial, besides the weaning pig's growth performance, the comparison also concerned fecal dry matter content, complete blood count and body condition score.

Results

The first trial showed that for every g of digestible lysine per kg diet, the respective variation of ADG and FCR were 19 g/d and 0.08 kg/kg during the first 2 weeks after weaning. Degraded rearing conditions induced expected alterations of plasma parameters such as lymphocytes and hematocrit and reduction of performances (ADG:-17%). Surprisingly the effect of diet was only significant in healthier breeding conditions (table 1). The results also indicated that the performances observed over the whole post-weaning period (6 weeks) were not affected by the type of diets distributed during the first two weeks post-weaning.

Table 1: Effects of the diets in normal and degraded conditions during the first 2 weeks after weaning

Breeding conditions	Normal					Degraded				
	T19	T17	V17	A17	Diet effect	T19	T17	V17	A17	Diet effect
Diets	T19	T17	V17	A17	Diet effect	T19	T17	V17	A17	Diet effect
ADG, g/d	314	300	305	309	NS	272	229	246	273	NS
Feed/Gain, kg/kg	1.27a	1.37b	1.36ab	1.35ab	P<5%	1.32	1.44	1.42	1.40	P<10%
Feces dry matter, %	25.0a	26.1a	31.1b	30.5b	P<1%	24.5	24.7	27.4	27.0	P<10%

Respectively in T19, T17, V17 and A 17: soybean meal, 16, 12, 1, 1 %, vegetable protein concentrates, 9, 8, 15, 4%, dairy protein concentrates, 0, 0, 0, 22%.

Conclusion and discussion

The results suggested that rearing conditions predominated on the response of the animals to different diets. Diversification of protein intake which imply increasing cost of the diet did not appear justified in poor farming conditions while it increased the fecal dry matter content in normal breeding conditions. Reducing the dietary protein level of the weaning diet around 17.0% is feasible, but it will conduct to a reduction of performances in the actual context.

References

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