GASTRIC ULCERS IN 7–8-WEEK-OLD PIGS, FED BY VARIOUS FORMULAE OF PELLETED FEED

M. Fossi[1], M. Karhapää[2], K.Partanen[2], T. Kortelainen[2], H. Siljander-Rasi[2]

[1]*Finnish Food Safety Authority Evira* [2]*Agricultural Research Finland MTT*

Introduction

This experiment was focused on the gastric health in 7-8-week-old pigs fed by four different feed formulae. Pigs were from a herd of high health status, and their nursing period was well documented.

Material & Methods

Altogether 64 weaners, 29.5 days old on average, were divided in four feeding groups. In reference to the sex, breed and littermate, the pigs were mingled and allotted in four feeding groups and were housed in pens of two pigs. The four feeds in the experiment were: wheat-based with pellet diameter of 2.5 mm and 4.0 mm, and dehulled-oats-based with pellet diameter of 2.5 mm and 4.0 mm. The pigs were euthanized at the end of 25-day experiment. The feed consumption and the weight gain of the pigs were recorded, and the health status of the pigs was monitored daily. The stomachs were investigated at necropsy, the pH-value of anterior and posterior stomach, as well as dry matter content of stomach content was measured. The gastric lesions were scored by the scheme which differentiates apparently harmless lesions from those which undoubtedly cause pain and/or affect the normal eating (1).

Results

The main results from the judgement of gastric lesions are presented in Table 1. The smaller pellet size of feed correlated with the higher prevalence of severe gastric lesions in pigs ($p = 0.02$). Prevalence of gastric lesions was fairly similar in wheat- and dehulled-oats-based diets. The pH on pars oesophagea of the stomach was lower in the pigs fed diets with smaller pellets ($p=0.01$), as well as in pigs with severe gastric lesions. The dry matter content of the stomach content was lower in pigs fed by the smaller pellets ($p=0.001$). The feed conversion ratio among pigs with severe gastric lesions did not significantly differ from that of pigs with healthy or slightly altered stomachs. However, pigs with severe lesions had slightly lower growth rate during their nursing period than the pigs with no or slight lesions. The castrated males had more often severe lesions (50%) than the gilts (27%). The pigs from the first-litter sows had more often gastric lesions (53 %) than those from the litters of older sows (33 %).

Table 1. Gastric lesions in pigs in four feeding groups after 25-day experiment post weaning

Grain	wheat	wheat	oats	oats
Pellet	2.5mm	4.0mm	2.5mm	4.0mm
Severe lesions	8	3	9	5
No severe lesions	8	13	7	11
No of pigs	16	16	16	16

Discussion & Conclusions

The finely ground grain and/or small pellet size has been shown to be a risk factor for gastric ulcer in earlier studies (2,3). Low pH on pars oesophagea and low viscosity of stomach content by using finely ground grain have been identified earlier as well (2). Dehulled oats as main cereal instead of wheat did not prevent gastric ulcers. The hulls of oats in feed have been shown to protect against ulceration (4). The crude protein content in feed might have increased during decades due to breeding for faster gain of red meat; protein-induced HCl secretion might be one risk factor. The nursing period seems to include factors which expose suckling pigs to gastric ulceration. The correlation between stomach health of weaners and the amount of creep-feed intake before weaning might be worth of studying. If castration pain could cause enough stress to predispose the males to gastric ulceration is a question worth of further studies, as well.

References

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