

Performance and gastric ulcers in growing-finishing pigs fed alfalfa hay meal or a coarse-milled pelleted diet

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Danish producers using pelleted feed and experiencing problems with gastric ulcers in their herd are sometimes advised to use diets containing alfalfa hay meal or diets that have greater mean particle size. However the effects of such interventions have not fully been investigated. These experiments investigated the effect of alfalfa hay meal and coarser milling in pelleted diets on growth performance and occurrence of gastric ulcers in growing-finishing pigs.

In Experiment 1, the outcome of dietary inclusion of 10% alfalfa hay meal in a pelleted diet (2 mm pellets) on performance and gastric ulceration was investigated in one herd. There were 10 pigs per pen and 12 pens per treatment. In Experiment 2, the effect of coarser milling in pelleted diets (3.5 mm pellets) was studied in two herds. There were 15 to 16 pigs per pen and 41 replicates in herd A and 34 replicates in herd B. In all studies the pigs were on trial from about 30 kg until slaughter at around 100 kg. The main ingredients in the diets in both experiments were wheat, barley and soybean meal. Stomachs were collected at the abattoir and lesions in the pars oesophagea were scored on a scale from 0-10, 0 being normal and 10 having severe gastric ulceration (Christensen, 1998). The influence of dietary treatment was analyzed univariately in a normal linear model using the GLM procedure in SAS (SAS Inc v.9.13). Stomach scores are categorical data and were further analyzed using the GENMOD procedure.

No significant effect of alfalfa hay meal was detected in Experiment 1 (Table 1). In Experiment 2, there was a significant interaction between treatment and herd, probably because the particle size distribution differed between herds. In Herd A, degree of milling did not significantly affect performance; however the number of pigs with more severe gastric lesions was higher among pigs fed the fine pellets. In Herd B, FCR was significantly poorer in pigs fed the more coarse diet. This was supported by a significantly higher starch content in the faecal dry matter of pigs fed the coarse pellets in both Herd A and Herd B (data not shown), suggesting that the pigs were not able to fully use the nutrients in these diets.

Table 1. Effect of dietary treatment on performance and stomach ulceration score

Experiment	n	Particle size, (<1/1-2/2-3/>3) (mm)	¹ ADFI (kg/day)	² ADG (g/day)	³ FCR (kg/kg)	Ulcer score	Ulcer score > 5 (%)
Exp. 1, control	12	-	2.25	964	2.33	4.7 (n=93)	54
Exp. 1, 10% alfalfa hay meal	12	-	2.23	955	2.33	4.1 (n=95)	47
SEM			0.023	5.6	0.023	0.22	
Exp. 2, Herd A, fine pellets	41	56/37/7/0	2.26	832	2.72	2.5 ^a (n=253)	14.6 ^a
Exp. 2, Herd A, coarse pellets	41	38/34/28/0	2.23	821	2.71	1.6 ^b (n=248)	8.1 ^b
SEM			0.012	5.0	0.015	0.10	
Exp. 2, Herd B, fine pellets	34	79/18/2/1	1.86	766	2.43 ^a	2.6 (n=141)	16.3
Exp. 2, Herd B, coarse pellets	34	52/35/12/0	1.89	760	2.49 ^b	2.3 (n=130)	13.1
SEM			0.012	6.02	0.014	0.15	

¹ADFI: average daily feed intake; ²ADG: average daily gain; ³FCR: feed conversion ratio. ^ab columns within an experiment with different letter subscript are significantly different (P<0.05).

It was concluded that dietary inclusion of 10% alfalfa hay meal does not affect performance or gastric health. Coarser milling of pelleted diets may compromise FCR but can reduce the prevalence of more severe gastric ulcers in some herds.

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References

CHRISTENSEN, G. (1998). *Dansk Veterinærtidsskrift* 81:930-935.