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The effects of different concentrations of hops on the performance, gut morphology, microflora and liver enzyme activity of newly weaned piglets

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1. INTRODUCTION

Hops have antibacterial activity, antioxidant properties and may potentially promote the growth of weaner pigs

The aim of this experiment was to study the effects of different concentrations of hops in newly weaned pigs

2. MATERIALS AND METHODS

- 30 weaner pigs
- Restrict feeding for 28 days
- 3 treatments: - Control
  - 1 kg/t dietary hops
  - 10 kg/t dietary hops
- Measurements:
  - Performance
  - Faecal Score
  - Bacterial analysis of gut content
  - VFA level in colon
  - Liver weight and enzymes
  - Gut morphology

Table 1: The effects of different hop concentrations on the ratio of *Lactobacillus:E. coli* in the faeces, small intestine and colon and on VFA concentration in the colon

Inclusion level of hops	0 kg/t	1 kg/t	10 kg/t	SEM	*P*-value
Lacto:E. coli faeces d 11[1]	1.21	1.11	0.99	0.035	***
Lacto:E. coli faeces d 26[1]	1.05	1.08	0.87	0.048	*
Lacto:E. coli small intestine[1]	1.30	1.38	1.22	0.381	NS
Lacto:E. coli colon[1]	1.02	1.03	0.87	0.061	*
Total VFA (mmol/l)	50.5	54.1	65.2	4.82	*
Acetic acid (mmol/l)	26.3	29.4	37.7	2.98	*

[1]data presented as log 10 ratios between the number of *Lacto:E. coli* colony forming units per gram faeces/digesta

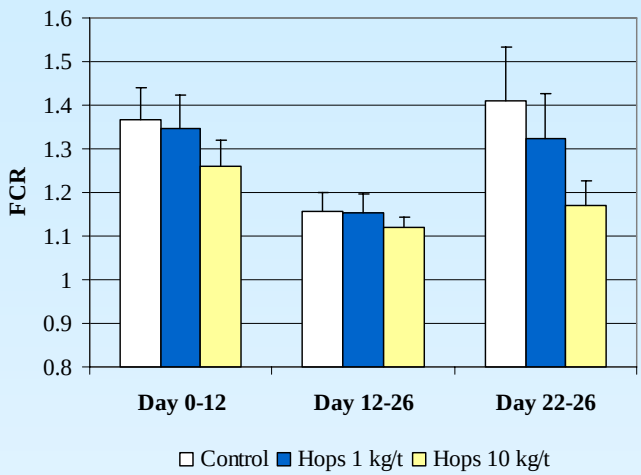

Figure 1: Effect of different hop concentrations on the FCR day 0-12, 12-26 and 22-26.

3. RESULTS

- Trend towards improved FCR (d 22-26) (P = 0.094)
- Ratio of *Lacto:E. coli* decreased with increasing levels of hops
- Total VFA concentration increased with increasing levels of hops, mainly due to higher level of acetic acid
- There was no effect on liver weight and function, faecal score and gut morphology

4. CONCLUSIONS

- Hops have a potential for improving FCR 2-4 weeks post weaning
- This may be due to higher VFA level, as it is thought to contribute to energy supply in pigs
- The reduced level of *Lacto:E. coli* is undesirable
- Further research is needed to establish the mechanisms by which hops improve FCR