

OBSERVATIONS ON SCOURING BY SHEEP FED WHEAT GRAIN

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Very little is understood of the precise aetiology of the various symptoms associated with 'grain poisoning'. This trial was conducted to investigate changes in and passage of digesta along the gastrointestinal tract (GAT) and their relationship to the commencement of scouring.

Following a fasting period (either 36 or 24 h), 21 wethers were fed a whole wheat diet *ad lib*. A ^{51}Cr EDTA marker was introduced to the rumen within one hour of wheat being offered. Seven more wethers, similarly fasted, were offered milled lucerne hay *ad lib*. Wheat-fed wethers were slaughtered when scouring was observed. Dry matter (DM) and pH measurements were made from samples of digesta taken from 13 GIT segments. These segments were defined as in Table 1, with colon 1 - from caecum to narrowing of the colon; colon II - a further one metre from the narrowing; colon III - between colon II and IV. Lucerne-fed wethers were slaughtered over the same period and sampled.

Both diet and length of fast had a significant effect on GIT pH (Table 1). The wheat ration depressed hindgut pH markedly. Length of fast significantly decreased digesta DM in scouring sheep from duodenum II to colon IV. Digesta DM changed very little in the colon of scouring sheep fasted for 24 h. Seventeen wheat-fed wethers scoured within 16-72 h (15 within 36 h). No lucerne-fed wethers scoured. The ^{51}Cr had at least reached colon IV of all 21 wheat-fed wethers in 34 h or less. There was no relationship between the period before scouring was observed and the length of the initial feed nor the amount or rate of initial consumption.

TABLE 1

Mean pH ($\pm$ S.D.) of digesta taken from the gastrointestinal tract of sheep on rations of lucerne hay and wheat grain.

Segment	Lucerne	Wheat ^φ	
		(36 h fast)	(24 h fast)
1. Rumen	6.1 (0.26)ab	4.8 (0.32)ad	5.2 (0.42)bd
2. Reticulum	6.1 (0.36)ab	4.7 (0.17)a	5.1 (0.57)b
3. Omasum	6.4	4.3 (1.04)	5.7 (0.70)
4. Abomasum	3.5 (0.87)	3.8 (1.70)	3.2 (0.65)
5. Duodenum I (1st 35 cm)	5.1 (1.02)	4.3 (1.00)d	5.4 (0.53)d
6. Duodenum II	7.6 (0.26)ad	7.1 (0.41)d	6.7 (0.84)a
7. Jejunum	7.6 (0.26)ad	7.1 (0.41)d	6.7 (0.84)a
8. Ileum	7.7 (0.43)ac	6.9 (0.54)dc	6.2 (0.81)ad
9. Caecum	7.0 (0.26)ac	6.4 (0.42)bc	4.9 (0.49)ab
10. Colon I	6.9 (0.17)ac	6.5 (0.35)bc	4.9 (0.46)ab
11. Colon II	7.2 (0.27)a	6.6 (0.36)a	5.3 (0.59)a
12. Colon III	7.5 (0.13)ab	6.4 (0.20)ad	5.6 (0.97)bd
13. Colon IV (last 1 m)	7.9 (0.07)a	6.6 (0.60)a	5.1 (0.64)a

Means in the same row followed by the same letter differ significantly
a, b = $P < 0.005$, c = $P < 0.01$ and d = $P < 0.05$.

^φOnly those sheep that scoured have been included.

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