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RESEARCH NOTE

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THE VALUE OF RUMINANT DIGESTA AS ANIMAL FEED

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High feed costs frequently hamper the economy of livestock production. With ruminants, the problem can be alleviated by the utilization of various waste materials or by-products such as poultry manure (Oltjen & Dinius, 1976) and feedlot and/or animal waste (Hull, Raguse, Morris & Delmas, 1974). The gut contents of cattle also fall in this latter category. No information could, however, be found in the available literature on the nutritive value of ruminant gut contents. A vast amount of gut contents becomes available at South African abattoirs every year.. Disposal of this requires a major effort, both financially and otherwise. If gut contents prove to have sufficient nutritive potential, livestock production may benefit, while the problem of satisfactory disposal by the abattoir may be solved.

The object of this study, therefore, was to determine if gut contents of cattle have sufficient nutritive value to warrant further and more elaborate investigations. This was done by determining the chemical composition and *in vitro* digestibility of organic matter (IVOMD) of representative samples obtained from an abattoir.

Twelve Fresian steers were randomly divided into three groups. Each group was fed a different diet *ad libitum* and intake was not measured. Diet 1 consisted of 70% maize meal, 27% teff hay (*Eragrostis teff*), 1% urea, 1% dicalcium phosphate and 1% salt. Diet 2 consisted of a good quality lucerne hay and Diet 3 of teff hay only. After a 6 week adaptation period one animal from each group was slaughtered. The remaining animals were then all changed to a diet of teff only. This was done in order to try and simulate the normal abattoir situation. Following this, one animal from each group was slaughtered on days 3, 5 and 8 after changing to the teff diet.

The gut content was divided into 3 compartments. Rumen, duodenum to end of the ileum and colon to rectum. Compartments 1, 2 and 3 contained respectively 86%, 6% and 8% of the total dry matter (DM). The change of diet did not influence the amount of DM in the rumen expressed as a percentage of total DM. Neither did the duration of the period after changing to the teff diet influence the total DM content.

Chemical analysis was limited to the rumen contents only as this contributed 86% of DM of the total gut contents.

Table 1 indicated an increase in crude protein content of rumen digesta as dietary crude protein content increased. This is probably due to a higher intake of Diet 1 and declined with increasing time after changing to the teff diet.

The crude fibre content of the rumen digesta of animals receiving Diet 2 was initially very much higher than the rumen fibre content of the animals receiving the other diets, and is probably due to lucerne's relative high fibre content coupled with larger intakes. This difference was less apparent after the change-over to the teff hay diet.

The *in vitro* digestibility of the dried rumen digesta is, however, the most important measure of its value as an animal feed. It appears that in general the IVOMD of rumen digesta obtained in this study was exceptionally low and has therefore very little value as a ruminant feed.

Treatment with sodium hydroxide or other chemical methods may improve the digestibility to such an extent that it may be utilized as an animal feed.

Table 1

The chemical composition and in vitro *digestilibity of rumen digesta*

	Concentrate to teff				Lucerne to teff				Teff to teff			
Days on teff diet	IVOMD (%)	Fibre (%)	Crude protein (%)	Ash (%)	IVOMD (%)	Fibre (%)	Crude protein (%)	Ash (%)	IVOMD (%)	Fibre (%)	Crude protein (%)	Ash (%)
0	36,9	27,3	13,8	9,3	11,9	51,7	13,2	10,0	33,0	34,2	9,3	10,2
3	43,7	30,0	14,1	10,0	16,5	43,6	10,4	11,2	19,8	33,8	9,4	11,2
5	24,7	30,0	13,4	11,8	41,3	30,3	9,3	11,1	26,5	25,8	14,0	20,5
8	49,2	27,4	11,6	9,2	19,8	31,1	10,9	11,7	27,3	27,1	9,6	41,0
Mean	38,6	28,7	13,2	10,0	22,4	39,2	10,9	11,0	26,7	30,2	10,6	20,7
S.D.	10,6	1,5	1,1	1,2	13,0	10,4	1,6	0,7	5,4	4,4	2,3	14,3

IVOMD = *In Vitro* organic matter digestibility

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