

RESPONSE TO SALT AND SULPHUR BY CORRIEDALE LAMBS GRAZING SORGHUM IN KENYA

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The sulphur (S) content of forage sorghum is often low in some regions. In Australia, the provision of salt licks containing sulphur increased the liveweight gain of sheep grazing sorghum by 13-88% (Wheeler, Hedges and Till 1975). However, supplementation by licks results in some animals consuming too much and some little or no additional sulphur.

Sodium sulphate was administered as a drench 6 days/week for 10 weeks to groups of 7 Corriedale lambs grazing well-fertilized Sorghum alnum at Kabete, Kenya. Further groups received only sodium and potassium chlorides (Na + K) or were not drenched (Nil). All drenches provided 2.3 g Na and 2.0 g K/d. Two groups, one of which received the Na + K treatment, and one Nil, grazed Pennisetum clandestinum-Cynodon dactylon pastures. Liveweights were recorded weekly and the proportion of the total wool production that was produced during the experimental period was measured. Compositions of the sorghum varied during the period but averaged (DM basis) 1.41% N, 0.14% S, 1.45% K, 0.01% Na, 33.6% fibre and 0.04% HCN (range .02-.08). Forage available declined sharply after 8 weeks. Hence, liveweight gains are presented only for an 8-week period.

TABLE I: Mean weight gain (g/d) and relative wool production (% of fleece)

		Control (Nil)	Basic Na + K drench with S (g/d) at				
			0.0	0.4	0.8	1.2	1.6
Sorghum	Gain	49b	80c	86c	81c	98c	90c
	Wool	20.6b	18.9b	19.6b	19.9b	20.9b	19.8b
Pasture	Gain	19a	10a				
	Wool	16.0a	15.2a				

Means not suffixed by the same letter differ significantly (P < .05)

Average daily gain (ADG) per week was related to the HCN potential of the forage (%) and its fibre content (F, %):

$$ADG = 1116 - 25211 \text{ HCN} + 160950 \text{ HCN}^2 - 0.304 \text{ F}^2 \quad (r = .86; \text{RSD} = 54).$$

Despite the high levels of HCN, the detoxication of which would have absorbed appreciable amounts of sulphur, the S content of the forage was apparently adequate and there was no significant response to S. As the Na intake by the lambs was less than half their requirement and the intake of K many times in excess, we assume the response was due to the sodium in the mixture. The Na content of sorghum varies considerably with location and soil type but these data suggest that, in cases of poor animal performance on this forage, inadequate sodium intake should be considered as a possible contributing factor.

WHEELER, J.L., HEDGES, D.A., and TILL, A.R. (1975). J. agric. Sci., Camb. 84:377.

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