

Variability in Voluntary Intake of Loose Mineral Mix Supplements by Grazing Heifers

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Loose mineral mix (LMM) supplements are often fed to ruminants in extensive grazing situations to provide minerals and nitrogen likely to be deficient in pasture. However a large proportion of animals offered such supplements may not consume any supplement, while among consumer animals the variability in supplement intake may be high (Wheeler *et al.*, 1980; Dixon *et al.*, 1996). Two experiments examined the distribution of intake of LMM supplements offered to heifers grazing in mob and paddock sizes representative of commercial cattle properties.

Two experiments were conducted during the late wet and early dry seasons of 2 years. Four herds, each comprising 2-year-old heifers (*Bos indicus* x Shorthorn cross; n 87–129) and 3-5 bulls grazing 400-500 ha speargrass-dominant native pasture paddocks, were offered

LMM supplements *ad libitum*. Allocation of herds to paddocks was reversed in April. The supplements consisted of mixtures of salt, calcium phosphate, urea, cottonseed meal and elemental sulphur. Voluntary intake of supplement by each paddock group was measured weekly. Lithium-labelled supplement (2 mg Li/kg liveweight) was offered on 1 day to each herd in April and June to measure intake of supplement by individual animals. All the cattle had been fed molasses-based supplements for 2 weeks while held in yards after being weaned at 3-8 months of age. In addition all Herd A, some (22/97) Herd B and some (84/129) Herd D heifers had been fed supplements through the previous dry season. Each herd was offered the supplements in a single 820 x 560 mm trough in an open-sided shelter shed sited 50 m from the only permanent water in each paddock.

Table 1. Percent non-eaters, intake and coefficient of variation (CoV) of lithium-labelled loose mix supplement offered to 4 herds of cattle each measured in April and June

Measurement		n	Supplement intake (gDM/day)	Percent non-eaters	Intake of Li-labelled supplement (g DM)		CoV	
Herd	Paddock				All cattle	Eaters	All cattle	Eaters
Experiment 1								
A	P1	102	65	19	104	130	2.4	2.1
A	P2	95	27	44	10	18	1.5	0.9
B	P2	100	5	80	23	71	3.9	1.6
B	P1	97	24	69	9	43	2.1	0.9
Experiment 2								
C	P2	90	17	53	31	66	1.6	0.8
C	P3	89	58	57	22	51	1.8	0.9
D	P3	134	16	52	26	55	1.6	0.9
D	P1	129	46	72	13	46	2.4	1.0

Each of the herds at the April measurement included 3-5 bulls.

Average intake of supplements by each paddock group during the 5-10 weeks before lithium-labelled supplements were offered, ranged from 5 to 65 g DM/day and appeared to be influenced by both the paddock and previous experience of the heifers with supplements. The percentage of cattle in a herd which did not consume any lithium-labelled supplement (ie. non-eaters) also varied widely (range 19-80%) and was much higher than observed previously with similar cattle and supplements but where small groups of cattle grazed small paddocks (Dixon *et al.*, 1998). However, as observed in this latter experiment the percentage of non-eaters was inversely related to supplement intake. Consistent with previous observations of high variability among animals when LMM supplements are provided, the coefficient of variation of supplement intake among heifers consuming

the supplements was 0.8 or greater even among those cattle which consumed supplement.

Dixon, R. M., A. White, P. Fry, and J. C. Petherick. 1998. Intake of dry lick supplements is influenced by supplement palatability but not previous experience. *Anim. Prod. Aust.* 22:284.

Wheeler, J. L., R. L. Rocks, and D. A. Hedges. 1980. Intake of mineral supplements and productivity of sheep grazing sorghum. *Proc. Aust. Soc. Anim. Prod.* 13:297.

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