

Variability in Voluntary Intake of a Molasses-based Supplement by Cows and Calves

R. M. Dixon and D. R. Smith

Qld Beef Industry Institute, Swan's Lagoon, Millaroo, Ayr 4807, Australia

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.*, 1998). An experiment examined the distribution of intake of a molasses-based supplement containing phosphorus and urea in a breeder herd.

A herd of mixed-age breeder cows, calves, heifers and bulls were offered *ad libitum* a molasses-based supplement containing 13% urea and 17% phosphoric acid. After 2 weeks lithium-labelled supplement (2 mg Li/kg LW) was offered on one day to measure individual intakes of supplement. The molasses was offered in three 560 mm diameter feeders placed together near the water point.

Table 1. Liveweight (LW), percent non-eaters, intake and coefficient of variation (CoV) of lithium-labelled molasses-based supplement offered to a herd of cows and calves

Group of cattle	n	LW	Percent non-eaters	Intake of Li-labelled supplement		CoV (%)	
				G	g/kg LW	g	g/kg LW
All cows	120	488	44	133	0.28	176	113
Lactational status							
Lactating	85	492	38 ^a	161 ^b	0.33 ^b	160	112
Non-lactating	34	478	62 ^b	65 ^a	0.15 ^a	203	99
Age groups							
7 y. o. cows	28	586	46	97	0.18 ^x	185	118
4-6 y. o. cows	40	511	30	172	0.34 ^y	125	89
3 y. o. cows	29	417	48	155	0.36 ^y	203	130
2 y. o. cows	23	420	61	80	0.20 ^x	184	86
Suckling calves	90	172	52	28	0.15 ^x	191	111

Different superscripts within a group in a column indicate that the means were different (P<0.05).

Lactating cows on average consumed more supplement (P<0.05) than non-lactating cows and heifers. Also fewer (P<0.05) lactating cows were non-eaters of supplement. The age of the animals influenced how much supplement they consumed, although there were no significant effects on the proportion of non-consumers of supplement or the variability of supplement intake. Cows 7 years of age, pregnant heifers and suckling calves had intakes of supplement in the range 0.15-0.20 g DM/kg LW; these intakes were lower (P<0.05) than by cows aged 3-6 years (0.34-0.36 g DM/kg LW). Fifty percent of the calves consumed supplement. Ninety percent (35/39) of the calves which consumed supplement and 38% of the non-eater calves were progeny of cows which consumed supplements. Whether a calf was a non-eater was influenced (P<0.01) by whether its dam was a non-eater of supplement (P<0.01) and the liveweight of the calf; 80% of calves < 160 kg were non-eaters but only 55% of calves >160 kg. Furthermore the intake of supplement by the calves was correlated with the intake of supplement by their dams as follows: (Calf intake g/kg LW) = 0.071 + 0.26 (Cow intake g/kg LW), (P<0.001, r 0.48).

The lower supplement intake of older cows, heifers and calves may reflect a lower need by these animals for supplementary nutrients and/or that these animals were less effective competitors for supplement. The percent non-eaters and variability of intake of the molasses-urea-phosphoric acid supplement which was used was high. These results support the hypothesis (Dixon *et al.* 1998) that the percent of non-eaters and variability are high when voluntary supplement intake is low.

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.

Email: dixonr@prose.dpi.qld.gov.au