

EFFECT OF PRE- AND POST-PARTUM SUPPLEMENTATION ON LIVELWEIGHT AND LACTATIONAL PERFORMANCE OF FIRST-CALF HEIFERS AND CALF WEIGHT

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In northern Australia, supplementation of cattle has resulted in increased calving percentages (Holroyd et al. 1977). The objective of this AMLRDC funded study was to compare the effectiveness of feeding supplements both before and after birth as a means of enhancing body condition and reproductive function.

Twenty-four Droughtmaster (*Bos indicus* x *Bos taurus*) first-calf heifers (2.5-3 years, $386 \pm \text{SE } 7$ kg live weight) were placed in pens during the final 3 months of pregnancy, allocated to three treatment groups and fed a basal diet of mature sorghum hay ad libitum plus a balanced mineral mix. The treatment diets were a) nil supplement, b) cracked maize (1 kg) plus HCHO-treated sunflower meal (0.5 kg) daily for 60 days after calving (PP) and, c) supplement (2) from 1-2 months pre-partum to 60 days post-partum (PPP). Body condition score (1, emaciated; 9, overfat), live weight and milk yield of heifers, and calf live weight were measured once during weeks 1 and 8 post-partum.

Table 1. Effect of supplementation before and after birth on body condition, live weight, milk yield and calf weight

	Heifer condition score		Heifer live weight		Milk yield		Calf live weight	
	wk 1	wk 8	wk 1	wk 8	wk 1	wk 8	wk 1	wk 8
Control	3.8 ^a	3.2 ^a	332 ^a	312 ^a	3.49 ^{ab}	2.84 ^a	28.6 ^a	51.1 ^a
PP supplemented	4.0 ^a	4.2 ^b	340 ^a	360 ^b	3.41 ^a	4.27 ^b	28.7 ^a	57.4 ^a
PPP supplemented	3.9 ^a	3.9 ^b	365 ^a	364 ^b	4.64 ^b	4.92 ^b	34.2 ^b	68.2 ^b
Least sig. difference	0.3	0.5	36	31	1.20	1.00	4.0	7.6

Column means with unlike superscripts differ significantly ($P < 0.05$)

Neither body condition nor live weight of heifers were significantly different between groups at parturition but birth weight of calves and week 1 milk yield from heifers supplemented before birth were significantly higher (Table 1). By 8 weeks post-partum the supplemented animals had at least maintained condition, and live weight increased ($P < 0.05$) with PP supplementation whereas both factors declined in the control group. At this time also, milk yield had risen ($P < 0.05$) in the PP supplemented group relative to that of the heifers supplemented before and after birth although the calf weights were still different.

In conclusion, both supplementation regimens evoked similar end responses in maternal body condition and live weight although the heifers supplemented after birth had gained weight while the pre-partum supplemented animals were static. It is suggested that the effect of pre-partum supplements on the dam was probably diminished by the partitioning of nutrients into foetal growth and a priming of the mammary gland for milk production.

HOLROYD, R.G., ALLAN, P.J. and O'ROURKE, P.K. (1977). *Aust. J. Exp. Agric. Anim. Husb.* **17**: 197.

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