

THE EFFECT OF POST-WEANING GROWTH ON THE FERTILITY OF BRAHMAN CROSS HEIFERS

G. FORDYCE*, R.G. HOLROYD*†, T.A. JAMES*§ and D.J. REID**

In the dry tropics of northern Australia heifers are generally weaned mid-year at about six months of age and experience two dry seasons and a wet season prior to first mating at two years of age when only 60% are likely to conceive (Entwistle 1983). Pre-mating liveweight (PMLW) explains much of the variation in conception rate, but year effects explain further variation (Rudder et al. 1985).

F2 and later generation, 1/2 and 3/4 Brahman cross heifers were mated for three months as maiden 2-year-olds (n=674) and then as lactating 3-year-olds (n=337) on Swan's Lagoon Research Station in the dry tropics. Seasonal growth rates between weaning and mating were analysed for their effects on conception rates using logistic models that also included PMLW, genotype and year.

Only PMLW and year influenced conception rates ($P < 0.001$). An example of the year effect can be seen from the 95% confidence interval of 0.59-0.72 for the probability of conception for 250 kg two-year-old heifers. When year was ignored in the analyses an interaction between PMLW and growth rate in the first dry season (GRD1) became significant for two-year-old heifers ($P < 0.01$); higher post-weaning growth rate boosted the probability of conception particularly at low pre-mating live weights (Fig. 1). There was no evidence of this effect for three-year-old lactating cows with only PMLW influencing conception rates (Fig. 1).

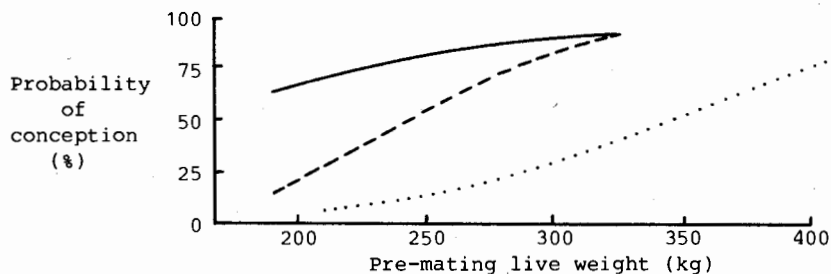


Fig. 1. PMLW and GRD1 effects on conception rates of Brahman cross heifers
(i) Two years: — GRD1=0.1kg/day; --- GRD1=-0.1kg/day (ii) Three years:....

This finding suggests that the year effect on the probability of conception in two-year-old maiden *Bos indicus* cross heifers is explained to some degree by their growth in the dry season after weaning. Thus post-weaning dry season supplementation for heifers in the dry tropics may be important, not only for survival, but also for improved fertility as a two-year-old.

ENTWISTLE, K.W. (1983). Australian Meat Research Committee Review No. 43.

RUDDER, T.H., SEIFERT, G.W. and BURROW, H.M. (1985). *Aust. J. Exp. Agric.* 25:489.

* Qld DPI, Swan's Lagoon, Millaroo, Via Ayr, Qld., 4807

** Qld DPI, PO Box 1085, Townsville, Qld., 4810

† Present address: Qld DPI, PO Box 6014, Rockhampton Mail Centre, Qld., 4702

§ Present address: Qld DPI, Brigalow Res Stn, MS 586, Theodore, Qld., 4719