In the dry tropics of northern Australia heifers are generally weaned 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 (Meneley 1981). 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 at lactating 3-year-olds (n=337) at Swan’s Lagoon Research Station in the dry tropics. Pedigree 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 (GRO1) 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 liveweights (Fig. 1). There was no evidence of this effect for three-year-old lactating cows with only PMLW influencing conception rates (Fig. 1).

This finding suggests that the year effect on the probability of conception in two-year-old maiden bises 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.
