OBSERVATIONS ON THE RELATIONSHIP BETWEEN WEIGHT, BODY CONDITION AND FERTILITY IN *BOS INDICUS* HEIFERS IN THE NORTHERN TERRITORY

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It is generally accepted that liveweight/body condition is the major factor influencing the onset of puberty and conception rates of heifers (Entwistle 1983). However, there is little published data documenting the fertility and joining weights of heifers in the Northern Territory (NT).

Groups of 2 and 3 year old heifers were monitored over 2 years to study the relationship between joining weight/condition and fertility in the NT. Two genotypes were used; Brahman (Bra) and ¾ Brahman ¼ Charolais (¼ Cha). The heifers were bred at Victoria River Research Station (VRRS), transferred to Douglas Daly Research Farm (DDRF) for a year to grow out on improved pasture, before returning to VRRS to be mated first as 2 year olds. The 4-month joining period was from January to April. Calves were weaned at 100 kg in May and pregnancy diagnoses were performed in May and October. Joining weights and ultrasonic P8 fat depths were recorded between October and December. Each year-group of heifers was split into 2 sub-groups on the basis of joining weight (< or ≥ 270 kg for maiden heifers, and < or ≥ 370 kg for first calf heifers). This was done as studies have shown that target joining weights to achieve good fertility in *Bos indicus* cattle in northern Australia are around 270 kg for maiden 2 year old heifers (Doogan *et al*. 1991) and 375 kg for lactating cows (Rudder *et al*. 1985). Each data point in Figure 1 is the average of 1 of these sub groups (average n = 31).

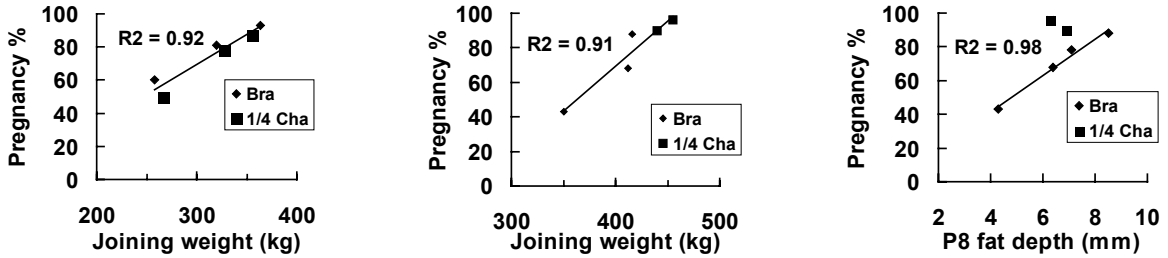

Figure 1. Effect of a) joining weight of maiden heifers, b) joining weight of first calf heifers and c) P8 fat depth on pregnancy percentage

Figures 1a and b show that the correlation between joining weight and fertility is high (the Bra and ¼ Cha fit the same relationship), and that high heifer fertility (>90%) is achievable in the NT. The high fertility was due to high joining weights which resulted from good seasons and the use of improved pasture at DDRF for a year post weaning (where higher rainfall and improved pasture regularly give greater weight gains than what occurs on native pasture at VRRS). Figure 1c shows the strong relationship between P8 fat depth and fertility in first calf Brahman heifers, and also that the ¼ Cha heifers had higher fertility at equivalent fatness. This is likely to be due to hybrid vigour, while their larger mature size (due to the Charolais genes) means that they will be leaner than Brahmans of the same age and weight.

The P8 fat depth is a better indicator of body reserves than weight as there can be considerable variation in frame size within a herd. On average, the maiden heifers that got pregnant were 0.9 mm fatter at joining than the heifers that did not get pregnant. In first calf heifers, those that got pregnant were on average 1.0 mm fatter at joining. Of those that were < 370 kg at joining, the heifers that got pregnant were 3.2 mm fatter than those that did not get pregnant.

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