

IMPLICATIONS OF THE TIMING OF THE BREAK IN THE SEASON ON THE MANAGEMENT OF HEIFERS IN THE DOUGLAS DALY REGION OF THE NORTHERN TERRITORY

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Cattle growth rates in the Douglas Daly region are typically higher than many other regions of the Northern Territory (NT) due to reliable rainfall (average 1208 mm annually) and the introduction of improved pastures. This, combined with the smaller size of properties (and hence better stock control), means that the controlled mating of heifers for the first time as yearlings is a management option that is considered there. Like most of the NT, the Douglas Daly region has a pronounced wet and dry season, and the timing of the break in the season (the start of the wet season) is probably the most important factor determining heifer growth. This has a large effect on heifer fertility since it is generally accepted that weight is the major factor influencing the onset of puberty and conception (Entwistle 1983).

Each year at Douglas Daly Research Farm (DDRF) from 1999 to 2003, 9 Brahman heifers were weighed monthly for a year from weaning in May/June. They grazed buffel pasture at a stocking rate of 1.5 head/ha and had access to mineral supplement blocks year round. Rainfall data was obtained from the Bureau of Meteorology from a weather station situated at DDRF, with the date of the break in the season being identified (considered to be when 50 mm of rain was received within 2 weeks).

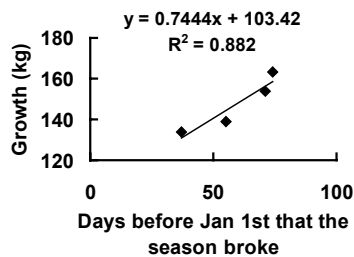


Figure 1. Average growth of heifers in one year post weaning.

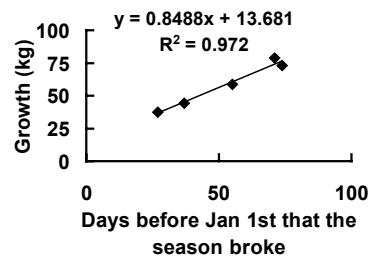


Figure 2. Average growth of heifers from weaning to the start of January.

Figure 1 shows the strong relationship between the timing of the break in the season and the average growth of heifers over the whole year. The timing of the break in the season is even more critical if yearling mating of heifers is intended. In this case, bulls are usually put in at the start of January, and the start-of-mating weight of the heifers largely determines the resulting conception rates. Figure 2 shows that the timing of the break in the season explains 97% of the variation in the average growth of weaner heifers until January.

These data can be used to make decisions about which heifers will be suitable for yearling mating. Once the date of the break in the season is known, Figure 2 can be used to estimate the average growth of heifers from weaning to the start of mating on the 1st of January. This can be used to identify the weaning weight of heifers that are likely to achieve good fertility when mated as yearlings. For example, the average date (over 28 years) of the break in the season in the Douglas Daly region is the 2nd of November (60 days before the 1st of Jan). From Figure 2, this would result in about 65 kg of growth by January (at a stocking rate of 1.5 head/ha). Since a joining weight of around 270 kg is required for maiden heifers to achieve conception rates in the order of 80% (Doogan *et al.* 1991), then a rough guide would be that good conception rates could be expected from the mating of heifers weighing more than 200 kg at weaning.

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