

RELATIONSHIP BETWEEN LIVEWEIGHT CHANGE OF CATTLE IN THE DRY SEASON IN NORTHERN AUSTRALIA AND GROWTH RATE IN THE FOLLOWING WET SEASON

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In northern Australia, higher annual growth rates of cattle are required for reliable access to premium domestic and export markets. This can be achieved by increasing wet season gains, reducing dry season losses, or a combination of both. However, growth rate in the wet season is unlikely to be independent of that in the dry since it has been established that animals subjected to a period of growth restriction will exhibit enhanced growth when the restriction is removed, ie compensatory growth (Ryan 1990).

The relationship between wet season growth rate (kg/day) and preceding dry season performance (percentage weight change during dry season) of grazing cattle was investigated in this study using data from an experiment in which cattle grazed continuously for 17 years, from 1968 to 1986, two paddocks of predominantly spear grass (*Heteropogon contortus*) pasture at Swans Lagoon Research Station near Townsville (see Figure 1). In each year, four Brahman crossbred steers, 18 to 24 months of age and weighing 303 kg (17 year average), grazed each paddock and were weighed every 4 weeks. Steers were changed every year in May.

The relationship between wet season (Y) and dry season (X) performance was best described by the asymptotic relationship: $Y = 0.591 + 0.066e^{-0.086X}$ ($r^2 = 0.62$; $P < 0.01$). This relationship suggests little effect of dry season performance on wet season rate of gain until steers lose in excess of 10% of bodyweight during the dry. Greatest liveweight loss occurred in the 1982 dry season, after which wet season liveweight gains of between 1.45 and 1.74 kg/day were recorded (Figure 1). It is unlikely that this wide range in wet season performance reflected equally large between-year differences in the quality of spear grass in the early wet. This has important implications for the prediction of growth rate of grazing animals based on pasture quality alone. These liveweight changes reflect not only changes in tissue growth, but also changes in gut fill and body water content which have a major influence on liveweight change during the changeover of seasons (McLean *et al.* 1983). The high wet season growth rates failed to compensate for large preceding dry season losses, since the wet season following a prolonged dry was always of short duration. Optimising annual growth rates and efficiency of production may thus depend on restricting dry season losses to no more than 10% of liveweight. Establishment of principles such as this is necessary for the formulation of practical feed year plans.

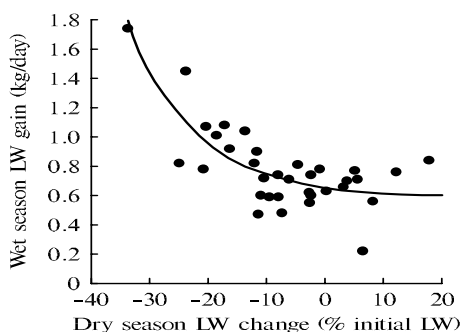


Figure 1. Relationship between wet season and dry season changes in liveweight (LW) of grazing steers in northern Australia. Points represent mean values for each paddock each year

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