

TIME TO TURN-OFF STEERS IN THE HIGH-RAINFALL TROPICS

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The **profitability** of beef enterprises in the high-rainfall tropics of north Queensland depends on rapid turn-over of stock. This is because costs are high, due particularly to land prices, fertilizer costs, and the cost of pasture maintenance and livestock husbandry. Research has emphasised that the finishing of store cattle purchased from dry hinterland areas is the most economic use of grazing lands. The season when the stores are purchased, the property of origin, and the live weight at purchase may influence turn-off rates. We tested the relative influence of these factors on a commercial scale.

A 40 ha commercial demonstration site located at Utchee Creek approximately 10 km west of South Johnstone (17° 35'S, 146° 00'E) was established in 1976 to evaluate the economics of fertilized pastures. Performance data from 845 head introduced in 34 drafts from 1977 to 1986 were analysed to determine the effect of the above factors. Cattle were purchased from saleyards and properties, and sold at local trade live weights (450 - 500 kg).

Drafts introduced after purchase in summer grew at a significantly ($P < 0.01$) faster rate (0.52 kg/hd/d) than those introduced in autumn (0.44 kg/hd/d), winter (0.44 kg/hd/d), and spring (0.46 kg/hd/d). The season experienced on the property of origin prior to purchase influenced these results. For example a draft from a property which had experienced a good season grew at 30% below the summer average,

As expected time to turn-off was most influenced by live weight at introduction (Table 1). Average daily liveweight gain between introduction and turn-off increased with increasing initial live weight. The rapid growth rates of weaners and the compensatory growth of emaciated stores diminished markedly as the beasts acquired fat cover and approached sale weight. For example, analysis of average daily gains in 50 kg liveweight increments showed that the cattle grew at 0.82 kg/h/d, when less than 300 kg live weight while the rates averaged 0.53/hd/d between 300-350 kg, 0.47 between 351-400 kg, 0.42 between 401-450 kg, and 0.37 when cattle were heavier than 450 kg ($P < 0.01$).

Table 1 Effect of introduction weight on animal performance

Introduction weight (kg)	Number of head	Average daily gain (kg/hd/d)	Time to turn-off (days)
<250	118	0.43 ^c	506 ^a
252-275	149	0.46 ^{bc}	429 ^b
276-300	173	0.46 ^{ab}	406 ^b
301-300	154	0.48 ^{ab}	354 ^c
326-350	124	0.49 ^a	307 ^d
>350	127	0.49 ^a	249 ^e
s.e.		0.03	113

Means with a common letter do not differ significantly ($P > 0.05$)

Conventional grazing trials are often unable to evaluate the animal factors affecting production. By mimicking a commercial property we have shown that live weight at introduction is the more important animal factor affecting production from high-rainfall tropical pastures. Such data should be considered in any financial analysis of pasture use in this environment.-

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