THE EFFECT OF POST WEANING NUTRITION ON THE TOTAL FAT CONTENT OF CUBE ROLL *(Longissimus dorsi)* STEAKS FROM BRAHMAN CROSS STEERS

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In recent years, the public awareness of the role of animal products in the human diet has increased due to associations between dietary patterns and the development of chronic degenerative diseases such as coronary heart disease Information on the fat content of lean portions of Australian beef has been limited. Sinclair and O'Dea (1987) published data based on Bos *taurus* breeds, while data from Bos *indicus* sourced animals has been unavailable.

At Brigalow Research Station, Theodore, 624 Brahman crossbred steers from two year drafts were grown at four different nutritional regimes between weaning and turnoff at target carcase weights of 185,260 and 320 kg. The nutritional regimes comprised combinations of differing annual nutritional levels (growth rates) between weaning and each target carcase weight. The annual growth rates were 180kg/year (H), 130kg/year (M) and 80kg/year (L) for the ***grassfed*** regimes and 300kg/year (H^+) for the ***grainfed*** regime (grain supplemented in paddock to 185 and 260kg carcase weight, or grain supplemented in paddock plus lot fed to 320kg carcase weight).. The combinations were LMH, MMM HHH in both drafts and H^+ in one draft only. At 24 hours post slaughter. chilled samples of the cube roll (*Longissimus dorsi,* LD) were collected from each carcase, adjacent to the quartering point between the eighth and twelfth thoracic vertebrae. Samples were plastic wrapped and frozen. A 100g sample was sawn from the frozen LD before thawing at 5-6°C for 48 hours, finely minced, freeze dried, then soxhlet extracted with petroleum ether (b.p. 40-60°) for 16 hours in order to determine total fat content. Data (excluding H^+ data) were tested by analysis of variance using the method of least squares.

Growth rates (kg/hd/d) between weaning and turnoff increased significantly with improved nutrition (HHH(0.563)>MMM(0.467)>LMH(0.399), $P<0.05$) while growth rates across all regimes to 185kg target carcase weight were significantly greater ($P<0.05$) than to the 260 or 320kg target carcase weight (0.527>0.462 and 0.440). The target carcase weight by nutritional regime interaction for growth rate was significant ($P<0.05$). Growth rates of the H^+ nutritional regime were 0.743 to the 185kg, 0.578 to the 260kg and 0.652 to the 320kg target carcase weight.

Table 1 Effect of postweaning nutrition on *Longissimus dorsi* total fat content (%)
Means followed by the same letter or without letters do not differ significantly ($P>0.05$).

Target carcase weight Main effect			Nutritional regime Main effect		
185	260	320	LMH	MMM	HHH
1.14^c	2.09^b	4.06^a	2.34	2.43	2.51
Avge. LSD (5% level)=0.50			Avge. LSD (5% level)=0.50		

The nutritional regime had no significant effect ($P>0.05$) on the total fat content of the lean (denuded of all surface fat) LD samples, however, fat content increased significantly ($P<0.05$) as the target carcase weight increased (Table 1). A similar trend occurred across target carcase weights (1.36, 2.06 and 4.14%, Average SEM of $\pm$0.17%) for the H^+ nutritional regime. The interaction between target carcase weight and nutritional regime for total fat content was not significant ($P>0.05$). Although not statistically tested, there was no difference in LD fat content between the ***grassfed*** groups (LMH, MMM and HHH) and the ***grainfed*** groups (H^+) at any of the target carcase weights.

In this study. the animals nutritional regime has not influenced total fat content of the LD. The total fat content of the LD from Brahman cross animals, is lower than the fat content of 2.3% and 3.9% from Hereford carcases weighing 209 and 258kg (Sinclair and O'Dea 1987). Prom both studies, fat content of the LD was low, which should help correct the perception that selective beef cuts are high in fat and thus unhealthy.

The financial support of the Meat Research Corporation and assistance of QDPI and CSIRO staff is gratefully acknow ledged.

Sinclair, A.J. and O'Dea, K. (1987). Food ***Tech. in Aust. 39: 228.***

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