EFFECTS OF BRAHMAN CONTENT AND LIVEWEIGHT ON HIDE WEIGHT

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Cattle by-products are economically important and some, such as hide, are influenced by breed type (Terry *et al.* 1990). There is generally little incentive for producers to enhance hide value (weight and quality) since direct payment is often not made. Butler *et al.* (1956) reported that Brahman cattle had heavier hides but smaller heads and livers than British cattle. This paper examines relationships between genotype (Brahman/Hereford content), hide weight, liveweight, and carcass traits using 331 yearling steers bred at NSW Agriculture's Research Stations at Grafton and Ballina, NSW.

Steers, from three 'cohorts' born in 1989, 1991 or 1992, were slaughtered after finishing on a feedlot (1989) or on pasture (1991, 1992) at 16, 19 and 21 months of age respectively. Genotypes included ten combinations (%) of Brahman/Hereford - 0:100, 13:87, 25:75, 33:67, 50:50-F1 (firstcross); 50:50-Fn (*inter se* mating of F1, F2 and F3 generations); 67:33, 75:25, 87:13; and 100:0. Traits analysed were liveweight at slaughter, carcass weight, rib and P8 fatness, and fresh hide weight.

Analysis of hide weights demonstrated linear relationships between hide weight and liveweight for each level of percent Brahman (B), suggesting that hide weight was proportional to liveweight for the range of liveweights considered in this data set (270 to 572 kg). Thus the effects of B on the percentage of liveweight due to hide weight (H) were analysed. The age of steers at slaughter was used as a covariate for H, which appeared to decrease with increasing age. However, age at slaughter was not significant for H when it was fitted after B and 'cohort', whereas 'cohort' still contributed significantly after age was fitted. Thus the final model for H included B, 'cohort' and the interaction.

Percent Brahman and 'cohort' had highly significant effects on H, whereas the interaction was not significant. Steers born in 1989 had greatest H, and were youngest and lightest at slaughter. However, the biological significance of the 'cohort' effect cannot be interpreted, since 'cohorts' were finished on feedlot or pasture and were slaughtered at different ages in different seasons. As B in steers increased from 13 to 100%, there was a trend for increasing H, with values for 13 B being significantly less than those with >50 B. Steers with B = 0 had intermediate values which were not significantly different from all others (Table 1). This result does not agree with that from Terry *et al.* (1990), who found British steers had lower H than steers containing less than 50% B or greater than or equal to 50% B. However in their study percent B was estimated on phenotypic characteristics, whereas in ours the genotypes were known. Percent Brahman trends for liveweight, hide weight and carcass weight were similar, with 33 B and 50-F1 B steers having heaviest weights (high heterosis), and 50-Fn B and 100 B steers having lowest weights (epistatic loss and no heterosis respectively). Carcasses with <50 B or 50-F1 B were fattest, whereas carcasses with high B were leanest, (Table 1).

Bos indicus cross steers with high B content had a greater proportion of their slaughter liveweight as hide weight, compared with lower B steers. *Bos taurus* steers did not fit this pattern.

Table 1. Live, carcass and hide weights (kg), P8 fat (mm) and hide/liveweight ratio (%) with standard error of the difference (s.e.d.) for steers with 0 to 100 % Brahman content

% Brahman	0	13	25	33	50-F1	50-Fn	67	75	87	100	s.e.d.
Liveweight	407	416	419	429	427	384	406	396	386	384	12.3
Carcass wt	214	224	227	233	234	209	222	218	212	209	6.9
Fresh hide wt	33.9	33.5	34.1	36.2	35.3	31.4	34.5	34.6	33.7	32.8	1.4
P8 fatness	7.8	8.5	8.4	7.4	7.9	6.7	6.8	5.8	5.6	5.3	0.7
% Hide/livewt	8.4	8.1	8.2	8.4	8.3	8.2	8.5	8.7	8.8	8.6	0.24

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