# CROSSBREEDING BEEF CATTLE IN NORTH EASTERN N.S.W.

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Animal production in north eastern N.S.W. is low by southern Australian standards. The environment is characterised by a subtropical climate, large variations in soil fertility and poor quality pastures. The major beef cattle enterprise is breeding, of vealers on better soil types, and of store cattle elsewhere.

Most research has been aimed at increasing animal production by improving the plant-soil complex. In 1972 a research programme was initiated at Grafton to consider increasing productivity through the animal's genotype. The approach adopted has been to evaluate the role of various breed 'types' when used in simple crossing programmes based on Hereford females. In phase 1 sires of the Simmental (large European), Friesian (dual purpose), Brahman (*Bos indicus*) and Hereford (purebreeding control) breeds are joined to mixed age Hereford females. Artificial insemination commences in September, and calves are weaned in-February/March at 6 to 8 months of age. Cows and calves are maintained in two herds for management reasons.

Data for birth weight and average daily gain to weaning in the first two years have been analysed within years by least-squares procedures. The models employed for these analyses included first order interactions between the appropriate main effects.

TABLE1
Least-squares means for breeds

| Trait | Year | Hereford purebreed | Simmental-cross | Friesian-cross | Brahman-cross |
|---|---|---|---|---|---|
| Total no. calves | | 96 | 78 | 81 | 78 |
| Total no. sires | | 23 | 19 | 22 | 16 |
| Birth weight (kg) | 1973 | 28.3 | 31.2 | 28.8 | 31.8 |
| | 1974 | 32.0 | 33.8 | 33.3 | 35.0 |
| Average daily gain to weaning ($kg\ day^{-1}$) | 1973 | 0.70 | 0.74 | 0.72 | 0.72 |
| | 1974 | 0.67 | 0.71 | 0.74 | 0.76 |

Crossbred calves were heavier at birth than purebred calves. In both years the breed effect on birthweight was significant, but the sex of calf x breed interaction was also significant. The sex effect was smaller for calves sired by Hereford and Friesian bulls.

Crossbred calves grew faster than the purebred calves in both years, but the breed effect was only significant in 1974. There was a significant management group x breed interaction in 1973, which suggested that Simmental- and Brahman-cross calves were favoured by better nutrition.

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