

BEEF PRODUCTION FROM CHAROLAIS, BRAHMAN AND HEREFORD  
SIRE CALVES UNDER COMMERCIAL MANAGEMENT

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Summary

The value of Charolais, Brahman and Hereford sires in beef production was assessed in two commercial Hereford herds in the South-East of South Australia. At 240 days of age the differences in weight were greater between herds than between breed groups. Brahman crosses grew more slowly than straight Herefords in both herds, whereas Charolais crosses showed a 10% advantage in one herd and none in the other. These trends continued to 22 months. Carcass data were collected for animals at 9 and 22 months old.

I. INTRODUCTION

In an effort to improve production, beef producers in the South-East of South Australia introduced Brahman bulls and Charolais semen without knowing how these breeds performed under South-East conditions. Since the value of any breed depends on the results obtained commercially, co-operation was sought from private producers to determine the commercial value of these breeds.

This paper reports observations on beef production from crossbreds on two properties.

II. MATERIALS AND METHODS

(a) Properties

Two properties, one at Nangwarry (lat.  $37^{\circ}31'$ , long.  $140^{\circ}55'$ ) and one at South Killanoola (lat.  $37^{\circ}10'$ , long.  $140^{\circ}40'$ ), each carrying between 1,000 and 1,500 breeding cattle plus sheep, were used for the observations. On both properties cows grazed improved pastures of subterranean clovers, phalaris and perennial ryegrass at a stocking rate of about 1 breeding cow per 1.5 hectares.

(b) Animals and Management

Grade Hereford cows of mixed ages, excluding maiden heifers, were artificially inseminated with semen from one of the following: Hereford semen from three bulls in the top 30% of their performance test group at Struan Research Centre; Charolais semen from Salopiau and Superieur purchased from the U.K. Milk Marketing Board; and Brahman semen from Belmont 1 - 315 and Dasbrahman Pablos Aristocrat purchased from Wacol, Queensland.

Cows in oestrus were marked by epididectomised bulls fitted with chinball marking devices. The cows marked each day were yarded the next morning. Inseminators from Struan Research Centre visited the properties each day to inseminate the cows and ensure a random allocation of the breeds. Fifty doses of semen of each breed were used on each property.

At birth, calves were ear-tagged and weighed. Difficult calvings were noted, and assisted by the owner as he saw fit. The male calves were castrated at 2 - 3 months and weighed at an average age of 240 days.

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On the basis of this weight the calves were allocated to two groups, of similar mean weight, for slaughter at an average age of 9 or 22 months. Carcass composition was assessed by shin dissection (Butterfield 1964).

### III. RESULTS

Difficult calvings were few on both properties (Table 1) and no significant differences were noted.

TABLE 1  
Difficult calvings in the two herds

| South Killanoola |        |                        |      |                   |
|------------------|--------|------------------------|------|-------------------|
| Sire breed       | Births | <u>Assisted births</u> |      | <u>Unassisted</u> |
|                  |        | live                   | dead | dead              |
| Hereford         | 21     | 1                      | 0    | 0                 |
| Charolais        | 27     | 4                      | 0    | 0                 |
| Brahman          | 14     | 0                      | 1    | 0                 |

  

| Nangwarry  |        |                        |      |                   |
|------------|--------|------------------------|------|-------------------|
| Sire breed | Births | <u>Assisted births</u> |      | <u>Unassisted</u> |
|            |        | live                   | dead | dead              |
| Hereford   | 45     | 1                      | 0    | 2                 |
| Charolais  | 28     | 0                      | 0    | 0                 |
| Brahman    | 23     | 0                      | 0    | 0                 |

Birth weights and 240 day weights are given in Table 2, South Killanoola calf birth weights were significantly heavier than Nangwarry calf birth weights but 240 day weights showed a reversal of this trend.

At 9 months of age significant differences in carcass weight occurred between herds in Hereford and Charolais groups. Within herds, Charolais calves had a higher percentage of muscle than Herefords (Table 3).

At 22 months of age the trends noted in the 9 month group were evident; however, there were no statistically significant differences.

### IV. DISCUSSION ,

Brahman and Charolais sires compared with Hereford on Hereford cows did not consistently affect either the incidence of difficult calvings or the growth rate of the calves. The effect of property was greater than that of breed.

Charolais-sired carcasses, however, did have significantly more muscle than Hereford carcasses. Care should be exercised in interpretation of composition estimates as formulae were originally obtained from British breed and Brahman data only.

With the limited information on sires used, relative to the breed performance as a whole, it is not possible to conclude that the results observed are typical for the breeds involved. It does indicate that use of a particular group of bulls available to the Australian industry may not give the same results as obtained overseas (Mason 1971) for similar breeds or crossbreds.

These results point to the need for producers to assess sires for production under their own management rather than use levels of production obtained elsewhere.

TABLE 2

Birth and weaning weights of steers from the two herds

| Sire breed | South Killanoola |                   |                     | Nangwarry        |                   |                     |
|------------|------------------|-------------------|---------------------|------------------|-------------------|---------------------|
|            | Number of steers | Birth weight (kg) | 240 day weight (kg) | Number of steers | Birth weight (kg) | 240 day weight (kg) |
| Hereford   | 12               | 34.7ad            | 236fhcd             | 27               | 31.8aebf          | 285ha               |
| Charolais  | 10               | 37.6bhi           | 264fg               | 12               | 32.9bgh           | 280bc               |
| Brahman    | 6                | 41.1cdfgi         | 228giabe            | 21               | 35.4ce            | 270ide              |

Values with the same suffix are statistically different ( $P < 0.05$ )

TABLE 3

Carcass data of steers slaughtered at 9 and 22 months of age

|                | South Killanoola |                     |          |       |           | Nangwarry        |                     |          |          |        |
|----------------|------------------|---------------------|----------|-------|-----------|------------------|---------------------|----------|----------|--------|
|                | Number of steers | Carcass weight (kg) | Muscle % | Fat % | Bone %    | Number of steers | Carcass weight (kg) | Muscle % | Fat %    | Bone % |
| 9 month group  |                  |                     |          |       |           |                  |                     |          |          |        |
| Hereford       | 6                | 146acefg            | 58.5a    | 14.1a | 19.5e     | 5                | 173ab               | 56.5bd   | 17.1abcd | 18.8c  |
| Charolais      | 5                | 167bdf              | 62.7acd  | 13.8b | 21.3abcde | 5                | 183cdh              | 60.2b    | 13.9d    | 19.2a  |
| Brahman        | 3                | 167g                | 59.8     | 12.9c | 19.6b     | 7                | 165eh               | 57.6c    | 15.5c    | 18.3d  |
| 22 month group |                  |                     |          |       |           |                  |                     |          |          |        |
| Hereford       | 2                | 187abcd             | 60.6     | 16.4  | 18.4      | 10               | 264a                | 59.0     | 17.8     | 17.9   |
| Charolais      | 4                | 247d                | 63.7     | 15.1  | 18.8      | 5                | 261bf               | 61.8     | 16.4     | 17.8   |
| Brahman        | 2                | 209ef               | 62.7     | 13.4  | 19.0      | 11               | 254ce               | 60.4     | 17.4     | 18.0   |

Values with the same suffix are statistically different ( $P < 0.05$ )

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