

COMPARISONS OF ANGUS-HEREFORD RECIPROCAL CROSS COWS

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Story in Brief

Reproductive, birth and weaning records of 98 Hereford-Angus (sired by Hereford bulls) and 80 Angus-Hereford (sired by Angus bulls) cows (523 and 423 calves, respectively) were used to compare these reciprocal cow types for cow productivity. Hereford-Angus cows had a large advantage in average weaning percent (83.4 vs 72.1%). There were only minor differences in birth weight and calving difficulty, but calves from Angus-Hereford cows were slightly heavier at weaning (488.0 vs 483.1 lb) and had a slightly higher average conformation score (13.1 vs 13.0). The advantage in weaning percent provides reason to recommend the use of Hereford bulls and Angus cows as the parents of replacement heifers.

(Key Words: Beef Cattle, Crossbreeding, Reproduction, Calf Weight.)

Introduction

The "Black-baldy" (Hereford-Angus or Angus-Hereford) cow is commonly used in commercial cattle production and is generally the standard by which other crossbred cow types are evaluated. Both the Angus and Hereford breeds have several characteristics which serve well in a commercial cow-calf setting. Both breeds are moderate in size and are reasonably fertile. The Angus breed is recognized for its maternal ability and marbling while many producers like Hereford cattle because of their adaptability to harsh conditions. The maternal ability of the Angus suggests the use of Hereford bulls on Angus cows if the objective is to produce two breed cross calves. The mating of choice is not as obvious if the two breeds are to be used to produce replacement heifers. The objective of this study was to compare Angus-Hereford (sired by Angus bulls) with Hereford-Angus (sired by Hereford bulls) cows for reproduction and calf performance to weaning.

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Materials and Methods

This study used data from two projects at the Oklahoma Agriculture Experiment Station. Cow reproduction and calf performance to weaning for all Angus-Hereford and Hereford-Angus cows were analyzed. Both projects include numerous cows from other crossbred cow types which were not included in these analyses.

The first project was designed to compare the productivity of cows out of Hereford or Angus dams and sired by Hereford, Angus, Simmental, Brown Swiss and Jersey bulls. Data from this project were obtained from 1975 through 1986. Cows ranged in age from 2 to 13 years old. Calves were sired by Brahman, Charolais, Gelbvieh, Limousin, Red Poll, Salers and Shorthorn sires.

The second project compared the performance of 0, 1/4 and 1/2 Brahman cows in spring vs fall calving systems. The 0 Brahman cows were either Hereford-Angus or Angus-Hereford. Data were obtained from 1983 through 1987 with cows that were from two to six years old. Calves were sired by Limousin or Salers bulls.

There were 98 Hereford-Angus cows and 80 Angus-Hereford cows included in the study. Over the several years of the study these cows were exposed to bulls 642 and 548 times (Hereford-Angus and Angus-Hereford, respectively). The breeding season lasted approximately 75 days, starting in early May for spring calving cows and in early December for fall calving cows. Bulls were randomly assigned to cows within each crossbred cow group. Breeding was primarily by artificial insemination. Calvings were scored for difficulty assigned on the basis of: 1 = no difficulty, 2 = minor assistance, 3 = moderate difficulty, 4 = hard pull, 5 = Caesarian and 6 = abnormal presentation.

Birth weights were obtained and male calves were castrated within 24 h of birth. Calves remained with their dams until weaning (205 days for spring calving cows, 240 days for fall calving cows). At weaning each calf was weighed and assigned subjective weaning condition (1 = emaciated, 9 = obese) and conformation (12 = low choice) scores.

Data were analyzed with least squares procedures. The model included dam breed (Angus-Hereford vs Hereford-Angus), project, year, age of dam, sex of calf, season, sire breed and sire nested within sire breed. Two way interactions were evaluated but were excluded if not approaching significance ($P > .4$).

Results and Discussion

Reproductive performance of the two cow groups is shown in Table 1. Hereford-Angus cows were superior ($P < .01$) for lifetime percent weaned (83.4

Table 1. Reproductive performance of Hereford-Angus vs Angus-Hereford cows.

| Crossbred cow group | Number of exposures | Lifetime % weaned | Calving interval, days |
|---------------------|---------------------|-------------------|------------------------|
| Hereford-Angus | 642 | 83.4 | 417 |
| Angus-Hereford | 548 | 72.1 | 419 |
| Probability level | <.01 | .75 | |

vs 72.1). There was little difference in average calving interval between the groups. This large 11.3% advantage in weaning percent cannot be explained easily. Hereford-Angus cows were also heavier (928.4 vs 895.4 lb). The increased weight may have resulted from a higher average body condition. Such an advantage in average condition score would be consistent with the expected higher milking ability of the Angus dams of the Hereford-Angus cows. This higher average condition score would be expected to result in an advantage in reproductive performance. However, the observed difference may have been larger than could be explained by average fatness differences of the cows.

Only small differences were observed in birth weight and calving difficulty (Table 2). Performance at weaning showed a small advantage for calves out of Angus-Hereford cows (Table 3). They were 4.9 lb heavier (non-significant) at weaning and had a slightly higher average conformation score ($P < .05$).

These results showed a small advantage in performance at weaning for calves out of Angus-Hereford cows. However, there was a large advantage in percent weaned for Hereford-Angus cows. Despite the lack of a clear explanation for the large observed advantage, this should be useful information. It has been shown that a Hereford x Angus cross takes advantage of the superior maternal ability of the Angus female. These results indicate that the same cross can be recommended for production of replacement heifers.

Table 2. Birth weight and calving difficulty of calves out of Hereford-Angus or Angus-Hereford dams.

| Crossbred cow group | Number of calves | Birth weight, lb | Calving difficulty |
|---------------------|------------------|------------------|--------------------|
| Hereford-Angus | 523 | 75.5 | 1.37 |
| Angus-Hereford | 423 | 74.1 | 1.44 |
| Probability level | .26 | .38 | |

Table 3. Weaning weight, conformation and condition scores of calves out of Hereford-Angus or Angus-Hereford dams.

| Crossbred cow group | Number of calves | Weaning weight, lb | Conformation score | Condition score |
|---------------------|------------------|--------------------|--------------------|-----------------|
| Hereford-Angus | 498 | 483.1 | 13.0 | 5.1 |
| Angus-Hereford | 403 | 488.0 | 13.1 | 5.0 |
| Probability level | .15 | .04 | .29 | |

Only small differences were observed in birth weights and calving difficulty (Table 5). Probabilities of weaning showed a small advantage for calves out of Angus-Hereford cows (Table 7). They were 4.5 lb heavier (not significant) at weaning and had a slightly higher average condition score (7.05).

There would appear to be a small advantage in performance at weaning for calves out of Angus-Hereford cows. However, there was a large advantage in percent weaned for Hereford-Angus cows. It might be that the selection program for the high observed average birth weight of the offspring of the Angus-Hereford dams was such that the dams were more inclined to produce offspring of a higher birth weight. This higher average condition score would be expected to result in an advantage in reproductive performance. However, the observed differences may have been largely due to the way in which the average birth weights of the dams.

Table 4. Birth weight and calving difficulty of calves out of Hereford-Angus or Angus-Hereford dams.

| Crossbred cow group | Number of calves | Birth weight, lb | Calving difficulty |
|---------------------|------------------|------------------|--------------------|
| Hereford-Angus | 498 | 75.2 | 1.33 |
| Angus-Hereford | 403 | 74.7 | 1.44 |
| Probability level | .28 | .28 | |