

PRODUCTIVITY OF MATURE CROSSBRED COWS WITH DIFFERENT PROPORTIONS OF BRAHMAN IN SPRING AND FALL CALVING SYSTEMS: COW PERFORMANCE

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Story in Brief

Mature cows (five to eight years old; n=773) representing 0, 1/4 and 1/2 Brahman breeding were evaluated in spring and fall calving programs in order to determine the utility of percentage Brahman cows in a climate more temperate than the Gulf Coast region. Calf crop born and weaned, cow body condition during the breeding season and at weaning and average cow weight (breeding season and weaning) were studied. As percentage Brahman increased, the calving and weaning percentages decreased. Only small differences were observed between the breed groups for body condition, but the 1/4 Brahman cows were lighter in weight. Spring cows were fatter, but lighter in weight. Breed group x season interaction was present for body condition at weaning. Lower calving and weaning percentages as percentage Brahman increased suggests that producers in this region should be wary of including too high a percentage of Brahman breeding into their herd. Cows with 1/4 Brahman breeding may be desirable due to slightly smaller mature size than the other groups.

(Key Words: Beef Cattle, Brahman, Cows, Reproduction, Condition.)

Introduction

The use of the Brahman breed has become popular in the southeastern United States because of heat tolerance, resistance to some common parasites and good maternal ability. The breed is criticized for poor carcass characteristics, poor temperament and late sexual maturity. These weaknesses may be diluted by crossbreeding with British breeds while still allowing some of the advantages of the Brahman to flourish. This study is part of a long-term study to evaluate the productivity of six crossbred cow types, with different proportions of Brahman and British breeding, under temperate production conditions. The objective for this paper is to report the productivity characteristics of mature (five to eight years old) cows with 0, 1/4 and 1/2 Brahman breeding under a spring and fall calving program.

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Materials and Methods

The cows evaluated in this study were born in 1981 to 1983, out of Angus (A) and Hereford (H) cows that had been randomly assigned to spring and fall calving herds. Cows were from five to eight years of age and these results are from six years of production. Sires used in the initial matings were purebred Angus, Hereford and Brahman (B) and crossbred 1/2 B:1/2 A and 1/2 B:1/2 H. These matings resulted in cows that were 0, 1/4 and 1/2 Brahman with the remainder being Hereford and/or Angus. Performance characteristics of these females as growing heifers and young cows has been reported previously (Bolton et al, 1986; McCarter et al, 1987a,b; McCarter et al, 1988; McCarter et al, 1989a,b).

The cows were located at the Lake Carl Blackwell Experimental Range, west of Stillwater during the period reported. The grazed forages were primarily native grasses with some grazing on bermudagrass. Supplemental protein and hay were fed during winter and early spring.

Both spring and fall calving groups were allowed a 75 day breeding season each year, resulting in calves born from late January through mid-April and from early September through late November. Cows were mated to one or two breeds of sire each year. For the duration of this study, Limousin, Salers, Angus and Polled Hereford sires were used. Cows from each breed group were randomly assigned to the sires used in any given year. Distribution of the number of cows calving from each breed group and season is presented in Table 1.

Cows were weighed and body condition scores were recorded twice each year (at the initiation of the breeding season and at weaning). Body condition scores were assigned on a nine point scale: 1 = emaciated, 5 = moderate condition and 9 = extremely obese.

Cow characteristics were percent calf crop born, percent calf crop weaned, dam body condition at breeding and weaning and cow weight. Data were analyzed with a model that included cow breed group, season of calving, age of dam, year of calving, sire of cow and two factor interactions.

Table 1. Number of cows calving in percentage Brahman breed groups and seasons.

Crossbred group	Spring calving cows	Fall calving cows	Total
0 Brahman	97	89	187
1/4 Brahman	249	131	380
1/2 Brahman	111	95	206
Total	457	316	773

Results and Discussion

Least squares means for cow traits are presented in Table 2. Birth and weaning percentages were based on the number of cows exposed. A significant dam breed group effect was observed for both measures of reproductive performance. As percentage Brahman increased, the birth ($P<.05$) and weaning ($P<.01$) percentages decreased. No significant season effects were detected, although a small advantage was observed in the spring calving season.

Table 2. Breed group and season least squares means for cow characteristics.

Effect	Calf crop born, %	Calf crop weaned, %	Breeding BCS ^a	Weaning BCS	Average cow wt, kg
Breed group					
0 B	90.0	86.1	5.68	6.02	536.4
1/4 B	85.0	81.7	5.67	6.08	513.9
1/2 B	77.0	72.7	5.98	5.99	537.9
St. err.	3.6	3.8	.11	.16	12.8
Sig. ^b	*	**			
Season					
Spring	85.6	81.5	5.47	6.11	522.2
Fall	82.4	78.8	6.09	5.95	536.6
St. err.	2.4	2.6	.06	.07	5.4
Sig.			**	*	*
Breed x Season^c					
0 B x S	-	-	5.53	-	-
0 B x F	-	-	5.81	-	-
1/4 B x S	-	-	5.35	-	-
1/4 B x F	-	-	5.99	-	-
1/2 B x S	-	-	5.51	-	-
1/2 B x F	-	-	6.45	-	-
St. err.			.09		
Sig			**		

* $P < .05$

** $P < .01$

^a BCS=body condition score.

^b Significance level.

^c Breed x season means reported only if the interaction was significant ($P<.05$). S=Spring, F=Fall.

Dam body condition scores were similar across breed groups at the beginning of the breeding season and at weaning. Fall calving cows had higher condition scores during the breeding season ($P < .01$) and at weaning ($P < .05$). A breed group x season interaction ($P < .01$) was important for condition score during the breeding season. This interaction resulted from a larger seasonal difference in condition score as percentage Brahman increased. The 1/4 Brahman cows were smaller by more than 20 kg than either of the other groups, although the difference was not significant.

Breed group differences were not significant in cow weight (average of breeding season and weaning) although there was a tendency for 1/4 Brahman cows to be lighter. Fall calving cows were heavier ($P < .05$) than spring calving cows. This may reflect the slightly lower reproductive performance of the fall calving cows or may just be a function of the differing time of year they were weighed.

These results should be considered in light of the earlier reports from this project. Of particular importance was the low reproductive rate observed in 1/2 Brahman cows when bred to calve as two-year olds, particularly in the fall calving herd (McCarter et al, 1987a). Mature cow calving rates also decreased as percentage Brahman increased. This calls into question the advisability of 1/2 Brahman breeding for Oklahoma. However, the decline in calving rate was not as great for 1/4 Brahman cows, and they were smaller in size indicating some consideration in a breeding program, particularly if their calves perform well. This will be addressed in a subsequent paper.

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