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

G.K. Ziehe[1], D.S. Buchanan[2], R.R. Frahm[3] and L.W. Knori[4]

Story in Brief

Calves from 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. Only small differences in birth weight among breed groups were observed. Weaning weight and height increased as percentage Brahman in the dam increased. A breed group by season interaction for weaning weight and height also resulted from larger breed group differences in the fall calving herd. Breed comparisons for age at weaning revealed that 1/2 Brahman cows tended to calve later in the calving season. These results showed a calf growth advantage associated with the use of the Brahman breed in the cow herd. Producers may wish to take advantage of this but should also consider the potential cost in reproductive performance.

(Key Words: Beef Cattle, Brahman, Calf Growth.)

Introduction

Brahman crossbred cows are commonly used in the Gulf Coast region of the United States. Heat tolerance and parasite resistance are the common reasons given for their popularity. Calves produced from such cows would benefit from any superiority of maternal performance of these cows. This study is part of a long-term project to evaluate the productivity of cow types with different proportions of Brahman and British breeding. The specific objective here is to report the performance of calves from mature (five to eight years old) cows with 0, 1/4 and 1/2 Brahman breeding under a spring and fall calving program.

Materials and Methods

Management and evaluation of the cows was reported previously (Ziehe et al., 1994). There were 773 calves born over a six-year period. All calves were weighed, calving difficulty scores were recorded and male calves were castrated within 24 hours of birth. The incidence of calving difficulty in cows was rare so that calving difficulty scores were assigned as 1 = no assistance and 2 =

---

[1]Graduate Assistant [2]Professor [3]Former Professor [4]Herdsman

assistance. Abnormal presentations were not included in the analysis of calving difficulty.

Weaning occurred in early October and early June, when calves reached an average age of 205 and 240 days for spring- and fall-born calves, respectively. Weaning of fall-born calves was later to allow cows and calves to take advantage of spring forage production prior to weaning. Calf weights and hip heights were adjusted to 205 and 240 days for spring- and fall-born calves, respectively.

Calf characteristics analyzed were birth weight, age at weaning, age-adjusted weaning weight and age-adjusted weaning hip height. Age at weaning was used to evaluate the average time during the calving season during which cows calved. These data were analyzed using least squares procedures that included the effects of dam breed group, season of calving, sex of calf, age of dam, year of calving, sire of calf and two factor interactions.

Results and Discussion

Dam breed group, calving season and breed by season interaction least squares means are presented in Table 1. No differences associated with dam breed group were detected for birth weight. Spring-born calves were 2.0 kg heavier than fall-born calves ($P<.01$). The incidence of calving difficulty was very low and there were no significant differences for breed group or season.

Age of calf at weaning was used to determine differences in the point at which dams calve, relative to the beginning of their respective calving season. Since all calves were weaned on the same date for a given calving season, a lower age at weaning indicated a later calving date. Breed group ($P<.05$), season ($P<.01$), and the group x season interaction ($P<.05$) were all significant. The age at which 1/2 Brahman calves were weaned was 9 days less than either of the other groups indicating generally later calving for 1/2 Brahman cows.

Fall-born calves were 14.6 kg lighter ($P<.01$) than spring-born calves, even though they were weaned at 240 days of age rather than 205 days. The 0 Brahman dams weaned spring-born calves that were 24.9 kg heavier than fall-born calves, whereas the difference was only 11.0 kg in 1/4 Brahman dams. Further, the difference between spring- and fall-born calves out of the 1/2 Brahman dams was only 7.9 kg. This indicated that the reduction in preweaning growth rate of fall-born calves may have been partially overcome when Brahman was included in the genetic makeup of the cow. Age adjusted hip height at weaning followed a pattern that was similar to age-adjusted weaning weight.

These results cannot be considered in isolation from other elements of this long-term study. Previous reports have also indicated an advantage in calf performance as percentage Brahman in the dam increased (McCarter et al, 1988). There has been an observed lowering of reproductive performance in the percentage Brahman cows, particularly with the 1/2 Brahman cows

Table 1. Breed group and season least squares means for calf characteristics.

Effect	Birth wt, kg	Age at weaning, d	Age-adjusted weaning wt, kg	Age-adjusted weaning ht, cm
Breed group				
0 B	36.7	228.8	224.4	107.6
1/4 B	36.0	231.7	246.3	109.9
1/2 B	35.9	223.2	257.0	116.7
St. err.	.7	2.3	3.8	1.3
Sig.[a]		*	**	**
Season				
Spring	37.2	208.9	249.8	112.5
Fall	35.2	246.9	235.3	110.3
St. err.	.4	1.4	2.3	.8
Sig.	**	**	**	*
Breed x Season[b]				
0 B x S	-	208.4	236.8	110.7
0 B x F	-	249.1	211.9	104.5
1/4 B x S	-	211.2	251.8	111.0
1/4 B x F	-	252.3	240.8	108.7
1/2 B x S	-	207.0	261.0	115.9
1/2 B x F	-	239.3	253.0	117.6
St. err.		2.1	3.5	1.2
Sig		*	**	**

* P < .05
** P < .01
[a] Significance level.
b Breed x season means reported only if the interaction was significant (P<.05). S=Spring, F=Fall.

(McCarter et al, 1987; Ziehe et al, 1994). The 1/4 Brahman cows have generally performed well, throughout the life of the project. This may suggest utility for Brahman breeding in a commercial cow herd but also indicates that the optimum proportion of Brahman breeding may be less than one-half.

Literature Cited

McCarter, M.N. et al. 1987. Okla. Agr. Exp. Sta. Res. Rep. MP-119:1.
McCarter, M.N. et al. 1988. Okla. Agr. Exp. Sta. Res. Rep. MP-120:1.
Ziehe, G.K. et al. 1994. Okla. Agr. Exp. Sta. Res. Rep. P-939.