

## PERFORMANCE OF LIMOUSIN SIRED CROSSBRED STOCKER CALVES WITH 0, 1/8 OR 1/4 BRAHMAN BREEDING GRAZING WHEAT PASTURE

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### Story in Brief

The growth performance of Limousin sired crossbred stocker calves that were 0, 1/8 and 1/4 Brahman breeding was evaluated while grazing wheat pasture during the winter of 1985-86. The calves were born during the spring of 1985 and were from crossbred cows that were 0, 1/4 or 1/2 Brahman breeding. Following weaning the heifer and steer calves were involved in two different experiments to compare various nutritional treatments while grazing wheat pasture during the stocker phase. For the heifers, average daily gain was similar for 0 and 1/8 Brahman heifers, whereas, 1/4 Brahman heifers gained .21 lb/day less than 0 Brahman heifers. Likewise for the steers, 0 and 1/8 Brahman steers gained at the same rate and 1/4 Brahman steers gained .18 lb/day less rapidly. All three groups of crossbred stocker calves gained quite well on wheat pasture (1.98 and 2.28 lb/day for heifers and steers, respectively), however 1/4 Brahman calves gained at a lower rate. This may be due to a combination of being heavier at the start of the grazing period and the higher proportion Brahman breeding being less well adapted to the winter climatic conditions of Oklahoma.

(Key words: Brahman Cross, Beef Cattle, Stocker Cattle, Wheat Pasture, Growth)

### Introduction

In recent years there has been considerable interest among Oklahoma beef producers in utilizing some Brahman breeding in crossbreeding systems to improve beef production efficiency. A long term study has been initiated at the Southwestern Livestock and Forage Research Laboratory, El Reno, OK to compare the productivity under both spring and fall calving systems of crossbred cows that are 0, 1/4 or 1/2 Brahman breeding. It is important to evaluate the performance of calves produced by these cows for both the stocker and feedlot phases. The purpose of this study was to compare the stocker performance on wheat pasture of crossbred calves that were 0, 1/8 or 1/4 Brahman breeding.

### Materials and Methods

The growth performance of crossbred stocker calves that were 0, 1/8 and 1/4 Brahman breeding was evaluated while grazing wheat pasture during the winter of 1985-86. The calves were sired by Limousin bulls and born during the spring of 1985 at the Southwestern Livestock and Forage Research Laboratory, El Reno, OK. The calves with 0, 1/8 and 1/4 Brahman breeding were produced by 1/2 Hereford-1/2 Angus and 1/2 Angus-

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1/2 Hereford, 1/4 Brahman-1/4 Hereford-1/2 Angus and 1/4 Brahman-1/4 Angus-1/2 Hereford, and 1/2 Brahman-1/2 Angus and 1/2 Brahman-1/2 Hereford cows, respectively. The calves were weaned on October 15, 1985, at an average age of 205 days. The mating system to produce these crossbred cows and the management of the cow herd are described by McCarter et al. (1987). Following weaning the heifer and steer calves were involved in two different experiments to compare various nutritional treatments while grazing wheat pasture during the stocker phase. Thus, the stocker performance of heifer and steer calves will be discussed separately.

#### Experiment 1 - Heifers.

Following weaning, 80 crossbred heifers that were 0, 1/8 and 1/4 Brahman breeding were trucked to Panhandle State University, Goodwell, OK. They were randomly allotted within crossbred groups to four different treatments to evaluate the effects on weight gains of stocker cattle from meat meal or cottonseed meal supplements while grazing wheat pasture. This trial was conducted from December 8, 1985 to March 20, 1986. The design of this experiment and the results from the nutritional treatments are discussed by Horn, et al. (1987).

#### Experiment 2 - steers.

Following weaning, 72 crossbred steers that were 0, 1/8 and 1/4 Brahman breeding remained at the Southwestern Livestock and Forage Research Laboratory, El Reno, OK. These steers grazed wheat pasture from November 15, 1985 to March 20, 1986 in a trial designed to determine the effects of supplemental sorghum silage on weight gain of stocker steers grazing wheat pasture. The crossbred steers were randomly allotted within crossbred groups to four nutritional treatment groups. The nutritional treatments are described in a trial similar to this one reported by Vogel et al. (1985).

## Results and Discussion

#### Experiment 1 - heifers

The crossbred heifers were randomly allotted within crossbred groups to nutritional treatments and statistical analyses indicated that there were no significant ( $P > .10$ ) interactions between crossbred groups and treatment. Thus, performance of crossbred heifer groups averaged over treatments can appropriately be compared. The least-squares means for crossbred heifers with 0, 1/8 and 1/4 Brahman breeding are presented in Table 1. The 1/8 and 1/4 Brahman heifers were 19 and 39 lb heavier, respectively, at the start of the grazing trial than 0 Brahman heifers, which is due to the heavier weaning weights of calves from 1/4 and 1/2 Brahman cows. Heifers with 0 and 1/8 Brahman breeding were similar in average daily gain, whereas the 1/4 Brahman heifers gained .21 lb/day less rapidly than 0 Brahman heifers (2.07 lb/day). Consequently, the final weight was similar for all three crossbred groups. At the end of the growing trial, these were a uniform set of cattle, weight-wise, to go into the feedlot phase.

Table 1. Growth performance of Limousin-sired stocker heifers that were 0, 1/8 or 1/4 Brahman breeding.

Proportion Brahman breeding <sup>a</sup>	No. heifers	Initial weight,lb	Final weight,lb	Average daily gain,lb/day
0	13	452 <sup>b</sup>	674 <sup>b</sup>	2.07 <sup>b</sup>
1/8	35	471 <sup>b,c</sup>	678 <sup>b</sup>	2.01 <sup>b</sup>
1/4	32	491 <sup>c</sup>	685 <sup>b</sup>	1.86 <sup>c</sup>

<sup>a</sup>0, 1/8 and 1/4 Brahman were produced by 1/2 Hereford-1/2 Angus and 1/2 Angus-1/2 Hereford, 1/4 Brahman-1/4 Hereford-1/2 Angus and 1/4 Brahman-1/4 Angus-1/2 Hereford, and 1/2 Brahman-1/2 Angus and 1/2 Brahman-1/2 Hereford cows, respectively.

<sup>b,c</sup>Means in the same column not sharing a common superscript are different (P<.05).

#### Experiment 2 - steers

The crossbred steers were randomly allotted within crossbred groups to nutritional treatments and statistical analyses indicated that there were no significant (P .10) interactions between crossbred groups and treatment. Thus, performance of crossbred steer groups averaged over treatments can appropriately be compared.

The least-squares means for crossbred steers with 0, 1/8 and 1/4 Brahman breeding are presented in Table 2. The 49 and 82 lb heavier weights, of 1/8 and 1/4 Brahman steers, respectively, compared to 0 Brahman steers at the start of the grazing trial was due to the heavier weaning weights of crossbred calves produced by 1/4 and 1/2 Brahman crossbred cows. Average daily gain was the same for 1/8 and 0 Brahman

Table 2. Growth performance of Limousin sired stocker steers that were 0, 1/8 or 1/4 Brahman breeding.

Proportion Brahman breeding <sup>a</sup>	No. steers	Initial weight,lb	Final weight,lb	Average daily gain, lb/day
0	15	480 <sup>b</sup>	781 <sup>b</sup>	2.34 <sup>b</sup>
1/8	32	529 <sup>c</sup>	825 <sup>c</sup>	2.34 <sup>b</sup>
1/4	25	562 <sup>d</sup>	835 <sup>c</sup>	2.16 <sup>c</sup>

<sup>a</sup>0,1/8 and 1/4 Brahman were produced by 1/2 Hereford-1/2 Angus and 1/2 Angus-1/2 Hereford, 1/4 Brahman-1/4 Hereford-1/2 Angus and 1/4 Brahman-1/4 Angus-1/2 Hereford, and 1/2 Brahman-1/2 Angus and 1/2 Brahman-1/2 Hereford cows, respectively.

<sup>b,c,d</sup>Means in the same column not showing a common superscript are different (P<.05).

steers (2.34 lb/day) and 1/4 Brahman steers gained .18 lb/day less rapidly. The more rapid daily gain of 1/8 Brahman steers compared to 1/4 Brahman steers resulted in similar weights for the Brahman-cross groups at the end of the grazing trial. Although 0 Brahman steers outgained the 1/4 Brahman steers during the grazing trial, they were 54 lb lighter at the end of the stocker phase and thus would enter the feedlot phase at a lighter weight.

#### Literature Cited

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