

BIRTH AND WEANING PERFORMANCE OF CALVES FROM COWS Sired BY HIGH AND LOW MILK EPD ANGUS AND POLLED HEREFORD BULLS

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Story in Brief

Calf and cow performance were evaluated for cows sired by High and Low Milk EPD Angus and Polled Hereford bulls. There were 161 cow-calf pairs measured for birth weight and calf weight, cow weight and cow condition score at weaning. Calves from cows sired by High Milk EPD bulls were heavier at birth in both breeds although the difference was significant only for Angus. Cows sired by High Milk EPD Angus bulls had calves with a 41.5 lb advantage in weaning weight over calves from Low Milk EPD cows. The corresponding difference for calves from Polled Hereford sired cows was 35.6 lb. Cows with High Milk EPD sires were lighter than cows sired by Low Milk EPD bulls for both breeds but the differences were not significant. The average condition score of cows sired by High Milk EPD bulls was lower than that for cows sired by low Milk EPD bulls with the difference (.6 units) being significant for Angus sired cows. Daughters of High Milk EPD sires are expected to wean heavy calves but there may be a cost in average body condition.

(Key Words: Beef Cattle, Maternal Ability, Expected Progeny Difference.)

Introduction

The primary goal of a commercial cow-calf enterprise is the production of high quality weaned calves. The average maternal ability of the cow herd is an important factor in such production. Cows with high genetic merit for maternal ability should produce heavy calves at weaning. However, these heavy calves may be at the expense of weight and body condition in the cows which may result in reduced reproductive performance. Several beef breed associations publish predictions of genetic merit for growth and maternal ability. These predictions are referred to as Expected Progeny Differences (EPDs). Maternal ability is evaluated with the Milk EPD. The difference in Milk EPD for two bulls should be a prediction of the weaning weight difference in calves from daughters of the two bulls, due to maternal ability. The objective of this study was to evaluate the utility of the Milk EPD for predicting calf performance and to assess the effect on cow weight and body condition.

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Materials and Methods

Beginning in 1988, cows at the North Lake Carl Blackwell Research Range near Stillwater, OK were mated artificially to Angus and Polled Hereford bulls that differed widely in Milk EPD. The base cows were Hereford-Angus, $\frac{1}{4}$ Brahman - $\frac{1}{2}$ Hereford - $\frac{1}{4}$ Angus or $\frac{1}{4}$ Brahman - $\frac{1}{2}$ Angus - $\frac{1}{4}$ Hereford crossbred cows. Cows in the present report were born in the spring and fall of 1989 through 1991. Previous results were reported by Buchanan et al. (1993). Average EPD values for the sires of these cows are shown in Table 1. The difference in Milk EPD between High and Low was 32.9 lb for Angus and 27.3 lb for Polled Hereford. There were small average differences in EPD for birth weight and weaning weight. The published accuracies for all bulls exceeded .60 for Milk EPD. Data for this study were obtained in 1993.

The cows were mated artificially to calve first at 24 months of age (both spring and fall seasons) and yearly thereafter. Sire breeds used included Salers, Limousin, Gelbvieh, Angus and Polled Hereford. Cows that failed to conceive during a 60-day breeding season were moved to the other breeding season. Calves were weighed and males were castrated within 12 hours of birth. Weaning weight was measured when the average age of the calves was 205 days. Cow weight and condition score (1 = extremely thin to 9 = obese) were evaluated at weaning.

The 161 calves in this study included 81 born in the spring and 80 born in the fall of 1993. There were 68 heifer and 93 steer calves.

Birth weight, weaning weight, cow weight and cow condition score were analyzed with a statistical model that included breed of sire of cow, Milk EPD level, sex of calf, season, age of dam and breed of sire of calf as well as two-level interactions. Birth date was included as a covariate for birth weight and weaning weight.

Results and Discussion

Breed and Milk EPD level least squares means for calf performance are shown in Table 2. Calves from cows sired by High Milk EPD bulls were heavier at birth in both breeds although the difference was significant ($P < .01$) only for Angus. This result was somewhat surprising in view of the fact that the High Milk EPD bulls had lower average birth weight EPDs in both breeds, although differences were small. Cows sired by High Milk EPD Angus bulls had calves with a 41.5 lb advantage ($P < .01$) in weaning weight over calves from Low Milk EPD cows. The corresponding difference for calves from Polled Hereford sired cows was 35.6 lb ($P < .01$). The differences exceed the predicted differences based on the Milk EPDs for both breeds.

Breed and Milk EPD level least squares means for cow weight and condition are shown in Table 3. Cows with High Milk EPD sires were lighter than cows sired by Low Milk EPD bulls for both breeds but the differences were not significant ($P>.10$). The average condition score of cows sired by High Milk EPD bulls was lower than that of cows sired by low Milk EPD bulls with the difference (.6 units) being significant ($P<.01$) for Angus sired cows. The production of heavier weaning weight apparently results in lower cow body condition.

Beef cattle producers can use Milk EPDs with confidence that they will accurately predict average differences in weaning weight. These results indicate that some caution should be exercised in the use of High Milk EPD bulls. Although an increase in calf weaning weight is to be expected, it is not without a cost. The lower condition score at weaning in High Milk EPD cows may ultimately result in lower reproductive performance. An analysis of this should be possible for these cows at a subsequent date.

Literature Cited

Buchanan, D.S. et al. 1993. Okla. Agr. Exp. Sta. Res. Rep. P-933:5.

Table 1. Average expected progeny difference (lb) for High vs Low Milk EPD Angus and Polled Hereford bulls.

Breed	Level	n	BWEPD	WWEPD	MILKEPD
Angus	High	13	2.5	21.3	19.2
Angus	Low	13	5.1	26.8	-13.7
P. Hereford	High	9	2.6	22.3	16.8
P. Hereford	Low	9	5.6	26.3	-10.5

Table 2. Birth weight and age-adjusted weaning weight least squares means for calves from daughters of High and Low Milk EPD Angus and Polled Hereford bulls.

Breed	Level	n	Birth wt (lb)	Weaning wt (lb)
Angus	High	45	81.8	442.4
Angus	Low	41	77.2	400.9
P. Hereford	High	27	84.0	432.8
P. Hereford	Low	48	82.7	397.2
Average st. error			1.9	10.3

Table 3. Cow weight and condition score least squares means for daughters of High and Low Milk EPD Angus and Polled Hereford bulls.

Breed	Level	n	Cow wt (lb)	Condition score
Angus	High	45	986.6	4.7
Angus	Low	41	1023.5	5.3
P. Hereford	High	27	1009.9	4.8
P. Hereford	Low	48	1021.5	5.0
Average st. error			21.9	.10