

Milk Expected Progeny Difference and Its Effect on Reproductive Performance of Mature Beef Cows from Angus and Polled Hereford Sires

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Story in Brief

The objective of this study was to evaluate the reproductive performance of mature beef cows sired by High and Low Milk EPD Angus and Polled Hereford bulls. Cows were produced through the mating of these bulls to Angus x Hereford x Brahman cows. Cows used in this study were from 1995 to 2000 and ranged in age from 6- to 8-yr-old. Calving date, calving interval, calving percentage and calving rate were calculated. None of these four measures of reproductive performance showed statistical significance. However, they suggest a decline in reproductive performance of cows sired by High Milk EPD bulls when they are examined together.

Key Words: Beef Cattle, Reproduction, Expected Progeny Difference

Introduction

The primary objective of a commercial cow-calf enterprise is the production of calves that are heavy and high quality at weaning. Therefore, profitability of a cow-calf enterprise depends on the percentage of cows in the herd that consistently calve every year. Cows with high genetic merit for maternal ability should have heavy calves at weaning due to milking ability of the cow. This additional milk may cause some cost in cow weight and condition which may have a negative effect on reproductive performance. Previous studies (Buchanan et al., 1993, 1995, 1996a; Gosz and Buchanan, 1998; Minick et al., 1999; Buchanan and Stutts, 2001) have shown that the Milk EPD is an effective tool for increasing calf weaning weight but there is a cost in cow body condition. The objective of this study was to examine the reproductive performance of mature beef cows sired by High and Low Milk EPD Angus and Polled Hereford bulls.

Materials and Methods

All cows in this study were from the North Lake Carl Blackwell Research Range near Stillwater, OK. An existing herd of crossbred cows ($\frac{1}{2}$ Hereford - $\frac{1}{2}$ Angus; $\frac{1}{4}$ Brahman - $\frac{1}{4}$ Angus - $\frac{1}{2}$ Hereford; and $\frac{1}{4}$ Brahman - $\frac{1}{4}$ Hereford - $\frac{1}{2}$ Angus) was mated to Angus or Polled Hereford sires (n=38) that differed widely in Milk EPD. Cows from these matings were born in spring and fall of 1989 through 1993. The cows were mated to Angus, Gelbvieh, Polled Hereford, Salers, Limousin, Charolais, Maine-Anjou, or crossbred bulls to calve first at 24 mo of age. Cows used in this study calved in spring or fall from 1995 to 2000 and produced a total of 701 records. This study used only 6-, 7-, and 8-year-old cows. Cows were maintained on native and introduced grasses. Cows were supplemented with 41% crude protein cubes and hay during the winter months.

Cows were artificially inseminated for a period of approximately 55 d and then turned out with crossbred bulls for 20 d clean up period. Cows that were not pregnant after a 75-d breeding

season were moved to the opposite breeding season. Cows failed to conceive in two consecutive breeding seasons were culled from the herd.

Calving interval, calving date, calving percentage, and calving rate were calculated. Calving interval was calculated as the number of days between subsequent calvings without regard to the season. Calving date was calculated as the number of days following the beginning of the calving season. Calving percentage was calculated as the proportion of cows that gave birth to a calf (alive or dead) during the same calving season one year following their previous calf. Calving rate was calculated as the proportion of cows that were bred and that also gave birth to a calf.

The data were analyzed using least squares. Terms included in the statistical models were cow sire breed, Milk EPD level, year, season, sex of calf, age of cow within year and interactions among those variables.

Results and Discussion

Least squares means for calving interval, calving date, calving percentage and calving rate are given in Table 1. Breed was not significant for calving date ($P>.7$) and for calving interval ($P>.3$). Milk EPD level had also no significant effect on calving date ($P>.2$) and calving interval ($P>.3$). Breed and Milk EPD level had no significant effect ($P>.3$) on both calving percentage and calving rate. These variables (calving interval, calving date, calving percentage and calving rate) do not give a whole picture of reproductive performance of cows alone. Together, they indicate if cows calve on schedule and if cows are calving at different point in the calving season or are delayed sufficient enough to have their next calf the following season. Even though none of these four variables were different ($P>.2$) in this study, cows sired by High Milk EPD bulls had slightly lower calving percentage and calving rate, longer calving interval, and later birth dates than cows sired by Low Milk EPD bulls. Thus, they indicate a decline in reproductive performance in conjunction with the loss in condition score reported previously by Buchanan et al. (1993, 1995, 1996a, 1996b), Gosz and Buchanan (1998), Minick et al. (1999), and Buchanan and Stutts (2001).

Breed	Level	CI (days)	CD (days)	CP (%)	CR (%)
Angus	High	383.11 ± 5.60	34.50 ± 3.21	82.60 ± 3.82	90.80 ± 2.77
Angus	Low	379.47 ± 5.12	32.59 ± 3.16	90.55 ± 3.46	93.64 ± 2.61
P. Hereford	High	379.41 ± 6.40	33.27 ± 3.26	87.95 ± 4.42	89.47 ± 3.37
P. Hereford	Low	373.21 ± 5.39	32.84 ± 3.17	84.18 ± 3.52	89.94 ± 2.63

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