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Abstract

The effects of primary color (black, red, or white) on performance and carcass characteristics of 253 cross-bred calves were evaluated. The only effect of color was that white calves had lighter birth weights than red calves, which was probably the result of the maternal influence of the Brahman breed. White calves also had a lower carcass yield grade than red calves. No other effects of color on performance or carcass traits were found. It can be concluded that knowledge of breed and expected progeny differences (EPD) of the sire within the breed are more accurate methods of predicting the future performance and carcass characteristics of calves than color.

Keywords

Cattlemen's Day, 1993; Kansas Agricultural Experiment Station contribution; no. 93-318-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 678; Beef; Cattle color; Performance; Carcass

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THE RELATIONSHIPS OF COLOR TO PERFORMANCE AND CARCASS TRAITS IN CATTLE

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Summary

The effects of primary color (black, red, or white) on performance and carcass characteristics of 253 cross-bred calves were evaluated. The only effect of color was that white calves had lighter birth weights than red calves, which was probably the result of the maternal influence of the Brahman breed. White calves also had a lower carcass yield grade than red calves. No other effects of color on performance or carcass traits were found. It can be concluded that knowledge of breed and expected progeny differences (EPD) of the sire within the breed are more accurate methods of predicting the future performance and carcass characteristics of calves than color.

(Key Words: Cattle Color, Performance, Carcass.)

Introduction

Cattle buyers have often used hair color as an indicator of future performance and carcass merit. Cow-calf producers have seen calves that were half or three-quarter sibs bring different prices because they were different colors. The purpose of this study was to evaluate the relationship of color of animals to performance and carcass characteristics. This study is part of the NC-196 national project to study the genetics of body composition of beef cattle.

Experimental Procedures

Crossbred steers were produced in 1989-91 from the fifth generation of 2-, 3-, and 4-breed rotational crossbreeding systems involving Angus(AN), Hereford(HH), Charolais(CH), and Brahman(BR) breeds at Louisiana State University, Baton Rouge. Half of each cow breed group was bred to Gelbvieh(GV) bulls as a terminal cross. The remaining cows were mated to the least related breed of bulls within the rotation. Calves were born between Jan. 31 and April 14 and weaned at an average age of 185 days. At weaning, steer calves were randomly assigned, within breed group, to either a calf feeding or yearling feeding management system. After an approximate 3-week conditioning period, the calf management group was shipped to KSU, placed in the feedlot, and stepped up to a high concentrate ration (90% concentrate) over the next 3 weeks. Steers in the yearling management group were grazed on rye grass pasture in Louisiana and shipped to KSU in early May. They were also placed on a high concentrate ration similar to the calf management group. The primary color of black, red, or white was recorded at one of the normal weighings every 28 days. Color was not recorded for the calf management group from the 1989 birth year, giving a total number of 253 head available for the analysis. Half of each breed group in each management system was slaughtered when ultrasound-measured back

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fat was between .3 and .4 in., and the other half was slaughtered when backfat was between .5 and .6 in. Carcass data were collected after 24 hr in the cooler.

Least squares means by basic color were calculated, with the effects of percentage of each breed, management group, year of birth, and days of age removed.

Results and Discussion

Because the steers varied from zero to 67% of the AN, HH, CH, and BR breeds and this was the fifth generation, all three primary colors were represented in most breed groups. This allowed the separation of color effects from the effects of percentage of breeding (1992 KSU Cattlemen's Day Report).

The only traits for which a difference was found between colors were birth weight and carcass yield grade. Because BR, which is predominantly white, was included in most of the cow breed groups, we were unable to separate the BR maternal breed effect for light birth from the color of calf effect. This probably accounts for white calves having the lightest birth weight. White calves also had a lower yield grade than red calves.

Color of calf had no other effects on performance or carcass traits. It can be concluded that knowledge of breed and expected progeny differences (EPD) of the sire within the breed are more accurate methods of predicting the future performance and carcass characteristics of calves than color.

Table 1. Least Squares Mean Performance and Carcass Traits by Animal's Basic Color

	Basic Color		
Trait	Black	Red	White
Birth weight (lb)	80^{yz}	83^{y}	77^{z}
Weaning weight (lb)	497^{z}	513^{z}	562^{z}
Feedlot ADG (lb)	2.47^{z}	2.56^{z}	2.44^{z}
Carcass weight (lb)	731^{z}	754^{z}	734^{z}
Backfat (in.)	$.42^{z}$	$.46^{z}$	$.40^{z}$
Ribeye area ($in.^2$)	13.3^{z}	13.0^{z}	13.4^{z}
Yield grade	2.58^{yz}	2.76^{y}	2.48^{z}
Quality grade[a]	Sel 91^{z}	Sel 90^{z}	Sel 94^{z}

[a]Sel is select grade and the numerical value is the percent of the way to choice grade.
[yz]Means in the same row with different superscripts are different ($P < .05$).