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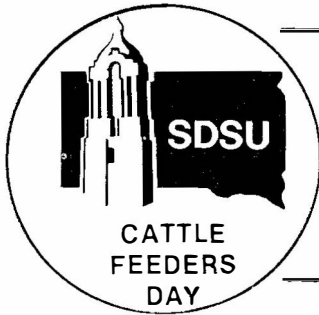
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CARCASS COMPARISON OF EXOTIC CROSSBRED CATTLE FED ON FORAGE VERSUS CONCENTRATE

V.L. Anderson and C.A. Dinkel
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Summary

Least squares analysis was used to evaluate carcass data for forage and concentrate-finished exotic crossbred cattle. Forage-finished cattle had smaller rib eye area, less fat thickness over the rib eye and less kidney fat. Quality grade, marbling, color and firmness were less desirable in forage-finished carcasses. Percentage of fat was lower and percentage of bone higher in forage-finished carcasses. No differences were detected between rations in taste panel evaluation.

Introduction

Increased demand for hamburger-type beef has caused increased interest in producing lean beef at less cost. Exotic crossbred cattle and high forage rations have potential to reduce production costs. This study was conducted to evaluate carcasses from half sib exotic crossbred cattle on all-forage and high-concentrate finishing rations.

Procedures

Exotic crossbred cattle used in this experiment were born in 1976 and 1977 at the South Dakota State University Beef Breeding Unit. Dam breeds were Angus, Charolais and reciprocal crosses. One Limousin bull sired the 1976 calf crop and one Simmental bull sired the 1977 calf crop. Sex, breed of dam and year effects were removed in the analysis.

The forage ration consisted of 75% corn silage (38% dry matter) and 25% alfalfa hay (18.1% protein). Concentrate finishing ration was 83% cracked corn, 10% ground alfalfa, 5% soybean meal and 2% vitamin A premix.

An attempt was made to slaughter animals of the same sex at the same average weight. U.S.D.A. graders evaluated the carcasses in the packing plant, and cutout and taste panel evaluation was completed at the Animal Science Department, South Dakota State University.

Results

Forage-finished steers weighed 1065 lb. at slaughter and dressed 57.4%. Concentrate-fed steers weighed 1083 lb. and dressed 64.2%. Forage-finished heifers weighed 915 lb. at slaughter and dressed 58.4%. Concentrate-fed heifers weighed 898 lb. and dressed 64.0%.

Forage-fed cattle had 1.62 square inch smaller rib eye, .08 inch less fat thickness and .5% less kidney fat. Quality grade was lower in forage-finished carcasses with no difference detected in yield grade. Carcasses from forage-fed cattle had .9% more bone and 1.8% less fat. No differences were detected in taste panel evaluation of the two ration treatments. Results are given in tables 1 and 2.

Table 1. Least Squares Means for Carcass Evaluation of Exotic Crossbred Cattle

Source	Carcass trait								
	Rib eye area sq. in.	Fat thick- ness in.	Kidney fat %	Matu- rity ^a	Marb- ling ^b	Color ^c	Firm- ness ^d	Quality grade ^e	Yield ^f grade
Ration									
Concentrate	13.78 ^x	.23 ^x	2.3 ^x	23.6	4.0 ^x	5.0 ^x	5.6 ^x	16.8 ^x	1.5
Forage	12.16 ^y	.15 ^y	1.8 ^y	23.6	3.6 ^y	4.7 ^y	4.8 ^y	16.1 ^y	1.5
Sex									
Heifers	12.78	.18	2.2 ^x	23.6	3.8	5.1	5.3 ^x	16.4	1.4
Steers	13.15	.20	1.9 ^y	23.6	3.8	4.6	5.0 ^y	16.5	1.6
Breed of dam									
AA	12.27 ^x	.31 ^x	2.3 ^x	23.7	4.5 ^x	5.0	5.4 ^x	18.0 ^x	2.1 ^x
AC	13.33 ^y	.16 ^y	2.0 ^x	23.6	3.6 ^y	4.8	5.2 ^{xy}	16.0 ^y	1.4 ^y
CA	13.09 ^y	.18 ^y	2.0 ^x	23.6	3.8 ^y	4.7	5.3 ^x	16.4 ^x	1.4 ^y
CC	13.19 ^y	.11 ^y	1.8 ^y	23.6	3.2 ^y	4.8	4.9 ^y	15.3 ^y	1.2 ^y

^a 24 = A-, 23 = A, 22 = A+.

^b Traces = 3, Slight = 4, Small = 5.

^c Cherry red = 4, light cherry red = 5.

^d Slightly soft = 4, moderately firm = 5, firm = 6.

^e High Standard = 15, Low Good = 16, Good = 17, High Good = 18.

^f 1 = 52.6% to 54.6%, 2 = 50.3% to 52.3% yield retail cuts.

^{x,y} Means with different superscripts are significantly different (P<.05).

Table 2. Least Squares Means for Cutability and Taste Panel Evaluation of Exotic Crossbred Cattle

Source	Edible portion ^a %	Fat ^b %	Bone ^b %	Semi-boneless cuts ^c %	Shear test PSI	Taste panel tenderness ^e	Taste panel flavor ^e	Taste panel juiciness ^e
Ration								
Concentrate	66.6	20.3 ^x	13.1 ^x	52.7	14.0	3.4	3.0	4.1
Forage	67.3	18.5 ^y	14.2 ^y	53.3	14.0	3.6	3.1	3.9
Sex								
Heifers	66.5	20.0	13.5	52.6	14.5	3.6	3.1	4.1
Steers	67.4	18.8	13.8	53.4	13.5	3.4	3.0	3.9
Breed of dam								
AA	62.9 ^x	23.9 ^x	12.9 ^x	50.1 ^x	13.5	3.2 ^x	3.0 ^x	3.8 ^x
AC	67.0 ^y	19.4 ^y	13.8 ^y	53.0 ^y	13.8	3.4 ^x	3.1 ^x	3.9 ^{xy}
CA	67.8 ^y	18.5 ^y	13.8 ^y	53.4 ^y	14.4	3.4 ^x	2.9 ^x	4.0 ^{xy}
CC	70.1 ^y	15.8 ^z	14.1 ^y	55.6 ^z	14.3	4.0 ^y	3.3 ^y	4.2 ^y

^a Weight of roasts plus all lean trim/carcass weight x 100.

^b Weight/carcass weight x 100.

^c Weight of roasts plus lean trim from chuck, rib, round and loin/carcass weight x 100.

^d Mechanical tenderness test measured in pounds per square inch.

^e Evaluation of rib eye with 1 being most desirable and 7 least desirable.

^{x,y,z} Means with different superscripts are significantly different (P<.05).