



Impact of Production Scheme and Frame Size on Carcass Traits

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The Question

- Did the production scheme or frame score group affect carcass traits?
- Previous research would indicate that smaller framed cattle tend to have lighter carcasses, smaller ribeyes, more fat, and a greater amount of marbling (higher USDA Quality Grades)



Project Information

- Steer mates to the existing heifers were finished using typical diets and management after weaning (or growing)
- All steers were slaughtered at a commercial packing plant
- Carcass data was collected



Data Analyzed

- Steers were classified as “range” or “beef” depending upon breed type
- In addition, frame scores were determined by measuring hip height and assigned to one of four frame scores
 - Large, Medium Large, Medium Small, and Small
 - There was only 1 “Large” framed steer, so this steer was removed from the analysis
 - There were 31 Medium Large, 25 Medium Small, and 14 Small framed steers

Data Analyzed

- Differences in carcass traits were analyzed between the range and beef types
- Differences in carcass traits were also analyzed among frame score types



Results – Production Scheme

Trait	Significant (Y/N)	Beef Type	Range Type
Final weight, lbs	Y	1751	1456
Hot Carcass Weight, lbs	Y	1050	872
Dressing Percent	N	59.99	59.89
Marbling Score	Y	Small 80 (Low Choice)	Modest 58 (Average Choice)
12 th rib Fat Depth. In.	Y	0.36	0.43
Ribeye Area, sq. in.	Y	15.67	13.74
Ribeye Area/100 lbs of Body Weight, sq in	Y	0.898	0.955
Yield Grade, USDA	N	2.78	2.89
Percent Choice	N	94%	94%

Results – Frame Score

Frame Score	Significant (Y/N)	Medium Large	Medium Small	Small
Final Weight, lbs	Y	1749	1669	1305
Hot Carcass Weight, lbs	Y	1050	999	782
Dressing Percentage	N	60	60	60
Marbling Score	Close	479 (Low Choice)	526 (Average Choice)	547(Average Choice)
12 th Rib Fat Depth, in.	N	0.37	0.41	0.39
Ribeye Area, sq. in.	Y	15.72	14.37	13.35
Ribeye Area/100 lbs of Body Weight, sq. in.	Y	0.90	0.89	1.03
Yield Grade, USDA	Close	2.77	3.00	2.55
Percent Choice	N	90	100	86

Correlations Among Various Traits

	FS	End Wt	HCW	Fat Depth	REA	REA/100 lbs BW	MARB	USDA YG
FS	-	.761*	.757*	-0.012	.608*	-.442*	-.305*	.050
End Wt		-	.999*	0.011	.643*	-.687*	-.243*	.298*
HCW			-	.019	.640*	-.687*	-.244*	.304*
Fat Depth				-	-.265*	-.264*	.398*	.768*
REA					-	1	-.364*	-.424*
REA/100						-	-.055	-.768*
MARB							-	.310*
USDA YG								-

* = Statistical Significant Correlation

Findings

- Production system “Beef” versus “Range” resulted in some carcass trait differences
 - Steers from the Beef Scheme had: heavier carcass weights, larger ribeyes, less 12th rib fat, and lower marbling scores
 - Steers from the Range Scheme had: higher marbling scores, larger REA/100 lbs
- Both groups had similar Yield Grades due to larger REA versus carcass weight

Findings

- Frame score group had some differences in carcass traits
- Small framed steers had higher marbling scores, larger REA/100 lbs, and lighter carcasses
- Yield grades were not different among frame score groups

Findings

- Value differences were different due to large discounts due to heavy carcasses in the beef and large frame groups

NATIONAL WEEKLY DIRECT SLAUGHTER CATTLE - PREMIUMS AND DISCOUNTS				
For the Week of: 8/21/2017				
Value Adjustments				
	Range	Simple Avg.	Change	
Quality:				
Prime	0.00 - 35.00	14.11	0.00	
Choice	0.00 - 0.00	0.00	0.00	
Select	(10.00)- 6.00	(5.00)	2.10	
Standard	(40.00)- (10.00)	(25.08)	0.61	
CAB	2.00 - 4.00	3.13	0.00	
All Natural	24.00 - 50.00	30.00	0.00	
NHTC	16.00 - 20.00	18.63	0.00	
Dairy - Type	(14.00)- 0.00	(2.86)	0.00	
Bullock/Stag	(55.00)- (15.00)	(34.44)	0.00	
Hardbone	(55.00)- (18.00)	(33.08)	0.17	
Dark Cutter	(55.00)- (20.00)	(34.09)	0.00	
Over 30 Months of Age	(40.00)- 0.00	(16.42)	0.00	
*Cutability Yield Grade, Fat/Inches				
1.0-2.0 < .10"	0.00 - 8.00	3.69	0.00	
2.0-2.5 < .20"	0.00 - 5.00	2.00	0.00	
2.5-3.0 < .40"	0.00 - 5.00	1.62	0.00	
3.0-3.5 < .60"	0.00 - 0.00	0.00	0.00	
3.5-4.0 < .80"	0.00 - 0.00	0.00	0.00	
4.0-5.0 < 1.2"	(15.00)- (8.00)	(11.54)	0.00	
5.0/up > 1.2"	(20.00)- (10.00)	(16.85)	0.00	
Weight:				
400-500 lbs	(40.00)- 0.00	(28.46)	0.00	
500-550 lbs	(40.00)- 0.00	(20.50)	0.00	
550-600 lbs	(20.00)- 0.00	(8.00)	0.00	
600-900 lbs	0.00 - 0.00	0.00	0.00	
900-1000 lbs	(15.00)- 0.00	(1.25)	0.00	
1000-1050 lbs	(25.00)- 0.00	(7.50)	0.00	
over 1050 lbs	(50.00)- (5.00)	(22.86)	0.00	