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CHAPTER 3
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)
12th 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)
12th 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

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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
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