

VALIDATION OF GEPDs FOR CARCASS TRAITS AND THE ZOETIS FEEDLOT | CARCASS (ZFC) INDEX



KEY FINDINGS:

- Results validate the reliability of INHERIT Select™ individual carcass trait predictions and the Zoetis Feedlot | Carcass (ZFC) index.
- Cattle in the top 25% Genomic Expected Progeny Difference (GEPD) groups expressed significantly more desirable carcass performance for all three individual carcass traits—Fat Thickness (FAT), Ribeye Area (REA) and Marbling Score—than cattle in the bottom 25% GEPD groups.
- The top 25% ZFC genetic group produced the most valuable carcasses earning the highest price per hundred weight (CWT) heaviest carcass weight and highest quality grade compared to the other groups. The bottom 25% ZFC genetic group produced the least valuable carcasses—\$100 less than the top 25% ZFC genetic group—primarily due to lighter carcass weight and lower marbling score.

STUDY OVERVIEW

The INHERIT Select test is a genetic evaluation for commercial crossbred cattle that provides Genomic Expected Progeny Differences (GEPDs) and percentile rankings for sixteen traits and three economic indexes. This documentation of the reliability of GEPDs and economic indexes establishes INHERIT Select as a valuable tool for continued improvement in informed selection, breeding, marketing and management decisions.

MATERIALS AND METHODS

This study¹ used GEPDs and actual carcass data from 671 animals—213 heifers and 458 steers—fed at a feedyard in Nebraska and harvested in Colorado in 2019. Animals were evaluated for Carcass Weight (CW), Fat Thickness (FAT), Ribeye Area (REA) and percent Intramuscular Fat (IMF)/marbling scores and the INHERIT Select ZFC index. Carcass data was collected and reported through beef carcass imaging technology approved by the United States Department of Agriculture. Carcass marbling scores were converted to numeric scores as recommended by the Beef Improvement Federation.²

RESULTS

Animals in the top 25% GEPD groups for the three individual carcass traits (FAT, REA, IMF) produced significantly ($P < .05$) more desirable carcass outcomes than animals in the bottom 25% GEPD groups, and all groups ranked as predicted (see Table 1).

TABLE 1. INDIVIDUAL CARCASS TRAIT PREDICTIONS AND EXPRESSED PERFORMANCE BY GENETIC QUARTILE GROUP

Percentile Group	Carcass Weight (CW)		Fat Thickness (FAT)		Ribeye Area (REA)		Intramuscular Fat (IMF)-Marbling	
	Index	Weight (lbs)	GEPD	Carcass Measure (in)	GEPD	Carcass Measure (in ²)	GEPD (%)	Carcass Marbling Score*
Top 25%	835	876	-0.034	0.526 ^a	0.63	14.8 ^a	0.35	6.7 ^a
26 – 50%	826	866	-0.028	0.610 ^b	0.56	14.5 ^{a,b}	0.27	6.1 ^b
51 – 75%	821	859	-0.026	0.644 ^b	0.51	14.3 ^{b,c}	0.23	5.8 ^c
Bottom 25%	812	861	-0.021	0.700 ^c	0.42	14.0 ^c	0.14	5.4 ^d

* Beef Improvement Federation (BIF) marbling score where 5.0 is small and 6.0 is modest according to USDA Marbling Scores, respectively.

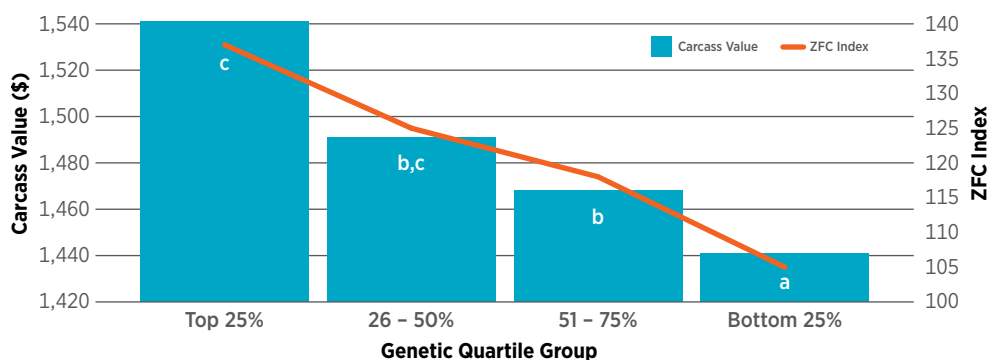
^{a-d} Marginal means within column and trait with different superscripts differ ($P < .05$).

The top 25% ZFC genetic value group produced the most valuable carcasses (see Figure 1). This group earned the highest price per CWT, weighed heaviest and scored the highest for marbling compared to the other groups ($P < .05$). In contrast, the bottom 25% ZFC genetic value group produced the least valuable carcasses—\$100 less than the top 25% ZFC genetic value group—primarily due to significantly ($P < .05$) lighter carcass weight and lower marbling score.

FIGURE 1. AVERAGE CARCASS VALUE AND ZFC INDEX BY GENETIC QUARTILE GROUP

\$100 Range in Average Carcass Value Across \$32 Range in Average ZFC Index

^{a-c} Marginal means with different superscripts differ ($P < .05$).



Results from this study support the efficacy of predictions for individual carcass traits and the ZFC index. INHERIT Select™ can support breeding and feeder cattle operations to effectively inform decisions related to selection, mating, retained ownership, price discovery, method of fed cattle marketing, sorting strategy and perhaps other management considerations.



For more information about INHERIT Select, as well as the technical report about this carcass trait and index validation study, visit [INHERITprogress.com](https://www.inheritprogress.com)

1. Data on file. Lincoln County Study Data on Validation of GEPD for Carcass Traits and the Zoetis Feedlot | Carcass Index, Zoetis Services LLC 2020. Data for this study was provided in cooperation with Leachman Cattle of Colorado.
 2. Guidelines for Uniform Beef Improvement Programs, Beef Improvement Federation, Eighth Edition, 2002.

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