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Benchmarking New Zealand Carcass Quality and Yield Characteristics

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Objectives

New Zealand's current carcass classification system focuses on dentition, sex, fat depth, hot carcass weight, and overall muscling, but limited information is collected or available pertaining to carcass quality attributes. The objective of this study was to perform carcass assessments to determine quality and yield traits to establish a beef carcass benchmark in New Zealand.

Materials and Methods

Carcass data from steers and heifers were collected at 3 different times of year (August, 2012; November/December, 2012; April, 2013) at 3 commercial abattoirs, representing 3 geographical regions (Hawke's Bay, Canterbury, and, Otago) of New Zealand, to characterize carcass quality and yield traits. All carcasses were classified based on the current New Zealand carcass classification system. In addition, 3 Texas Tech University (TTU) personnel trained in carcass assessment, were each stationed at one plant during each assessment period and performed daily assessments on all carcasses presented for grading. The traits collected included 12th rib fat thickness, ribeye area, hot carcass weight (HCW), calculated USDA yield grade (YG), dressing percent (calculated using live weight and carcass weight after standard carcass trim and removal of internal fat, when both weights were available), hump height, dentition (number of permanent teeth), pH, marbling score, and skeletal/lean maturity (USDA, 1997). Data were summarized in SAS using PROC MEANS and PROC FREQ (SAS Inst. Inc., Cary, NC).

Results

Data were collected on 17,758 carcasses, with the following frequencies for gender: steer (72%), heifer (28%). The means for USDA skeletal maturity was A^{58} and the mean for USDA lean maturity was B^{07}. Frequencies for skeletal maturities were A, 94.4%; B, 4.9%; and C or greater, 0.7%. The mean for USDA marbling score was $Select^{80}$. Marbling score distribution was Slightly Abundant or greater, 1.6%; Moderate, 2.3%; Modest, 4.9%; Small, 26.1%; Slight, 51.3%; and Traces or less, 13.9%. The mean USDA calculated YG was 2.0 ± 0.6; frequencies for YG distributions were YG 1, 48.5%; YG 2, 43.1%; YG 3, 7.4%; and YG 4 or greater, 1%. Means for other traits were: fat thickness, 6.4 ± 4.4 mm; ribeye area, 71.8 ± 9.6 cm2; HCW, 297.9 ± 44.6 kg; dressing percentage, 54.6 ± 2.6%; dentition, 3.1 ± 1.8 permanent teeth; hump height, 44.9 ± 10.2 mm; and pH 5.57 ± 0.17. The frequencies for pH were Normal (< 5.8), 94.4%; High (≥ 5.8%), 5.6%.

Conclusion

This was the first benchmark study measuring carcass characteristics, particularly those impacting carcass and eating quality. Information from this survey will establish a baseline for carcass traits and identify areas for improvement to help drive progress in the New Zealand beef industry. The results of this survey represent a benchmark, which could be used to evaluate the efficacy of livestock improvement programs in the future.

