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Proposal of a Value-Based Grading System for the Commercial Beef Industry in the Dominican Republic

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Objectives

Management conditions of beef cattle is very different in the Central American/Caribbean region when compared with other regions in the world. Consequently, a beef grading scheme different than the one used in other regions of the world and unique to the cattle in that region is justified. Objectives of the current study were 1) to determine marketing systems used for beef cattle in the Dominican Republic, 2) to propose a value-based beef marketing system offering incentive to beef producers for providing packers with a high quality, consumer preferred product, and 3) to provide the industry with more information pertaining to possible measureable components related to beef quality.

Materials and Methods

Quality was evaluated in 96 cattle sourced from 3 commercial producers. Cattle were slaughtered under federal inspection at a commercial processing facility in the Dominican Republic. Quality characteristics measured included subcutaneous fat color (1 indicated white color; 2 indicated cream color; and 3 indicated yellow color), subcutaneous fat uniformity (1 indicated fat not evident or uniform; 2 indicated fat evident, but not uniform; and 3 indicated fat evident and uniform), muscling (1 indicated heavy muscle; 2 indicated moderate muscling; 3 indicated light muscling; and 4 indicated very light muscling), and number of permanent incisor teeth (ranging from 0 to 8) as an indicator of maturity. A proposed value-based grading grid was used with the combined score of subcutaneous fat color, subcutaneous fat uniformity, and muscling on the *y* axis (3 to 10) and the number of permanent incisor teeth (0 to 8) on the *x* axis. The grid was then used to assign quality scores (listed in ascending order of highest quality to lowest quality: AAA, AA, A, B, and C). Statistical analysis in-

cluded determining descriptive statistics with the MEANS procedure of SAS (SAS Inst. Inc., Cary, NC), determining the fixed effect of producer using a multi-variance model with the MIXED procedure of SAS, and summarization with frequency distributions based on calculations with the proposed value-based grading grid.

Results

The average for each characteristic was the following: fat color was 1.81 ± 0.05 , fat uniformity was 1.01 ± 0.01 , muscling was 1.60 ± 0.05 , and the number of permanent incisor teeth was 3.27 ± 0.14 . Based on the proposed value-based grading grid, 31% of carcasses graded AAA, 16% of carcasses graded AA, 44% of carcasses graded A, 7% of carcasses graded B, and 2% of carcasses graded C. Beef carcasses from producer 1, producer 2, and producer 3 had fat color scores of 1.90 ± 0.10 , 1.73 ± 0.07 , and 1.86 ± 0.07 ; fat uniformity scores of 1.00 ± 0.02 , 1.00 ± 0.02 , and 1.02 ± 0.02 ; muscling scores of 1.85 ± 0.08 , 1.17 ± 0.06 , and 1.88 ± 0.06 ; average permanent incisor teeth of 3.50 ± 0.31 , 3.28 ± 0.23 , and 3.15 ± 0.22 ; and an average value-based grade of A₃₀, A₈₃, and A₇₀, respectively.

Conclusion

The proposed value-based grading grid was successful in differentiating beef carcasses in the Dominican Republic based on fat color, fat uniformity, muscling, and the number of permanent incisor teeth. If adopted, this grading system provides a unique system that could work for the Dominican Republic; as well as, an incentive for beef producers to produce a higher quality and more consistent product. More research is warranted in developing relationships between carcass characteristics measured in this study and consumer acceptance.