Evaluation of Electronic Technology to Assess Lamb Carcass Composition

E.P. Berg, Department of Animal Science, Purdue University, West Lafayette, IN 47907
M.K. Neary, Department of Animal Science, Purdue University, West Lafayette, IN 47907
J.C. Forrest, Department of Animal Science, Purdue University, West Lafayette, IN 47907
D.L. Thomas, Department of Meat and Animal Sciences, University of Wisconsin, Madison 53706
R.G. Kauffman, Department of Meat and Animal Sciences, University of Wisconsin, Madison 53706

ABSTRACT

Accurate price signals are essential for producers of American lamb to ensure production of uniformly lean animals. Development of carcass merit-pricing systems will require the use of objective technology for assessing carcass composition or lean distribution. The objective of this study was to evaluate electronic technologies for accurate determination of lamb carcass composition. Lambs (n = 106) were selected as a representation of U.S. market lambs that transcended geographic location, sex, breed, carcass weight, yield grade, and production system. The independent variables used to predict lamb composition varied with the technology. The electronic technologies tested included realtime ultrasound, optical reflectance probe, bioelectrical impedance analysis, and electromagnetic scanning (TOBEC). All technologies, except realtime ultrasound, were tested on warm (prerigor) carcasses and repeated after a 24-h chill. Longitudinal ultrasonic scans of fat and muscle tissue depth and grading probe fat depths were marginal predictors of proportional carcass yield. The TOBEC measurements often accounted for more variability associated with kilograms of dissected lean and percentage of carcass lean than did carcass weight. Equations from TOBEC measurements were the most accurate predictors of weight and percentage of dissected and fat-free lean. Bioelectrical impedance measurements of resistance and reactance combined with carcass weight were also good predictors of carcass composition. Prediction of carcass lean distribution by measures of TOBEC were the most accurate for prediction of leg lean. The implications of usefulness of these technologies will depend on the commitment of the U. S. sheep industry in development of a lamb price discovery system based on carcass composition.

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