_____ ABSTRACT _____

Computer image analysis for prediction of carcass composition from cross-sections of Japanese Black steers[1]

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Carcasses from Japanese Black steers were used to obtain prediction equations for carcass composition from information derived by computer image analysis of carcass cross-section images. The total weights of lean, fat, and bone were obtained from the left sides of 55 carcasses (Data Set I) and 18 carcasses (Data Set II) by physical dissection. The information such as total lean, fat, and bone areas in the cross-sections; muscle area, muscle circumference, short and long radius axis lengths, and direction of long radius axis; and geometric distance between any two muscle centers of gravity was obtained by scanning and image analysis of pictures of the cross-sections of the beef side at the 6th/7th rib interface. The coefficients of determination of the multiple regression equations estimated from Data Set I for kilograms of lean, fat, and bone were 0.76, 0.82, and 0.69, respectively, whereas for the percentages of lean, fat, and bone they were 0.57, 0.66, and 0.42, respectively. The multiple regression equations from Data Set I was applied to Data Set II in order to test the applicability of the prediction equations obtained. The correlation coefficients between the value predicted by the multiple regression equation and the measurement obtained by physical dissection for kilograms of lean, fat, and bone were 0.71, 0.72, and 0.70, respectively, whereas those for the percentages of lean, fat, and bone were 0.63, 0.44, and 0.29, respectively. The results indicate that the information obtained from the carcass cross-sections by the computer image analysis method can be used to predict carcass composition in Japanese Black steers.

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