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Application of computer-image analysis to measure marbling characteristics in the longissimus muscle of three different pig lines

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Abstract

Sixty longissimus (L) muscle chops were selected according to marbling score in order to develop a technique for the quantitative description of marbling fat by means of computer image analysis (CIA) and study its relationship with intramuscular fat content and shear force variation in pork. L muscle samples were taken from gilts belonging to three genetic lines differing in carcass leanness, namely Large White (LW), Meishan-derived dam line (M) and Synthetic Genex 3000 (SG). SG gilts had leaner loins ($P < 0.001$) than LW and M. However, the SG loins were more marbled ($P < 0.001$) and had higher IMF content. In addition, CIA analysis showed that marbling fat was finer and better distributed in the SG line. CIA marbling characteristics were significantly correlated with both IMF content ($P < 0.001$) and shear force values ($P < 0.05$) demonstrating the reliability of this technique to assess the contribution of fat distribution to variations in pork eating quality.

Keywords: Image analysis, marbling, shear force, pork