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Effects of the sex and halothane gene on pig carcass composition measured by computed tomography

G. Daumas and M. Monziols

IFIP-Institut du Porc, BP 35104, 35601 Le Rheu Cedex, France; gerard.daumas@ifip.asso.fr

The aim of this study was to quantify the main effects influencing both the tissue composition measured by Computed Tomography (CT) and the classification variables of slaughtered pigs. A representative sample of the French pig slaughtering was selected in 3 abattoirs and stratified according to sex (50% castrated males and 50% females). Carcasses were measured by 3 classification methods – CSB Image-Meater® (IM), CGM, ZP – and cooled. An ear sample was analysed for Halothane gene (Hal). The left sides were cut according to the EU procedure and the four main joints were CT scanned. Images were thresholded in order to determine lean meat, fat and bone weight. Among the 209 pigs, the proportions of Nn and NN alleles were respectively of 52% and 48%, leading to a well balanced design. In the analysis of variance the interaction between sex and Hal was never significant. Sex was significant on all the fat and muscle depths as well as on all the tissues proportions in the joints, except the bone % in ham and loin. Hal was significant on all the tissues proportions in the joints, except the fat % in shoulder, the bone % in belly and the lean meat percentage (LM%) predicted by IM. Hal was not significant on the IM depths taken on the splitline but was significant on the CGM lateral depths. Sex had a major effect (1 standard deviation) on the LM% in the loin and the fat % in the shoulder. The highest Hal effect (0.6 standard deviation) was on the LM% in the carcass predicted by the CGM and the bone % in the shoulder. The adjusted differences between females and castrated males were for the LM% measured by CT and predicted by CGM, ZP and IM respectively of 3.0, 2.0, 1.6 and 1.6. The adjusted differences between Nn and NN alleles were for LM% measured by CT and predicted by CGM, ZP and IM respectively of 1.5, 1.5, 0.6 and 0.4. Hal and sex have important effects on pig carcass composition, but the automatic classification by IM is less sensitive than CGM to these ones.