

Simulation of the impact of an increased proportion of entire male pigs on the composition of pork cuts

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Introduction: The EU regulation banning castration of pigs without anaesthesia and its current implementation in several countries should provoke an increase in the production of entire males. As castration has an important effect on the fat distribution and the body composition in general, a great change in the composition of pork cuts is expected. In order to quantify such changes, the composition was assessed according to several scenarios including an increased proportion of entire male pigs.

Material and Methods: A sample of 180 pigs was selected with a uniform stratification on sex: 60 entire males, 60 gilts and 60 castrated males. After overnight chilling left half-carasses were cut according to a normalised industrial procedure. The four primal joints, ham, shoulder, loin (with backfat) and belly, were scanned by computed tomography. Muscle, fat and bone weights were firstly calculated according to Daumas and Monziols (2017). Secondly, they were corrected by assuming a rind content per cut and by deducing a proportion of this quantity from the initial muscle weight and from the initial fat weight. This new procedure was described in detail in Daumas and Monziols (2021).

Least squares means of tissue contents were assessed by a general linear model including sex and genotype halothane (NN or Nn) as fixed effects. Differences were tested by a Tukey test.

Results: Sex had a very significant effect ($P < 0.001$) on all tissue contents of the four cuts except for bone content in the shoulder, where the effect was less ($P < 0.05$). Muscle and fat contents differed significantly between the three sexes, except for entire males and females for the loin. The hierarchy was the same for all four cuts: entire males, then females and finally castrated males for muscle content in descending order and vice versa for fat content. The muscle percentage of entire males was higher than that of castrated males by 3.1 percent points in the ham, 5.2 in the shoulder, 5.4 in the loin and 7.9 in the belly. Entire males had a higher bone content in the ham, while castrated males had a lower content in the other three cuts.

In comparison to the current situation in France, where entire males represent just over a quarter of slaughtered pigs, the generalization of the entire male would cause a three-point increase in the average muscle content in French bellies.

Conclusion: An increasing proportion of entire males will decrease the fat content of the primal cuts and increase their muscle content and bone content. Substituting castrated males with entire males will have the greatest impact in the belly and the least in the ham. Looking to cuts yields the loin with backfat will be the most affected, with a decrease in its proportion, the effect of the backfat being predominant.

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Literature:

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