

Pig adaptation to cold environment enhances oxidative and glycolytic Longissimus muscle metabolism

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Effects of udder morphological characteristics on the quality of sheep milk

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Udder morphological characteristics and especially the teat position (angle) in dairy sheep are very important parameters in term of machine milking, which influences the milking process and welfare of ewes during it. The aim of this study was to determine the influence of chosen udder size and shape characteristics on the quality of sheep milk. Totally 141 purebred Eastfriesian and crossbred Lacaune ewes were included into investigation. Udder width, udder depth, teat length and teat angle were measured. Milk samples were collected twice per lactation, i.e. 25 days after weaning of lambs (102±10 days after lambing) and at the end of lactation (177±12 days after lambing). The selected milk composition characteristics (fat %, protein %, casein % and lactose %) and microbiological parameters (total bacteria count – TBC, coliform bacteria – CB, somatic cells count – SCC) were determined in the individual milk samples. The highest correlation ($r=-0.52$) was found between fat content and udder depth. This relationship, however, was conditioned by high correlations between milk yield and udder depth ($r=0.79$) on one side and a negative correlation between milk yield and fat content ($r=-0.58$) on the other. Low correlations were found between udder depth and logTCB ($r=0.23$) and logCB ($r=0.21$). Teat angle showed no significant correlation relations to monitored milk quality traits. The study was supported by NAZV QH72286.

Genetic parameter estimation for major fatty acids in French dairy goats

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Fatty acids (FA) are well-known for their importance on human nutrition. In France, since 2008, an important research and development project on phenotyping and genotyping the milk composition (FA and proteins) of cattle, sheep and goat has been carried out ('PhénoFinlait'). The project was based on a large scale on-farm phenotyping scheme for milk components allowed by the use of mid infrared (MIR) spectra. In the present study, genetic parameters for twenty fatty acids and milk production traits were estimated by restricted maximum likelihood with an animal model, using 45,259 testday records from 13,677 first lactation of Alpine and Saanen goats. Heritability estimates ranged from 0.19 to 0.51 for fatty acids and were highest (0.21 to 0.37) for short and medium chain fatty acids which are beneficial to human health, i.e. C6:0 to C14:0. High positive correlations (>0.50) were found between fatty acids of the same origin: short and medium chain fatty acids, i.e. from C6:0 to C14:0, synthesised de novo in the mammary gland and long chain unsaturated fatty acids coming from the diet and biohydrogenate in the rumen. In both the Saanen and Alpine breeds, no significant genetic correlation was found between C16:0 and fat content, whereas positive correlations (0.17 to 0.87) were found between fat content and specific goat fatty acids, i.e. C6:0 to C10:0. This result suggests that selection on fat content will not be correlated with undesirable changes in FA profile for human health. A sample of 2 254 goats was genotyped with the 50K goat SNP beadchip (Illumina) for QTL detection. This study was funded by ANR, Apis-Gène, CASDAR, CNIEL, FranceAgriMer, France Génétique Elevage and Ministry of Agriculture.

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