

Effect of mutation in MC4R gene on carcass quality in Pulawska pig included in conservation breeding programme

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Abstarc :

In addition to highly productive breeds of pigs, Polish breeders keep local pigs subject to the conservation programme including Pulawska (P) pig. Analysis of records spanning 20 years showed that lean content of P carcass increased from 41.43% in 1983 to 45.68% in 2003, with a simultaneous decrease in fat content. Considering the relatively high rate of changes in these traits, it would be interesting to find out parameters that could serve as a criterion for evaluating the degree of heterozygosity in P pig. The aim of this study was, therefore, to determine the melanocortin receptor gene polymorphism in P pig and its effect on carcass quality. The study involved 66 P fatteners. After slaughter and 24-hour cooling at 4°C, linear measurements of carcasses were taken and dissection was made according to the Walstra and Merkus method. Genotype analysis showed the highest frequency of MC4RA/G and the lowest of MC4RA/A animals. Frequency of the allele MC4RA was only by 15.2 per cent units lower than that of the MC4RG allele. The MC4RA allele showed a significant effect on increasing backfat thickness, especially over the loin and was significantly correlated with a greater fat amount of neck. Animals with the A allele at the MC4R locus were also characterized by a significantly lower amount of lean in this cut. The results obtained for frequency of different genotypes in P pig could serve as reference values for selection-induced changes, thus reflecting the level of genetic variation in the breed.

Key Word :

allele frequency, carcass quality, gene polymorphism, heterozygosity, MC4R, Pulawska pig

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