

Polymorphism g.158093018 A>T within rabbit IGFBP5 gene influence pH value after 24h chilling

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Introduction: Growth is important aspects of livestock animal production system. Body weight is important parameter in rabbit meat production (DalleZotte, 2002). Understanding of genetic background of phenotypic variation of economic importance to breeders- like growth, fat deposition or meat quality may enhance production performance.

Materials and Methods: In this study we analysed sequence of rabbit IGFBP5 gene and performed association analysis between g.158093018 A>T polymorphism and growth (weight at 5th, 10th and 12th week of age, slaughter weight, warm and cold carcass weight, fore, intermediate and hind part weight and weight of dissectible meat, bones and fat from each part) and carcass traits (pH measured 45 min (pH45) and 24h (pH24) after slaughter, colour (L*,a*,b* measured 45 min and 24h after slaughter) on *m. longissimus lumborum* and *m. biceps femoris*) in 466 animals: 130 Termond White (TER); 40 Flamish Giant (Belgian Giant Grey) rabbits (FG); 71 Popielno White (POP) rabbits and 225 crossbreed of the F2 generation of New Zealand White x Flamish Giant (NZWxFG) (male:female 1:1)

The analysis of variance was performed using the GLM procedure of SAS (2014). Tukey's test was used for multiple comparisons. To account for multiple testing were made by the Bonferroni correction.

Results and Discussion: For TER and NZWxFG population we found that g.158093018 A>T polymorphism within IGFBP5 may be a good indicator for important meat and carcass quality traits. We found association with weaning weight at 5th week. For TER population AA genotypes were significantly heavier compared to AT genotypes (901g±153 and 771g±130, respectively) while opposite results were found in NZWxFG where AT genotypes were heavier compared to AA genotypes (822g±171 and 809g±158, respectively). Slower growth rate of animals with AT genotype did not statistically differ in 10th and 12th week of age. Another interesting result is that AT genotypes had higher pH24 on both muscles (6.11±0.36 on *m. biceps femoris* and 5.91±0.2 on *m. longissimus dorsi*) compared to AA genotypes (5.76±0.13 on *m. biceps femoris* and 5.72±0.21 on *m. longissimus dorsi*) in TER population. Also for NZWxFG AT genotypes (5.77±0.21 on *m. biceps femoris* and 5.62±0.18 on *m. longissimus dorsi*) had higher pH24 values compared to AA genotypes (5.64±0.16 on *m. biceps femoris* and 5.52±0.18 on *m. longissimus dorsi*). Especially high value of pH24 on *m. biceps femoris* (6.11±0.36) according to results from other species may indicate DFD (Dark, Firm Dry) meat which is may be not accepted by consumers.

Conclusion: Therefore, we conclude that this polymorphism may be good indicator of meat quality as a marker of pH value after 24h chilling

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Literature:

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