Animal Science Papers and Reports

Inconsistency of associations between growth hormone receptor gene polymorphism and milk performance traits in Polish Holstein-Friesian cows and bulls

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Abstarc :

The aim of the study was to evaluate the significance of associations between missense mutation S555G in bovine GHR gene and two sets of data: milk performance data of cows and breeding values of bulls. To generate genotypes the polymorphic region of GHR exon 10 (S555G) was amplified and genotyped using PCR-RFLP method. 395 Polish Holstein-Friesian and 477 Polish Holstein-Friesian bulls were screened giving the following frequencies of alleles: A – 0.832 and 0.891 and G – 0.168 and 0.109 for cows and bulls, respectively. With the use of the Linear Mixed Model analysis it was shown that A allele has positive effect on milk performance traits in cows and breeding value of bulls. The A allele is significantly related to fat yield (by 18.554±5.24 kg; P<0.0005), protein yield (by 9.072±3.643 kg; P<0.01) and fat content (by 0.1±0.05%; P<0.05). The A allele significantly increases bulls' breeding value for protein content (by 0.044%±0.011, P<0.0002). The results show inconsistency of associations between cow and bull data signalling that careful consideration has to be undertaken before final approval of SNP as effective marker used in dairy cattle selection.

Key Word :
breeding value, cattle, growth hormone receptor, milk performance traits

Volume 28, Number 3, - 2010