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Association of transferrin gene polymorphism SNPs C14037T and A14081G with the reproductive performance of Holstein cows

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ABSTRACT:

This study was undertaken to investigate the association of transferrin gene polymorphism SNPs (intron 8) with the reproductive performance (service per conception; SPC, number of open days, calving interval; CI and non-return rate; NRR) of fifty Holstein cows in Iraq. This study was conducted at the Dairy Cattle Farm and Physiology Laboratory pertaining to the College of Agriculture, University and Baghdad and also at the Laboratory dealing with the analysis of molecular genetic during the period from 1.12.2015 to 12.5.2016. Significant (P≤0.05) differences were found among genotypes distribution of the Holstein cow's transferrin gene, namely 30.61, 36.73 and 32.65% for AA-CC, AG-CT and GG-TT respectively. The cows with heterozygous genotype (AG-CT) exhibited better (P≤0.01) results concerning with the number of open days (108.91±6.95 days) and SPC (1.79±0.26) as compared with the other genotypes. On the other hand, the wild genotype (AA-CC) recorded undesirable reproductive traits represented by long open days and lesser SPC in comparison with the other genotypes. Shorter CI (409.61±19.54 days) and lesser NRR percentage (68.04±3.07%) were noticed for heterozygous genotype (AG-CT) as compared with the other two genotypes. In conclusion, the reproductive performance of Holstein cows can be improved based on the transferrin gene SNPs (C14037T and A14081G) at the intron 8. Investigating the other SNPs of this gene using larger number of cows and follow those through generations may give more accurate results for the selection programs.

Keywords:

Transferrin gene, SNPs, Intron 8, Reproduction, Holstein cows.

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