Genetic Parameters of Average Milk Flow Recorded Electronically from Milking Parlours and Automatic Milking Systems in Estonian Holstein Dairy Cows

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The objective of the study was to investigate the feasibility of recording electronically average milk flow rate (AFR, kg/min) from milking parlours (MP) and automatic milking systems (AMS), and to estimate the genetic parameters for Estonian Holstein cows. AFR was collected by the Estonian Animal Recording Centre from July 2010 to December 2013, from 23 farms with AMS and 34 farms with MP. AFR data were available for 11,001 cows at the beginning of their first lactation (60 to 90 days in milk). A bivariate animal model was used to evaluate the genetic correlation between AFR recorded by AMS and MP. A second model was applied where AFR collected from AMS and MP were considered the same trait, and several bivariate models were fitted to evaluate the genetic correlations between AFR and other traits recorded. The genetic correlation between AFR, measured by AMS and MP treated as two different traits, was 0.918. AFR had moderately high heritability (0.495). There was a relatively high correlation with milk yield (0.408), and a moderate correlation with fat content (−0.248), protein content (−0.166), and somatic cell score (0.27). The genetic correlations between AFR and udder conformation traits showed almost no or a moderate relationship: rear udder height and teat length showed the strongest correlation (+0.327 and −0.202, respectively). Average flow rate recorded at the beginning of the first lactation showed a high heritability and it seems to be a good method for routine recording of AFR for genetic evaluation.

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