

Genetic evaluation for automatic milking system traits in the Netherlands

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Abstract

Half of the newly built milking systems in the Netherlands and Flanders are automatic milking systems (AMS). The AMS records a lot of data about individual milkings. This data can be used for developing breeding values, a tool for selection of AMS suitable cows. The traits analysed are AMS efficiency (EF), milking interval (MI), and habituation of heifers (HH). EF is the milk yield in kg per total box time in minutes, MI is the time between two consecutive successful milkings in minutes and HH reflects the time period a heifer needs to get familiar with the AMS. Traits were analysed with a multi-trait animal model. Heritabilities were 0.27 for EF, 0.12 for MI, and 0.07 for HH, with associated genetic standard deviations of 0.20 kg milk per minute for EF, 35.8 minutes for MI, and 20.3 minutes for HH. Based on these genetic parameters, breeding values for bulls and cows were estimated. These breeding values make it possible to select cows that produce more milk per minute AMS time, visit the AMS more frequently and heifers that reach the standard milking interval early after calving. Selecting only bulls with a breeding value of two standard deviations above average will result in more kg of milk per AMS. In other words: to milk more cows per AMS. The amount of extra milk based on an average herd is close to 80,000 kg yearly, or 7 cows extra per AMS based on a production per cow of 30 kg milk per day. A point of attention is the negative genetic correlation between EF and udder health. As of April 2015 these breeding values will be estimated and published routinely in the Netherlands. A summarizing AMS index based on these breeding values is in development to avoid a reduction in udder health.

Key words: automatic milking system, breeding values, efficiency, milking interval, habituation heifers
