Collecting milking speed data as part of official milk recording.

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Abstract

Due to the growing use of robotic milking systems, the interest in optimizing the milk output of the robotic milking unit has added a new dimension to breeding and managing dairy cows. Milking speed, milking unit attachment speed and time required for cows to enter the robotic milking unit are three major factors in determining which cows are more suitable for robotic milking systems and maximize returns on investment. Milking speed also has application in conventional parlors. Milking speed can have a direct factor on operational expenses associated with milking the herd. High producing cows with consistent milking speed will optimize parlor throughput and increase the amount of milk collected on a daily basis. Dairy producers have had the opportunity to purchase in-parlor milk meters and collect data that would help in the optimization of parlor performance, however costs and maintenance concerns have limited the adoption in the United States. The data that is produced from existing systems varies in format and archive history and is rarely transmitted as part of milk recording services, thus no national genetic evaluation of milking speed currently exists in the United States.

AgSource has been a long-time user of Tru-Test (Tru-Test Inc, Mineral Wells, TX) Electronic Milk Meters (EMMs). EMMs are used to collect monthly DHI milk weights, milking durations and milk samples. Due to the growing interest in parlor efficiency, in 2015, AgSource started collecting the milking duration times using its EMMs. Milking speed records in the form of milk weight and milking duration data are collected on approximately 100 large farms totaling over 100,000 cows. Beneficial to analysis and utilization, data is measured as a continuous variable (kg/minute) versus a standard categorical measurement. AgSource milking speed data proved to be a consistent measure based on stage of lactation and parity.

Milking speed values averaged 2.6 kg/minute and ranged from 1.4 to 4.5 kg/minute. Further analysis showed that milking speed data was positively correlated to DHI Mature Equivalent (ME) 305-day milk production and negatively correlated to somatic cell score at low and high milking speeds. Using genotypes supplied by the USA A.I. cooperative, Genex, resulting breeding values were calculated on over 60,000 cows and bulls.

Employing new technologies in regular DHI recording result in new reliable and consistent phenotypic measures that can be combined with genotype data to identify new markers, new genetic traits of economic importance and be incorporated in DHI value-added management reports.

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