

Huge Potential in Data from AMS from a Breeder's Perspective

*Uffe Lauritsen, R&D, Danish milk recording organization RYK
Anders Fogh, Information, Breeding & Reproduction, Danish Cattle Federation.*

Danish farmers have over the past 10 years invested heavily in automatic milking system. Late 2009 22 % of the herds with 27 % of the cows had installed AMS. This is a challenging situation to the whole branch, farmers, general farm advisers and breeding interests. The ongoing raise of herds and cow numbers in AMS, leads to new fields of interest, and also reveals a huge data bank from where conclusion can be sought.

Data from AMS systems are very interesting from a genetic point of view because many of the traits registered in AMS are biologically closer to the basic traits we want to improve than the registrations we have today. At the same time we can get a lot of data from AMS.

In Denmark we will look into the possibilities to improve genetic evaluation for current or introduce new traits by use of data from AMS. This basic work will be started in 2010.

More Accurate Breeding Values for Milking Speed

In Denmark EBV's for milking speed is based on the farmer's impression of milking speed in the individual cow. However farms are getting bigger all the time, which makes it difficult for the herd owner to keep track of the differences in milking speed between cows.

In 2010 we will introduce a new EBV for milking speed, which include electronic measures of milk flow as information on milking speed. In the first step only data from TruTest portable electronic milk meters equipment is included. However when data gets available, data from AMS will be included as well.

The purpose of including milking flow from AMS and other equipment is to raise the reliability primarily on the bulls – thereby achieving higher genetic improvement.

Making Cows More Suitable for AMS

A cow well suited for milking in a milking parlor or milking in a tie stall is not necessarily the same cow well suited for AMS. However at present we are not sure what make a cow suited for AMS. In Denmark we will look into possibilities to develop a breeding value describing this ability. The benefit of genetically improving cows in that direction is to achieve more milk per AMS unit and use less work in doing so.

Improvement of Breeding Values for Functional Traits

Another benefit we expect to get from registrations from AMS is the possibility of improving the existing EBV's for different functional traits (health, fertility, conformation, and temperament). This will increase the genetic improvements for these traits.

The registration we believe could be very valuable is for instance live weight, milk yield per gland, temperature, conductivity, blood in the milk, activity measurements and chewing activity. The functional traits which could be improved are primarily udder health, but also other health traits and fertility are interesting.

How Do We Get AMS Data?

A pilot project was initiated in 2008, and over a period data (as mentioned above) was collected from app. 70 robotic farms.

Prestudies and analyses of collected data was followed by an internal discussion, and finally ended up in some relevant and well defined smaller projects covered by the headlines above.

Part of the analyses was to identify relevant parameters, what they contain, the origin and calculation (if any). The conclusion is that every single parameter is defined differently depending on the brand of robotic system. This means that a parameter like milking time on the main frame database must always be identified also by the source (Lely, DeLaval etc.)

Data Collection in Production, Principle and Logistics

In production data will be collected at each recording, and transferred to the national cattle data base through the ordinary system used for milk recording. This gives the advantage that data has been validated by the recording organization, and also that data from all recorded robotic herds will be transferred.

Data will be collected systematically from April 2010.

Denmark Milk Recording Statistics

Total no. dairy cows	565.000
Milk producers	4.200
Average size	135
Average milk quota	1.080 metric tonnes (2.5 mio. pounds)

Milk recording

Recording system	# herds	% herds	Average herd size	# cows	% cows
AMS	845	22%	168	141.960	27%
TruTest EMM	2.460	64 %	128	314.880	60 %
Fixed in place meters (parlour)	215	6 %	220	47.300	9 %
TruTest HI/WB meters	305	8 %	79	24.095	5 %
All recorded herds	3.825	100 %	138	528.235	100 %

Milk Recording Organization

1 national organization, RYK, includes 98 % of the recorded herds. The remaining by 2 small organizations, which only carry out field work.

Day to Day Work

50 technicians are employed to carry out the field work. Each of them is provided with sufficient equipment (meters, robotic samplers, lap top, printer etc.).

10 % of the herds are on by monthly test and 90 % on monthly test.

Data Handling

Technicians take care of all data handling, basic verification and are responsible for the quality of the work carried out on the farm.

Milk Lab and Analysis

All samples are analyzed on a commercial lab, Eurofins.

of samples per year 6.000.000

Parameters for Recording Samples

Fat, protein and somatic cells is standard. MUN is optional.

Veterinary Analysis

MUN, Johnes, Salmonella Dublin and PCR are all optional.