

## Herd Navigator or “How to benefit from frequent measurements”

T. Asmussen

FOSS A/S, Hillerød, Denmark

### **Abstract**

With Herd Navigator frequent measurements ensures close monitoring of the herd to allow proactive action on a number of parameters such as reproduction parameters, mastitis, ketosis and urea.

It is evident that alerts informing the herd manager about need for insemination or other immediate actions are of big value, - however it is also important to take advantage of the frequent measurements for more proactive activities on group or herd level.

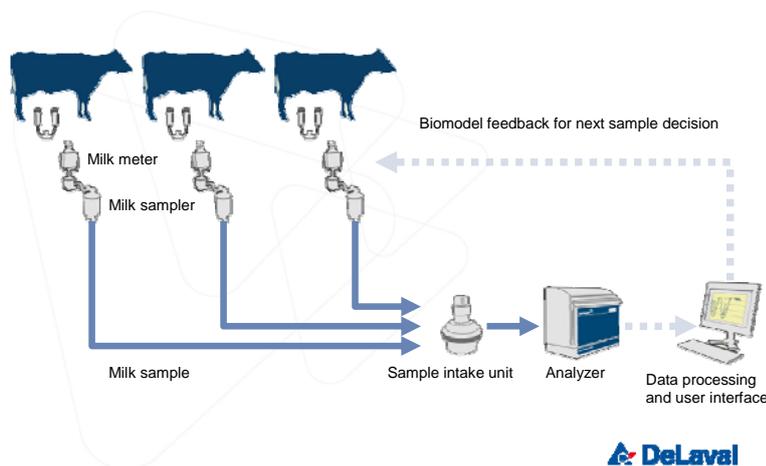
This presentation will give examples on such possibilities.

*Keywords: herd monitoring, milk, analysis, health, reproduction, mastitis, ketosis.*

## 1.0 Introduction to Herd Navigator

The solution works by taking a representative milk sample of individual cows during milking. The milk is taken at the milk samplers connected at each individual milking point or milking robot.

### Herd Navigator systematic procedure



When the cow is being milked the sampler delivers its milk to the sample intake unit (SI) located at the end of the milking pit. This device holds the samples and sends them one by one to the Analyser Instrument (AI) located in the milk room.

The Analyser Unit is temperature and humidity constant and uses dry stick technology to perform the analysis. Each parameter has its own stick and those are stored in cartridges inside the AI. The parameters measured are:

Focus area	Parameter analyzed in milk	Early/on time detection
Reproduction	Progesterone	Heat Silent heat Pregnancy Abortion Cysts Anoestrus
Udder health	LDH – lactate dehydrogenase	Mastitis Subclinical mastitis
Feeding and energy balance	Urea BHB – beta hydroxybutyrate	Feed ration – protein Ketosis Subclinical ketosis Secondary metabolic disorders

The technique used for LDH, urea and BHB is colorimetric and for progesterone it is lateral flow assay.

The values are captured by the biological model which calculates the risk of any of the above diseases or physiological statuses and at the same time decides when each parameter will be measured again next time for the cow in question.

The complete system gets cleaned automatically together with the milking machine equipment.

## 2.0 How to maximize the benefit of frequent measurements

Herd Navigator impacts on the most important factors on milk production, reproduction, mastitis and feeding. All information from Herd Navigator can, one way or the other, be combined with information already present in the on farm cattle database and the central cattle database.

Herd Navigator detects consistently above 95% of all heats of the herd (including silent ones) and is able to pinpoint the time of the heat, the likelihood of success of a prospective insemination as well as the system is able to detect post partum anoestrus, pregnancy and both types of ovarian cysts. This has resulted in a significant reduction on open days at most farms running a Herd Navigator.

Herd Navigator is able to detect clinical and sub-clinical mastitis up to 3 to 4 days before clinical signs are shown in the animals affected. The sensitivity of the system reaches more than 80%.

Herd Navigator is able to detect all cases of clinical and subclinical ketosis, and normally it detects 50% more ketotic cows than do the farmers/herd manager.

For an average European herd the data shows that Herd Navigator can bring profit improvement potentials for farmers from 250 to 350 € per cow per year.

Benefiting to this extent from running Herd Navigator requires optimum use of results from the Herd Navigator. Herd Navigator both provides new information and more frequent information than most dairy farmers have been used to previously. All this information is combined with the already existing information in the farms herd management system, - but to benefit further from all the acquired information a more advanced tool is under development.

In the following a few examples will be presented.

### 2.1 Ketosis

The level of BHB in milk is monitored from calving until 60 days after calving.

The incidence of ketosis varies significantly from herd to herd and from one period to another.

In general we have seen that the frequency is significantly higher than registered by the herd manager before Herd Navigator is introduced. Though all present Herd Navigator users have doubts about the correctness of the alerts issued there are big differences in the way they act upon the alerts and thereby on the effect on performance in the herd.

By monitoring the lactation cumulated lactation curve of all cows having a ketosis alert in different herds it is clearly seen that the yield loss in some herds are almost avoided whereas it is very big over the entire lactation in other herds.

## 2.2 Reproduction

The progesterone level is monitored frequently from 15 days after calving until 60 days after the last heat. At this stage the cow is considered pregnant, and the risk of abortion limited.

This allows monitoring for prolonged anoestrus, heat, follicular and luteal cysts, pregnancy, early foetus loss (day 24-35) and abortion >day 35).

On average this has allowed the HN test farms to reduce number of empty days by 22 days, - though reduction in number of empty days has not been main targets in all herds.

However an additional benefit of the Herd Navigator, besides informing about when to inseminate which cow, is to display why cows are not getting pregnant.

Is it because inseminations are badly timed? Do cows become pregnant, - but suffer from early foetus loss? Or do they abort more than 35 days after insemination.

These questions can be answered by examining the progesterone curves of the cows.

Doing so in different test herds has revealed big differences in the reasons behind reproduction problems. Knowing the reason for a problem can eventually lead to solving the problem by changes in management procedures, feeding or other measures.

## 3.0 Conclusion

Above two examples illustrates that frequent analyses of management parameters give access to further information about the reasons behind potential problems in a herd.

It is important to reveal such information to the herd manager and the information may also be important to other parties.

It can therefore be concluded that:

- It is important to use the new information available to develop new parameters to be monitored in order to optimize the production and economy in the herd.

- It is important to use the new information available to monitor the breeding goals in new ways.