

Special need cows and the installation of automatic milking systems

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The number of dairy farms using an Automatic Milking System (AMS) is largely increasing year by year. Today more than 20,000 dairy farms in Europe are already using a milking robot and the number continues to grow. In some areas more than every second new installation includes an AMS.

The key reason for using an AMS is the wish to get more flexible work time, to save overall labour time, to become more independent and – last but not least – to have the freedom to spend more time with the family or simply enjoy some free time.

However, not every dairy farm reaches the target of being more flexible and having more free time. Nevertheless, most dairy farms are working very successfully with their milking robot. But where is the difference between these farms and those which do not get the desired results?

When you are planning to switch to an AMS it is most important to precisely analyse the entire process of your milk production and think through your requirements before making the step from conventional to automatic milking.

Using a milking robot vs. a conventional parlour system is not simply a change of milking equipment. It is a complete different way of milk production especially with regard to herd management.

Using a conventional milking system the milking capacity is mainly influenced by the number of milk stalls. Time is second ranked.

With a milking robot the number of milk stalls is very limited, time is very critical and needs to be as close as possible to 24/7 operation.



Consequently, everything that will disturb the standard milking routine will decrease the capacity of a robot system. This also includes the management of the so called 'special need cows' as this group of cows will not disappear by using a robot milking system.

Special need cows

There is no fixed definition of 'special need cows' – it depends on the focus of the dairy herd's manager and varies from farm to farm. But, above, all they are time consumers!

However, for most dairy farms special need cows can be categorised as follows:

- Cows with foot problems.
- Cows with metabolic problems.
- Cows having fertility problems.
- Fresh milking cows and heifers.
- Treatment cows.

- Injured cows.
- Mastitis cows.

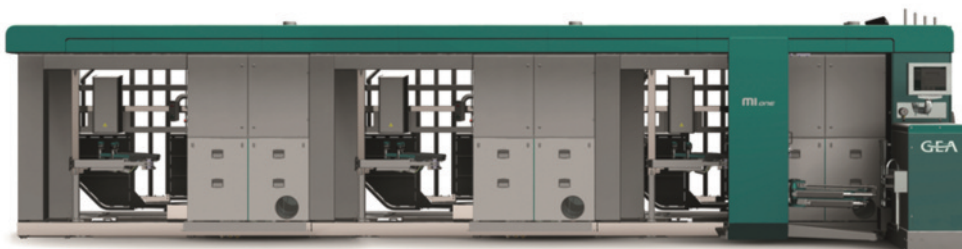
Even if the treatment is different, the consequences for an AMS are pretty much the same for cows with metabolic problems or injured cows compared to cows with foot- or mastitis problems. For this reason those will not be described in particular.

The work load for this group of milking cows should never be underestimated. It almost follows the Pareto principle as the last 20% of the herd are responsible for about 80% of your work load. For this reason quite a few dairy farms already practise so called 'management on exception' where the management is clearly focused on the special need cows in order to keep these cows under control.

If there is an AMS in use the category of weak cows needs to be taken care of additionally. This group contains heifers or low ranked cows which may be stressed by others. You will find these cows in every herd. By working with an AMS these animals may avoid visiting the robot in a desired frequency. Overall, the share of special need cows in an average herd is between 8-15%. Therefore it is most important to clearly organise the management of those particular cows when using a milking robot.

As there are various reasons for

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special need cows they will affect the work with a robot in different ways.

Therefore the following questions need to be answered:

- What needs to be done to get all cows milked in a desired frequency?

- How can I observe and monitor cows when I do not see them twice or three times a day during a milking session?

- How can I treat particular cows without fetching every single one out of the herd?

- How can I temporarily milk cows manually?

Key to these questions can be an elaborate barn concept such as a milk centre with a calving area, special need area

and a treatment/observation area around a robot to keep the walking distances short especially for special need cows.

This allows most of the special need cows to be available in one spot which simplifies the management and work with these cows. A holding pan with a pre- and/or post selection in front of the robot may be very useful for the daily work.

Cows with foot problems

There is no difference between a conventional parlour and an automatic milking system in regard to a reduced milk production for lame cows. For this reason

good foot health is always a precondition for a successful milk production. However, a dairy farm using a robot system is even more sensitive to cows with foot problems. Only cows with good foot health will frequently visit the robot on their own. That means that foot problems will directly increase the number of 'overdue' cows which need to be pushed to the robot.

Beside this, cows which have pain walking may block the system when standing in or before the robot and will reduce the capacity of the system. Therefore, a clean and dry walking area for the cows and a good and strictly organised foot care program is indispensable when using an Automatic Milking System.

Cows with fertility problems

One of the most challenging tasks in milk production is a sophisticated and efficient heat observation. In conventional milking systems a significant part of the heat observation is being covered during the milking sessions.

In a robot system it is indispensable to reserve time for heat detection when being present in the barn at least twice a day. Automated heat detection, such as activity sensors, are useful tools to support the herd manager in finding cows in heat.

Fresh milking cows and heifers

This is a very sensitive group of animals which need special care. To optimise the work flow with this group of animals they should also be located as close as possible to the robot.

A holding pan in front of the robot will allow these animals to be bundled in a group which will increase the work efficiency. After calving the ligaments of the cows are still loose and there is a high risk of injury which may cause a total loss if cows are directly released into the standard herd after calving.

For those cows it is best to be present and 'manually' observe the first milking sessions to check udder health, prevent milk fever problems etc and, if necessary, support the robot by manual attachment of the teat cups.

On average, the share of heifers in a standard herd is approximately 30% which also need to be trained for few automatic milking. When milked the first few times an operator should be present

Treatment cows

One of the questions is where to treat cows when using a robot. As the dairy farm manager has only limited control of when a cow will visit the robot a simple routine work as drying off cows needs to be planned. If the robot allows easy access to the udder the application of the injector can

be done directly after milking. To organise such treatments a post selection may be of advantage which will help separate the cows into a special area. Next time the operator is present at the robot he can directly start working on those cows.

Mastitis cows

Mastitis treatments are usually very time consuming. Additionally, there is a significant infection risk depending on the type of the mastitis pathogens. Therefore, it may be helpful to keep mastitis cows separate from the rest of the herd in a separation area close to the robot. This will allow better monitoring and easier treatment of affected cows and will furthermore reduce the infection risk of other cows.

Weak cows

In a robotic milking system there is some risk that weak cows are blocked from visiting the robot by stronger and more dominant cows. As a result they will appear on the overdue list. This number of overdue cows will accrue the closer the robot will work at the capacity limit.

It is daily routine for every dairy farmer to push the cows from the overdue list at least once a day in front of the robot. To



minimise the work load, cleaning the beddings may be combined with pushing cows.

Conclusion

A dairy cow herd does not only include 'standard cows'. The question of how to take care of the special need cows has a significant influence on the successful operation of an automated milking system.

Independently from a robot being integrated in an existing barn or being installed in a complete new building the barn

lay-out is the key for the success of the operation.

It is important for the integration of special need cows into the daily working routine to have enough space close to the AMS.

Calving area, special need area and treatment area should be part of the milk centre concept. The milking centre needs to ensure that these cows have direct and easy access to the robot in order to allow a successful operation including all dairy cows.

In other words, it is not enough to simply replace a parlour by a robot. It is producing milk with a complete new concept affecting all parts of the dairy farm. ■