

Digitisation and technology: automated feeding and milking

Farm: **Henning Rothert**

Location: **Wittmund, Lower Saxony**



Background

The Rothert family farm is located in open marshland and is now managed by the third generation. Its foundation and purchase dates back to 1960. Today, 235 cows are kept in stalls with grazing.

The grazing is combined with an automatic milking system. The stalls are equipped with milking robots. Technology and digitisation play an important role in the company, as four milking robots and an automatic feeding system are now being used. In the farm, the grass and the grass silage are at the centre of the feeding. In order to achieve a high energy and protein content, the grass is cut as early as possible and supplemented with the components of pressed pulp and, if the grass is too young, also with alfalfa.

Modern technology is very important out on the fields too - the parallel drive system has been introduced for tractors. Digitisation has become an integral part of herd management - it also uses the recording of rumination for detecting heat. The company impresses with its sustainability and innovation and has always been involved in technical developments.

What were farmers' motivations

The Rothert company is very technically-minded and enjoys the combination of animals and technology. Animals are always paramount. In addition, full automation of feeding, including regular raking of the feed, makes working easier, especially in times when it becomes increasingly difficult to find reliable staff. The same applies to the milking robots. Automation helps to better plan management. This leaves more time for the family, which was also a great motivation.

Detailed description of the innovation

On the Rothert farm, almost everything runs fully automatically: the feeding, the pushing of the feed, the milking and grazing using a selection gate. Thus, automatic milking and grazing are ideally combined. With the Grazeway selection box, the cows themselves decide if and when they want to go outside to pasture. The Grazeway then uses the cow detection system to determine whether or not they are allowed to do so. Despite the large herd size of 235 cows, the manager's wish to graze the cows allows grazing through automation and the rounded grassland areas. The advantages for animal welfare, for example that the hoofs are cleaner and that older animals can become fitter again due to the greater freedom of movement, are key.

In the pasture, three groups of milking cows and one group of dry cows are separated. The automatic feeder mixes 5 to 6 mixtures per group of 60 cows a day. There are four cow groups, which means it makes up to 30 mixtures per day. Automatic feeding is based on the set amount of feed on the feed table. If it is less than 10 cm, the supply is replenished. The feeding takes place in a separate compartment, which is filled every 2 to 3 days with silage and the mixture components. If there is a risk of reheating in the silo, the feed rate is increased.

Feeding is so easy to plan. The feed at the feeding table is pushed forwards at very regular intervals, so that the animals constantly have something to eat.

Results

Due to digitisation and automation in feeding, the focus of stall work has shifted to monitoring and controlling cows and technology. The time, which was otherwise used for feeding work and other things, is now used to detect heat and observe specific individual animals. Overall, however, a significant reduction in workload can be felt. The aim was to replace personnel with technology in order to become more independent and counteract the difficulty of holding onto good, reliable personnel in the long term.

The selection gate to the pasture combined with the milking robots works very well. However, the number of milkings during grazing periods goes from 3 to 2.4 to 2.5 (observed particularly in good weather conditions), but grazing is very important to the farm. The milk yield is 9400 kg/cow/year.

Adoption criteria

The switch to fully automatic feeding in combination with milking robots is associated with high investment. It only makes sense for farms that are interested in the use of technology and would like to feed and milk. The selection gate, which controls the pasture management in combination with the milking robots, can only be used if the farm has suitable grazing areas around the stalls and grazing is possible.

Future prospects

In the future, however, an external worker will be sought to operate the technology. Expansion of the farm and further development are not planned. Two of the milking robots are now somewhat outdated and are to be replaced by new models.