Heat stress in dairy cattle

An optimal living environment for dairy cattle requires a good climate. After all, a pleasant barn climate contributes to healthy cattle with high productivity. For dairy cows, the optimum ambient temperature is between -5 and 18˚C. At a temperature of 22˚C in combination with a high humidity, a cow can already suffer from the heat. We call this phenomenon heat stress.

Symptoms

The most noticeable sign of heat stress is that cows start drinking more. In addition, they sweat and pant more. Cows sweat at only 10% of the human sweat rate. It is therefore difficult for them to get rid of the heat, which makes them sensitive to heat stress. Cows also produce more saliva during warm periods, causing them to lose a lot of moisture. This can lead to ruminal acidosis. Furthermore, in the event of heat stress, cows stand up to two hours less per day. When cows are standing, they can easily lose their heat.

Effects

In times of heat stress, feed intake is reduced by 8-12% or more. This reduction in feed intake reduces the production of volatile fatty acids in the rumen, resulting in a reduced production. Other side effects that are often seen in heat stressed cows include a reduction in fertility (tank cell count is increasing), an increase in embryonic loss, an increase in hoof problems (less lying down) and more cases of clinical mastitis.

Solutions

Some heat stress is inevitable, but effects can be minimised. Before it gets hot you can also make a lot of preparations:

- Increase the amount of water available for your herd.
- Adjust the ration to maintain feed intake.
- Provide shade (when grazing).

If it is really hot, it is especially important that you actively cool the cows. Above 26˚C, it is recommended to wet the cows and to cool them with fans. However, it is important that the udders remain dry.

In addition to the above, increasing the air flow is an important measure to prevent heat stress. Ensure that air can move freely through all parts of the barn. Natural ventilation can be supported by fans.

The refreshed air that is spread through the fans reduces the feeling of temperature and prevents the cows from quickly becoming bothered by the heat. A minimum air velocity of 2m/s is essential to achieve this effect. Axial fans are still the most used. They can provide a targeted air flow at a relatively high speed.

They are therefore often placed behind the feeding fence or above the stalls. This invites them to eat or lie down. Both are important for optimum milk production.

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The importance of an optimal climate in dairy barns

How do I prevent damp spots in the dairy barn and how do I prevent diseases such as udder infection? Questions that can have many dairy farmers scratching their heads And rightly so! In this article we discuss the importance of an optimal climate in dairy barns.

Mastitis and other problems

Mastitis, popularly called udder inflammation, costs a dairy farmer an average of £460 per lactating cow per year. In the first months after calving, this can even amount to more than £900 (GD and Heikkila mastitis model).

Damp stables offer a favourable climate for mastitis and other pathogenic agents. The number of germs and bacteria in the stall cover must be as low as possible. Hygiene in the dairy barn is therefore very important. Optimum ventilation allows the stalls to dry well, which means that bacteria can multiply less quickly. Fewer bacteria in the stall means fewer bacteria on the teats and therefore less risk of udder infection.

If the climate in the barn is not optimal, many other problems, besides mastitis, can arise:

- Heat stress.
- Nuisance from flies.
- Hoof ailments.

These problems result in a lower milk yield with a loss of turnover as a result.

Recognise poor ventilation

Poor ventilation can be recognised by excessive condensation and rust, especially at the rafters of the dairy barn. Spider webs are often an indication of insufficient air flow. Other signs of poor ventilation include ammonia, excessive coughing or visible condensation on the animals' backs.

Create a uniform climate

An optimal climate therefore contributes to the health and performance of the cows and the farm. Good ventilation means the even exchange of barn air with fresh outside air. The required speed of air exchange depends on a number of variables, including the conditions of the outside air (temperature and humidity), animal population and density. It is extremely important to prevent excessive air movements and draughts in the house. That makes cows more susceptible to diseases.

A good ventilation system results in barn air that is almost of the same quality as the outside air all year round. The concentrations of ammonia, other gases, dust and pathogens in the air must be low. The relative humidity must be approximately as high as that of the outside air. With natural ventilation only, these basic points are difficult to control, especially in cold, heat or the highly variable weather conditions in the spring and autumn.

Mechanical ventilation

Using fans, a stable house climate can be guaranteed throughout the year, preventing diseases, reducing veterinary costs and keeping production on track. This has a positive effect on the operating result.

Circulation fans for dairy cattle are suitable for serving large areas. A high throw and high air flow are important here. In addition, the positioning of the fans in the barn is important, so that damp spots are prevented.

When choosing the type of fans used in dairy barns it is important to consider the following:

- The durability and reliability of the fans.
- The suitability for intensive use.
- A high throw (over a large distance a minimum air speed of 2m/s).
- The resistance to aggressive conditions.
- Adjustable fans to guarantee a low constant air movement even at low temperatures.

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