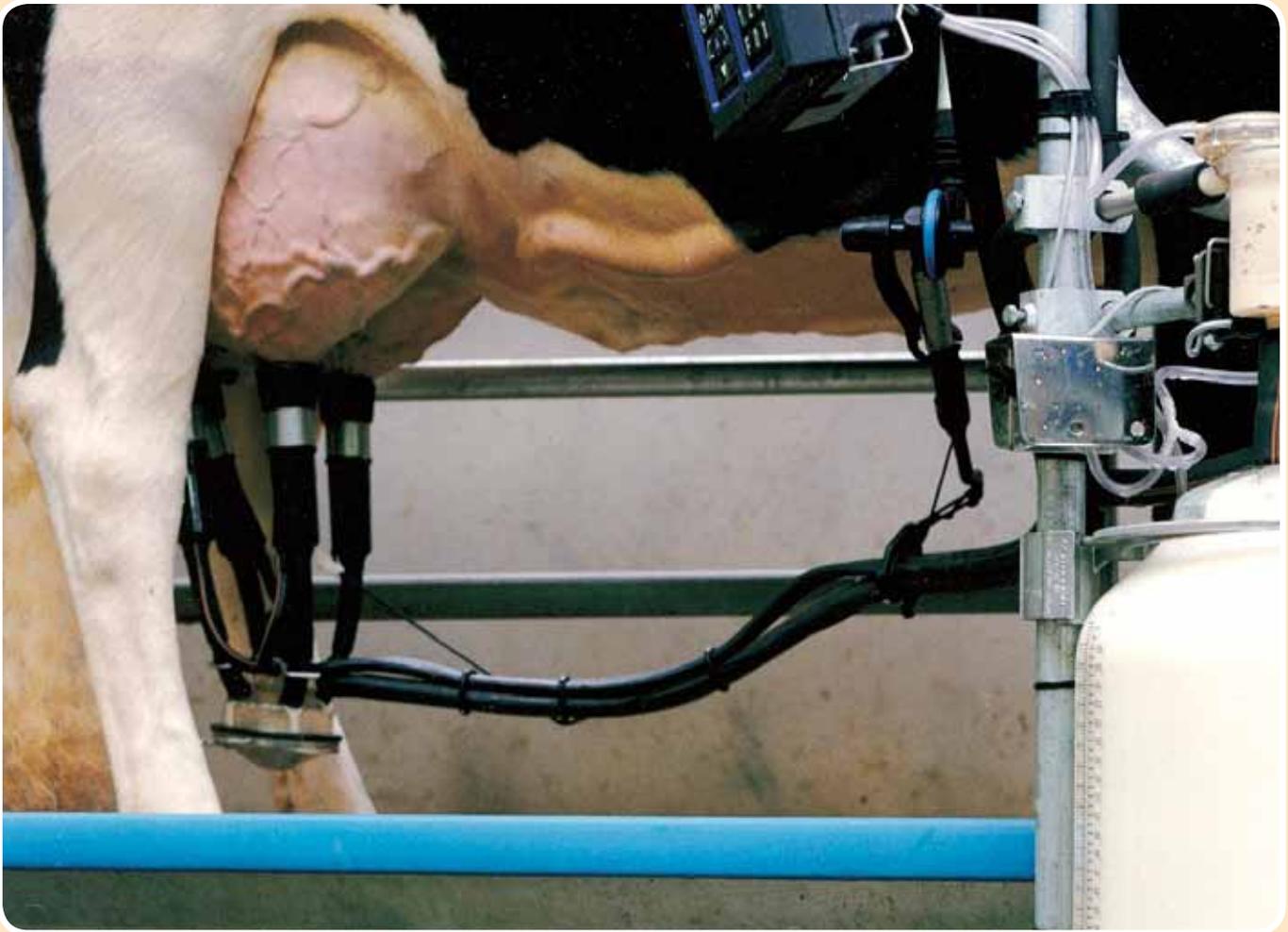


# Veepro dairy management



Harrie van Leeuwen

*The milker and the milking installation largely influence udder health*

## Mastitis and udder health (3)

Udder health is important for the cow and the dairy farmer. Less mastitis means less costs, more pleasure at work, less use of antibiotics, and better quality milk. In addition, and certainly not less important, improved udder health results in improved animal welfare, because mastitis is a very painful infliction.

**T**he milker and the milking installation largely influence udder health. Mastitis specialists indicate that of all new udder infections in a herd, half

are due to imperfections at milking. During milking mastitis pathogens can be transmitted. In addition, milking can affect teat condition to such an extent

that mastitis pathogens can more easily invade. Furthermore, the degree of milk-out and the milking frequency also influence udder health.

### Prepping

Prepping is important in order to clean the teats, check for mastitis and stimulate the milk release. Prepping starts in the barn. Good



# UGCN improves udder health

The abbreviation 'UGCN' stands for the Dutch name: "Uier Gezondheids Centrum Nederland", which can be translated as Dutch Udder Health Centre, established in 2005 by the Dairy and Agricultural Organization to improve udder health. They took the initiative to start a national program to improve udder health in the Netherlands. With an average Bulk Milk Somatic Cell Count (BMSCC) of approximately 230,000, udder health was, certainly in an international context, not problematic. A better udder health leads to less economic losses and more satisfaction for both producers and dairy industry. Apart from that, mastitis is related to welfare of cows. The UGCN has published a number of publications for dairy farmers. In this Dairy Management series, Veepro Magazine is sourcing from these publications to generate articles about udder health and mastitis. This time milking hygiene will be discussed.



barn hygiene has multiple advantages. Farms with good barn hygiene have fewer udder health problems. Dirty teats cannot always be thoroughly cleaned by prepping. Animals with dirty udders can become infected with mastitis pathogens before milking already. Dirty udders are also detrimental to the milking capacity and they reduce pleasure at work.

## Udder cleaning

Clean dirty udders with clean, running water and dry them with separate clean and dry towels. Post-drying is not just important from a hygiene point of view but also from a milking-technique perspective. In case of wet teats the liners will creep upwards due to the increased liner mouth vacuum. As a result cows will milk out less fast and less complete. In practice wet prepping of dirty teats is very uncommon; instead they are often dry prepped and therefore not being cleaned sufficiently. In that respect the (moist) disinfection towels work well. They disinfect both the teats and the gloves. They can be used with clean and dirty udders.

Prep clean udders with disposable, one-service paper towels or disinfection towels (one per cow). Cotton udder towels are another option, preferably a new towel for each cow, but the maximum being one towel per four cows. Udder towels should always be hot-washed. In order to prevent the spread of mastitis pathogens it is important to keep hands, towels, and teats as dry as possible.

**IMPORTANT:** mastitis cows should always be prepped with a separate towel.

Udders with short hair are easier to clean. Clip or singe the udders on a regular basis to prevent any hanging or sticky dirt.

## Pre-stripping

After prepping do pre-strip. Pre-stripping is important to discover any visible mastitis in an early stage. The sooner it is discovered, the better it cures. In addition, the chances of spreading are reduced. Pre-stripping also stimulates milk release, and flushes any mastitis pathogens from the teat canal. The milk filter can also supply information about visible mastitis, if it has any flakes.

## Waiting period

It is important to attach the clusters only when the cow starts dropping the milk from the milk glands. This starts about 60 to 90 seconds after first touching the teat. A waiting time between prepping and attaching the unit of about 60 to 90 seconds does have a positive influence on an easy and complete milk out. In open tandem milking parlors and rotary parlors the waiting times cannot always be applied. In these barns an in-built prepping phase of the milking machine needs to be set. This involves temporary faster or more rigorous pulsation.

Attaching the cup holders is done by hand. The milker starts with the front teat removed the furthest away, and then continues to attach via the rear teats in a circular motion. The sucking of false air is not desirable due to the creation of vacuum fluctuations underneath the teat. These vacuum fluctuations increase the chances of new infections. When attaching the cup, make sure the cup is not "twisted" when attached to the teat. The danger exists that the cup twists back, with the teat then not being placed properly inside the cup.

## Positioning of cluster

For a fast, even and complete milk-out of all quarters it is important that the position of

the cluster is correct. In case of the right position all teat cups are in one line with the direction of the teats like it was prior to attaching. This prevents twisted teats and air sucking. It is also important that the weight of the cluster is nicely balanced out over the four teats. A cluster milks out nice and square if it sits perfectly straight underneath the udder.

A hose support allows for hanging the milk hose horizontally parallel with the stomach of the cow. In that way the long milk hose will not have a negative influence on the position of the cluster. It is important that a hose support reaches deep enough underneath the udder, is easy to adjust in height, and pulls in well when the unit is taken off. It is also handy if the hose support can be fixed into position. In the case of a cow with a deep rear udder the milking unit can then be pulled forward, so that the rear teats milk out cleanly as well.

### Cluster removal

Remove the cluster only when milk release stops. A maximum of 0.5kg aftermilk per cow is acceptable. When removing, first shut off vacuum completely and then take the claw off. This prevents vacuum fluctuations underneath the teat. With 8 or more clusters in the milking parlor, or more than 4 in a tie-stall barn, it is advised to automate the removal, but caution should always be exercised. Research of the UGCN shows that automatic take-offs are often set too slow, which is detrimental to udder health. The take-off limit can be set at 350-400 grams per minute with a delay time of 5 to 10 seconds. Excessive over-milking is detrimental, because it is often coupled with air sucking and negatively affects teat

## Extra measures mastitis cows

Milk remains in the teat liners and the cluster can transmit mastitis pathogens from cow to cow. The chance of transmission becomes considerably smaller when the clusters used for milking cows with visible mastitis and/or elevated cell counts are disinfected with hot water. Flushing for at least 5 seconds with water of 85°C gives the best result. The water can be sucked up from a bucket into the cluster. Keep the water in the bucket hot with a heat spiral. Another possibility is to spray hot water into the cluster at the connection with the long milk hose. This can be done

with a hot water hose in the milking parlor. There are also systems in the market which automatically flush the teat liners with hot water after milking. These kinds of measures are more challenging if there are many mastitis cows or with large milking parlors. In that case it is advisable to (temporarily) milk the mastitis cows last. An advantage of this measure is that a treatment plan for mastitis cows can be made without the chance of contamination. In tie-stall barns of course mastitis cows can also be milked with a separate cluster.



condition. Over-milking is not just a matter of incorrect calibration of the automatic take-off. It is also important that the cow quickly releases milk from all teats and milks out squarely. In addition, it is important that the milk is removed quickly from the teat to the take-off indicator. The take-off indicator ultimately determines the time for removal. It is therefore important to keep checking the settings with a critical eye.

### Teat disinfection

Teat disinfection via dipping or spraying after milking prevents the chance of new mastitis infections. Besides the disinfecting effect the skin care effect is important too. Mastitis pathogens get less opportunity to colonize on teat skin that is in good condition. It is important to reach the teat all around. With dipping this is easier achievable than via spraying. Spray very accurately. It is advisable to clean the dip cup after each milking. In the case of spraying, the use of disinfectant is often higher than when dipping. Rotary milking parlors often use spray stalls. Keep them clean and set these stalls

accurately so that they match the milking capacity. Anyone dealing with many environmental mastitis pathogens best uses a longer-working teat disinfectant, a so-called barrier teat disinfectant. These are often thicker and therefore do not spray well. Due to the function of disinfectants and the increased infection risk of "open" teat canals, it is advised to prevent the cows from laying down right after milking. Teat disinfection before milking can reduce the number of new mastitis infections. For the right effect, first any debris needs to be removed from the teat, then the teats should be disinfected. The disinfectant should have 30 seconds time to activate, after which the disinfectant should be wiped off. This protocol often does not fit well in the milking routine. It has been proven that residues remain behind in the milk, when the disinfectant is not completely wiped off. That's why many dairy processing plants will allow disinfection prior to milking only in exceptional cases.

# Udder structure

The udder of the cow consists of four separate milk glands. The milk is initially deposited in the milk bladders (alveolae) of the udder. From these alveolae the milk then flows through the milk canals and into the milk reservoir. From the milk reservoir the milk flows via a bottleneck to the teat gland. This bottleneck is called the Ring of Fürstenberg. At the bottom of the teat is the teat canal. This little canal is surrounded by a ring muscle. The ring muscle keeps the teat canal closed under normal circumstances. The inside of the teat canal

is lined with cells that excrete a wax-like substance (keratine). This substance has a bacteria-inhibiting effect. The outwardly visible part of the teat canal is called the sphincter.

## Milk release cow

On average, about 80% of the milk is stored in the milk glands and 20% in the milk reservoir. The milk in the milk reservoir can be directly released by the cow: this is the so-called "volatile" milk. In order to stimulate milk release from the milk glands, or milk release, the nerves in the teat need to be

stimulated. This requires a powerful pre-treatment. For the milk removal from the udder to be as complete as possible, a strong stimulation, applied over a longer period of time, is required. In the case of automated milking, the massage function of the machine largely takes care of this. In addition, it is important for the cow to feel at ease during milking (calm and regularity).

## Milk lay-out

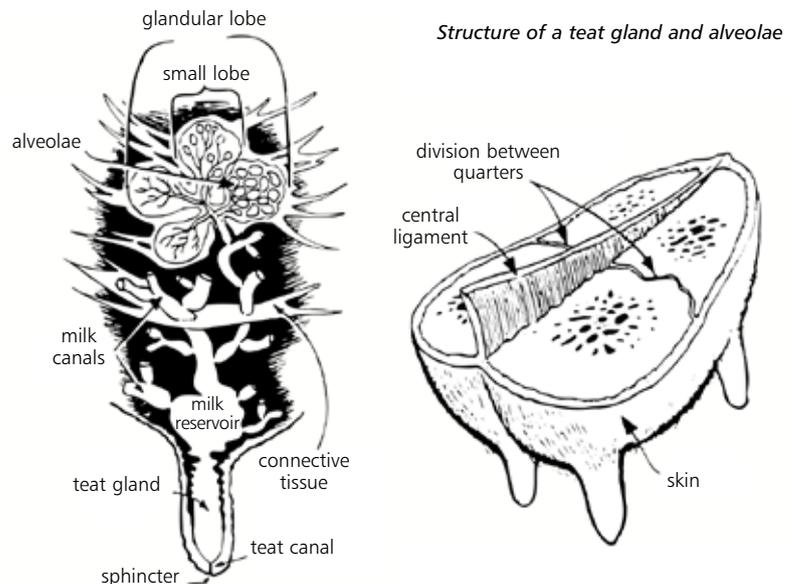
Milk lay-out is a risk for udder health. Laying out milk is closely related to the construction of the teat canal.

Animals with a wider and shorter teat canal will lay out milk more frequently. These often also are the animals with a higher (maximum) milking speed. The construction of the teat canal has a strong genetic influence. It is not advisable to use bulls that transmit high milking speed. A high milk pressure in the udder will increase the chances of laying out milk. Therefore long milking intervals should be prevented. Calcium also has an influence on laying out milk. Keep the calcium supply balanced.



## Milking gloves

Research from the UGCN has shown that the number of bacteria on milking gloves is lower than the number of bacteria on the hands of the milker. Gloves are also easier to clean than hands. Another advantage is that the skin of the hands remains in better condition. After a period of getting used to, most milkers are enthusiastic about the use of gloves. It is important to choose the correct size. Clean the gloves on a regular basis during milking and use a fresh pair of gloves for each milking.



## VEEPRO HOLLAND

Information centre for Dutch cattle

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