

## Vet Times Maximising Milking Routines

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Dairy herds are expanding cow numbers upwards, with continuing pressure on profitability, paperwork and shortages of farm labour. Increased bureaucracy means that some of the more common farming tasks are carried out as rapidly as possible to ensure that all farm chores can be completed.

The common problems that I encounter are cutting back on the milking routine, poor mastitis detection, no effective milking routine and not making the best use of the parlour.

We have seen many herd cell counts rising over the last four years. In addition, despite many advances in mastitis control measures, the incidence of clinical mastitis remains unchanged and at much higher levels than other countries.

Many farmers don't assess clinical mastitis levels or work out their mastitis rate (cases per 100 cows per year). The mastitis rate allows them to benchmark their herds against others and against the target of 30. Levels above this reduce profit, but farmer's perception of the cost of clinical mastitis varies from £30 up to £200. One of the challenges of mastitis advisory work is to balance workload to control the disease with efficacy and return on investment.

We have seen some farms pushing cows through the parlour as fast as possible and as a result the milking routine has been significantly compromised. These herds tend to have poor mastitis detection and high levels of clinical cases recurring, while teat preparation is poor (look at the milk socks in Figure 1) resulting in increased risk of environmental cases.

Many herds now have been unable to source local staff and are now relying on foreign milkers many of whom have a poor knowledge of English and many of whom are totally unskilled and may not have milked many cows before, and do not understand the requirements from a good milking routine. There is a real opportunity for milker schools.

Over the past year I have asked different groups of farmers questions, shown in Table 1, about mastitis detection. Answers show that there are many farmers who are treating cows, which do not have clinical mastitis, and are failing to treat some cows that do. It is very important that farmers clearly understand the definition of clinical mastitis and are treating the correct cows at the correct time.

Unnecessary treatment is costly and increases the risk of residue failures. Untreated clinical cases will increase bulk tank milk quality and will act as a reservoir of infection to other cows. As we are prescribing medicines to treat clinical cases, we need to ensure that farmers are making the correct diagnosis.

When I am carrying out a mastitis visit, one of the questions I always ask before I go into the milking parlour is how you detect clinical mastitis. This is often met by a period of silence while the herdsman is trying to work out what the true answer is. Many rely on a swollen quarter, cows coming in last to be milked or clots in the milk filter. This is far from satisfactory and many cases will be missed. Missed cases means that we get a more chronic infection require longer treatment to clear up. These quarters are more likely to repeat. There is plenty of work to show early treatment results in a more rapid reduction in cell count and a more rapid return to milk production.

The milking routine is fundamental to good control of mastitis, both clinical and sub-clinical. When advising dairy farmers many are reluctant to introduce changes as they see these adding time to milking. In effect there are some tasks that may be carried out which can have a small benefit in reducing the spread of infection, such as disinfecting clusters between milking every cow. If the time spent carrying out this task were substituted to foremilk this could have major benefits on not only mastitis control but also yield and speed of milking.

In an ideal situation farmers will have a standard milking routine. When you talk to herdsman about how they milk cows, you find out that most operate a variable routine and the relief milker or owner may have a totally different routine. For example, some milkers will prepare the cows in a line and then attach from the end of the line back to the first cow that they prepared, while at other times they may start attaching back at the first prepared cow. There is no real standardisation of routine.

We are encouraging our dairy clients to have a standard milking routine. Once farmers buy into this process, they can see the real advantages and are keen to ensure that it is followed. We suggest that the cows are prepped in batches of 6 – 8 at a time. In the winter the routine is to strip and pre-dip the whole way up the row of 6-8 cows. The milker then goes back to the first cow that is prepared. Teats are wiped dry with a piece of paper towel (one per cow) and the unit attached. This procedure is carried out the whole way up the batch of 6 – 8 cows. If the parlour has 12 or 16 units on each side then he will prepare in batches of 6 and 8 cows.

The majority of milkers don't like to strip cows out before milking because of extra time added to milking. Advantages of foremilk include excellent mastitis detection and all the added benefits such as improved milk let down, faster and more complete milkout which reduces unit on time and has a positive effect on milk yield. When these are then balanced against the time element and the hassle that is associated with clinical mastitis and dealing repeat cases, farmers are quite keen to change their routine.

Addressing this issues can save considerable time and improve mastitis control. One of our clients milks his cows through a 16 X 32 parlour (16 milking units and 32 cows standings). He milked with his wife, and their routine was to predip from the back to the front of the parlour. They then went back to the back of the parlour and dried the teats and attached the units. The time from the cow at the front of the parlour being predipped and unit attached was often 6 – 7 minutes.

We adopted the strip and predip followed by the wipe and attach routine in batches of 8 cows. The farmer was not keen, but his wife persuaded him that they were going to give it a go. The end result was that it took 20 minutes off milking, together with all the benefits of foremilk.

Earlier this year, we purchased a Lactocorder (Figure 2). This is a Swiss recording device that fits in between the milking cluster and the milk transfer line and measure the milk flow rate, yield and time of milking. This has provided a real eye opener in to how efficiently our farmers are milking their cows.

Figure 3 shows an instant flow of milk for a period of 30 seconds, the milk flow then decreased to virtually nothing, followed by a moderate milk flow. Interpretation of this graph is very important. The initial flow of milk comes from milk in the udder and teat cisterns; this milk is just sitting waiting to be removed. After about a minute the let down reflex hasn't been triggered and so there is no milk flow. Then the action of the machine on the cow causes a let down reflex which then results in the milk being removed from the cow.

When we assess any herd using the Lactocorder, we normally assess six to eight cows who are fairly good milkers milked through different units. Not only are we looking at flow characteristics but we also want to check for any evidence of overmilking. It is also a useful way to check ACR (Automatic Cluster Remover) settings.

In the ideal world there should be a delay of between one and two minutes from teat stimulation to attachment. This allows maximum oxytocin release so that when the milking unit is applied milk flows immediately from the udder. There are two forms of milk let down; conditioned and unconditioned. The conditioned let down occurs when the cow hears the sound of the vacuum pump, the pulsators in the parlour or the milker swearing!!

Unconditioned let down will occur from manual stimulation of teats. The aim of a good milking routine should be to maximise the level of unconditioned let down so that the total level of oxytocin increases. This results in higher milk flow rates from stimulated cows. Remember that milk let down does not extend much beyond 12 minutes.

Figure 4 shows a cow with excellent stimulation. This herd aims attaches units between one and three minutes after stimulation which involves twelve strips from the cow, three per teat. The difference between the graphs in Figures 3 and 4 is very significant and shows that if we can optimise the milk let down reflex we can reduce the unit on time, which has a positive effect on udder health, teat condition and parlour throughput. It takes between 4 – 6 seconds to strip cows out to get a good let down reflex and these cows generally milk out 25 seconds faster than those which are not stripped.

In large rotary parlours where you have two people prepping cows, the first person should be stripping and predipping and the second operator should be six to eight units away and wipe and attach to allow time for the let down reflex. Some rotaries have coloured mats to

designate the standing position for the two milkers involved in teat preparation, which is a very simple idea.

The Lactocorder can assess overmilking. A lot of ACRs have been installed and no one is too sure at what flow rate the unit is removed. In an ideal world, ACRs should cut in when the milk flow rate drops to 400ccs per minute. Taking the unit off at this rate has no adverse effect of yield, but decreases unit on time, maintains optimal teat condition and decreases the risk of clinical mastitis. We have found some herds where the ACRs are set at levels as low as 100cc's per minute.

There are other simple practical ways to speed up milking and make it more efficient. We encourage separating cows that require treatment or milk to be discarded. If they are kept as a separate group they come in last, if the whole herd runs as one group they are separated out during milking and brought in at the end where they are dealt with individually.

After initial resentment, farmers now like this because then they can carry out their treatments without any pressure of milking. It ensures that teats can be correctly disinfected before tubes are administered, cross contamination risks are minimised as the rest of the herd has already been milked, and the pipe can be taken out of the bulk tank to ensure there is no residue risk into the bulk supply.

The majority of our herds have now adjusted ACR flow rates so that units come off at 400 ccs per minute. More and more farmers are now foremilking and predipping and are seeing improvements in milking time, a reduction in clinical mastitis, and lower Bactoscan from cleaner teats and lower cell counts.

All farmers are looking for a new miracle cure to deal with mastitis and cell count problems. In the majority of cases simple measures can have profound effects. Farms who cut corners in the parlour or have poor mastitis detection will continue to have problems. It pays dividends to ensure that plants are correctly maintained and operating to maximum efficiency. There now seems to be a big return to foremilking and more attention to detail from farmers who want to get on top of clinical mastitis and cell count problems. All of the above present great opportunities for vets and farmers.