

Animal Health & Milk Quality

Edition 1

Spring Management Series 2023



Farmer Focus



William and Alan Nicholson
Tomacrow, Drumacrib, Castleblayney,
Co. Monaghan

Farm Profile

Farm Size: 67 Ha

Cow Nos.: 120

Calving start date: 7th February



William and Alan farm in partnership together in Castleblayney, Co. Monaghan. The father and son team put a huge emphasis on animal health to produce the highest quality of milk. The duo was rewarded for their hard work in 2022 by becoming the Lakeland Dairies Supreme Milk Quality Champions. They also received an NDC milk quality nomination of which there are just 13 in Ireland.

Managing a freshly calved cow

When a cow calves on Alan's farm, she licks the calf clean and is then milked as soon as possible to obtain the correct colostrum for feeding to the new-born calf. When the cow is in the parlour for first milking Alan will:

1. Feed a low level of nuts to the cow to get some feed into her stomach to fill the space left from the freshly born calf. The calcium in the nut is also of benefit to the fresh cow.
2. The cow's teats will be wiped clean.
3. The cow will be stripped out to remove any sealer from her quarters with Alan monitoring the milk which has been stripped out.
4. Cups will then be attached to the cow and the milk will be dumped into a clean bucket.
5. Teats will be sprayed well with teat dip.
6. The cow is then marked well with red paint.
7. The cow will then return to the calving shed where Alan always has a fresh straw bed until morning/evening milking comes around. This is to ensure that Alan can keep a close eye on the freshly calved animal.

Once milking time comes around, if Alan is happy with how the fresh cow is progressing, she will be entered into the main herd.



Farmer Focus (Continued)

Alan will continue to pre strip the fresh cow for 7 days post calving to ensure there's no build-up of infection in any of her quarters, with every cow in the herd being wiped clean prior to cluster attachment. The milk will continue to be dumped until the withdrawal period has passed depending on antibiotic used. For cows which have received sealer only, the withdrawal will be less.

The Calf

The calf will be removed from the calving pen after it has been licked clean by the mother. Each calf will receive 3 litres of its mother's colostrum within 2 hours of being born. The calf will continue to receive its mother's milk for about 2-3 days post birth. Alan then has a pool of dumped milk which he will feed to the calves once on a batch feeder.

Any calves which will be sold off farm will continue to receive whole milk until sale. Replacements that Alan will be keeping on farm will be transitioned onto milk replacer. This is to ensure consistency in the diet of Alan's replacement calves.

Batching Cows

Two weeks into calving season, Alan will then begin to run a fresh cow group separate to the main herd once numbers have built up. The freshly calved cows will be kept in an inside group and milked separately from the main herd until their milk can go to the bulk tank. Once each cow's milk can enter the bulk tank Alan will then let the cow into the main herd where she will receive some grass in the diet.

There is a massive emphasis on hygiene on Alan's farm. Cubicles are swept and limed twice daily. Passages are also always kept clean with a robotic scraper. This is a big part of Alan's success when it comes to milk quality as the cow and cow bed are always spotless, so bacteria cannot build up and cause infection.

Milk Recording

Alan views milk recording as one of the most important jobs he does throughout the year. "I milk record as it's vital to manage my SCC. It's a great way of identifying and treating high SCC cows in the Spring". Alan's use of his milk recording results is a huge factor in keeping his bulk tanks cell count so low year on year.

Alan will book his first recording of the year for early to mid-March. Once the results have been sent back, he'll pick any cow that he deems to be high and CMT that cow. Alan will continue to do this several days post results to make sure there is no infection present. If there is evidence of infection that cow will then be treated and monitored. "Each cow usually gets about 2-3 chances to clear and if the cell count doesn't reduce, I will then close off the infected quarter." If the infection spreads into some of the other quarters, the cow is culled.





Milk Recording, SCC & Mastitis control

Elevated SCC is a hidden cost on dairy farms. Unless a clinical case of mastitis is seen and treated, raised SCC levels are rarely acted upon but high SCC levels are costly with regards to lost milk production and the knock-on effect on herd fertility. The table below shows the potential losses from elevated SCC in the average Lakeland (80 cow) herd, using a milk price of 32c/l.

Litres lost per cow per year (SCC)

Herd SCC ('000s)	Milk/cow (litres)	€ loss
100-200	174	4,454
200-300	308	7,885
300-400	367	9,395
400+	422	10,803

The table illustrates losses in milk yield only (due to a level of infection within the udder) and does not consider discarded milk or treatment of mastitis cases.

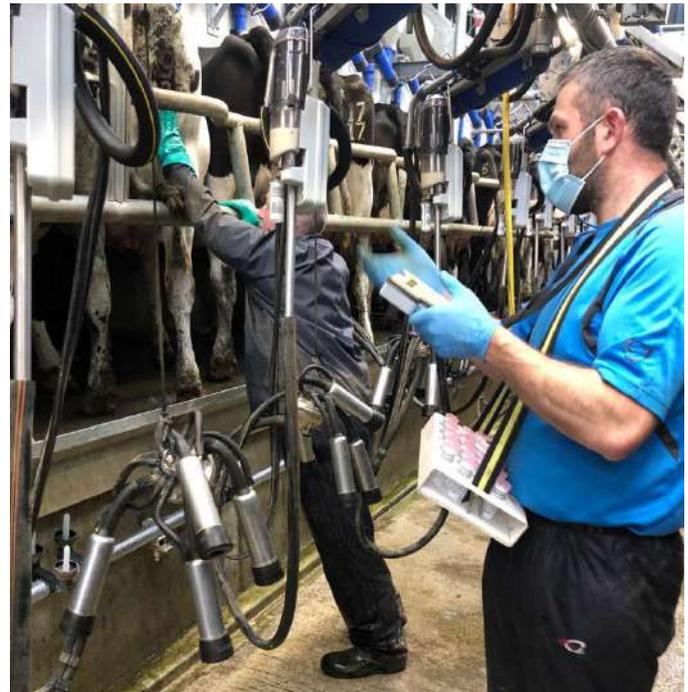
Teagasc research shows that mastitis costs Irish farmers €60/cow/year. This figure comes from sub-clinical costs – such as milk quality penalties and the loss of milk production – and clinical costs. Clinical costs would include antibiotics, discarded milk, labour, veterinary and culling.

Getting SCC under control should be a priority on every farm and the first step in this process is milk recording.

Mastitis – what is it?

Mastitis is one of the most important health and welfare issues affecting dairy cows. It is an infection that causes inflammation of a cow's udder which can be caused by bacteria or by injury. Mastitis can either be clinical or sub-clinical.

	Clinical	Sub-clinical
Clotting	✓	✗
Discolouration	✓	✗
Reddening	✓	✗
Heat	✓	✗
Pain	✓	✗
Swelling	✓	✗
Hardening	✓	✗
Reduced production	✓	✓
Decreased milk quality	✓	✓
Decreased cow fertility	✓	✓



Clinical mastitis is easily detected as the cow will display outwards signs of an infection. Sub-clinical mastitis is much harder to detect, An elevated bulk SCC test will be the first sign of a sub-clinical infection in the herd.

Managing cows when they calve

1 Is the cow clear to enter the bulk tank

When cows calve, they should be kept out of the bulk tank for 5 days, ideally keep these cows in a separate group to help avoid mistakes.

Before these cows enter the bulk tank a paddle test or California Milk Test should be completed to make sure the cow is clear of mastitis. This is the first step in ensuring your SCC maintains low.

2 Find the infected quarter - The California Mastitis Test (CMT) is a simple procedure to help identify high SCC quarters within high cell count cows. It is impossible to identify sub clinical mastitis on-farm without this aid. Once milk recording has identified the problem cow(s) the next step is to identify the problem quarter(s).

The California Mastitis Test Kit is an excellent tool to help identify high SCC quarters within high cell count cows. The procedure is very simple, you should carry out the test prior to milking.

- ▶ Discard the first 3 draws from each teat and then fill each well with a quantity of milk, try to avoid cross contamination.
- ▶ Once all 4 wells have a quantity of milk, tilt the tray to a 45-degree angle, this will ensure there is an equal volume of milk in all 4 wells. Turn the tray back flat and squeeze the bottle until an equal quantity of reagent is applied to all four wells. There should be approx. 50:50 mix of milk and reagent.
- ▶ Stir the tray for 30 seconds and watch for any changes to the consistency of the solution. The degree of thickness reflects how high the SCC level is within the quarter and thus identifies the quarter(s) that have an infection.

It is recommended that you take a sample of milk into a sample bottle, label this and wait until the end of milking before testing, when there is more time to analyse and record the results.



Image shows the CMT Paddle and how it is used, with compartment D showing the highest level of infection but also an issue in compartment C.

3 Identify the pathogen causing the sub-clinical mastitis

The next step is to send a sample from the infected quarter to a laboratory to identify the pathogen that is causing the elevated SCC. This is extremely important with regards to ongoing issues with antimicrobial resistance in animals. A sensitivity test will identify the offending pathogen and also identify the correct antibiotic to use in the treatment of this sub-clinical mastitis.

4 Treatment

Once sensitivity results are received back from the laboratory a course of treatment can be discussed with your veterinary practitioner.

5 Preventing spread

Mastitis and some mastitis causing pathogens can be highly contagious and can easily spread causing huge financial loss to your farm through discarded milk, veterinary treatments and underperforming cows. Mastitis causing pathogens can spread in a variety of ways - from cow to cow in the parlour (through clusters) or on cubicles and from cow to cow via person milking. Therefore, hygiene in the milking parlour and in cow housing is critical in managing SCC.

6 Book your milk recording

Why milk record?

- 1 "You can't manage what you don't measure".
- 2 Regular milk recording provides better information than ad hoc, individual cow testing, and doing it regularly gives you more 'bang for your buck'.
- 3 It allows you to react quickly to cows that have elevated SCC. These may have no visible signs of infection.
- 4 It leads to better informed breeding decisions by identifying the high performing animals in your herd.



When to record?

With the CellCheck Farm Summary Report, milk recording cows within 60 days of calving will measure the effectiveness of your dry cow treatment. This is critical for any farmer who was battling high SCC last year and who undertook a programme of targeted dry cow therapy this past winter. It will also highlight if new infections during the dry period have occurred.

For spring calving herds this would mean that milk recording should be carried out in the mid-March to early April period.

Leaving it later than this means your earlier calved cows will be further than 60 days into lactation.

Early lactation mastitis is a high risk. Early milk recording will give you an indication of any cows that need prompt attention.

Heifers: recent research has highlighted that high SCC in heifers may be more prevalent than you think. Early milk recording will identify any of these that need careful attention. It will also identify high performing heifers immediately.

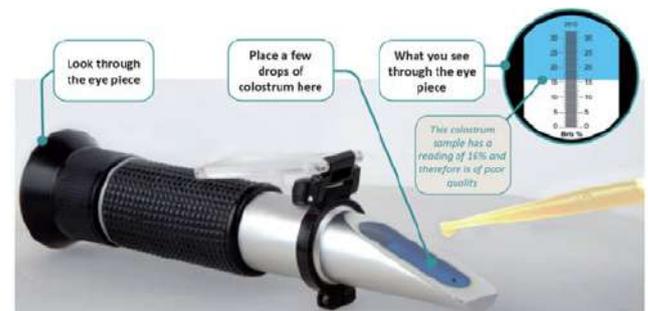
Managing the new-born calf

The first hour after birth is the most critical period in the calf's life. During this period the calf should:

- 1 **Be removed from the cow** – the calf should be removed immediately after being licked and placed in a clean, dry, freshly bedded area. As a general rule of thumb, if you kneel down in the calf pens and your knees get wet you are using insufficient bedding.
- 2 **Have its navel dipped**
- 3 **Be fed colostrum**

Can colostrum quality be measured?

Yes, colostrum quality can be indirectly measured by using a Brix Refractometer (with a 0-30% scale, see example below) – a reading of 22% or more indicates high quality colostrum (i.e. >50g/l Immunoglobulin concentration).



Colostrum 1, 2, 3 for Calves



1

Use colostrum from first milking for the first feed.

2

Give colostrum as soon as possible after birth but always within two hours. This will maximise absorption of immunoglobulins, ensuring the calf gets their all-important antibodies. The concentration of immunoglobulins in milk decreases by 3.7% for every hour that passes after calving.

(It is always a good idea to have a stock of high-quality frozen colostrum in case of milk let-down issues with the cow, or in the case of low-quality colostrum being produced).

3

Feed at least 3 litres (*bigger calves will need 4 litres*) this will ensure the calf gets an adequate supply of energy, protein and antibodies. Leaving the calf with the cow in the hope that it will suckle is an extremely unreliable method of ensuring adequate colostrum intake, with it being unsuccessful in more than 50% of cases. You cannot know how much colostrum the calf has consumed if left to suckle.



Joint Development Programme

Lakeland Dairies/Teagasc Joint Development Programme has produced this Spring Management Series. Our advisors are currently available by phone to discuss all farm related matters.

▶ Susan Casey 087 099 5359 ▶ Owen McPartland 087 330 2254 ▶ Michael Monahan 087 188 3803