

dairying

Milk recording: an essential tool for improving profitability

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As milk price comes under downward pressure, dairy farmers are focusing on reducing costs. Milk recording is one practice that has needs to remain, as it increases profitability. A change in the regulations around antibiotic use means that from 28 January 2022, dairy farmers will no longer be permitted to use dry cow tubes on all cows in a herd at the end of lactation, unless they have evidence that they require them.

Milk recording will provide farmers with the evidence needed to show that antibiotics are required. Another advantage of milk recording is that it will show the actual number of cows to be treated and the success of the previous year's dry cow treatment. If you have never recorded before, now is the time to start.

If your new infection rate is high with the use of blanket dry cow, this could indicate poor technique or housing. Milk recording will highlight this weakness and allow you to address it before it becomes compulsory.

You need data to make the correct decisions. Regular milk recording will allow you to build up a picture of the infection levels in your herd.

There are only two more dry-off seasons before the new regulations come into place.

If you have to provide evidence of your need to use dry cow tubes, you will need to build up a picture of the pattern of mastitis in your herd. To do this correctly, a minimum of five or six milk recordings are needed. An example timeline to start milk recording a dairy herd is presented in Figure 4.

We normally see a rise in SCC after the herd passes peak milk production. This is mostly due to an infection of a bacterium called *Staphylococcus aureus*. It's a contagious bacterium that often passes unnoticed, as 'sub-clinically' infected cows don't show any signs of mastitis like clots in the milk or a hard quarter. Despite this, an infected cow can pass on the infection to as many as eight other cows over the course of the lactation.

Even in a low SCC herd, the number of infected cows can slowly increase over the summer – and with it the bulk milk SCC levels (see Figure 1). In a higher SCC herd, bulk milk SCC can fluctuate wildly from month to month as the farmer struggles to maintain SCC within the limits set by the milk processor.

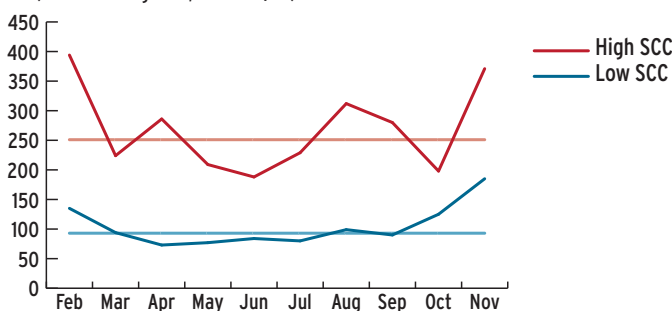
In these cases, the farmer will practice strategies such as withholding milk from problem cows for feeding to calves, treating high SCC cows and drying off or culling cows with a high SCC.

What usually happens is that a cow with a sub-clinical infection is dried off with dry cow antibiotics at the end of the previous lactation. She calves down and appears 'cured' because her milk is apparently normal looking.

Infected cows typically have an abscess in the infected quarter, which occasionally ruptures, spilling bacteria into the tissue of the quarter. At drying off, the long-acting antibiotics kill off the bacteria in any of the infected tissue, but the abscess protects the bacteria inside from the antibiotic and they lie dormant there until the following lactation.

For the first couple of months after calving, the cow appears cured, until the abscess ruptures again causing a new episode of infection. While she has clinical symptoms of infection, the cow is very contagious and can infect other cows, as the liners are contaminated by bacteria which pass from an infected cow to an uninfected one.

Figure 1: Monthly bulk milk SCC levels in a low SCC herd (annual average 93,000 cells/ml) and a high SCC herd (annual average 251,000 cells/ml).



Identifying problem cows

One of the most important reasons to milk record is to help identify high SCC cows. When a milk recording has been carried out, the Mastitis Incidence Problem – Cow Report highlights the cows that are the greatest contributors to the bulk tank milk SCC (see Figure 2).

The report in Figure 2 shows that cow no. 1831 had the highest SCC in the October milk recording. Her SCC was 5.35m cells/ml in the test. It was

Teagasc dairy advisor Lorcan Dooley with Laois farmer Martin Davin



her second time testing over 200,000 in the current lactation.

Having been a low SCC cow in her previous lactation, she had a SCC of 1.867m cell/ml, followed by two recordings in June and August when she had a low SCC.

She is a typical sub-clinically infected cow. The farmer recorded

Figure 2: October 2019 mastitis incidence problem cow report for the low SCC herd.

Mastitis Incidence Problem - Cow Report												
PROGRESSIVE GENETICS KYLEMORE ROAD BLUEBELL DUBLIN Tel: 014502142					Herd owner: [REDACTED] Herd No: [REDACTED] Scheme: A6 Print date: 23/10/19 Test date: 18/10/19 Page: 1(8)							
Cow ID	I&R-Tag	Calv. Date	Lact. Days	Tests >200	Latest SCC % Herd SCC	Mastitis Incidence History (Current Lactation)					Prev. lact. Ave. SCC Tests > 200 Mast Treats	
						Previous SCC (*1000) herd tests	18-oct	19-aug	24-jun	30-mar		26-oct
Cow name	Age	Group	Test	Mast Treats	Last treat	Previous mastitis treatments						
1831	[REDACTED]	14/02/19	6	2	5350	60	22	1867				85
	[REDACTED]	7y 9m	246		14.4							0
DVT	[REDACTED]	Spring	4	2	14-apr	08-apr						1
2093	[REDACTED]	26/02/19	5	3	2396	1033	8	349				994
	[REDACTED]	6y 9m	234		6.2							4
	[REDACTED]	Spring	4	2	07-mar	28-feb						4
2803	[REDACTED]	03/02/19	2	1	872	144	34	28				46
	[REDACTED]	3y 8m	257		2							0
F262	[REDACTED]	Spring	4									2
2611	[REDACTED]	01/02/19	2	4	372	642	793	417				259
	[REDACTED]	3y 8m	269		1.4							2
FR2012	[REDACTED]	Spring	4	1	08-mar							0
2225	[REDACTED]	19/02/19	4	2	334	270	13	38				208
	[REDACTED]	5y 9m	241		1.3							3
DVT	[REDACTED]	Spring	4									0

a mastitis treatment on 14 April to cure her infection. She accounted for 14.4% of the total bulk milk SCC in the October milk recording. The first five cows (2% of the 260 cows recorded) accounted for over 25% of the herd's SCC. In other words, a small number of cows can be responsible for a big proportion of herd SCC.

Monitoring mastitis control over the dry period

A second really important role of

milk recording is its value in monitoring mastitis control over the dry period. Recording cows close to the start of their lactation (within around 60 days of calving) allows you to monitor how successful you were at curing existing infections and preventing new infections from occurring during the dry period. The March 2020 CellCheck Farm Summary report for the low SCC herd is

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presented in Figure 3.

The new infection rate for cows and heifers on the farm across the dry period are 7% and 10% respectively, indicating that the farmer was successful in preventing the cows and in-calf heifers from becoming infected during the dry period. The relevant targets are <10% and <15% for cows and in-calf heifers respectively. Secondly, as 89% of the cows that had a high SCC (>200,000 SCC/ml) in the previous lactation had a low SCC in this first milk recording, the farmer used a dry cow tube that was effective in his herd.

For spring-calving herds looking to start milk recording this summer, four recordings, the first taken in late July, will provide a baseline profile of the high-SCC cows and spread of mastitis within the herd from mid-summer onwards. The last two recordings should take place one month apart in late October and late November for a herd that will be fully dry before Christmas.

Next spring, the first milk recording should take place within 60 days of the first calving and a second recording approximately 60 days later will catch the later-calving cows, so that you can monitor winter cure and infection rates.

Figure 3: The dry period/calving section of the CellCheck Farm Summary report (March 2020) for the low SCC herd.

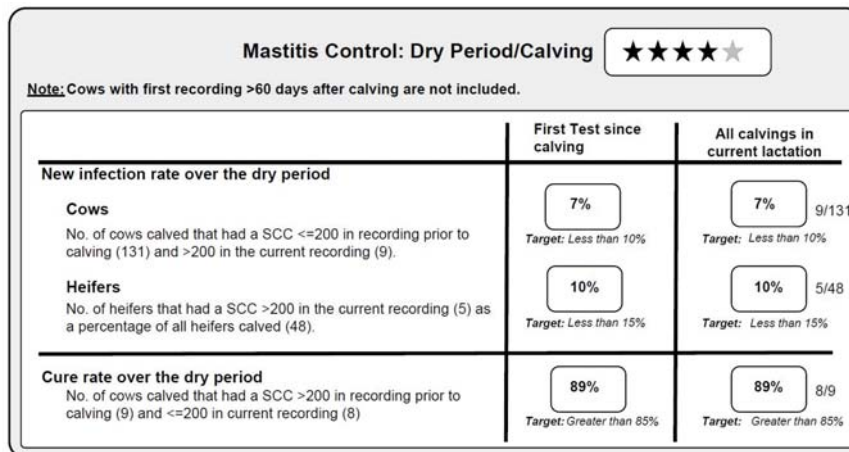
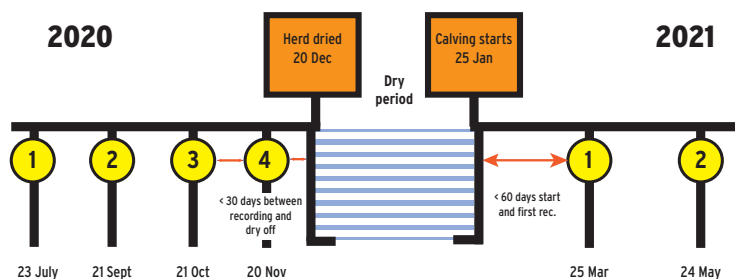


Figure 4: Suggested milk recording schedule for a dairy herd milk recording for the first time this season.



Summary

- Milk recording is a vital tool to identify cows with high SCC and prevent bulk tank SCC from rising from mid-summer.

- Milk recording is essential in monitoring infections acquired during the dry period and the success of dry cow treatments administered at the end of lactation.

- New regulations being implemented from 2022 will restrict the blanket use of dry cow antibiotics: milk recording can provide the evidence needed to justify their use.

Q&A

For a herd that hasn't milk recorded before, is it too late to start now for this year?

For any herd, the best time to start milk recording is close to the start of lactation. For a herd that hasn't ever milk recorded, the second-best time to start is now. The reason for this is that all milk recordings will build a profile of mastitis spread and control.

Can I start milk recording with the COVID-19 restrictions in place?

Yes. It is never too late to start milk recording. With the present COVID-19 restrictions, a DIY milk recording service is available. Meters will be dropped to your farm with a hand held recorder and sample bottles. Samples are taken at pm milking only and cows' ID are recorded during am

and pm milking. A second person is required for milking, to make it easier.

When setting up, turn off cluster flush system while milk recording and turn automatic cluster removers to manual. One person should be milking while the other person is working the hand held and applying the sample bottles.

If help is available within your family, it should really be considered. MunsterBovine.ie has a video on their website highlighting how it works and troubleshooting issues that may arise.

Allow plenty time for the first milk recording and get your routine sorted. Clean down meters and remove them from your parlour. Place them in an area where the technician

can collect them cleanly and observe social distancing.

Who should I contact to start milk recording?

To start milk recording, ring one of the following numbers:

Progressive Genetics	046 954 0606
Munster AI	022 432 28
Tipperary Co-op	062 331 11

Where can I learn more?

Episode 120 of Teagasc's Dairy Edge podcast featured an interview with Don Crowley, who discussed the mid-lactation mastitis challenge. The full interview can be accessed on the Teagasc public website at <https://www.teagasc.ie/animals/dairy/the-dairy-edge-podcast/>.

Milk recording to identify cows for culling

Milk yield alone is not a reliable measure to use when selecting cows for culling from a dairy herd. The culling tool, Cows Own Worth (COW), is a much more reliable means of identifying suitable cows for culling.

This is because it incorporates not just milk yield, but a number of other factors including the cow parity, SCC and EBI, to develop a more balanced measure of suitable cows.

In Table 1, we compare the results after selecting the bottom 10% of mature cows (from among 71 cows in their third or greater lactation) for culling based on either their milk yield or COW value from a 100-strong spring-calving herd from south Kilkenny.

The data in Table 1 shows that compared to the mature cow average, the cows with the lowest milk yield are predicted to produce 73kg less milk



solids than the mature cow average.

However, compared to the cows selected on COW, they are younger, higher-EBI, earlier calving and have a lower somatic cell count.

In other words, the COW identified

the 10% of the mature cows that in their current and future lifetime are likely to be less profitable for the herd owner. You can only generate the COW if you are milk recording your herd.

Table 1: Selection of bottom 10% of mature cows for culling from a herd selected either on lowest milk yield or lowest COW.

	MS yield (kg/cow)	Lactation number	EBI	Calving date 2020	SCC (000 cells/ml)	COW
Herd average	592	4.7	€165	11th Feb	87	€1,373
Bottom 10% ranked by milk solids yield	519	4.9	€149	18 Feb	82	€1,028
Bottom 10% ranked by COW	547	5.9	€125	4th March	166	€596

>> Selective dry cow therapy case study – Martin Davin, Rathdowney, Co Laois

Martin farms 68ha including 4ha of rented land. He milked 76 cows in 2014, but now milks 120. Long-term, he sees 130 cows as the optimum number for his spring-calving herd on a milking platform of 38 ha. Milk solids sold was 549kg per cow in 2019.

There is a big emphasis on milk quality on the farm. Martin works with his milk processor's vet on herd health planning and vaccination programmes and uses an online facility which sends text reminders to him in advance of vaccinations.

Prior to 2017, cows on Martin's farm were blanket dried off using antibiotics and teat sealant. Figure 5 shows the bulk milk SCC levels on the farm since 2011.

"Before 2017, all cows got dry cow antibiotics at drying off," says Martin. The data in Figure 5 show that bulk milk

SCC levels have been maintained at a low level for the past nine years.

"We started reducing our use of dry cow tubes four years ago. In the first two years, we were very careful about the cows we chose to try it on. For the last two years, roughly half of the herd was dried off without antibiotics. We don't have a number in mind. The decision is based on the milk recording results and cows with a SCC under 100,000 are picked out to get a teat sealant only.

"You've got to be a lot more careful when drying off without antibiotics. It's like surgery. Before we start, we'll have clipped tails and trimmed udders a couple of days in advance. We do a maximum of two rows a day (24 cows).

"You need plenty of help. We use surgical spirits to thoroughly clean the udder, someone to restrain the cow, one

Figure 5: Annual bulk milk SCC (000 cells/ml) on Martin's farm for the 2011-2019 period



person with clean gloves administering the teat sealant and another to record and pass the tubes to me.

"It can take us up to two hours to dry off 24 cows. At the start of the drying off season, we put freshly dried off cows in a paddock away from the parlour. Later on, the cows are dried off and go directly into the cubicle shed. The beds are limed twice a day for a week until cows are fully dried."