

HERD WITH CLINICAL MASTITIS PROBLEM

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This case report describes a referral visit where the views of the farmer and his vet were poles apart. The farmer had grossly underestimated the scale and extent of his mastitis problem. His vet was well aware of what the issues were and had been trying for several years to persuade his client to acknowledge the problem. Unless a farmer is willing to co-operate then little progress can be made.

The farmers concern

A 230 cow Holstein herd with an average yield of 8,000 litres calving from July to the end of October. The farmer had not been that concerned about mastitis as his cell count had been under 150,000 up to about a year ago. It was now on the point of exceeding 250,000 and he was concerned about losing 0.3 ppl. The real trigger for the visit was his concern about teat damage and the influence of the milking machine on mastitis.

His vet's concern

The vet had been concerned about clinical mastitis levels for many years. All the recommended measures were half hearted, and as this is a tenant farm, there was a reluctance for capital expenditure. The farmer was unwilling to release NMR or clinical mastitis data.

Data requested prior to the referral visit

Prior to any visit, data is required to assess what the problems may be present. Data is not conclusive but is helpful in identifying some problem areas. Clinical Mastitis records were requested but were not made available.

In the last year the farm had purchased 2,624 milking cow tubes. An average of ten milking cow tubes were used per clinical case, this is equivalent 262 clinical cases or a mastitis rate of 114 cases per one hundred cows per year.

There is no reason why any farm shouldn't be able to have a clinical mastitis incidence of 40 cases/100 cows/year. This would result in a saving of 170 clinical cases over a twelve month period on this farm. The farmer estimated that each clinical case cost £100 and so the potential saving over a twelve month period is £17,000. This cost is conservative, as ten milking cow tubes used per case means that the cost of milk discard alone is in the order of 12 days. I estimated the cost of each case at £156 and so the potential saving is £26,520.

At present the herd is not being penalised for a high cell count, but it is getting close to the penalty limit and care had to be taken to ensure that these were not triggered.

NMR data showed that the herd cell count had increased from under 100,000 four years ago to levels well over 200,000. Older cows tended to have the highest cell counts, but some heifers also had high readings.

Bulk Tank Analysis

A bulk sample was analysed prior to the visit

Test	SCC	TBC	LPC	Coli Count	Strep uberis Count	Total Staph Count	S. aureus Count	Pseudomonas Count
Tank 1	280	2,000	70	15	250	470	176	1590
Target	< 150	< 5,000	< 175	< 20	< 200	< 200	< 50	< 500

The bulk cell count for this sample was 280 which indicates subclinical mastitis. The TBC is a measure of all the bacteria in milk and the count of 2,000 is low.

The Coliform Count is a measure of the level of environmental contamination of milk. The count of 15 was acceptable but as the cows were at grass, teats should have been clean. A high Pseudomonas Count of 1,590 was recorded.

The LPC measures the number of thermophilic bacteria. The wash routine appears acceptable. The Strep uberis Count suggests a problem with this type of mastitis in the herd. This count is marginally raised but sampling was in June when cows were out to grass and risk of Strep uberis is low. The high Total Staph and/or Staph aureus Count indicates a problem with this bug in the herd, and may be an early warning indicator of problems to come.

The farm visit

A thorough farm investigation was carried out to identify the cause and come up with practical recommendations to deal with the issues.

Records/Assessment of clinical mastitis. The herdsman reported that clinical cases are predominantly a problem during the housed period. If there is a wet spell and the cubicles get damp, the incidence of mastitis increases further. All of this indicates that the clinical mastitis is environmental in origin. Four samples from clinical cases were collected in April 2004 and the bacteriology results show Strep. uberis or E. coli.

Six high cell count cows were sampled at the same time and showed Strep. uberis, CNS but no Staph. aureus. The bulk tank sample collected prior to my visit showed increased levels of Staph. aureus and Strep. uberis.

Milking routine; Teat preparation was very good with cows being predipped all year round, but no foremilk was carried out. Clinical mastitis was only detected by the obvious swollen quarter or looking at the milk filter. The Coliform Count of 15 was recorded on a day when predipping was not being carried out by the relief milker.

Milking machine; The milking machine had excellent vacuum stability at the teat end. Hyperkeratosis had been a problem earlier in the year but the machine dealer had made alterations and any damage had reversed. I used our Lactacorder to check milk flow rates throughout and at the end of milking when units were removed. The plant was set to remove units when the flow rate fell below 400 ccs/minute, but the average rate from eight readings was 250 ccs/minute. The regulator leaked air intermittently but it was very dirty and this had to be resolved as a matter of priority. The massage phase of pulsation was under 200 milliseconds and this would be considered to be very short.

Dry cow therapy; Dry cow therapy was used on all cows and batch drying off occurred on Fridays. Cows were put on a straw diet and milked once a day from Monday until dried off five days later. The combination use of dry cow therapy and Orbeseal had been recommended by his vet and has been adopted.

Treatment of mastitis; Treatment of clinical mastitis has been a real headache. The herdsman said that clinical cases were random but most occurred within the first 100 days of calving. There were no significant problems with coliform mastitis post calving. Response to treatment was very poor and the standard regime was ten intramammary tubes, twice daily for five days. In some cases cows were given even more.

Environment; At the time of my visit cows were at grass the housing was examined despite the limitations of seeing this in the summer months. The milking herd is housed in cow kennels, which are small and uncomfortable. The bed base was packed lime which is topped up weekly. The result was a hard undulating surface which sloped to the front of the cubicle and holds liquids. This was evident when looking at a group of heifers which had just been milked and had access to the beds before going out to grass. The leaky roof above the beds did not help with water pouring directly onto the bedded surface.

This means that in winter if any liquids enter the cubicle, such as from the leaky roof, these then become a source of contamination and this pooling often occurs right at the level of the udder and teats, which increases the risk of mastitis.

Calving pens; The calving pens were far from ideal and not cleaned out regularly. Too many cows were held in these pens during the calving period. Bedding was infrequent and all of these increasing the risk of Strep uberis mastitis.

Herd problem

The predominant problem was environmental mastitis resulting in clinical mastitis rates of welfare proportions. A rising cell count problem was most likely due to Strep uberis from the calving pens and also Staph aureus. Further bacteriology on high cell count cows was required to clarify this.

Recommendations

Environment

This was the main focus for attention. There are 5% more cubicles than cows so animals have a choice of where to lie down. However, the cubicles are small, have a hard compacted lime base which is very uneven and uncomfortable and scantily bedded.

The very hard surface is likely to increase lameness as animals will be reluctant to lie down. These cubicles are animal unfriendly and really need to be improved. This will increase lying time and acceptance, which in turn will have a positive affect on lameness, cow comfort and yield.

Cubicle dimensions are far from ideal as in some cubicles the brisket board is too far back in the cubicle which means that cows overhang the edge of the cubicle. In the heifer cubicles, some of them have pushed forward telegraph poles, which are the brisket boards, resulting in heifers lying too far forwards. There are many heifers also that are lying crossway across the cubicles and are contaminating the beds when they pass dung.

There is an open ridge above the passageway between two rows of cubicles. The sides of the cubicle house are solid and so ventilation is restricted. I recommended that they dig out the lime in all the cubicles and replace this with washed sand as bedding. There is hardcore underneath the lime and this will facilitate excellent drainage. You can easily have a sand cubicle with 8 to 9 inches depth. The cost of this change will be very small. A bobcat can dig these out easily.

The roofs of the shed above the cubicles must be repaired or replaced so that no water leaks onto the cubicle beds. Open up as much of the front of the cubicle as possible to improve ventilation and to increase lunging space so that cows find it easier to get up.

A brisket board 5'7" to 5'8" from the rear lip of the cubicle will help to ensure that cows lie correctly in the cubicles and when they pass dung it ends up in the passageway and not in the cubicle. The rear lips of cubicles must be scraped twice daily when the cows have been taken out for milking to ensure that there is no contamination at the back of the bed. Animals should not have access to cubicles during the summer months.

Straw calving yards need to be cleaned out every two to three weeks to avoid a large build up of environmental organisms. I recommend that the calving pens are bedded up twice daily with clean dry straw. Avoid overstocking the calving pens as this will increase the risk of Strep uberis mastitis.

Milking routine

Cows should be stripped before milking. This has two major advantages, it allows early identification and treatment of mastitis and stimulates the udder which promotes rapid milk-out and has a positive effect on yield. Early identification and treatment of mastitis will result in a more rapid response to therapy, while reducing the risk of infection spreading to the remainder of the herd.

After cows exit from the parlour, they should remain standing for 30 minutes to allow the teat-end to seal over. This will help reduce the risk of environmental mastitis. Cows that lie down after milking with open teat ends on dirty beds will have a much higher risk of mastitis. Trim long tails and singe hairy udders to keep cows cleaner.

Treatment of Mastitis Cows

Foremilking is essential for early detection and will pay great dividends in improving the cure rates for clinical mastitis. Poor detection is resulting in the poor cure rates and high number of reoccurrences.

Collect and freeze pre-treatment milk samples from the next 10 cases of mastitis to fully establish to cause of clinical mastitis to see why treatment is such a problem. Ideally, all clinical cases should be sampled and frozen and then specific samples can be pulled from the freezer and tested. This is really helpful in herds with recurrence problems.

Recurrent cases of mastitis should be treated with a different intramammary tube from the initial treatment. All cases of mastitis must be recorded with the following information; Date, Cow number, Quarter/s infected, Treatment given, Any bacteriology results. This will allow the recurrence rates to be recorded.

Dry Cow Therapy

Cows should be dried off according to the expected calving date or if the yield is below 8 litres per day.

Cows should not be milked once daily before drying off. By all means put the cows on a restricted diet prior to dry off, but continue to milk twice daily.

Continue with combination dry cow therapy and Orbeseal as clinical mastitis records are patchy, the herd cell count is rising and there is doubt about whether the farmer would select the correct cows for Orbeseal treatment alone ~ if any cows met the criteria for this selection.

Culling

Cows that have had five or more cases of mastitis in the same lactation, or three or more cases in the same quarter should be considered for culling. Records here are the real problem. I am unaware if they exist.

Summary

All the recommendations were discussed with the farmer, his herdsman and his vet and all fully understood the extent of the problem, the cause and what steps needed to be taken to resolve the issues. The cubicles are being dug out and replaced with sand. The roof is being repaired and further modifications to the housing decided. Problems with the machine have been resolved and the referring vet now gets all the cell count data and mastitis records. Quite a change in approach which should result in major benefits.