



## Data capture and analysis of somatic cell counts and clinical mastitis in CAFRE Herd, Greenmount

### Milk Recording

Cows are milk recorded on a monthly basis. This information is then used, along with clinical mastitis cases to track changes in infection levels in the herd. Parameters analysed include: the percentage of cows going from low to high from last recording, (SCC under 200 to over 200 '000, target <5%), (figure 1), the percentage of cows that are over 200 at each recording, (target <20%), (figure 2) and the percentage of cows that are chronic; over 200 for last 3 or more recordings, (target <5%), (figure 3).

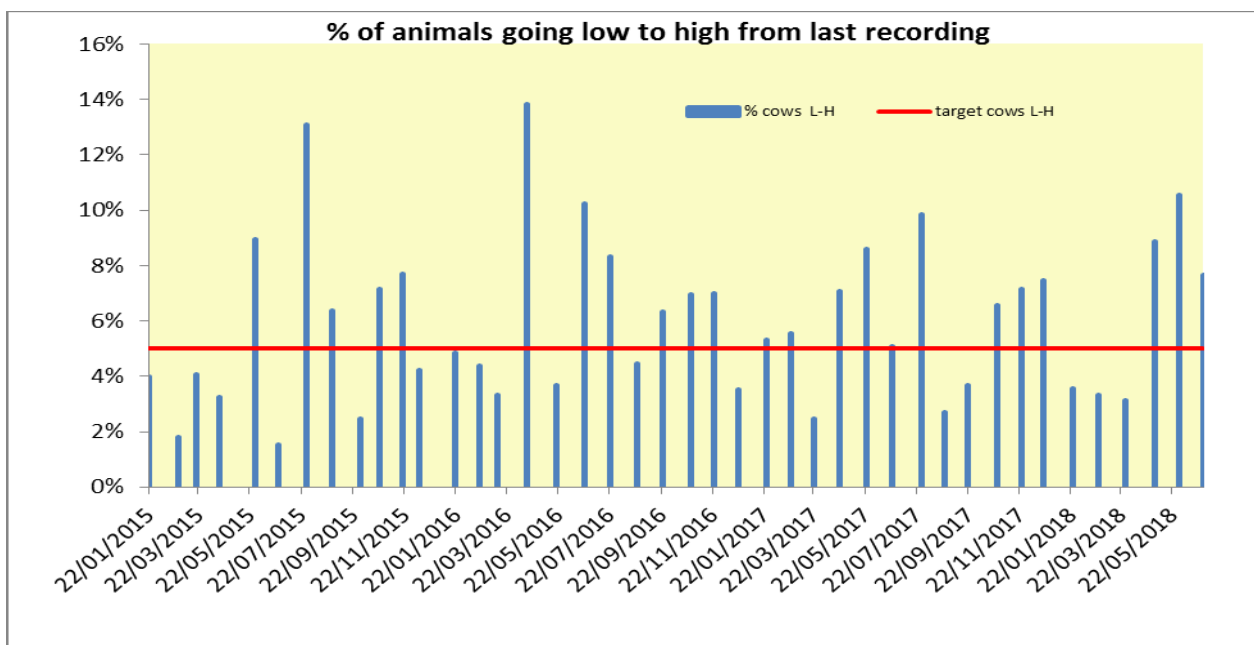


Figure 1. The percentage of animals going from under 200 to over 200 SCC from one recording to the next.

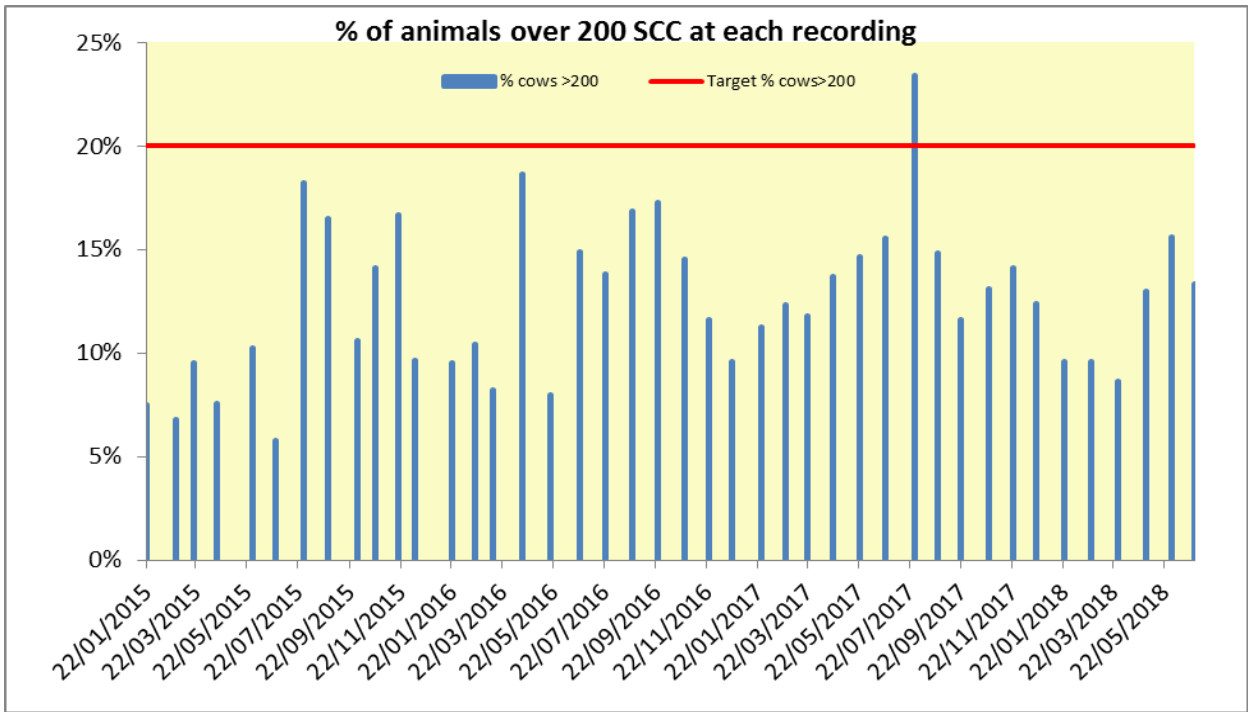


Figure 2. The percentage of animals over 200 SCC at each milk recording.

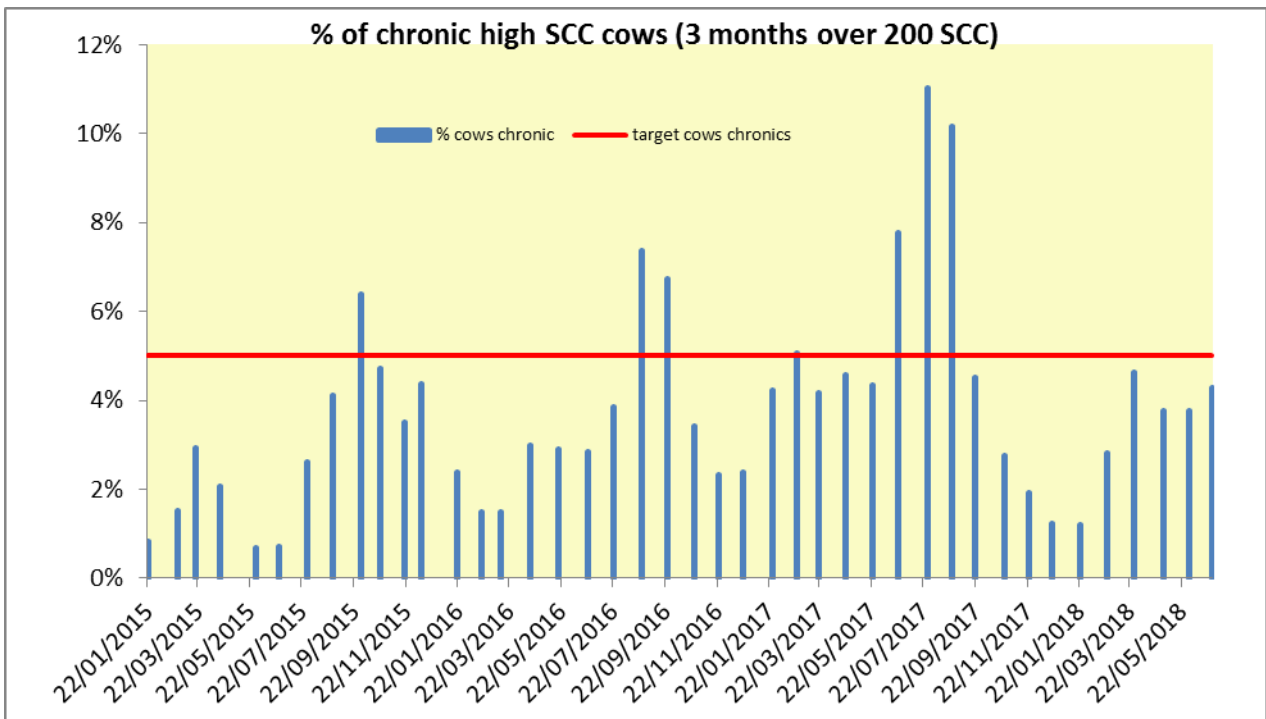


Figure 3. The percentage of chronic high SCC cows (over 200 for 3 or more consecutive recordings).

The number of chronic cows increase over summer as cows move towards the end of lactation and subclinical infections are picked up. The percentage of cows with SCC's over 200 also increases over summer as average days in milk increases.

### Dry Period Analysis

The management of cows across the dry period is monitored: percentage of cows under SCC 200 at drying off and under 200 at 1st recording in next lactation, (target 90%+, CAFRE Dairy Herd 89%), percentage of cow over SCC 200 at drying off and under 200 at 1st recording in next lactation, (target 85%+, CAFRE Dairy Herd 94%). These results indicate that management across the dry period is good, with few cows getting infected during this time and/or having mastitis in the first month post calving.

### Clinical Mastitis Analysis

Clinical mastitis cases are recorded: (date, cow, quarter, treatment, comments) and this data is analysed for trends, e.g. stage of lactation (figure 4), season of year (figure 5) and number of repeat cases.

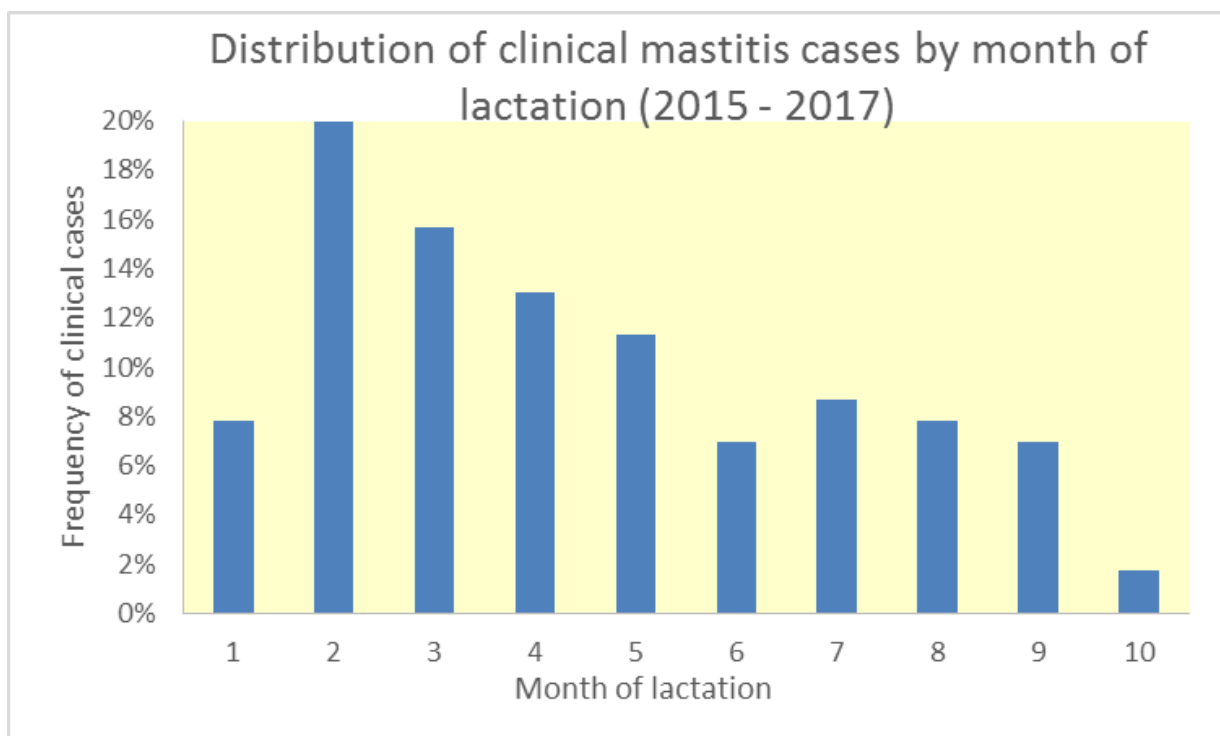


Figure 4. Clinical mastitis pattern by month of lactation. (Relatively few cases in first month of lactation, indicative of good dry cow management).

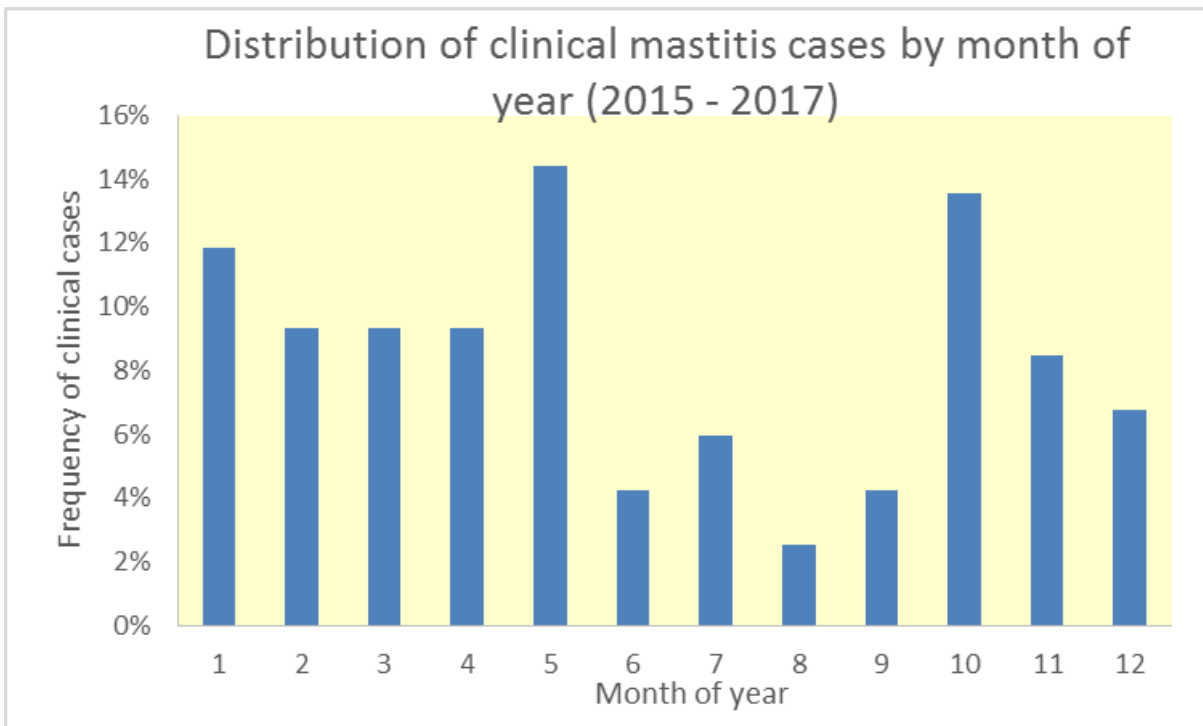


Figure 5. Clinical mastitis pattern by month of year. (Fewer cases in summer as most cows coming up to drying off).

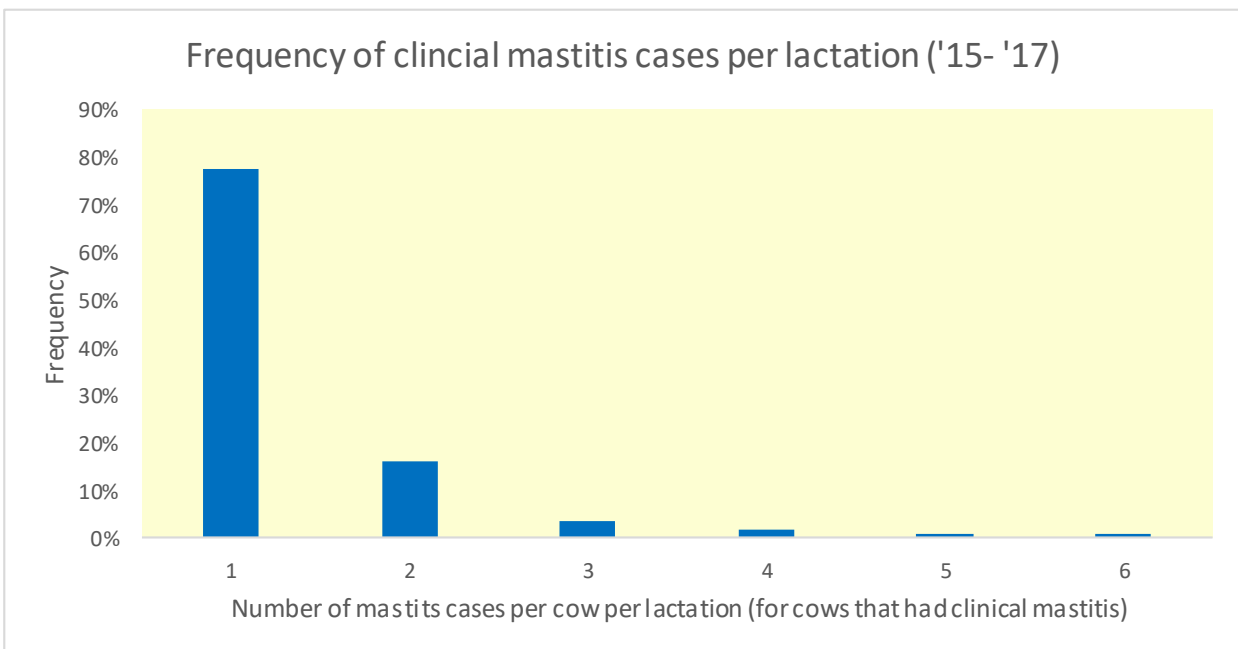


Figure 6. Frequency distribution of repeat clinical mastitis cases per lactation

Most cows with clinical mastitis had only one case per lactation, (77% of cows that had mastitis, figure 6), whilst one cow had 6 cases in 2 quarters and was subsequently culled. It is important to collate such information on an ongoing basis to see what trends are occurring over time and also to measure the success of treatments applied. The number of cases per 100 cows/year is an important key performance indicator, but needs to be analysed as per figure 6 above to see what proportion of the herd has been infected and how successful have treatments been.

## **Herd Mastitis Pattern Diagnosis**

By analysing patterns of SCC's, (to find when cows become infected), the pattern of mastitis cases and having information on bacteriology, it is possible to determine the weakest link in the chain. This can usually be narrowed down to whether most infections are acquired across the dry period, or during lactation period and also whether infections are from the environment, or spread from cow to cow in the parlour at milking, (contagious). By then looking at relevant management practices, it is possible to identify a few alterations that can have a positive outcome on udder health. For more information see <http://www.mastitiscontrolplan.co.uk/>

Following analysis of the CAFRE Dairy Herd monthly milk recording SCC's, mastitis patterns and bacteriology results, it is concluded that the majority of mastitis is environmental in origin, originating during lactation. Most cases of mastitis occur after 30 days in milk, dry period protection is very good (89%, cows dried off with SCC under 200 and calved with SCC under 200), most of the samples submitted for bacteriology show growths of environmental type organisms, such as *e coli* and the number of chronic cows is well under control, although there is a summer peak in SCC levels, coinciding with a lot of cows nearing the end of lactation. Therefore further mastitis prevention measures in this herd should specifically focus on the environment of the cows between milkings.

## **Subclinical mastitis**

Cows that have subclinical mastitis, (elevated SCC for 2+ milk recordings), but with no visible signs of clinical mastitis are considered for treatment to effect a cure, (approximately 10 cows treated per year). Factors considered include mastitis and SCC history of the cow, lactation number, stage of lactation and whether there are any signs of udder damage due to previous mastitis cases. When cows are then selected for treatment, the Californian Milk Test is used to find which quarter(s) are affected, before treatment is administered. Milk samples may also be collected before treatment to determine what organism is causative, although it is accepted that a significant number of these samples will have 'no growth'. Cure rates will always be variable, due to the many factors involved, but by targeting cows that are deemed more likely to cure, (younger animals with little or no history of mastitis, in early to mid-lactation), a reasonable success rate is achieved, (approximately 50%), as measured by SCC's at next milk recording. The benefits of this strategy are that bulk tank SCC is reduced, but probably more importantly, potential spread of infection to other cows is reduced. Occasionally a high SCC quarter will be 'dried off' during lactation, by stopping milking the quarter, (usually a lower yielder in late lactation). This has several positives: the milk from the quarter does not impact on bulk tank SCC readings, there is no risk of infection spread to other cows in the parlour and it aids self-cure of subclinical mastitis. At dry off, all quarters will be treated as per normal protocol.

Part of the AHDB mastitis control plan has a cost/benefit spreadsheet calculator, which allows a comparison of treatment costs compared against the likelihood of a cure during lactation, for high SCC cows.

Treatment decisions for subclinical mastitis should be considered both from a financial perspective and also from a 'responsible use of antibiotics' perspective. Neither is necessarily easy to get right, when the outcomes are not certain. Prevention is better than cure, so by focusing on management practices that reduce the likelihood of cows getting infected in the first place, the number of cows with elevated SCC recordings should also reduce.

## **Selective Dry Cow Therapy**

Selective dry cow therapy has been implemented in the herd since August 2016, using information from monthly milk recordings and clinical mastitis cases. For more information on selective dry cow therapy, click on the link below:

<https://cafre.ac.uk/business-support/agriculture/dairy/dairying-technical-support/selective-dry-cow-therapy/>

Over past 4 years, 91% of cows receiving teat sealant only, calved in with an SCC at first milk recording under 200. During the same period, of the cows that received both dry cow tubes and teat sealant, (SCC at dry off above 200), 93% calved in with an SCC below 200 at first milk recording.

*These results show that in low SCC cows at drying off, teat sealant only is just as good as dry cow tubes and teat sealant in preventing new infections across the dry period.*

*Dry cow tubes combined with teat sealant are very effective in curing pre-existing udder infections across the dry period.*