



Challenge Note 1A: The Economic Cost of Mastitis

After infertility, mastitis is the next most important reason for culling cows on dairy farms. In an average dairy herd 25 out of every 100 cows are affected by clinical mastitis per year. Each cow affected has an average of 1.6 cases of clinical mastitis per year, so in a herd of 100 cows there is approximately 40 cases of clinical mastitis per year. Mastitis has both direct and indirect costs and together these cost are approximately £180 per new case, or around £200 per affected cow per year. Clinical mastitis costs the average 100-cow herd approximately £5000 per year and the Northern Ireland dairy industry approximately £14 million. The aim of this *Challenge Note* is to quantify the direct and indirect costs of clinical mastitis and identify ways of reducing this cost.

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The Cost of Mastitis

The cost of mastitis can be split into direct and indirect costs:

- Direct costs:
- Veterinary treatments
 - Discarded milk
 - Reduced lactation yield
 - Farmer's time (labour input)
- Indirect costs:
- Increased culling
 - Fatality

Direct Costs

The direct cost of a single case of clinical mastitis is approximately £104 per cow, but varies considerably with the severity of the case (Table 1). These have been classified as mild, severe or fatal with prevalence's of 90%, 9.8% and 0.2%, respectively. (University of Reading/DAISY Report No.5).

Veterinary treatment costs range from £7 for a mild case of clinical mastitis to £45 for a severe case, while in the case of a fatality vet costs can reach £70, but added to this is also the cost of disposal. An average case costs around £11 (Table 1).

Antibiotic treatment leads to discarded milk costing £23 for a mild case and £28 for a severe case. In addition to this, there are also costs associated with reduced milk yield in the remainder of the lactation. A mild case of mastitis decreases potential milk yield by approximately 5% while a severe case decreases it by approximately 15%, with costs of £52-£158, respectively. These costs are summarised in Table 1.

Table 1: The cost of clinical mastitis per case in dairy cows (Source: DAISY Report No. 5)

	Average cost (£)	Range (£)
Direct costs:		
Treatment (antibiotics, etc)	10.80	7-71
Vet time	3.80	0-88
Farmers time (£10/hour)	2.00	1-10
Discarded milk (20% of cases)	23.90	23-28
Reduced milk yield	62.70	52-158
Direct cost of fatality	0.60	0-320
Total direct costs:	103.80	85-490
Indirect costs:		
Increased culling (x10%)	71.00	0-130
Greater risk of fatality	2.50	0-1220
Total indirect costs:	73.50	65-1220
Total costs	177.30	150-1710

Indirect Costs

Cows with mastitis have an increased risk of culling and fatality and this cost must be spread across all cases. It is estimated to be over £70 per case (Table 1). Cows with mastitis are 10% more likely to be culled, and the cost of a fatal case, although only likely to happen in 0.2% of cases must also be spread.

Reducing the Cost of Mastitis

As well as the direct and indirect costs of clinical mastitis listed above, it also leads to the production of less valuable milk due to higher somatic cell counts (SCC). Bulk tank

milk samples are regularly tested at collection, but this does not give an indication of individual problem cows.

Cows within a herd have a range of SCC, and some could exceed one million cells/ml. The SCC of individual cows increases:

- At the end of lactation;
- As cows get older.

Regular milk recording can identify cows that persistently have raised SCC. Individual high SCCs can be due to a particular problem, but it is best to assess a cows SCC over several months to identify trends and underlying problems.

Sub-clinical Mastitis

Milk recording is invaluable for identifying cows with sub-clinical mastitis. While these cows do not exhibit mastitis a small number can have a considerable effect on herd SCC. Typically 15-20% of cows have sub-clinical mastitis during the year with SCCs exceeding 250,000 cells/ml.

In a herd with a low incidence of mastitis, bulk tank samples should have less than 150,000 cells/ml. Milk with a SCC of greater than 400,000 cells/ml is not permitted to enter the food chain. Under the current United Dairy Farmers payment scheme, bulk tank samples should have a SCC of less than 150,000 cells/ml and a total bacterial count (TBC) of less than 10,000 cells/ml to receive a milk quality premium. If you have 1 million litres of quota and your milk is of good quality and achieves the Extra Grade Protein (0.1p/litre), this equates to an extra £1000/year.

Summary

- Clinical mastitis has direct and indirect costs estimated to total around £180 per case.
- The direct cost, estimated to be £104/case is associated with the cost of treatment, lost time, discarded milk and a reduction in potential yield.
- The indirect costs are associated with increased risk of culling and fatalities.
- Milk recording is essential for identification of cows with sub-clinical mastitis that add further costs in less valuable milk sales.