

Somatic Cell Count (SCC) and Mastitis Index



Figure 1. The California Milk Test being used to check for mastitis

From April 2017, a Mastitis Index has been published for all breeds genetically evaluated in the UK. A genomic evaluation is also available for Holstein. This index will allow farmers to breed cows with improved resistance to mastitis, tackling a common issue on farm, on both a genetic and management level. Although there is a strong link between the Somatic Cell Count (SCC) Index and a reduction in mastitis cases, there is a small number of bulls who reduce SCC but not necessarily cases of mastitis – this index will help to identify those bulls and allow farmers to make more informed breeding decisions for their herd.

How to use the SCC PTAs

SCC Predicted Transmitting Abilities (PTAs) have been used successfully by milk producers to breed lower cell counts into dairy cattle for many years already. The SCC PTAs are expressed as a percentage and generally fall within the range +40 to -40. For every one per cent in a bull's SCC PTA, a change of one per cent in his daughters' SCC is predicted. Negative PTAs for somatic cell count are desirable.

For example, daughters of a bull with a -10 per cent SCC are expected to have cell counts 10 per cent lower than daughters of a bull with a SCC PTA of zero. So, negative figures for SCC PTAs are desirable as these indicate a reduction in cell counts.

Strong selection on reduced SCC PTA since 1999 has already resulted in a favourable genetic trend in the Mastitis PTA for sires (Figure 2).

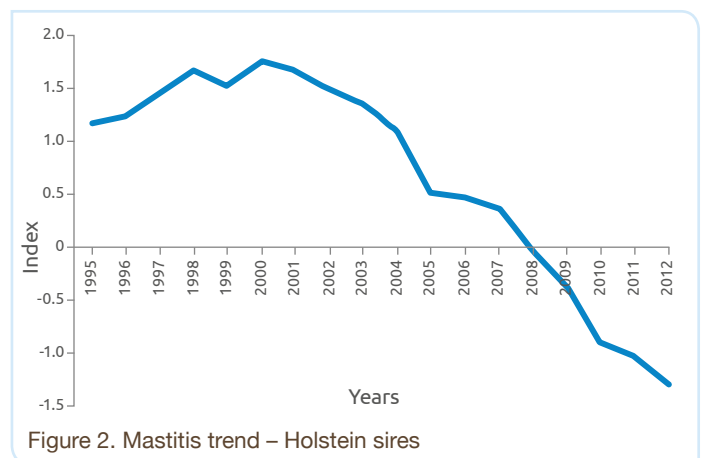


Figure 2. Mastitis trend – Holstein sires

Development of the Mastitis Index

Over 10 years of animal data was supplied by the major milk recording organisations to develop this index. From this data, mastitis was found to be four per cent heritable, around the same level as fertility.

The resultant index has a strong correlation with SCC and other mastitis indexes published by other countries of 0.8 and 0.88, respectively, with international correlations validated by Interbull.

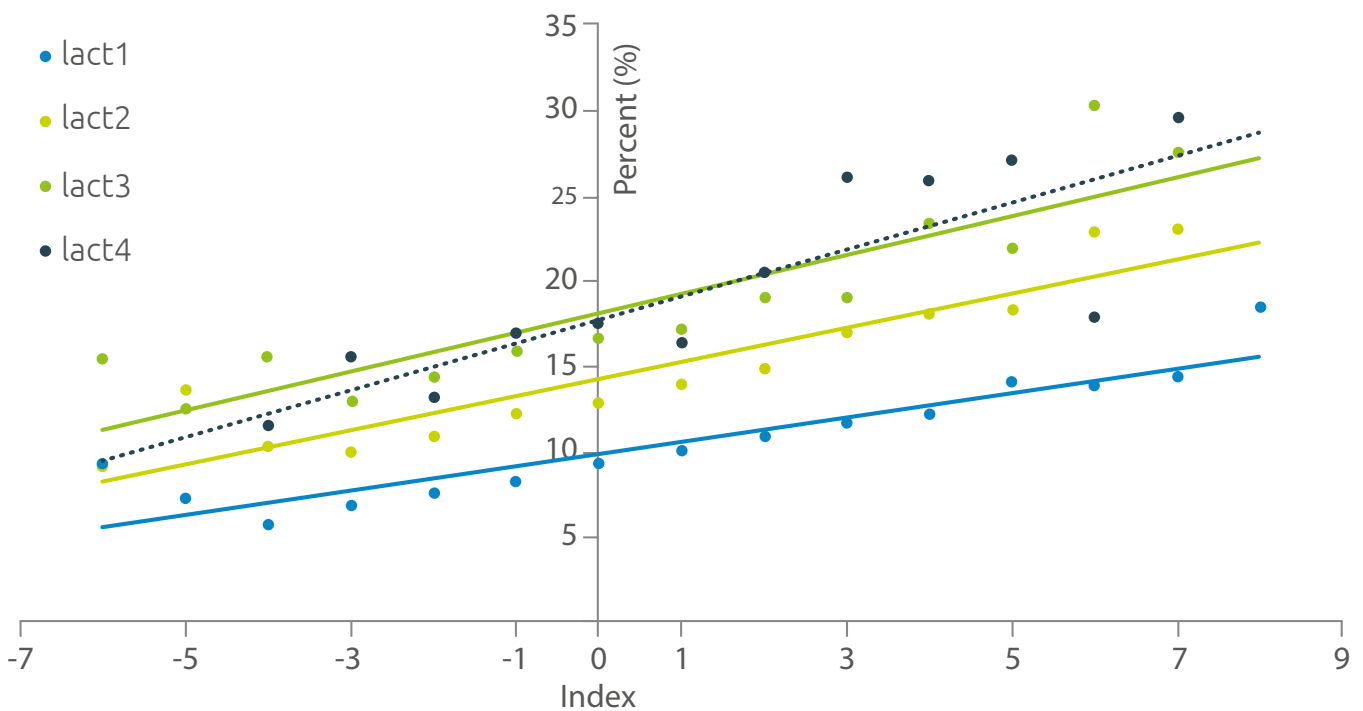


Figure 3. Percent of daughters with mastitis by sire PTA

How to use the Mastitis Index

The Mastitis Index is published on a scale from -5 to +5 and expressed as a percentage. Similar to SCC, negative values are favourable in the Mastitis Index. This means that for every per cent decrease in a bull's index, there will be a corresponding one per cent decrease in his daughters' mastitis cases – illustrated in Figure 3.

This translates into, on average, 10 fewer cows with mastitis per year in a herd of 100 cows if a -5 mastitis bull is used instead of a +5 mastitis bull.

Not only is the Mastitis Index published alongside the SCC Index, it has also been incorporated into the Profitable Lifetime Index (£PLI). The process of bull selection will, therefore, not change; the £PLI should be used as an initial screening tool, then traits of interest to your herd should be considered to progress your herd genetically. These specific traits will vary between herds depending upon system, management and breeding goals but health traits, now including the Mastitis Index, should be taken into consideration when selecting bulls. Health traits may have a low heritability but including them in your breeding decisions will have a cumulative positive effect on your herd.

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Further information

For more information on AHDB Dairy breeding and genetics, visit:

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