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Presentation Abstract

Presentation: 343 - Somatic Cell Count in Milk from Dairy Cattle: The Dilution Effect Matters

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Abstract: **Background:** Danish dairy farmers receive a milk price depending on the somatic cell count (SCC) in the bulk tank. Therefore there is a large incentive to correctly identify and cull cows with persistently elevated levels of SCC. However, the SCC displays large variance between measurements and varies over lactations, which makes analysis difficult. Traditionally, SCC has been modelled without a dilution effect, unrelated to the amount of milk produced.

Purpose: Using data from 610 Danish farms with a total of >290,000 Holstein cattle over a period of 13 years, we investigated several transformations of the SCC measure from each cow. The aim was to determine the most robust estimate in terms of normality of residuals and variance of the estimate.

Methods: We used different log transformations and included the dilution factor by looking at not only the SCC per mL milk, but also the total count of bacteria in the milk. Normality was tested by Q-Q plots. Furthermore, we tested correlations between milk yield and the SCC.

Results: All tested transformations of the SCC using the total count reduced the variance of the residuals of the model by a factor of two. A double log transformation of the SCC gave the best normality of residuals. Analysis of the correlations showed positive correlation of SCC with the milk yield, when using the total count of SCC.

Conclusions:

The level of SCC for a dairy cow is best determined using the total count of SCC in the milk. We therefore conclude that the dilution effect is an important factor in dairy production.

Relevance:

Determining the most robust method of predicting the SCC is economically important for farmers that need to take decisions on which cows are most valuable. Therefore, the dilution effect should be taken into consideration when estimating the SCC level of each cow. Furthermore, for a robust estimate when simulating dairy farms or predicting future values of dairy cows, the dilution effect should also be included.