

Selection against clinical mastitis changed the level of somatic cell count throughout lactation

Heringstad, Mari¹, Karoline B. Wethal¹, Gunnar Klemetsdal¹, Gunnar Dalen², and Bjørg Heringstad¹

¹Department of Animal and Aquacultural Sciences, Faculty of Biosciences, Norwegian University of Life Sciences (NMBU), Ås, Norway.

²Faculty of Veterinary Medicine, NMBU, Norway.

Aim

The aim was to examine whether selection against clinical mastitis also has changed the level and trajectory of somatic cell count (SCC) throughout lactation

Material and methods

- Data from the automatic milking systems (AMS) with DeLaval Online Cell Counters (OCC) at the research herd at NMBU (DeLaval International AB, Tumba, Sweden)
- Two groups of cows, one selected for high protein yield (HPY) the other for low incidence of clinical mastitis (LCM)
- OCC data from 99,241 AMS visits made by 173 cows from the 2 selection groups (79 HPY and 94 LCM)
- SCC was log transformed to Somatic Cell Score (SCS) and analyzed using a linear model that included fixed effects of selection group (HPY, LCM) by parity (1, 2, ≥3), month-year of calving, and days in milk (DIM).

Results

Table 1. Least squares mean (LS mean) with standard error (SE) for Somatic Cell Score (SCS) per selection group and parity

Selection group	Parity	LS mean	SE
High Protein Yield	1	3.90	0.01
	2	3.96	0.01
	3+	4.18	0.01
Low Clinical Mastitis	1	3.26	0.01
	2	3.63	0.01
	3+	3.72	0.01

- The LS mean of SCS increased with parity for both selection groups, but all parities of LCM had lower SCS than the lowest HPY group (Table1).
- The difference between selection groups corresponded to a difference in SCC of around 23,000, 15,000, and 24,000 for parity 1, 2 and ≥3, respectively.
- Plots of mean SCS by DIM revealed largest differences between HPY and LCM cows in early and mid-lactation of 1st parity.

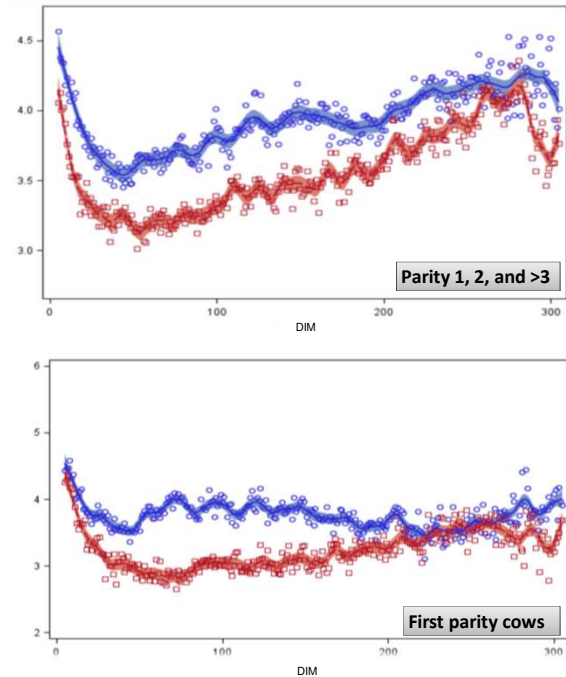


Figure 1. Mean Somatic Cell Score (SCS) per days in milk (DIM) for cows selected for high protein yield (HPY) or low incidence of clinical mastitis (LCM), with a Loess regression with a 95 % confidence interval

Conclusion

The observed differences in SCC between selection groups suggest indirect selection responses in SCC after selection for high protein yield or low incidence of clinical mastitis.

