

Finetuning of indices for calving

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In November 2022 several improvements were implemented in the NAV genetic evaluation for calving traits. The most important changes are update of genetic parameters and improvements of genetic model. All together, these changes have a minor impact on breeding values for Holstein and Jersey, while it is larger for RDC.

The purpose of reviewing and optimizing the genetic evaluation for calving traits is to be able to calculate more accurate breeding values and fulfill common European guidelines also called Golden standard. Below is described the most important changes and the effect on breeding values for AI bulls and females.

Update of genetic parameters

Editing of data has been updated based on common European guidelines. One important change is to handle that still birth, calving ease and size of calf is not normally distributed like for instance milk yield. This is handled by transforming data. Further all records from Danish Jersey bull calves born in 2022 and onwards are deleted. This is because killing of newborn calves is stopped from 1. January 2022 and there has been an unexpected increase in still born bull calves in 2022.

New genetic parameters have been calculated based on data from improved editing. Results showed that heritability's and genetic correlations in general were quite like the previously used.

Improvements of genetic model

More adjustments were included in the genetic model. The most important was to remove heterosis in the model for RDC, making it like the model for Holstein and Jersey. This is done because analysis shows that it is not possible to separate maternal and direct heterosis.

Further a correction for inbreeding is included in the model to consider that inbreeding is expected to affect the fetus and calving ease. Another addition to the model is an effect that makes it possible to take better care of the permanent environment of the individual cow affecting her later calving's.

Changes for AI bulls

We have compared indices from an evaluation with previous parameters and model with an evaluation using updated parameters and model for both AI bulls and females. For Holstein and Jersey bulls the correlations are high for both proven and young bulls. This means that 80-95% of the bulls change less than 3 index units for calving or birth. So, in practice you will only see minor changes.

For RDC the correlation is high for birth where 80-95% of the AI bulls change less than 3 index units. For calving the correlations are a lower – especially for proven bulls. This means that 55% of the proven bulls change less than 2 index units.

Changes for females

For Holstein and Jersey females the correlations are high for heifers and cows with or without a genomic test. More than 95% of the females change less than 3 index units for both calving and birth.

For RDC females more than 95% change less than 3 index units for birth index, while it is 80-90% for calving index. Changes for RDC females are therefore smaller than for proven RDC AI bulls.