

# Improved yield index for RDC

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In February 2024 improved genetic evaluation for yield was implemented for RDC. The RDC yield evaluation model is improved to better fit the current data, especially from Finland. Several improvements are planned for the RDC yield evaluation. Three of these improvements are now implemented in the RDC yield model and there is ongoing work for more improvements further on.

When modifications are made to the evaluation model, the breeding values will change to some extent, which creates reranking between the animals. In general, the changes in the breeding values for RDC animals are minor. However, for a few bulls and cows, the indices will change significantly.

## Three improvements

Over the years the milk recording procedures have changed in Finland and these changes have had an effect on the variance of milk yield in the Finnish AMS herds. Since about half of the Nordic RDC cows are in Finland, the Finnish data have had an effect on the yield evaluation for RDC. The new RDC yield model accounts for the changed recording procedure in Finland.

Traditionally, the Finnish herds have been mixed herds typically consisting of both RDC and Holstein cows, and the average herd size is still lower than in Denmark and Sweden. The Finnish Holstein data has been included in the RDC yield evaluation to improve the estimation of herd effect in small herds. In the new RDC yield model, the Finnish Holstein data is removed from the RDC evaluation, which makes the model slightly simpler.

The third improvement is new estimation of heritabilities and genetic correlations from the new data. In general, the new heritabilities are slightly lower, while the new genetic correlations between lactations are slightly higher. Overall, the new genetic parameters are better aligned with the characteristics of the current population and make better prediction of later lactation from 1. lactation data.

## Good stability and high correlations

For both proven sires and cows the genetic trends are unchanged for all yield traits with the new improved yield model compared to the old model. At the same time the correlation of the breeding values between the old and new model is high, which means a low amount of reranking between the proven sires and the cows. For the majority of the proven sires the breeding values for yield change less than four index units. However, for some few bulls and cows the breeding values can change significantly, and these changes will also have an effect on NTM, since yield has a high weight in NTM for RDC (1.02).

## More improvements will come in the future

The three described improvements are the first to be implemented to improve the RDC yield model. Further improvements to the RDC yield evaluation are already in process and will be implemented as they come along. The aim for all these improvements is to ensure more reliable and stable breeding values for RDC in the future.