

Improved breeding values for Milkability

Jakob Lykke Voergaard, Carolina Markey, Terhi Vahlsten

In 2022, a new method for calculating breeding values was introduced, and so far, seven indexes have been calculated using the new method. The turn has now come to Milkability, and in May, it was calculated for the first time using the new method. In general, the changes in indexes for milkability are minor with the new model.

All breeds show a small positive increase in the trend for milkability, meaning that younger animals will become slightly better compared to older animals. The

correlation between the old and new model is high, which means that the reranking between animals born in the same year, is small. The introduction of the new model, called single step, brings some improvements compared to the old two step model. More information about the new single step model is provided in the article [New method to calculate breeding values for Dairy breeds.](#)

Index for Milkability describes genetic potential for milking speed according to flow of gram fat + protein per minute. The index is based on information from electronic milk recording and owners' assessment on cows milkability. If available, the electronic data is used instead of the herd owner's assessment.

Proven sires show high stability

All breeds show great stability for the proven sires, and the reranking between the bulls is therefore minor. If we look at the younger proven bulls born after 2014, a minimum number of bulls change several index units in milkability due to the model change. For all breeds, around 95 percent of the bulls change a maximum of 3 index units, while 2-3 percent of the bulls change more than 5 index units.

Good results for genomic bulls

For the genomic Holstein bulls the average index will increase by 1-2 index units, while the RDC and Jersey bulls will remain around the same level. The reranking for the genomic bulls born in the same year will be slightly bigger compared to the proven sires because the reliability for the genomic bulls is lower than for the proven sires.

For Holstein and RDC, half of the genomic bulls will change more than 2 index units, while 90 percent of the bulls change a maximum of 5 index units. Jersey is the most stable breed, and here close to 70 percent of the bulls will not change more than 2 index units, while 95 percent of the Jersey bulls change a maximum of 5 index units.

Non-genotyped females are queens of stability

All three breeds show a small positive increase in the trend for females born after 2010, meaning that younger animals become slightly better compared to older animals. For animals born in the same year, the reranking will be small. For all breeds, more than 90 percent of the non-genotyped females will change a maximum of 2 index units, while only 1-2 percent will change more than 5 index units.

Smaller changes for genotyped females

The genomic tested females follow the same pattern as the genomic tested bulls, where Jersey shows the most stability. For females born after 2014, around 70 percent of the Holstein and RDC females will change a maximum of 3 index units while it is over 75 percent for Jersey. Ten percent of the Holstein and RDC females will change more than 5 index units, while it is only 5 percent for Jersey.

Milkability and NTM

For many farmers, milkability is an important trait, especial for cows with the longest milking time. If we look at the big picture, the changes in NTM based on Milkability are minor, since it has a relatively low weight in NTM for all three breeds (RDC 0.11; Holstein 0.09; Jersey 0.09). This means, that the normal change in breeding values between two breeding value evaluations generally has a higher effect on NTM than the new changes in milkability.

Most of the animals while have a small change in Milkability, but it will always be possible to find animals that changes a lot. For example, if you look at herd level of females, there can be animals that change over 20 index units for milkability. The effect will still be minor in NTM since a change of 22 index units in milkability only changes NTM by 2 index units for a Holstein animal.