# Improved breeding values for General Health

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Over the last year a new method for calculation of breeding values, has been introduced, and in November 2023 the turn has come to General health and Claw health. For General health the changes are minor, and the biggest changes happen for unproven insemination bulls and genotyped females.

Index for **General health** describes genetic potential to resist reproductive, metabolic and feet and leg diseases. Index is based on veterinarians' treatments in the first three lactations.

The introduction of the new model, called single step, gives some improvements compared to the old two step model. Overall Holstein has a small positive increase in the trend for General health, meaning that the younger animals will become slightly better compared to the older animals. For RDC the trend is about the same, but the average level for General health goes down a bit. Jersey is the most stable breed and has smaller changes than the two other breeds.

More information about the new single step model is written in the article New method to calculate breeding values for Dairy breeds.

**High stability for the proven sires**

The stability is high for the proven sires for all breeds, so the change will have a minor effect on the yearly ranking. For Holstein and Jersey, the trend for General health has a minor increase, while RDC will have a small reduction in indexes for all the years. The stability means that for Holstein and Jersey 75 percent of the bulls born since 2010 change less than 3 index units while it is 65 percent for RDC. However only 1-2 percent of the Holstein and Jersey bulls change more than 5 index units while it is 3-5 percent of the RDC bulls.

**Smaller changes for the unproven sires**

The level for the Holstein bulls will on average increase 1-3 index units while the RDC bulls will decrease 0.5-1.5 index units and Jersey will stay unchanged. The yearly reranking for the unproven bulls will be slightly bigger compared to the proven sires.

For Holstein close to 45 percent of the bulls will change less than 3 index units while almost half of the bulls will increase 3 index units or more, and 15 percent of the bulls will increase more than 5 index units. For RDC half of the bulls will change less than 3 index units, while close to 10 percent of the bulls will decrease more than 5 index units. For Jersey the majority of the bulls change less than 3 index units and only 5 percent of the bulls change more than five index units.

**Non-genotyped females show the highest stability**

All three breeds have a small positive increase in the trend for cows born after 2014. For RDC the average index level decreases a bit for all years while for Holstein and Jersey the oldest cows decrease in average and the youngest cows in general increase in the index level. Across breeds between 85 and 90 percent of the non-genotyped cows will change less than 3 index units and only 5 percent will change more than 3 index units while under 1 percent change more than 5 index units.

**Genotyped females have smaller changes**

The trend for genotyped Holstein and Jersey females born after 2014 will have a slightly positive increase. For Holstein the general level will have a small increase while it will slightly decrease for RDC and be stable for Jersey. Furthermore, there will be higher reranking for genotyped females in a year compared to non-genotyped females. For Holstein the majority of the genomic tested females will have a maximum change of 3 index units, while 15 percent of the heifers will change more than 5 index units and most of them will increase in indexes. For RDC 70 percent of the genomic tested females will have a maximum change of 3 index units, while 10 percent will change more than 5 index units. Jersey is more stable since 80 percent will have a maximum change of 3 index units, and only 5 percent change more than 5 index units.

**Minor effect on NTM**

The change in the index for General Health has a small impact on the changes in NTM, since it has a relatively low weight in NTM for all three breeds (RDC 0.11; Holstein 0.14; Jersey 0.14). This means that the normal change in breeding values between two breeding value evaluations in general has a higher effect on NTM than the new changes in General health.

Even if there is a good overall stability in the indexes, and most of the animals only change a few index units, it is always possible to find animals that change a lot. If you e.g. look on a herd overview of females, there can be animals that change over 20 index units for General health. The effect will still be minor in NTM since 21 index units in General health only means a change of 3 NTM units for a Holstein cow.