Changes in NTM

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Farmers from NAV´s owner organizations had a workshop in January in Copenhagen which resulted in some suggested changes to the weights on different sub-indices in NTM. The approved changes were introduced in NAV routine genetic evaluation in May. The previous time changes were made was in February 2012. This time NTM changes were made for Red Dairy Cattle (RDC), Holstein and Jersey. Also changes within the sub-index for yield for Holstein were made.

The current weights in NTM for all breeds are shown in table 1. The effect of the current NTM on the genetic progress in the included sub-indices can be seen in table 2. The correlations show how much of the possible genetic progress is achieved in a single trait when breeding for NTM compared to breeding for a single trait only. For example for Holstein 68% of the total genetic progress possible for longevity is achieved by using NTM.

Small changes in milkability and longevity for RDC

For RDC the weight of milkability was raised from 0.09 to 0.10 and the weight of longevity was reduced from 0.08 to 0.07.

Milkability has become more important as the automatic milking has become more common. That is why representatives for the red breeds wanted to increase the weight on milkability in NTM. Because the current change is small it has very small effect on bulls ranking according to NTM. The weight of milkability was also increased in February 2012.

The weight of longevity (0.07 for RDC) might seem small. However, this is the part of longevity that results from other traits than those already included in NTM. Most differences between animals on longevity are explained by other traits, mainly health, fertility, yield and conformation traits, which are all included in NTM. That is why the correlation between NTM and longevity is very high (see table 2) and longevity can be improved efficiently by choosing animals according to NTM. The current change in weight on longevity in NTM has only a very small effect on bull ranking.

In total these changes in weights in NTM have only minor effect on the genetic progress for RDC.

More changes for Jersey

For Jersey the weight on yield, fertility, udder health, udder conformation and longevity in NTM were changed.

Weights were increased for yield (from 0.82 to 0.87), and udder conformation (from 0.20 to 0.26), whereas they were decreased for fertility (from 0.26 to 0.20), udder health (from 0.49 to 0.44) and longevity (from 0.12 to 0.08).

The changes have some influence on the genetic progress for the Jersey breed. The tendency is that Jersey will have more progress for yield and less for fertility and longevity. For the rest of the traits in NTM the rate of genetic progress is the same as before.

More weight on udder conformation and changes within yield index for Holstein and Red Holstein

The weight on udder conformation for Holstein was raised from 0.18 to 0.25, which will result in faster genetic progress for udder than before. The change has minor effect on genetic progress for other traits in NTM.

The yield in Holstein cows has increased significantly. Higher milk production puts a lot of pressure on the cow and requires strong and functional udders. That is why the weight on udder conformation was raised.

Within the yield index on Holstein more weight was put on fat and less on protein. Also the negative weight on milk liquid was reduced. The change has only a small effect on ranking of the sires. The change is made so that the genetic progress for the milk traits would be more in line with the current payment system for the milk (especially in Denmark and Sweden).

Table 1. Current weights on NTM for all three breeds. Changed weights in May 2013 are marked in bold.

Trait	**Holstein**	**RDC**	**Jersey**
Yield*	0.75/0.68	0.92/0.84	**0.87/0.78**
Growth	0.06	0.00	0.00
Fertility	0.31	0.26	**0.20**
Birth index	0.15	0.14	0.06
Calving index	0.17	0.12	0.06
Udder health	0.35	0.32	**0.44**
Other diseases	0.11	0.12	0.04
Body	0.00	0.00	0.00
Feet & legs	0.12	0.09	0.04
Udder	**0.25**	0.32	**0.26**
Milkability	0.08	**0.10**	0.10
Temperament	0.03	0.03	0.03
Longevity	0.11	**0.07**	**0.08**
Claw health	0.08	0.05	0.05

*Weight factor for bulls/weight factor for cows with own yield record

Table 2. Correlations between NTM and the traits included in the NTM for all three breeds based on the previous and current weights.

Trait	**Holstein**		**RDC**		**Jersey**	
	Previous NTM	Current NTM	Previous NTM	Current NTM	Previous NTM	Current NTM
Yield	0.61	0.59	0.66	0.65	0.56	0.62
Growth	0.10	0.09	0.02	0.01	-0.07	-0.10
Fertility	0.44	0.44	0.20	0.20	0.51	0.45
Birth index	0.32	0.31	0.22	0.21	0.17	0.14
Calving index	0.25	0.25	0.14	0.15	0.20	0.20
Udder health	0.48	0.49	0.40	0.40	0.50	0.47
Other diseases	0.47	0.47	0.28	0.27	0.24	0.21
Body	-0.03	-0.03	-0.01	0.00	0.05	0.08

Feet & legs	0.24	0.24	0.16	0.17	0.25	0.22
Udder	0.19	0.25	0.28	0.29	0.15	0.16
Milkability	0.03	0.03	0.18	0.18	0.04	0.02
Temperament	0.00	0.00	0.14	0.13	0.02	0.00
Longevity	0.68	0.68	0.57	0.56	0.53	0.49
Claw health	0.33	0.33	0.04	0.04	0.20	0.18