

MythBuster

Part 2

Jakob Lykke Voergaard, Terhi Vahlsten, Carolina Markey

Claim: “Nordic bulls drop more in NTM compared to foreign bulls when they become proven”

It is frustrating when a bull that has been used in your herd, experiences a large decrease in NTM (Nordic Total Merit) over time compared to other comparable bulls.

Cattle breeding is full of myths, and the question is are they true or false. In MythBuster NAV will test with facts if the myths are just myths or if they actually are true.

Today, most inseminations are with semen from genomic bulls. Bulls with genomic breeding values, have higher reliability than bulls with only pedigree indexes but lower than daughter proven bulls. When the young genomic bulls start to receive milking records from the first daughters they become daughter proven bulls, and the reliability of their indexes increases. The indexes can thereby change, which causes reranking among the bulls.

Interbull comparison

To make a fair comparison, we have used the Interbull indexes. Interbull is an international organization that helps convert cattle indexes between countries. From the Interbull calculations, bulls with milking daughters in other countries can be compared to Nordic bulls.

Since the comparison we want to make involves daughter information, we need to look back at bulls born in 2015-2017, so they have a chance of having daughters that have completed more than one lactation in the beginning of the period for comparison. We have only made the comparison for Holstein bulls to ensure there is a sufficient amount of bulls in the different categories.

The bulls are divided into three groups based on their index status in February 2021: Nordic insemination bulls with NAV indexes (120 bulls), other insemination bulls with NAV indexes (75 bulls), and other insemination bulls with Interbull indexes (132 bulls). The change in indexes is calculated for all three groups from February 2021 to February 2025, and the bulls must have NAV indexes in February 2025 in order to be included. For a similar period, the genetic changes for females born in 2010 is calculated for comparison.

Nordic bulls drop less in NTM than foreign bulls

Table 1 shows that the genetic change for the period is 12.2 NTM units. The foreign bulls, both with NAV indexes and Interbull indexes, decrease in line with the genetic change (11.9 – 12.3 NTM units). However, the Nordic bulls only decreased by 10.2 NTM units. So, the Nordic bulls perform better than expected in the genetic change and decrease less in NTM compared to foreign bulls

Table 1: Comparison between bull groups with different index type and genetic change for females for the main traits.

	Nordic AI bulls NAV indexes (120 bulls)	Other AI bulls NAV indexes (75 bulls)	Other AI bulls Interbull indexes (132 bulls)	Genetic change NOV20-FEB25 (Danish females born 2010)
NTM	-10,2	-11,9	-12,3	-12,2
Yield	-6,6	-8,6	-9,5	-6,4
Fertility	-2,4	-0,5	-0,3	-6,2
Mastitis	-0,3	-1,9	-3,1	-2,5
Udder	-6,1	-9,9	-9,2	-9,7

Similar change for individual trait indexes

For yield, the Nordic bulls decrease as expected and close to the genetic change of 6.4 units. The foreign bulls decrease more in production than expected, with 8.6 units for foreign bulls with NAV indexes and 9.5 units for bulls with Interbull indexes. For udder health and udder conformation, the Nordic bulls decrease less than foreign bulls. However, for these traits, the foreign bulls decrease in line with the genetic change, while the Nordic bulls decrease less than the genetic change. For fertility, the foreign bulls perform best, with a genetic change close to zero, indicating their fertility index has previously been underestimated. However, the Nordic bulls have also been slightly underestimated since they show a decrease of 2.4 units compared to a genetic change 6.2 units.

Comparing Across Birth Countries

Another way to look at comparisons is to split the bulls by their birth country. The Holstein bulls included in this analysis were born in 2018-2020 and have a genomic yield index in February 2021 in the Nordic system and proven NAV index in February 2025. Table 2 shows bulls from six countries, with a total of 183 bulls, where most of the bulls (91) are from Denmark and 41 from Germany. The reference change for comparison is based Danish females born in 2010, with the calculation period spanning from November 2020 to February 2025

Tabel 2: Comparison between bull groups with different birth country and genetic change for females for the main traits

	DNK (91 bulls)	FIN (25 bulls)	SWE (12 bulls)	DEU (41 bulls)	NLD (8 bulls)	USA (6 bulls)	Genetic change NOV20-FEB25 (Danish females born 2010)
NTM	-15,4	-15,4	-14,6	-16,0	-18,4	-15,5	-12,2
Yield	-12,0	-11,4	-11,8	-12,5	-13,8	-12,8	-6,4
Fertility	-0,2	-0,8	+1,7	+1,4	-4,6	+4,7	-6,2
Mastitis	-2,5	-3,0	-6,9	-3,7	-2,6	-4,3	-2,5
Udder	-7,7	-7,9	-6,3	-8,6	-8,6	-9,3	-9,7

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Regardless of country, the bulls show a similar decrease in their indexes. For NTM, the decline is greater than the genetic change for all countries, indicating a slight overestimation of the young bulls - though the pattern is consistent across countries. For yield, the decrease ranges from 11.4 and 13.8 across countries, while the genetic change only drops by 6.4 units. This suggests that the overestimation in the young bulls is mainly in the yield index. For mastitis and udder conformation, the decline is generally in line with the genetic changes in most countries. When it comes to fertility, the data suggests an underestimation of the young bulls: the genetic change shows a decrease of 6.2 units, while the Nordic and German bulls are around zero. Bulls from Netherlands, show a decline similar to the genetic change, while bulls from the USA show an increase by close to five units. It is important to note that the number of bulls from the Netherlands and the USA is low, so a single outlier can significantly affect the group average.

Myth Busted

FAKE! Nordic bulls do not drop more in NTM than other bulls when they get proven indexes.

For both calculation methods, Nordic bulls perform the same or better compared to foreign bulls. Therefore, you can confidently use bulls from the Nordic countries and trust that they will, on average, perform as well as or better than other bulls when they get proven indexes in the NAV system.