

# **News NAV evaluation**

## **7 June 2022**

### **Dairy Cattle**

The latest Nordic Cattle Genetic Evaluation (NAV) official genomic prediction took place as scheduled. NAV carried out genomic prediction for Holstein, RDC, Jersey, and dairy crossbreds.

### Data used in genomic prediction

Genotypes were extracted from the joint Nordic SNP data base 9 May 2022. INTERBULL information from April 2022 and national information from 3 May 2022 run were included in the genomic prediction.

### **News in relation to NAV dairy genetic evaluation**

#### **Traditional evaluation**

- No changes

#### **Genomic prediction**

- Correction of an error in the genetic base adjustment for type traits for RDC and Jersey

### GEBV for type traits for RDC and Jersey – correction of base adjustment

An error in the base adjustment for GEBV for type traits for Jersey and RDC have been corrected causing that the published GEBVs have been too high for traits showing a significant genetic trend during the most recent years. The error effect both GEBVs for males and females. The consequences are that GEBVs for type traits for RDC and Jersey have changed with the figures shown in table 1. The changes in the single linear traits effect also the GEBVs for the three composite traits: frame, feet & legs, and udder. NTM is also affected since feet & legs and udder are weighted in NTM.

For RDC the effects on average are 0.9, -3.8, -5.4 index units for frame, feet & legs and udder respectively, meaning that the GEBV for e.g., udder has been 5.4 index units too high in earlier runs. For Jersey the corresponding figures are -4.3, -0.5 and -5.8 for frame, feet & legs and udder respectively. The largest effect for a single trait is in both breeds seen for udder depth for RDC where the GEBVs have been 6.5 index units too high in RDC and 5.6 index units in Jersey. The effect on NTM is -1.6 index units in RDC and -0.9 index units in Jersey.

The error does not cause any reranking of genomic tested animals for the single linear traits and only to a very minor degree for composite traits and NTM. But removing the error reduce the estimated genetic differences for type traits between progeny tested AI bulls and genomic tested AI bulls compared to what have been presented earlier.

Table 1. Changes in GEBV means caused by the correction of GEBV base adjustments, index units

<b>Trait group</b>	<b>Trait</b>	<b>RDC</b>	<b>Jersey</b>
<b>Frame</b>	<b>Frame</b>	<b>0.9</b>	<b>-4.3</b>
	Stature	-1.9	-4.8
	Body depth	2.6	1.4
	Chest width	1.9	-0.8
	Dairy form	-1.9	-2.3
	Top line	-0.3	-0.3
	Rump width	-0.8	-5.6
	Rump angle	-0.1	-0.2
<b>Feet &amp; Legs</b>	<b>Feet &amp; Legs</b>	<b>-3.8</b>	<b>-0.5</b>
	Rear legs, side view	-0.4	0.7
	Rear legs, back rear view	-0.7	0.0
	Hock quality	-3.8	-0.6
	Bone quality	-3.9	0.8
	Foot angle	0.2	-0.4
<b>Udder</b>	<b>Udder</b>	<b>-5.4</b>	<b>-5.8</b>
	Fore udder attachment	-3.2	-4.6
	Rear udder height	-3.7	-1.5
	Rear udder width	-1.7	-1.9
	Udder cleft support	0.7	-1.2
	Udder depth	-6.5	-5.6
	Teat length	-1.5	-0.1
	Teat thickness	-0.2	-0.5
	Teat placement front	-2.1	-4.1
	Teat placement Back	0.4	-2.5
	Udder balance	-2.1	2.5
<b>NTM</b>	<b>NTM</b>	<b>-1.6</b>	<b>-0.9</b>

#### Publication of GEBVs

GEBVs for bulls and females are published monthly. Nordic phenotypic information is updated 4 times a year (February, May, August and November), and is used in the reference population for genomic prediction. The GEBVs for pure breed animals are expressed on the same cow base as in the May evaluation; cows born from 03.05.2017 to 03.05.2019. The GEBVs for crossbred animals are expressed on a slightly different genetic base; females born from 03.05.2014 to 03.05.2021.

Official GEBVs for bulls used for AI in Denmark, Finland or Sweden are published at the [NAV Bull Search](#) page.

#### GEBVs for dairyxdairy crossbreds

Joint Nordic GEBVs for dairyxdairy crossbred females were published for the first time 7th December 2021. The procedures for calculating GEBVs have not been changed since the introduction, but for a few animals it has been observed that the changes in GEBVs between subsequent evaluations are significantly larger than expected. NAV is investigating what is causing these unexpected large changes.

#### Publication of NAV EBVs on search pages

Official NAV GEBVs for foreign AI bulls not used for AI in Denmark, Finland and Sweden are published on the [NAV homepage](#) in an excel sheet. The excel sheet also includes GEBVs for bulls used for AI in Denmark, Finland and Sweden. The excel sheet includes AI bulls that are from 10 months to 5 years old at the date of publication. The excel sheet is mainly useful for foreign AI-companies.

Interbull EBVs/GEBVs are published at the [NAV Interbull Search](#) page. The Nordic total merit index (NTM) is not calculated based on GMACE GEBVs, since Interbull regulations do not require member countries to calculate total Merit Indices based on Interbull GEBVs, and internationally it is not a common practice.

## Genetic evaluation for Purebred Beef animals

The latest genetic evaluation of purebred beef animals took place 7 June 2022. NAV publish EBVs for calving, growth and carcass traits based on phenotypes from purebred beef Angus, Charolais, Simmental, Hereford, and Limousine cattle. Extraction date for the data used in the June evaluation can be found in table 2. Breeding values for pure beef cattle are estimated four times per year (table 3), and EBVs are published at [NAV Beef Search](#).

**Table 2.** Dates for extraction of data from the national databases

Trait	Denmark	Finland	Sweden
Pure beef cattle	04.05.2022	16.05.2022	12.05.2022

## News in relation to NAV Beef cattle genetic evaluation

- Corrected an error in the creation of “slaughter-month-year” class effect
- Corrected an error in the estimation of reliability for calving traits
- Corrected International IDs of Danish animals to avoid aliases in the pedigree file

### Correction of “slaughter-month-year” class effect

Correction of the error in the creation of the class variable “slaughter-month-year” lead to slightly larger changes than expected for the carcass traits: carcass conformation, carcass fat score and slaughter daily gain.

### Correction of the error in the estimation of reliability for calving traits

The consequence of the bug in the reliability program for calving is that some animals earlier had a too high reliability. These animals will change from having a publishable breeding value to NOT having a publishable one

### Corrected International IDs of Danish animals to avoid aliases in the pedigree file

International IDs of Danish animals have been corrected to address the problem some Danish farmers experience of a mismatch between the IDs sent and received from the PbB evaluation

## NAV – frequency and timing of official runs

NAV has 4 large dairy evaluations per year, which include updated phenotypic and genomic data, and additional eight small runs including updated genotypes. In Table 3 the NAV and INTERBULL release dates for 2022 are shown. The beef evaluation based on beef x dairy crossbreeds take place along with the large NAV dairy runs 4 times a year. The NAV pure beef evaluation has its own time schedule

Table 3. NAV and INTERBULL release dates in 2022. EBVs released at NAV dates in bold will be delivered to international genetic evaluation.

Month	Dairy Cattle			Beef Cattle	
	NAV Small run <sup>1)</sup>	NAV Large runs <sup>2)3)</sup>	INTERBULL	NAV Pure Beef	INTERBEEF
January 2022	5				
February 2022		1			
March 2022	1			1	4
April 2022	5		5	12	
May 2022		3			
June 2022	7			7	
July 2022	5				
August 2022		9	9		
September 2022	6				
October 2022	4				21
November 2022		1		1	
December 2022	6		6		

<sup>1)</sup> Genotypes updated; <sup>2)</sup> Genotypes and phenotypes updated; <sup>3)</sup> Beef x dairy evaluation

You can get more information about the joint Nordic evaluation:

General about Nordic Cattle Genetic Evaluation: [www.nordicebv.info](http://www.nordicebv.info)

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