

# News - NAV evaluation

## 3 May 2022

### Dairy cattle

The latest NAV official evaluation for yield, fertility, conformation, udder health, general health, calving traits, milkability, temperament, growth, longevity, young stock survival, claw health, saved feed and NTM took place as scheduled. NAV carried out three evaluations per trait group:

*Holstein evaluation*, including data from: Danish Holstein, Swedish Holstein, Norwegian Holstein, Finnish Holstein, Finnish Ayrshire and Finncattle.

*Red Dairy Cattle evaluation*, including data from: Danish Red, Swedish Red, Finnish Ayrshire, Finnish Holstein and Finncattle.

*Jersey evaluation*, including data from: Danish Jersey, Swedish Jersey, Finnish Jersey, Norwegian Jersey and French Jersey.

### Extraction dates

Dates for extraction of data from national databases are given in Table 1.

**Table 1.** Dates for extraction of data from the national databases

Trait	Denmark	Finland	Sweden
Yield	14.03.2022	07.03.2022	10.03.2022
Type, milkability and temperament	14.03.2022	07.03.2022	11.03.2022
Fertility	14.03.2022	07.03.2022	12.03.2022
Udder health and other disease	14.03.2022	07.03.2022	12.03.2022
Calving <sup>1)</sup>	14.03.2022	07.03.2022	12.03.2022
Longevity	14.03.2022	07.03.2022	12.03.2022
Growth <sup>1)</sup>	14.03.2022	07.03.2022	12.03.2022
Claw health	14.03.2022	07.03.2022	12.03.2022
Youngstock survival	14.03.2022	07.03.2022	12.03.2022
Saved feed	14.03.2022	07.03.2022	12.03.2022
Pure beef cattle	20.03.2022	22.03.2022	17.03.2022

<sup>1)</sup>Including data for the evaluation of beef bulls used on dairy

### Data used in genomic prediction

Genotypes were extracted from the joint Nordic SNP data base 18 March 2022. INTERBULL information from April 2022 was included in the genomic prediction.

## News in relation to NAV dairy genetic evaluation

### Traditional evaluation

- No changes

### Genomic prediction

- No changes

### NTM

- Increased weight on Claw health for Jersey

### Increased weight on Claw health in NTM for Jersey

Based on recommendations from Jersey breed organisations the NAV board has decided to change the weigh given to claw health weight in NTM from 0.04 to 0.09. The change increase the expected response for claw health and has a very limited effect on the genetic response in all other traits (Table 3).

**Table 2.** Relative weights for each sub-index in NTM for and Jersey. Previous weight factors (Prev NTM) and new weight factors (New NTM)

	Prev NTM	New NTM
Yield	0.83	0.83
Growth	0.00	0.00
Fertility	0.26	0.26
Birth	0.04	0.04
Calving	0.07	0.07
Udder health	0.44	0.44
General health	0.14	0.14
Frame	0.00	0.00
Feet & legs	0.07	0.07
Udder	0.15	0.15
Milkability	0.09	0.09
Temperament	0.03	0.03
Longevity	0.09	0.09
Claw health	<b>0.04</b>	<b>0.09</b>
Young stock surv.	0.10	0.10
Saved Feed	0.18	0.18

Table 3. Expected genetic response for a NTM giving different weight to claw health. 974 Jersey bulls born 2019-2020. Prev NTM) and new weight factors (New NTM)

	Prev NTM	New NTM
<b>Claw health weight</b>		
Yield	0.70	0.69
Growth	0.06	0.05
Fertility	0.23	0.24
Birth	-0.02	-0.01
Calving	0.24	0.24
Udder health	0.46	0.46
General health	0.37	0.38
Frame	-0.03	-0.04
Feet & legs	0.12	0.13
Udder	0.15	0.15
Milkability	0.09	0.08
Temperament	0.05	0.04
Longevity	0.37	0.38
Claw health	0.10	0.17
Young stock surv.	-	-
Saved Feed	0.04	0.05

### **GEBVs for dairyxdairy crossbreds**

Joint Nordic GEBVs for dairyxdairy crossbred females were published for the first time 7<sup>th</sup> 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 two subsequent evaluations are significantly larger than expected. NAV is investigating what is causing these unexpected large changes.

### **Genetic base**

EBVs for bulls and females are expressed on the same cow base. This genetic evaluation included cows born from 03.05.2017 to 03.05.2019 in the genetic base (average 100).

### **Publication of NTM for Nordic and foreign bulls**

NTM is published if the bull has official EBVs (NAV (G)EBV or international EBV) for Yield, Mastitis and Type. By official means for NAV EBVs that the NAV thresholds are met, and for international EBVs (IB EBVs) that Interbull EBVs for the single bull exist. For traits without a NAV (G)EBV or an IB (G)EBV a NAV pedigree index is calculated.

For bulls with a Nordic herd book number the pedigree index follows the principles described in the October 2008 routine information. For foreign bulls without a Nordic herd book number the pedigree index is calculated in as  $\frac{1}{2}(\text{EBVsire}-100) + \frac{1}{4}(\text{EBVmgs}-100) + 100$ . If EBVsire or EBVmgs is not official NAV EBVs then 100 is used.

### **Publication of EBVs/GEBVs**

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

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

Interbull EBVs/GEBVs are published at the [NAV Interbull Search](#).

### **Genetic evaluation of beef bulls used in dairy herds**

The latest NAV routine evaluation for AI beef bulls based on their crossbred offspring from dairy cows for birth and carcass traits took place as scheduled. Extraction date for the data can be found in table 1. Breeding values for AI beef bulls are estimated four times per year, in connection to the NAV routine genetic evaluation for dairy breeds (table 4), and EBVs are published at [NAV Beef Search](#).

No news has been introduced in the NAV genetic evaluation of beef bulls used in dairy herds

### **Genetic base**

The genetic base for beef bulls evaluated based on dairy crosses is defined as relative breeding values with a mean of 100 and standard deviation of 10. The genetic base animals for beef bulls evaluated based on dairy crosses constitutes of 2-5 year old crossbreds born after beef breeds which can be used in all 3 countries.

### Fee for EBV of beef bulls based on beef x dairy crossbred offspring

Nordic Cattle Genetic Evaluation (NAV) conducts a genetic evaluation of AI beef bulls based on beef x dairy crossbred offspring for calving and carcass traits. A fee system was introduced 1.1.2020 for the service. It means a fee must be paid for all bulls getting publishable EBVs for the first time after 1.1.2020. No fee needs to be paid for bulls already having official EBVs before 1.1.2020. To get published EBVs the following criteria should be fulfilled for each bull:

- The EBV should meet the criteria for publication
- A one-time fee of currently 1,000 euro per bull should be paid

More information about the genetic evaluation and the publication criteria can be found at <https://www.nordicebv.info/beef-cattle/beef-x-dairy-publication/>

### Genetic evaluation for Purebred Beef animals

The latest genetic evaluation of purebred beef animals took place 12. April 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 April evaluation can be found in table 1. Breeding values for pure beef cattle are estimated four times per year (table 3), and EBVs are published at [NAV Beef Search](#).

### 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 4 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 4. 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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