

News - NAV evaluation

9 August 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 for the latest official evaluations are given in Table 1.

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

Trait	Denmark	Finland	Sweden
Yield	20.06.2022	09.06.2022	10.06.2022
Type, milkability and temperament	20.06.2022	09.06.2022	10.06.2022
Fertility	20.06.2022	09.06.2022	11.06.2022
Udder health and other disease	20.06.2022	09.06.2022	11.06.2022
Calving ¹⁾	20.06.2022	09.06.2022	11.06.2022
Longevity	20.06.2022	09.06.2022	11.06.2022
Growth ¹⁾	20.06.2022	09.06.2022	10.06.2022
Claw health	20.06.2022	09.06.2022	10.06.2022
Youngstock survival	20.06.2022	09.06.2022	11.06.2022
Saved feed	20.06.2022	09.06.2022	10.06.2022
Pure beef cattle	04.05.2022	16.05.2022	12.05.2022

¹⁾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 27 June 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

Metabolic efficiency – data included

Metabolic efficiency is based on feed intake data. The core trait for metabolic efficiency is residual feed intake, which is the observed feed intake minus the expected feed intake. The expected feed intake is calculated by use of information about yield and metabolic body weight change.

In table 2 the amount of feed intake data available for the August 2022 run is shown for all three breeds. The amount of feed intake data has increased significantly during the last year. CFIT data is in August 2022 included from in total 17 herds and more than 6,000 cows

Table 2 Feed intake data for genetic evaluation of metabolic efficiency in August 2022

	Holstein			RDC		Jersey
	CFIT data	Danish research farm data	Abroad research farm data ^{a)}	CFIT data	Finnish research farm data	CFIT data
Cows with feed intake phenotypes	2688	967	1581	1951	724	1378
Cows with feed intake phenotypes and genotypes	1824	589	1450	1679	372	1107
Lactations included	1-6	1-3	1-6	1-6	1	1-6
Number of herds	7	1	a)	6	4	4

a) Research farm data from Canada, US and Australia

GEBVs for dairyxdairy crossbreds

Joint Nordic GEBVs for dairyxdairy crossbreed 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 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 09.08.2017 to 09.08.2019 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 3), 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 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 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 3 the NAV and INTERBULL release dates for 2022 are shown. The beef evaluation based on beef x dairy crossbreds 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 ¹⁾	NAV Large runs ²⁾³⁾	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		

1) Genotypes updated; 2) Genotypes and phenotypes updated; 3) Beef x dairy evaluation

You can get more information about the joint Nordic evaluation:

General about Nordic Cattle Genetic Evaluation: www.nordicebv.info

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