

News NAV evaluation

4 July 2023

Genetic evaluation of 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 2 June 2023. INTERBULL information from April 2023 and national information from 2 May 2023 run were included in the genomic prediction.

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 February evaluation; cows born from 02.05.2018 to 02.05.2020. The GEBVs for crossbred are expressed on a genetic base of 1-7 year old crossbreds.

News in relation to NAV dairy genomic evaluation

- Imputation procedure in relation to DXD genomic prediction has been improved.

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. It has been observed that the changes in GEBVs between subsequent evaluations have been significantly larger than expected. NAV has investigated what has caused these unexpected large changes and has concluded that the primarily reason was the applied procedure for imputation of missing SNPs for the cross breeds. Imputation is a method to estimate which snp an animal has if a given snp is not genotyped by the lab. By the old procedure a limited number of pure breed genotypes was used and both pure breed and cross breed genotypes was imputed in one step. By the improved method more pure breed genotypes are included, and pure breed and cross breed genotypes are imputed separately.

The introduced improvement does not affect the majority of DXD animals getting GEBVs, but for the few ones which before had very large changes in GEBVs between subsequent runs the new procedures improves the stability of the GEBVs significantly.

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 of beef bulls used in dairy herds

The latest NAV official evaluation for AI beef bulls based on their crossbred offspring from dairy cows for birth, youngstock survival and carcass traits took place 2 May. Breeding values for AI beef bulls are estimated four times per year, in connection to the NAV routine genetic evaluation for dairy breeds (table 1), and EBVs are published at [NAV Beef Search](#).

Genetic evaluation of pure beef cattle

The latest Nordic Cattle Genetic Evaluation (NAV) official evaluation for calving, growth and carcass traits took place 6 June based on phenotypes from purebred Angus, Charolais, Simmental, Hereford, and Limousine beef cattle.

Breeding values for pure beef cattle are estimated four times per year, and EBVs are published at [NAV Beef Search](#).

Interbeef 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 1 the NAV and INTERBULL release dates for 2023 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 1. NAV and INTERBULL release dates in 2023. 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 2023	3				
February 2023		7			
March 2023	7			7	3
April 2023	4		4	18	
May 2023		2			
June 2023	6			6	
July 2023	4				
August 2023		8	8		
September 2023	5				
October 2023	3				20
November 2023		7		7	
December 2023	5		5		

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

You can get more information about the joint Nordic evaluation:

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