News - NAV routine evaluation
May 2nd 2014

The latest NAV routine evaluation for yield, fertility, type, udder health, other diseases, calving traits, milk ability, temperament, growth, longevity, claw health and NTM took place as scheduled. NAV carried out three evaluations per trait group:

Holstein evaluation, including data from: Danish Holstein, Danish Red Holstein, Swedish Holstein, Finnish Holstein, Finnish Ayrshire and Finn Cattle.

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

Jersey evaluation, including data from: Danish Jersey and Swedish Jersey (only yield and type).

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	30.03.2014	18.03.2014	13.03.2014
Type, milk ability and temperament	01.04.2014	18.03.2014	31.03.2014
Fertility	01.04.2014	18.03.2014	15.03.2014
Udder health and other disease	01.04.2014	18.03.2014	15.03.2014
Calving	01.04.2014	18.03.2014	15.03.2014
Longevity	01.04.2014	18.03.2014	15.03.2014
Growth	31.03.2014	18.03.2014	22.03.2014
Claw health	01.04.2014	18.03.2014	10.03.2014

Data used in genomic prediction
Genotypes were extracted from the joint Nordic SNP data base April 22th 2014. Interbull information from April 2014 and national information according to extraction dates in table 1 were included in genomic prediction.

News in relation to NAV genetic evaluation

- Weighting on traits in Y-index have been modified for RDC
- Weighting on yield in NTM have been slightly changed for RDC
- Publication age for genomic tested young AI bulls has been decreased from 17 months to 10 month

Genomic prediction
Publication age for genomic tested young AI bulls has been decreased from 17 months to 10 months for all breeds

Traditional evaluation
Mastitis
New SCC genetic parameters for Jersey and RDC were applied in the May routine evaluation. Furthermore some minor errors in the editing procedures for mastitis for all breeds were corrected. The improvements cause some changes in the EBVs for mastitis for both cows and bulls. Table 2 shows the correlations between the new and old mastitis evaluation for bulls and cows.

Table 2 .Correlations between the new and old mastitis evaluation for bulls and cows

	RDC	Holstein	Jersey
Bulls	0.98	>0.99	0.99
Cows	0.96	>0.99	0.97

The update of SCC genetic parameters causes some reranking for RDC and Jersey animals. The majority of bulls changed very little, but a few RDC and Jersey bulls changed with 4-6 index points. For cows the changes are somewhat bigger and about 10% of the EBVs for RDC and Jersey cows change more than 3 index points.

Weights in Y-index

The relative weight on fat in the Y-index has been increased for RDC (table 3). The correlation between the new and old Y-index for RDC is very high 0.994 based on bulls born 2005-2007.

Table 3. Relative weights in Y-index

	M-index	F-index	P-index
RDC-old	-0.25	0.25	1.00
RDC-May 2nd 2014	**-0.20**	**0.40**	**0.80**
HOL	-0.20	0.40	0.80
RED HOL	-0.20	0.40	0.80
JER	-0.30	0.50	0.80

NTM

RDC has slightly increased the weight on yield in NTM to keep the same genetic progress for yield, when the weight on fat in the Y-index has been increased. The new weights have been discussed at a NAV workshop held January 9th 2014 and approved by the NAV board in March 2014. Columns marked May 2nd 2014 in table 4 show the new weights. The effect of the changed weights in NTM for RDC on the correlations between NTM and the single traits is very small.

Table 4. Current weight factors for NTM

	Holstein	RDC-old	RDC-May 2nd 2014	Jersey	Red Holstein
Yield*	0.75/0.68	0.92/0.84	**0.96/0.88**	0.87/0.78	0.75/0.68
Growth	0.06	0.00	0.00	0.00	0.11
Fertility	0.31	0.26	0.26	0.20	0.23
Birth index	0.15	0.14	0.14	0.06	0.17
Calving index	0.17	0.12	0.12	0.06	0.17
Udder health	0.35	0.32	0.32	0.44	0.35
Other diseases	0.11	0.12	0.12	0.04	0.12
Body	0.00	0.00	0.00	0.00	0.00
Feet&Legs	0.12	0.09	0.09	0.04	0.15
Udder	0.25	0.32	0.32	0.26	0.24
Milk ability	0.08	0.10	0.10	0.10	0.08
Temperament	0.03	0.03	0.03	0.03	0.03
Longevity	0.11	0.07	0.07	0.08	0.11
Claw health	0.08	0.05	0.05	0.05	0.10

*Weight factor for bulls/weight factor for cows with own yield record, but without genomic information

Genetic base

EBVs for bulls and females are expressed on the same cow base. This genetic evaluation included cows born from 02.05.2009 to 02.05.2011 in the genetic base (average 100)

Genomic EBVs (GEBVs)
GEBVs combine genomic and phenotypic information. GEBVs are estimated for all combined traits in NTM, single type traits, and NTM. Table 5 describes how different categories of genotyped animals are handled in the evaluation. All non genotyped animals get traditional EBVs.

Table 5 Publication of Genomic breeding values (GEBVs) for different categories of animals

Category of animals		**Status**	**Published Breeding value**
Genotyped males	Bulls without a progeny test	Culled	None
		AI bulls with a Nordic herd book number	**GEBV** when at least 10 month old at publication date
	Bulls with a Nordic progeny test or a progeny test abroad	AI bulls with a Nordic progeny test	EBV
		Foreign AI bulls with a Nordic herd book number and a progeny test abroad	IB EBV for all international traits available. **GEBV** for traits with pedigree information only
Genotyped females	Heifers & cows		**GEBV**

- EBV=Estimated breeding value based on phenotypic data only
- IB EBV = Interbull breeding value based on phenotypic data only
- GEBV=Genomic Enhanced breeding value – based on phenotypic data and genomic information

For animals having a GEBV, the GEBV is published as the official index instead of the EBV

Publication of NTM for Nordic and foreign bulls
A NTM is published if the bull has official EBVs (NAV 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. EBVs are used in the following priority NAV EBVs, IB EBVs and Pedigree index. For traits without a NAV EBV or an IB 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 ½(EBVsire-100) +1/4(EBVmgs-100) +100. If EBVsire or EBVmgs is not official NAV EBVs then 100 is used.

NAV – frequency and timing of routine runs
NAV has 4 evaluations per year including all phenotypic data. In Table 6 the future NAV and INTERBULL release dates are shown. NAV does eight extra genomic predictions to get GEBVs based on the newest information for all genotyped bull calves and females. The extra runs in 2014 takes place 2.1, 3.3, 2.4, 2.6, 2.7, 2.9, 2.10, and 2.12. After the extra runs GEBVs for females are published on national data bases

Table 6. NAV and INTERBULL release dates in 2014. EBVs released at NAV dates in bold will be delivered to international genetic evaluation.

	2014	
Month	NAV	INTERBULL
January 2014		
February 2014	**2**	
March 2014		
April 2014		1
May 2014	2	
June 2014		
July 2014		
August 2014	**12**	12
September 2014		
October 2014		
November 2014	**3**	
December 2014		2

You can get more information about the joint Nordic evaluation:

General about Nordic Cattle Genetic Evaluation: www.nordicebv.info
Contact person: Gert Pedersen Aamand, Ph.: +45 87405288 gap@vfl.dk,

Denmark: www.landbrugsinfo.dk/kvaeg/avl/avlsvaerdital-for-malkekvaeg
Contact person: Ulrik Sander Nielsen, VFL Cattle, Ph. +45 87405289, usn@vfl.dk

Sweden: www.sweebv.info, www.vxa.se
Contact person: Jan-Åke Eriksson, Växa Sverige, Ph. +46 010 471 06 26
Jan-Ake.Eriksson@vxa.se

Finland: www.faba.fi
Contact person: Jukka Pösö, Faba, Ph +358-(0)207472071 jukka.poso@faba.fi