

Holstein-Friesland Genomic Analysis

SA Stud Book

June 2025

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3300



CERTIFICATE
OF QUALITY

Valid up to
October 2029

Dear Breeder, please note that the base year changed according to the INTERBULL recommendation for international participation, from 2015 to 2020.

Breeding values of traits with increasing breed genetic trends are therefore lower, while breeding values for traits with decreasing breed genetic trends are higher than the breeding values from the March 2025 Logix Genomic Evaluation.

The ranking of the animals, however, is not influenced by this base year adaptation.

Herd: 630591



Introduction

Genomic EBVs (GEBVs)



SA Stud Book strives to stay abreast of the latest scientific and technological developments. Genomically Enhanced Breeding Values (GEBVs) are therefore predicted for the SA Friesland breed, where genomic data are also included as a source of information in the genetic evaluation. Animals that were genotyped through SA Stud Book's Genomic Selection Service, are indicated by the accompanying logo in the Report. A representative reference population is available for the breed, which is essential to establish the relationship between SNP markers and breeding values. If a young animal has been genotyped, more information is available for estimation of its breeding values and the breeding values are estimated more reliably, especially those of complex traits like fertility and longevity. These GEBVs are therefore based on the expression of genes in the SA environment and population and built on the breed's own genetic parameters and variation, taking all measurements and pedigree information of both parental lines into account and is the most accurate and relevant information that selection decisions can be based on.



Another benefit of genomic analyses is the accurate verification of parentages, based on more than 50 000 SNP markers. If both the animal and parent have genomic tests, parentage as recorded on Logix, can be verified. The top block refers to the sire and the bottom block to the dam of the animal. This is indicated as follows in the Report:

- ☐ Parent does not have a genomic test. Parentage is not verified.
- ☒ Both animal and parent have genomic tests, and the parentage is verified.
- ☒ The genomic test indicates that there is a conflict in the parentage, *i.e.* the parentage is not correct.

Possible reasons:

1. The parentage was incorrectly recorded on Logix. Genomic information can be applied to indicate the correct parent, if that parent had also been genotyped. If the breeder of the animal can confirm that the suggested parent was also on the farm/ semen of bull was also used at the time of mating, the breeder should correct the parentage *via* the Breed Society on Logix.
2. The wrong biological sample was submitted for the genomic test. (Please ensure that biological samples are collected and labelled correctly, as the genomic test is very precise). In this case, the test should be repeated.

In the Genomic Evaluation relationships amongst the animals are adjusted according to the genomic information. It is therefore the breeder's responsibility to correct conflicting pedigree

information on Logix. The effect of correction of parentages on the estimation of breeding values, range from mild to drastic. If the correct and conflicting parents are, for example, closely related, the effect could be minimal. Similarly the effect will be minimal when the animal already has EBVs of high accuracy, *i.e.* has many measured progeny that contributed to the estimation of its breeding values, as is the case with most of the animals tested up to date. However, if the correct and conflicting parents differ genetically, or the animal is still young (its breeding values are mostly determined by its parent average), the effect could be much larger. It is in the interest of the breeder, the breed and the genomic programme to have correct recorded parentages as far as possible. For any questions – and if you would like to know if the genomic test indicated another parent – please contact Dr Bernice Mostert at bernice@studbook.co.za.

MACE Breeding Values

Young foreign AI-bulls' MACE (international) breeding values are still blended with their SA EBVs until the reliability of the bulls' EBVs, based on their SA daughters, reach 80%. Thereafter their EBVs are based solely on their SA daughters' information (measurements and genotypes). EBVs of young SA bulls that do not have daughter information, as well as those of heifers, are also based on their AI-sires' MACE EBVs.

Abbreviations

EFI	Efficiency Index
ICP	Intercalving Period
LMI	Logix Merit Index
LPI	Logix Production Index
BWI	Body Weight Index

Inclusion of Data

Age restrictions

Lac1 : 18 – 42 mths
Lac2: 30 – 54 mths
Lac3: 40 – 67mths

Production restrictions

Milk : 2.5 -90kg
BF% : 2 – 9%
Prot% : 2 – 6%

Test-day Records

1st test within 70 days after calving
No interval longer than 100 days
Only 1 interval between 75 and 100 days

At least one parent should be known

At least three tests for a lactation before lactation is included in the evaluation

Use www.sadairybulls.com, SA Stud Book's search engine, to view genetic profiles of specific bulls or groups of bulls. All (G)EBVs are expressed on the SA base, which is directly comparable to the (G)EBVs of your herd.

Breeding Values and Selection Indices

Milk, Butterfat and Protein Production

EBVs for these traits enable breeders to increase the milk, butterfat and protein yields of their herds by identifying high potential cows and heifers to stay in the herd, while low potential cows and heifers can be sold/culled. Selection on production traits alone, however, results in a decline in solid percentages, fertility and longevity, while resistance to mastitis will also deteriorate.

Butterfat and Protein Percentages

EBVs for the percentage traits indicate the amount of butterfat or protein relative to that of milk. Never select on percentage EBVs alone, as high percentage EBVs might also be due to low milk volumes. The percentage of solids in the herd can be increased by selecting for higher butterfat and protein EBVs, while keeping the genetic level of milk production constant.

Somatic Cell Score

Low EBVs for Somatic Cell Score are an indication of a cow's genetic ability to resist infections, eg. mastitis. These breeding values are expressed as a score on the logarithmic scale. Smaller EBVs are therefore desirable.

Calving Interval

EBVs indicate how much longer (positive EBVs) or shorter (negative EBVs) the cow's calving interval is in comparison to the average of the base cows. A penalization is also applied in the genetic evaluation for cows with prolonged lactations without subsequent calving dates, therefore cows that struggles to become pregnant. Smaller EBVs are desirable and indicates more fertile animals.

Functional Herd Life

EBVs for Functional Herd Life are expressed as relative indices with average the average of the base cows set to 100 and a standard deviation of 12. Animals with EBVs of 112 are therefore 1 standard deviation unit above the average, while EBVs of 76 are 2 standard deviation units below the average. These EBVs are based on the survival of cows up to the 4th calving.

Selection Indices

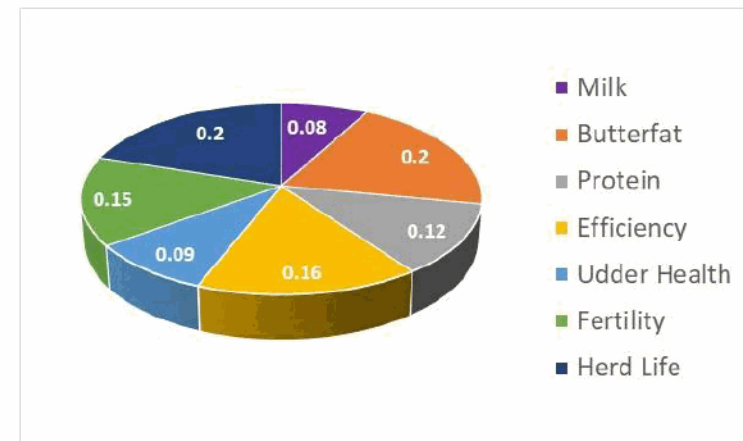
To simplify the selection of animals, the different EBVs are combined into a selection index, i.e. the Logix Merit Index, where Production, Efficiency, Udder Health, Fertility and Longevity

are combined in optimal proportions to address the strong and weak aspects of the breed. This will ensure sustainability of genetic progress as balanced breeding is promoted.

The relevant indices are constructed as follows:

- $LMI = 0.08 \text{ Milk} + 0.20 \text{ Bfat} + 0.12 \text{ Prot} + 0.16 \text{ Efficiency} + 0.09 \text{ Udder Health} + 0.15 \text{ Fertility} + 0.20 \text{ HerdLife}$
- Efficiency Index (EFI) = $0.15 \text{ Milk} + 0.3 \text{ Bfat} + 0.2 \text{ Prot} + 0.12 \text{ Density} - 0.23 \text{ Body Weight}$
- Density = $-(\text{Milk EBV} - ((\text{Bfat EBV} + \text{Prot EBV})/0.032))$
- Logix Production Index (LPI) = $0.2 * \text{Milk} + 0.5 * \text{Butterfat (kg)} + 0.3 * \text{Protein (kg)}$

Construction of the LMI



The LMI and LPI are expressed around 100 (average of base year), with standard deviation = 12. A LMI of 88 is therefore 1 standard deviation below the average, while a LMI of 118 is 1.5 standard deviations above the average of the breed.

The data used in this evaluation has been obtained from LOGIX as well as the ARC, as supplied by breeders. Everything possible had been done to present the information correctly. SA Stud Book does not take any responsibility for the use and interpretation of the information from this publication.

SINGLE GENE TRAITS

Genes mutate or change. The most common form of a gene, is called the original gene or 'wild type'. Some genes have many different variants, but an animal can only have 2 of the variants, as one copy is received from the sire and the other from the dam. These genes can be the same variant (homozygous), or different variants (heterozygous).

If the animal is heterozygous, one gene may dominate (animals with a polled gene and a horned gene will be polled because polled is dominant).

Traits are rarely 100% influenced by a single gene; there are usually interactions with other genes that may (slightly) alter the trait.

Breed Fraction

Indication of the animal's breed purity with regards to 12 bovine breeds that are genotyped in South Africa.

% Homozygosity

Percentage markers (SNPs) that are similar as received from the parents and therefore an indication of genetic diversity.

Polled and Horned (Celtic and Friesian)

The polled gene is dominant. Only HH animals will therefore have horns.

- PcPc: The animal breeds pure for polled. This means that the animal received a polled gene from both its parents and can only transmit the polled gene to its offspring.
- PcH: The animal is polled, but carries the horn gene, because the polled gene (Pc) is dominant over the horn gene (H). It can transmit either a polled or horned gene to its offspring.
- HH: The animal breeds pure for horns. It can only transmit horn genes to its offspring.
- The exact inheritance of 'Scurs' is still unknown.

ABCG2

An additive gene lowering milk fat (kg and %) and increase milk volume.

DGAT1

A gene that increase butterfat production and butterfat- and protein percentages, while decreasing milk- and protein production.

Beta-Casein composition of milk

Several variants of the gene for beta-casein in milk exists. The most common are the A1- and A2-variants, which are co-dominant. For pure A1-milk the cow therefore has to be A1A1, and for A2-milk she has to be A2A2, with similar quantities of A1- and A2-milk being produced by cows having the heterozygous genotype (A1A2). The A1-variant is associated with higher butterfat- and protein percentages, while the A2-variant has a positive impact on milk- and protein production and is considered to be more healthy. Other variants of the gene are A3, B, C, D, E, F,G,H1, H2 and I, which are rarer.

Kappa-Casein composition of milk

Important in the production of cheese. It forms about 13% of the protein in milk. and influences milk clotting and cheese yield as it is a stabilizing factor that determines how well and fast the milk coagulates. Two different forms of Kappa-Casein are tested for, with 3 different genotypes that can therefore occur depending on the variants that were carried over by the parents: AA, AB or BB. These genotypes produce different forms of Kappa-Casein in the milk which influences the quality of the cheese. Cows with BB-genotypes produce milk with higher levels of fat and protein that clots more quickly and produce the highest cheese yield and is therefore the most desired genotype.

Beta-Lactoglobulin (LGB)

Associated with traits of economical importance relevant to milk composition, quality, yield as well as cheese production. LGB represents around 50% of whey protein and 12% of total milk prot of dairy cows. BB-genotypes are associated with milk quality (solids), while AA-genotypes are associated with milk production.

Yellow Milk Fat Variant

A recessive gene, which increase β -carotene, a precursor of Vit A, in milk and results in yellow colouring of the milk.

BLAD (Bovine Leukocyte Adhesion Deficiency)

An unwanted, recessive gene where affected calves often have severe ulcers in the mouth, teeth loss, chronic pneumonia and diarrhoea. Death often occurs at a young age due to infections.

Citrullinaemia (CT)

A lethal recessive gene where affected calves are born normal, but become depressed within 24 hours. In 3-5 days they develop tongue protrusion, unsteady gait, wander aimlessly, froth at the mouth, develop convulsions and die.

DUMPS (Deficiency of Uridine Monophosphate Synthase)

A lethal, recessive gene where affected calves are aborted around day 40 of pregnancy. The affected embryos are often resorbed during the first 2 months of gestation, leading to more services per calving and longer than normal icps.

Mule Foot (Syndactyly)

An unwanted recessive gene causing fusion of the cloven hoof. Affected cattle can have 1-4 fused hooves, show varying degrees of lameness, have a high-step gait and may walk slowly.

Holstein Haplotypes (1, 3, 4 and 5)

Lethal recessive genes where calves, homozygous for the mutation, are aborted early in gestation. Mating of two carriers will have a 25% probability to produce lethal progeny.

Important Information

SA Stud Book and/or the LOGIX system distance itself from any errors which are beyond its control and cannot be held liable for any such errors. SA Stud Book and the LOGIX system only publishes the information at its disposal and assumes that sampling on the farm, handling of the samples and the actions in the laboratory were performed correctly.

Genetic Windows

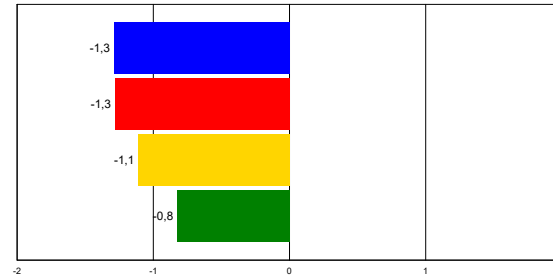
Base Year: 2020

Interpretation:

1. Genetic Windows indicate the average of the active animals in the herd relative to the average of the breed.
2. The average of all the active animals in the breed (cows, heifers and bulls) is set as zero and the deviation of the herd's cows, heifers, sires of cows and sires of heifers from the breed average are expressed in standard deviation units (SDU).
3. This means that approximately 67% of the animals will lie within -1 and +1 SDU from the average, 95% between -2 and +2 SDU and 99% between -3 and +3 SDU because EBV's are normally distributed.
4. Example: If the average of the cows of the herd's Production (combination of milk, butter fat and protein) is -0.5, it means that the active cows of the herd is half an SDU below the average of the breed.
5. Example: If the average Fertility of the sires of the active cows in the herd is 1.0, the ICP of the bulls used in the herd is 1 SDU lower (better) than the breed average.
6. It is more favourable for Weight of the animals to be below breed average.
7. Deviations from the average can be inaccurate if the number of animals on which it is based is low.

Measured Cows

Selection Indices



Logix Merit Index

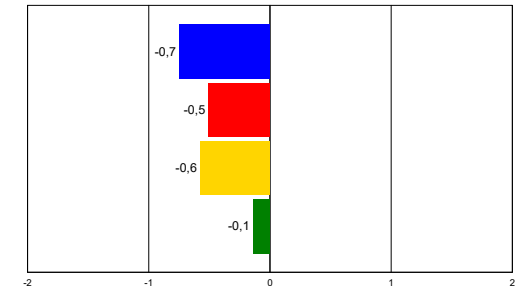
Production

Efficiency

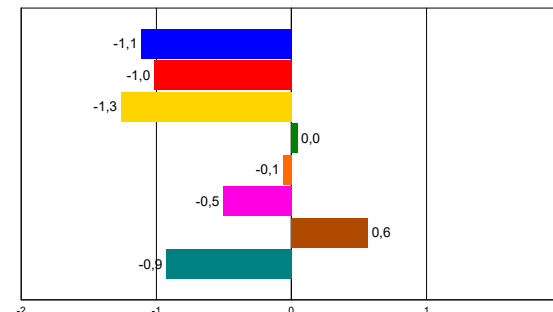
Weight

Sires of Cows

Selection Indices



Production and other Traits



Milk

Butterfat

Protein

BFat%

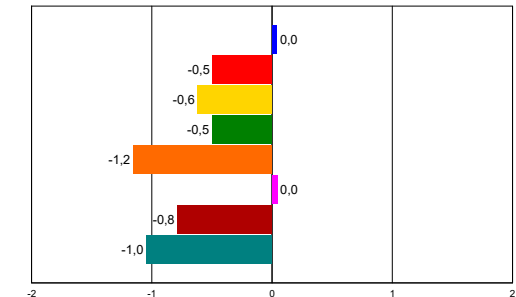
Prot%

Udder Health

Fertility

Herd Life

Production and other Traits



VERY IMPORTANT

Udder Health : Higher values, lower SSC, better health

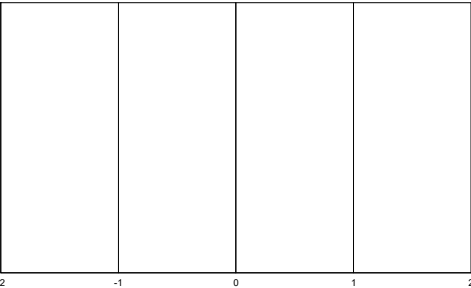
Fertility : Higher values, lower ICP, better fertility

Body Weight : Higher values, heavier animals

Genetic Windows

Heifers

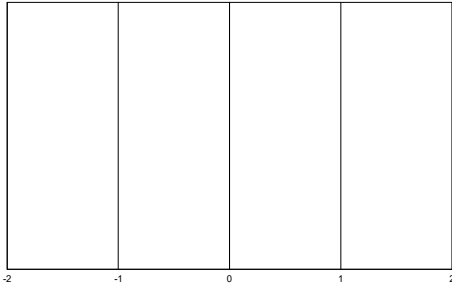
Selection Indices



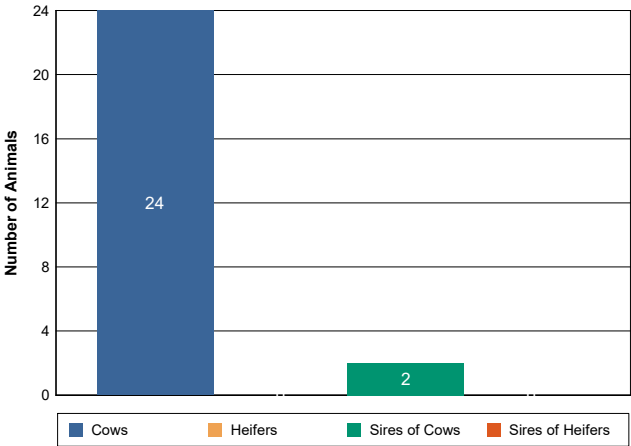
Logix Merit Index
Production
Efficiency
Weight

Sires of Heifers

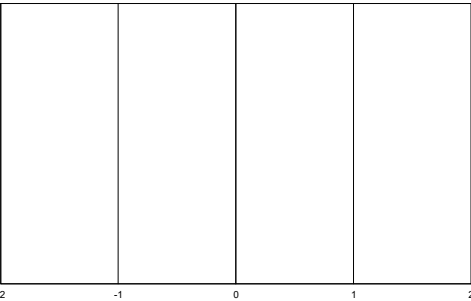
Selection Indices



Number of Cows, Heifers and Sires

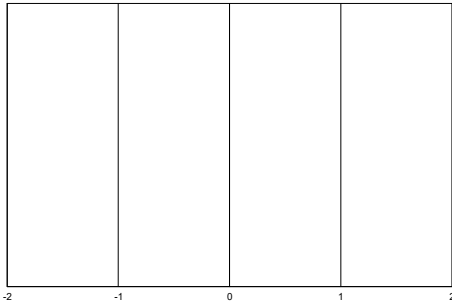


Production and other Traits



Milk
Butterfat
Protein
BFat%
Prot%
Udder Health
Fertility
Herd Life

Production and other Traits



Number of Cows per Age Group

Heifers	Lac 1	Lac 2	Lac 3	Lac 4+
Number				

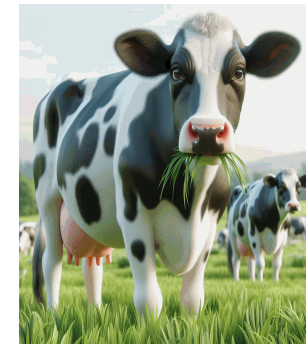
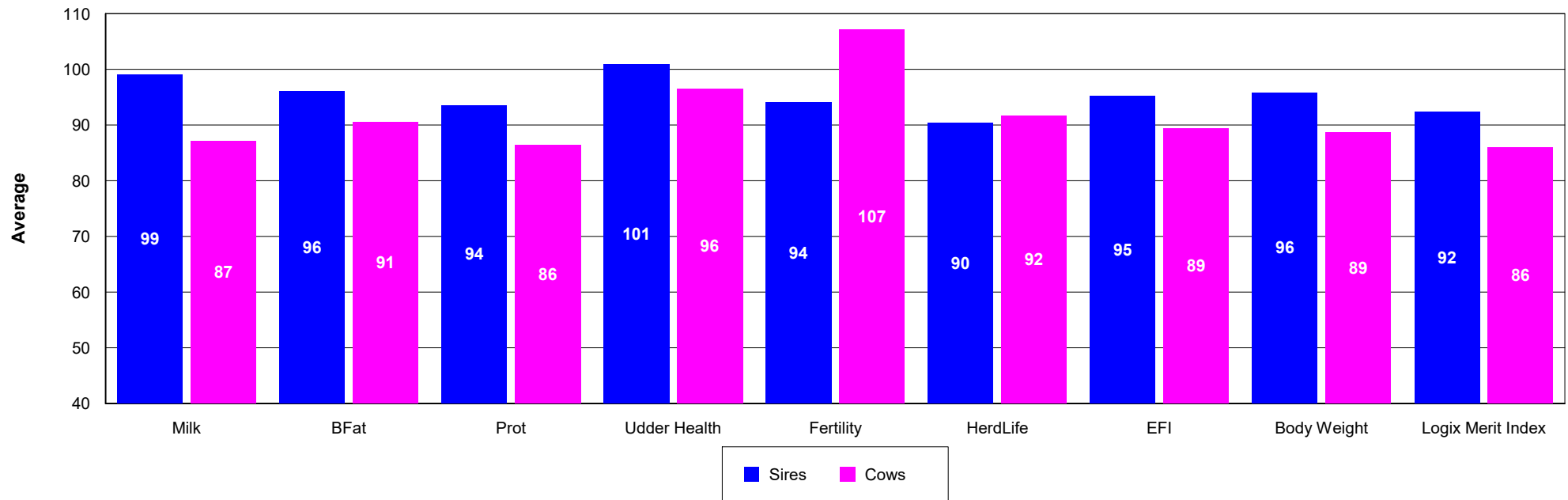
GENETIC RANKING OF THE HERD WITHIN THE ACTIVE BREED

The green blocks indicate where the specific herd ranks within the active population for every trait and selection index.

Trait	Top 5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	Bottom 95%
Melk	611.00	452.75	345.59	258.65	188.69	125.27	65.90	11.00	-38.00	-86.00	-128.00	-168.12	-215.00	-261.00	-312.00	-370.00	-440.00	-544.00	-673.00
BVet	27.30	20.70	16.70	13.50	10.50	8.20	5.80	3.90	2.00	0.00	-1.70	-3.50	-5.30	-7.00	-9.30	-11.70	-14.60	-19.20	-24.90
Prot	20.50	16.10	13.20	10.60	8.50	6.60	4.60	2.80	1.20	-0.20	-1.70	-2.90	-4.30	-5.70	-7.10	-8.80	-11.10	-14.20	-18.30
BV%	0.29	0.22	0.18	0.15	0.12	0.10	0.08	0.07	0.05	0.03	0.02	0.00	-0.01	-0.03	-0.06	-0.09	-0.12	-0.16	-0.25
Prot%	0.13	0.10	0.08	0.07	0.06	0.05	0.04	0.04	0.03	0.03	0.02	0.01	0.01	0.00	-0.01	-0.02	-0.03	-0.05	-0.08
SCS	-17.04	-13.13	-10.65	-8.86	-7.22	-5.58	-4.26	-2.98	-1.87	-0.70	0.42	1.62	2.75	4.02	5.65	7.06	9.35	12.15	16.65
TKP	-8.90	-7.10	-5.60	-4.60	-3.70	-3.10	-2.50	-1.90	-1.30	-0.70	-0.10	0.40	1.00	1.60	2.20	2.90	3.80	5.00	6.80
HLife	119.00	114.00	111.00	109.00	107.00	105.00	104.00	103.00	101.00	100.00	99.00	98.00	97.00	96.00	95.00	93.00	92.00	90.00	87.00
SIZE	111.90	107.40	104.90	103.40	102.20	101.00	100.00	99.20	98.30	97.50	96.50	95.50	94.50	93.20	92.00	90.10	88.70	85.70	80.80
DTI	118.90	114.90	112.10	109.80	108.10	106.30	104.50	103.00	101.70	100.50	99.20	98.20	96.90	95.70	94.70	92.90	91.40	88.60	83.50
LMI	119.80	115.80	112.90	110.50	108.20	106.10	104.40	102.70	101.30	99.90	98.60	97.30	96.20	95.00	93.50	92.20	90.20	87.40	82.50

Holstein-Friesland

Average Genetic Levels of the Herd



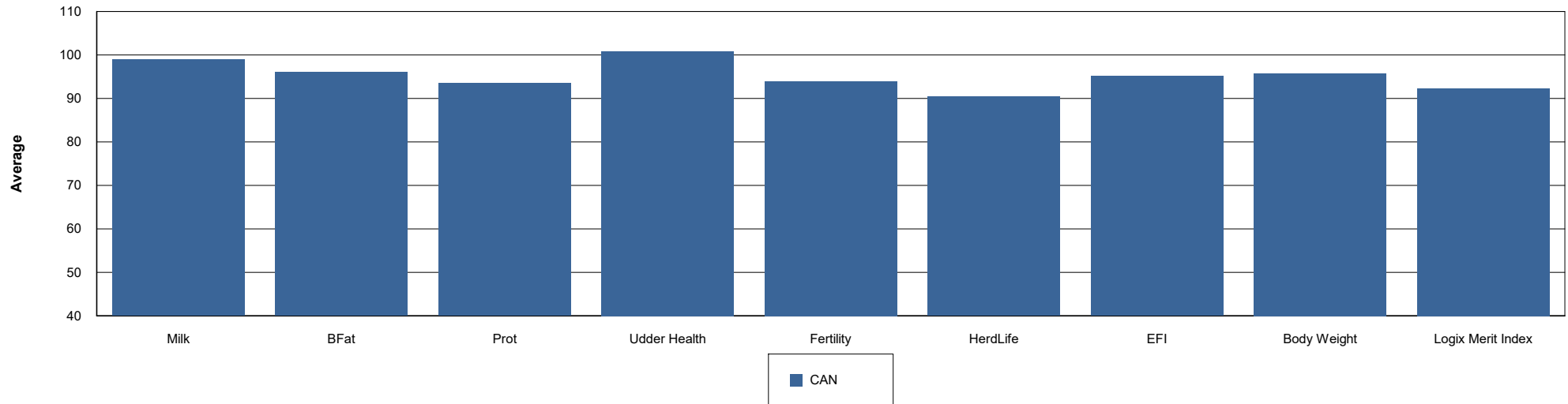
Holstein-Friesland

Genetic Averages of Active Cows per Age Group

Trait	Heifers		Lactation 1		Lactation 2		Lactation 3		Lactation 4+	
	Herd	Breed	Herd	Breed	Herd	Breed	Herd	Breed	Herd	Breed
Milk		99,7	89,7	102,3	86,6	101,9	87,3	101,9	82,3	100,9
Butterfat		102,6	93,4	104,0	89,1	103,3	90,3	103,5	85,7	101,9
Protein		103,1	90,4	104,9	87,3	104,0	83,0	104,1	78,3	102,5
BF%		102,3	102,6	100,7	101,3	100,6	101,8	100,8	101,7	100,6
Prot%		128,2	127,1	102,6	129,1	102,2	121,8	102,4	123,7	101,8
UdHealth		101,4	96,2	94,1	97,8	93,1	95,2	92,6	96,9	90,1
Fertility		100,3	101,3	99,5	108,6	98,7	108,0	98,9	116,0	99,5
HerdLife		102,2	94,6	100,6	93,4	100,8	87,3	102,6	88,3	105,1
BWC		97,5	91,7	101,4	86,9	100,7	92,1	100,1	80,8	99,3
EFI		103,6	92,5	100,3	89,0	100,2	87,3	100,4	84,3	99,6
LMI		103,5	89,1	100,9	86,3	100,3	83,8	100,2	80,9	98,9

Holstein-Friesland

Average Genetic Levels of Sires per Country of Origin



Number of Sires and Daughters per Country of Sire

Country	Nr Sires	Nr Daughters
CAN	2	3

Holstein-Friesland

Genetic levels of Cows and Heifers

Trait	Cows & Heifers		Cows		Heifers	
	Herd	Breed	Herd	Breed	Herd	Breed
Nr of Animals	24	16087	24	8942	0	7145
Avg Inbreeding	5.90	8.17	5.90	7.63		8.86
> 6.25% Inbred	14	13093	14	6531		6562
Estimated Breeding Values (EBVs)						
Milk	-501	-61	-501	-100		-12
Butterfat	-16.1	0.6	-16.1	-2.2		4.2
Protein	-14.6	0.5	-14.6	-1.6		3.1
Butterfat %	0.04	0.03	0.04	0.02		0.04
Protein %	0.02	0.02	0.02	0.02		0.03
Udder Health	96	100	96	100		101
Calving Interval	-3.6	-0.8	-3.6	-1.3		-0.2
Herd Life	92	101	92	100		102
Selection Indices						
LMI	86	101	86	99		104
Efficiency (EFI)	-0.89	0.09	-0.89	-0.08		0.30
Prod (LPI)	86	100	86	98		103
Body Weight	-0.95	-0.25	-0.95	-0.28		-0.21

The average breeding values and indices of cows and heifers currently in the herd and breed as on 2025/06/10

Genetic Levels of Sires

Trait	Sires	
	Herd	Breed
Nr Bulls	2	570
Avg Inbreeding	7.48	8.84
> 6.25% inbred	1	457
Estimated Breeding Values (EBVs)		
Milk	-40	94
Butterfat	-7.4	6.4
Protein	-6.8	6.0
Butterfat %	-0.06	0.03
Protein %	-0.05	0.03
Udder Health	101	101
Calving Interval	3.2	0.5
Herd Life	90	106
Selection Indices		
LMI	92	106
Efficiency (EFI)	-0.41	0.45
Prod (LPI)	95	105
Body Weight	-0.36	-0.05

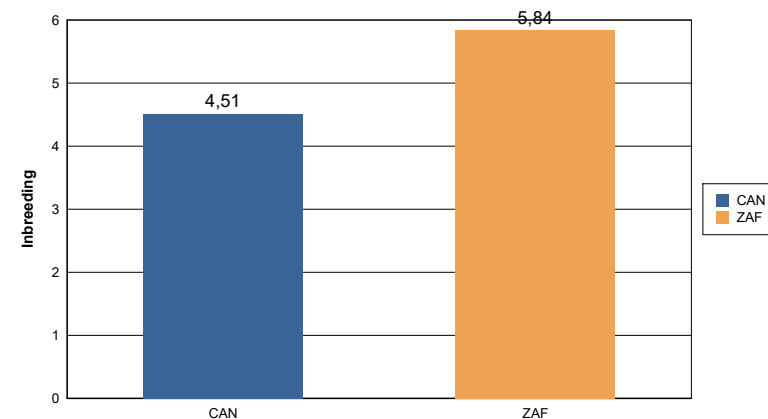
The average Breeding values and Indices of the sires used in the herd and breed

Holstein-Friesland

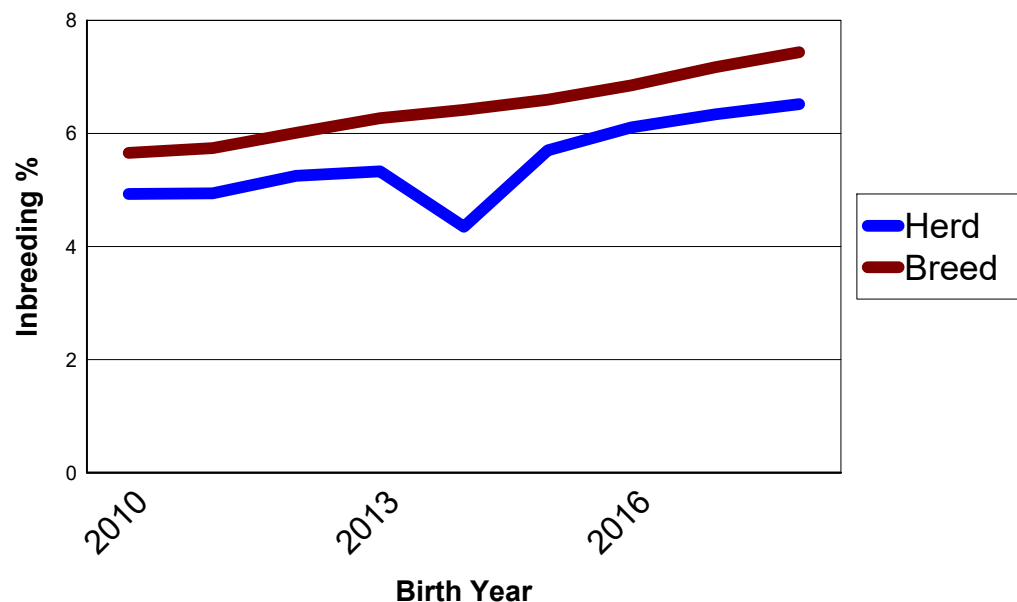
Inbreeding

- Inbreeding primarily leads to decreased fertility and low survivability of calves.
- The effects of inbreeding can be observed from 6.25% onwards.
- It is therefore highly recommended to record pedigree information as accurately and completely as possible and to use a selection programme for selection of unrelated bulls.
- Incomplete or incorrect pedigree information can be reported to SA Stud Book. Inbreeding is dependent on pedigree information. Conventional methods for the Calculation of inbreeding coefficients usually assume that unknown parents are unrelated. However, this is usually far from the truth. An algorithm is used for the calculation of inbreeding, where the average inbreeding coefficient is assigned to unknown parents based on the generation in which they were born. This result is a more accurate reflection of inbreeding of the herd and breed.

Average Inbreeding per Country of Sire



Rate of Inbreeding: Herd vs Breed



Level and Rate of Inbreeding

Years of Birth			Level (%) *	%Rate / Year
2010	-	2018	6.52	0.20
Recommendations:			< 6.25	< 0.1 - 0.2

* Of latest birth year

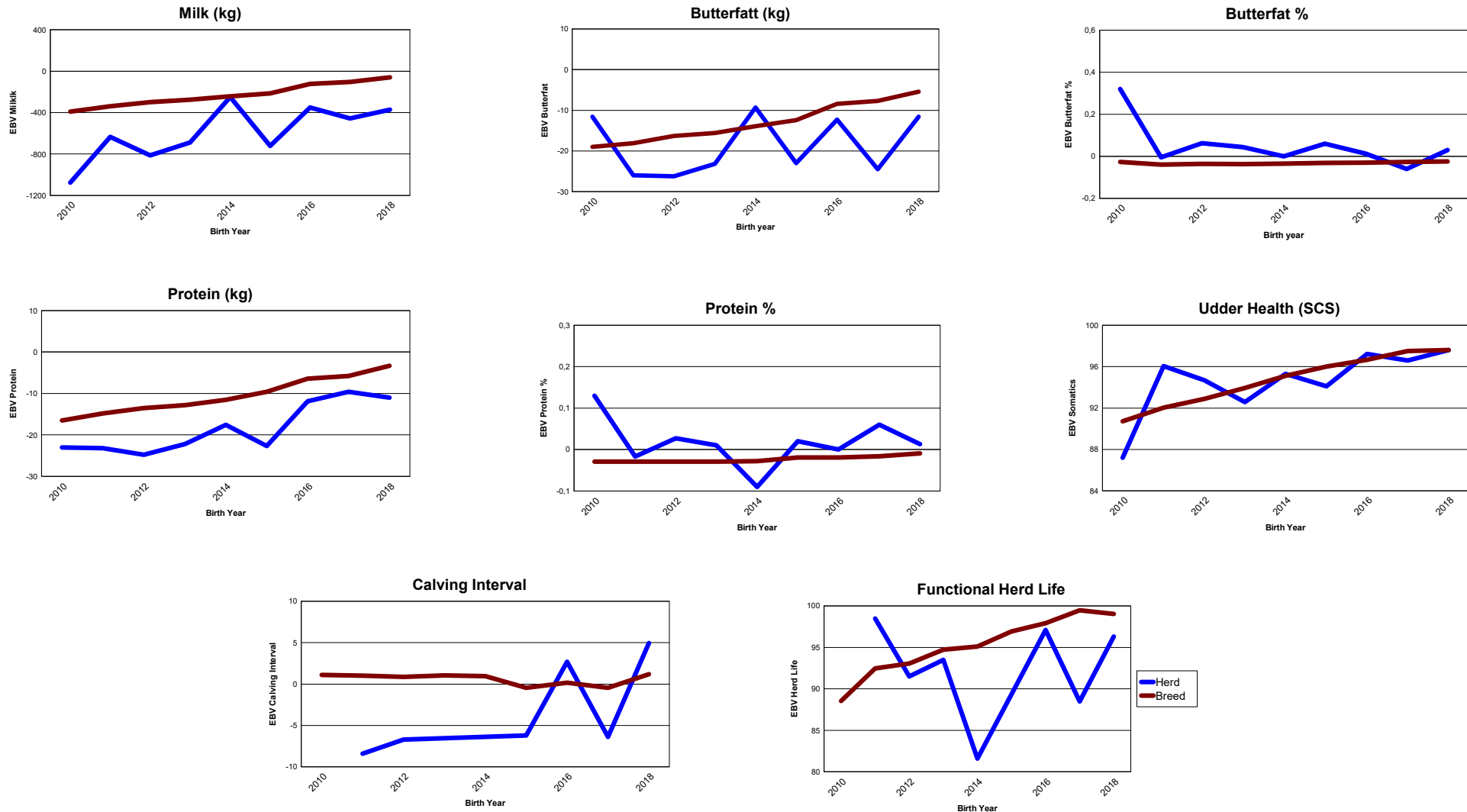
Pedigree Information

	Number	%
Known Sires	3	13
Known Dams	24	100

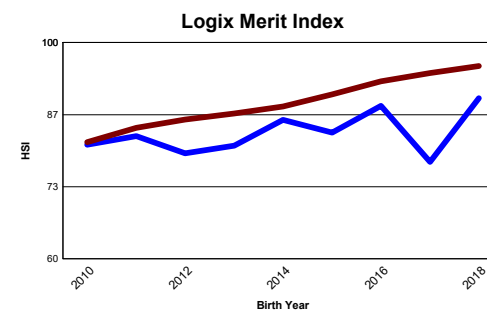
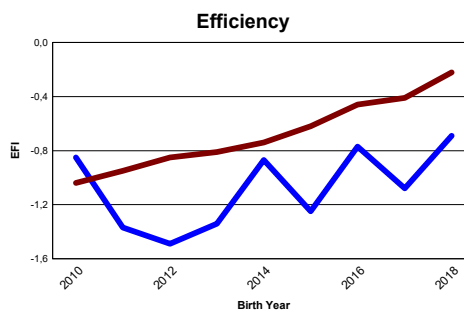
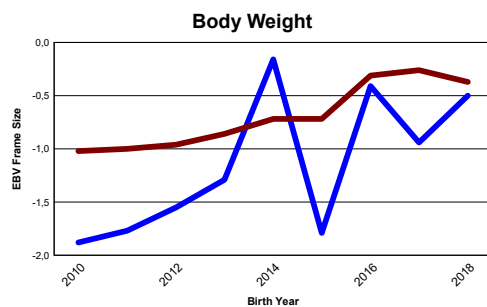
Note: If parentages are unknown, inbreeding will be under-estimated.

Holstein-Friesland

Herd History: Genetic Trends of the Herd (blue) and Breed (brown): Breeding values



Herd History: Genetic Trends of the Herd (blue) and Breed (brown): Breeding values



The average breeding values of milked cows per year in the herd and breed.

Genetic Trends

Cows Tested in Breed												
Birth Year	Number of Cows			EBV Milk	EBV BFat	EBV Prot	EBV BFat%	EBV Prot%	EBV SCS	EBV CalvInt	EBV H Life	LMI
	Milk	Solids	SCS									
2010	10800	10777	10777	-392	-19.0	-16.5	-0.03	-0.03	90.7	1.1	88.6	81.6
2011	10642	10636	10636	-338	-18.1	-14.8	-0.04	-0.03	92.0	1.0	92.5	84.2
2012	10140	10108	10109	-298	-16.3	-13.5	-0.04	-0.03	92.9	0.9	93.1	85.8
2013	7862	7794	7795	-275	-15.6	-12.8	-0.04	-0.03	93.9	1.1	94.7	86.9
2014	6841	6814	6814	-243	-13.9	-11.5	-0.04	-0.03	95.1	1.0	95.1	88.2
2015	7118	7033	7035	-215	-12.4	-9.6	-0.03	-0.02	96.0	-0.5	96.9	90.4
2016	6119	5936	5936	-122	-8.4	-6.4	-0.03	-0.02	96.7	0.2	97.9	92.8
2017	6028	5673	5673	-105	-7.7	-5.8	-0.03	-0.02	97.5	-0.4	99.5	94.3
2018	5748	5327	5327	-60	-5.4	-3.3	-0.02	-0.01	97.6	1.2	99.0	95.6

Cows Tested in Herd												
Birth Year	Number of Cows			EBV Milk	EBV BFat	EBV Prot	EBV BFat%	EBV Prot%	EBV SCS	EBV CalvInt	EBV HLife	LMI
	Milk	Solids	SCS									
2010	1	1	1	-1076	-11.6	-23.0	0.32	0.13	87.2			81
2011	34	34	34	-635	-26.0	-23.2	-0.01	-0.02	96.1	-8.4	98	83
2012	9	9	9	-814	-26.2	-24.8	0.06	0.03	94.7	-6.7	92	80
2013	5	5	5	-689	-23.2	-22.2	0.04	0.01	92.6		94	81
2014	1	1	1	-250	-9.3	-17.6	0.00	-0.09	95.3		82	86
2015	4	4	4	-721	-23.0	-22.7	0.06	0.02	94.1	-6.2		83
2016	6	6	6	-350	-12.3	-11.9	0.01	0.00	97.2	2.7	97	88
2017	1	1	1	-457	-24.5	-9.6	-0.06	0.06	96.6	-6.4	88	78
2018	3	3	3	-371	-11.6	-11.0	0.03	0.01	97.6	5.0	96	90

Percentile Table

Active Cows and Heifers

Trait	Average	Std. Dev.	Max.	5%	10%	25%	50%	75%	90%	95%	Min.
Melk	-61.16	394.85	1751.00	611.00	452.75	188.69	-86.00	-312.00	-544.00	-673.00	-1847.00
BVet	0.60	16.31	87.10	27.30	20.70	10.50	0.00	-9.30	-19.20	-24.90	-92.50
Prot	0.47	11.91	49.00	20.50	16.10	8.50	-0.20	-7.10	-14.20	-18.30	-51.00
BV%	0.03	0.17	1.18	0.29	0.22	0.12	0.03	-0.06	-0.16	-0.25	-0.98
Prot%	0.02	0.06	0.37	0.13	0.10	0.06	0.03	-0.01	-0.05	-0.08	-0.27
Somaties	100.42	7.79	135.10	112.90	109.90	105.50	100.50	95.70	90.80	87.40	61.80
TKP	-0.82	4.81	21.30	-8.90	-7.10	-3.70	-0.70	2.20	5.00	6.80	-28.40
KudLewe	101.12	9.90	142.00	119.00	114.00	107.00	100.00	95.00	90.00	87.00	49.00
Gewig	-0.25	0.82	5.34	0.99	0.62	0.18	-0.21	-0.67	-1.19	-1.60	-7.14
Uier	-0.14	1.19	4.10	1.74	1.33	0.63	-0.17	-0.80	-1.45	-2.12	-6.49
H&B	0.03	0.88	1.89	1.13	0.91	0.55	0.20	-0.30	-1.03	-1.69	-8.55
DTI	0.09	0.87	3.62	1.58	1.24	0.67	0.04	-0.45	-0.95	-1.37	-4.13
Bouvorm	-0.37	0.99	3.04	1.12	0.73	0.17	-0.30	-0.85	-1.47	-2.04	-9.51
FLD LMI	100.79	11.75	144.00	120.60	116.50	108.50	99.90	93.20	87.30	82.20	44.90
LMI	100.75	11.29	145.40	119.80	115.80	108.20	99.90	93.50	87.40	82.50	50.40

Interpretation:

A percentile table is an indication of where the animal's EBV falls relative to the rest of the breed. If an EBV of an animal falls between the maximum value and 5% level on the percentile table of "All Animals", this EBV is in the top 5% of the breed. If the EBV falls between 5% and 25%, this animal's EBV is in the top 25% of the breed. If the EBV falls within 95% and the minimum value, this EBV is in the bottom 5% of the breed for that specific trait.

Percentile Table

Active Bulls

Trait	Average	Std. Dev.	Max.	5%	10%	25%	50%	75%	90%	95%	Min.
Melk	93.87	471.51	1441.86	791.00	656.00	418.00	111.00	-198.00	-511.00	-784.00	-1546.00
BVet	6.39	23.32	84.00	43.80	35.68	22.60	6.40	-10.00	-24.10	-31.06	-80.00
Prot	6.13	15.24	43.40	29.70	25.00	16.70	8.00	-3.60	-15.00	-20.50	-42.00
BV%	0.03	0.22	1.09	0.37	0.27	0.16	0.03	-0.11	-0.24	-0.30	-0.84
Prot%	0.03	0.09	0.40	0.18	0.15	0.09	0.03	-0.03	-0.09	-0.13	-0.28
Somaties	101.49	13.52	137.90	122.60	117.30	110.60	102.00	93.60	83.60	78.20	54.20
TKP	0.49	8.78	26.00	-13.47	-10.30	-5.40	0.80	5.90	11.30	15.90	-33.40
KudLewe	105.78	19.29	169.00	135.70	129.79	118.20	105.50	94.46	82.00	73.00	39.00
Gewiq	-0.05	1.55	5.65	2.43	2.02	0.90	-0.02	-0.98	-1.99	-2.51	-5.49
Uier	0.77	1.82	5.23	3.57	2.95	1.93	0.88	-0.20	-1.55	-2.55	-7.77
H&B	-0.90	1.60	1.77	1.04	0.78	0.26	-0.64	-1.67	-3.07	-3.83	-8.91
DTI	0.45	1.23	3.54	2.46	2.06	1.30	0.44	-0.40	-1.10	-1.61	-3.73
Bouvorm	-0.11	1.66	4.55	2.32	1.81	1.09	0.06	-1.07	-2.34	-3.33	-5.76
FLD LMI	105.65	18.91	149.80	134.10	127.80	118.40	107.30	94.20	79.70	68.20	50.50
LMI	106.08	17.47	145.70	133.30	127.70	118.10	107.60	95.10	81.80	73.80	54.00

BULLS

Bulls are sorted alphabetically M = MACE (International) breeding values and reliability GM = GMACE G = Genomic information R = Reliability Above breed average Top 10% of the breed Bottom 10% of the breed *Inbreeding in red is high

Bull					Selection Indices				Estimated Breeding Values (EBV) and Reliabilities (B)											S.A. Daughters and Herds										
Compnr FarmerNr	Parent Verification	Name	BYear Cnt	% In- breeding	LMI	LPI	EFI	BWI	Milk Index	R	BFat Index	R	BFat % Index	R	Prot Index	R	Prot % Index	R	Som Index	R	CalvInt Index	R	HLife R	Lac > 149 d Herds	Lac < 150 d Herds	Avg Lac Length	%Short Lac	Compl Lac		
Active Breed Average:				8.17	101	100	0.09	-0.25	-61		0.6		0.03		0.5		0.02		100		-0.8		101							
2012906968		GILLETTE JUNGLE	2006 CAN	6.15	93	88	-0.68 92	-1.60 81	M -201 95 71		M -20.8 88 66		-0.12 94		M -6.5 94 69		0.00 123		M -14.1 111 70		M -5.0 110 62		M 95 69	23	7		260	15	46	
2012940645		MISTY SPRINGS SIRIUS	2006 CAN	8.80	92	102	-0.13 98	0.89 111	121 103 93		6.0 104 92		0.01 100		-7.0 93 93		-0.10 109		12.0 91 82		M 11.3 78 68		M 86 71	145	15	1	1	259	15	273
Bull Average Herd: Aantal: 2				7.48	92	95	-0.41	-0.36	-40		-7.4		-0.06		-6.8		-0.05		100.80		3.2		90							
Bull Average Breed: Aantal: 570				8.84	106	105	0.45	-0.05	94		6.4		0.03		6.0		0.03		101.49		0.5		106							

Most Influential Bulls in the Herd

The difference between the Bull's breeding values and the Average Breeding Values of his Daughters reflects the Genetic Levels of the Dams
The difference between the Average of the Bull's Daughters in this herd and the Average of all the Bull's Daughters reflects the Genetic Levels of the Herd within the Breed

Herd Daughters > All Daughters

Herd Daughters < All Daughters

Name		Total Daughters		Active Daughters		Breeding Values and Selection Indices									
Regnr	Country	Year of Birth		Year of Birth		Milk	Butterfat	Protein	BFat%	Prot%	Somatics	ICP	Herd Life	EFI	LMI
		In SA	In Herd	In SA	In Herd										
		In Milk	In Milk	In Milk	In Milk										
Breed Average :															
Herd Average :															
1		-		-		Bull EBVi :									
						Herd Daughtetr EBVi :									
						All Daughtetr EBVi :									

COWS

Animals are sorted on farmer number within birth year

*Inbreeding in red is high

G = Genomic information

R = Reliability

Above breed average

Top 10% of the breed

Bottom 10% of the breed

Cow				Selection Indices				Estimated Breeding Values (EBV)										Average Production Values							Pedigree		
FarmNr Regnr	Parent Verification	Name	% In- breeding*	LMI	LPI	EFI	BWI	Milk Index	BFat Index	BFat % Index	Prot Index	Prot % Index	Som Index	Calvnt Index	HLife R	Test/lact. 1 2 3	Nr. Lact	ICP	Kg Milk	Kg BFat	% BFat	Kg Prot	% Prot	Sire Dam		Dam BirthYr	
Active Breed Average:			8.17	101	100	0.09	-0.25	-61	0.6	0.03	0.5	0.02	100	-0.8	101												
								Year of Birth : 2010																			
105 73564353	0105		4.93	80	83	-0.93 89	-2.01 76	-781 80	-16.1 29	0.15 90	-22.2 108	0.04 79	16.7 129	-9.6 14	81 2	7 5	4	686	6508	277	4.3	209	3.2		2427		2004
								Year of Birth : 2011																			
1010 73565178	1010		4.99	77	75	-1.63 81	-1.36 84	-1047 73	-28.6 35	0.13 83	-24.2 107	0.11 77	7.5 139	-7.8 14	93 2	7 6	3	1050	5756	243	4.2	197	3.4		2638		2006
1042 73564635	1042		4.99	81	79	-1.48 82	-1.42 83	-490 87	-31.0 34	-0.11 81	-18.6 94	-0.02 82	1.2 121	-5.5 11	93 1	5	4	696	5942	230	3.9	190	3.2		2140		2001
								Year of Birth : 2012																			
12111 78645587	12111		5.25	82	78	-1.52 82	-1.36 84	-757 80	-24.2 28	0.06 86	-27.4 103	-0.02 74	-5.8 121	-9.2 13	91 2	4	4	822	4763	188	4.0	144	3.0		9036		2009
								Year of Birth : 2013																			
13109 78925229	13109		4.49	86	89	-0.93 89	-0.16 98	-296 92	-12.3 33	-0.01 93	-15.9 85	-0.06 31	8.1 115	-1.2 23	92 19	4	3	1072	5245	208	4.0	165	3.1	MISTY SPRINGS SIRIUS 8060			2008
								Year of Birth : 2014																			
1410 79058699	1410		4.35	86	90	-0.87 90	-0.16 98	-250 94	-9.3 41	0.00 94	-17.6 83	-0.09 39	6.2 110	-1.7 25	82 19	3	3	938	5456	235	4.3	179	3.3	MISTY SPRINGS SIRIUS 7105			2007
								Year of Birth : 2015																			
1506 81184095	272		4.71	83	81	-1.20 86	-1.89 77	-420 89	-28.6 26	-0.11 83	-15.7 85	-0.01 25	-2.9 102	-6.3 15	90 8		2	424	6704	277	4.1	227	3.4	GILLETTE JUNGLE 9085			2009
15118 89301196	15118		5.84	81	78	-1.52 82	-1.32 84	-701 82	-28.7 9	-0.01 83	-21.4 7	0.02 99	1.2 80	-6.1 8	101 1		2	333	6657	280	4.2	222	3.3	58			2011
								Year of Birth : 2016																			
1662 89294581	1662		6.11	86	86	-0.89 89	-0.94 89	-620 84	-14.4 11	0.10 91	-15.9 85	0.05 9	-0.1 131	3.7 100	97 3		2	362	6173	233	3.8	201	3.3	8001			2008
1663 89294599	1663		6.11	82	84	-1.06 87	-0.94 89	-546 86	-22.1 32	0.00 87	-12.1 31	0.06 100	8.6 89	-3.0 30	88 1	7	1	0	4545	185	4.1	156	3.4	9081			2009
								Year of Birth : 2017																			
17004 89294623	1704		6.34	86	87	-0.80 90	-0.94 89	-485 87	-14.2 1	0.05 92	-14.3 87	0.02 1	6.8 126	-3.0 95	88 1		1	0	5498	257	4.7	195	3.6	2752			2007

COWS

Animals are sorted on farmer number within birth year

*Inbreeding in red is high

G = Genomic information

R = Reliability

Above breed average

Top 10% of the breed

Bottom 10% of the breed

Cow				Selection Indices				Estimated Breeding Values (EBV)										Average Production Values							Pedigree					
FarmNr Regnr	Parent Verification	Name	% In- breeding*	LMI	LPI	EFI	BWI	Milk Index	BFat Index	BFat % Index	Prot Index	Prot % Index	Som Index	CalvInt Index	HLife Index	Test/lact. 1 2 3	Nr. Lact	ICP	Kg Milk	Kg BFat	% BFat	Kg Prot	% Prot	Sire Dam		Dam BirthYr				
Active Breed Average:			8.17	101	100	0.09	-0.25	-61	0.6	0.03	0.5	0.02	100	-0.8	101															
1701 89294607	1701		6.34	78	84	-1.08 87	-0.94 89	-457 88	-24.5 33	-0.06 85	-9.6 91	0.06 132	4.5 97	0.0 16	67 100	4	4	2	202	4463	217	4.9	208	4.7	9058		2009			
1703 89294615	1703		6.34	94	93	-0.36 96	-0.94 89	-285 93	-10.4 8	0.01 94	-4.6 100	0.05 96	9.9 8	-9.7 4	99 119	4	2	324	5677	241	4.2	193	3.4	9057		2009				
1709 89294656	1709		6.34	86	88	-0.80 90	-0.94 89	-405 90	-14.3 11	0.02 91	-14.0 87	0.00 101	3.7 9	-5.9 2	82 112	4	3	195	4498	189	4.2	144	3.2	2730		2007				
1710 89294664	1710		6.34	86	89	-0.68 92	-0.94 89	-556 86	-9.8 9	0.12 94	-15.0 8	0.03 106	12.5 86	-3.0 4	88 106	1	0							64		2010				
1711 89295760	1711		6.34	85	83	-1.16 86	-0.89 89	-677 83	-20.1 8	0.07 88	-17.3 7	0.05 104	8.9 84	-3.0 8	106 131	4	2	451	4942	218	4.4	164	3.3	1126		2011				
1713 89295968	1713		6.34	86	87	-0.80 90	-0.94 89	-485 87	-14.2 1	0.05 92	-14.3 87	0.02 103	6.8 95	-3.0 1	88 106	1	0							2707		2007				
1720 89295976	1720		6.34	92	90	-0.51 94	-0.89 89	-594 85	-7.4 9	0.16 96	-12.4 7	0.07 108	-3.1 88	-3.1 8	97 134	1	2	402	4892	205	4.2	162	3.3	1171		2011				
								Year of Birth : 2018																						
18012 89296222	1812		6.52	91	89	-0.64 92	-0.89 89	-421 89	-11.7 1	0.05 93	-11.6 89	0.02 103	4.8 96	-10.7 1	90 121	3	3	2	205	4570	219	4.8	169	3.7	1553		2015			
1811 89296255	1811		6.52	93	95	-0.38 95	-0.15 98	-234 94	-5.9 1	0.03 97	-5.7 102	0.02 95	2.0 126	4.9 99	98 90	3		1	0	6436	227	3.5	146	2.3	305		2016			
1813 89296289	1813		6.52	89	89	-0.64 92	-0.89 89	-421 89	-11.7 1	0.05 93	-11.6 89	0.02 103	4.8 96	1.0 1	100 98	3		1	0	6628	263	4.0	201	3.0	15066		2015			
1828 89309280	1828		6.52	90	89	-0.64 92	-0.89 89	-421 89	-11.7 1	0.05 93	-11.6 89	0.02 103	4.8 96	-3.1 1	97 106	1		1	0	5527	175	3.2	109	2.0	15402		2015			
1839 89296347	1839		6.52	91	91	-0.49 94	-0.89 89	-432 89	-8.1 8	0.09 95	-11.2 6	0.03 105	6.5 89	-3.1 8	97 128	1		1	0	4138	186	4.5	156	3.8	1270		2012			
1840 89296354	1840		6.52	93	95	-0.38 95	-0.15 98	-234 94	-5.9 1	0.03 97	-5.7 102	0.02 95	2.0 126	1.6 99	94 97	1		1	0	3469	159	4.6	132	3.8	16247		2016			
Average (Herd): Number:24			5.90	86	86	-0.89	-0.95	-501	-16.1	0.04	-14.6	0.02	96	-3.6	92															
Cow Average (Breed): Number:16087			7.63	99	98	-0.08	-0.28	-100	-2.2	0.02	-1.6	0.02	100	-1.3	100															

Cows with Most Influence in the Herd

Cows with Most Daughters in Milk and with Most Lactations

Daughter EBVs > Dam EBVs
Daughter EBVs < Dam EBVs

Farmnr Regnr Birth Year	Sire Country of Sire	Nr Lact	Tot Daughts	Act Daughts	BREEDING VALUE- and SELECTION INDICES										
			Birth Years Total In Milk	Birth Years Total In Milk											
					Milk	BFat	Prot	BF%	Prot%	UdHlth	Fert	HLife	EFI	LMI	
					Breed Average :										
					Herd Average :										
1			-	-	Cow EBVi:										
					Dghts EBVi:										

Heifers

Animals are sorted on farmer number within birth year

*Inbreeding in red is high

Top 10% of the breed

Bottom 10% of the breed

Above breed average

R = Reliability

G = Genomically tested

M = Blended with sire's MACE (International) EBVs

GM = Blended with sire's GMACE EBVs

Heifer				Selection Indices				Estimated Breeding Values (EBV)								Pedigree			
FarmNr Regnr	Parent Verification	Name	% Inbr- ding	LMI	LPI	EFI	BWI	Milk Index <i>R</i>	BFat Index <i>R</i>	BFat% Index	Prot Index <i>R</i>	Prot% Index	Somatics Index <i>R</i>	CalvInt Index <i>R</i>	HLife <i>R</i>	Sire		Dam	BYr
Breed Average:																			
								Year of Birth :											
Average (Heifers in Herd):																			
Number:																			
Average (Heifers in Breed):																			
Number:																			

Selection List: Logix Merit Index (LMI)

Animals are sorted on **LMI**

*Inbreeding above 6.25 is high!

Top 25% of the herd

Bottom 25% of the herd

R = Reliability

Above breed average

Top 10% of the breed

Bottom 10% of the breed

Cow Information					Indices				Breeding Values									Pedigree	
Rank	FarmNr CompNr	Name	Birth. Year	% In- breeding	LMI	LPI	EFI	BWI	Milk Index	BFat Index	Prot Index	BFat % Index	Prot % Index	Som Index	CalvInt Index	HLife R	Sire	Dam	
1	1703 89294615	1703	2017	6.34	94	93	-0.36 96	-0.94 89	-285 93	-10.4 8	-4.6 8	0.01 100	0.05 131	9.9 93	-9.7 119	99 2		9057	
2	1840 89296354	1840	2018	6.52	93	95	-0.38 95	-0.15 98	-234 94	-5.9 1	-5.7 1	0.03 102	0.02 126	2.0 99	1.6 1	94 1		16247	
3	1811 89296255	1811	2018	6.52	93	95	-0.38 95	-0.15 98	-234 94	-5.9 1	-5.7 1	0.03 102	0.02 126	2.0 99	4.9 90	98 1		305	
4	1720 89295976	1720	2017	6.34	92	90	-0.51 94	-0.89 89	-594 85	-7.4 9	-12.4 7	0.16 108	0.07 134	-3.1 102	-3.1 3	97 106		1171	
5	1839 89296347	1839	2018	6.52	91	91	-0.49 94	-0.89 89	-432 89	-8.1 8	-11.2 8	0.09 105	0.03 128	6.5 95	-3.1 3	97 106		1270	
6	18012 89296222	1812	2018	6.52	91	89	-0.64 92	-0.89 89	-421 89	-11.7 1	-11.6 1	0.05 103	0.02 126	4.8 96	-10.7 1	90 3		1553	
7	1828 89309280	1828	2018	6.52	90	89	-0.64 92	-0.89 89	-421 89	-11.7 1	-11.6 1	0.05 103	0.02 126	4.8 96	-3.1 1	97 106		15402	
8	1813 89296289	1813	2018	6.52	89	89	-0.64 92	-0.89 89	-421 89	-11.7 1	-11.6 1	0.05 103	0.02 126	4.8 96	1.0 1	100 98		15066	
9	1709 89294656	1709	2017	6.34	86	88	-0.80 90	-0.94 89	-405 90	-14.3 11	-14.0 8	0.02 101	0.00 123	3.7 97	-5.9 2	82 112		2730	
10	13109 78925229	13109	2013	4.49	86	89	-0.93 89	-0.16 98	-296 92	-12.3 33	-15.9 30	-0.01 99	-0.06 115	8.1 94	-1.2 23	92 102	MISTY SPRINGS SIRIUS	8060	
11	1710 89294664	1710	2017	6.34	86	89	-0.68 92	-0.94 89	-556 86	-9.8 9	-15.0 8	0.12 106	0.03 128	12.5 91	-3.0 4	88 106		64	
12	1662 89294581	1662	2016	6.11	86	86	-0.89 89	-0.94 89	-620 84	-14.4 11	-15.9 9	0.10 105	0.05 131	-0.1 100	3.7 3	97 93		8001	
13	1713 89295968	1713	2017	6.34	86	87	-0.80 90	-0.94 89	-485 87	-14.2 1	-14.3 1	0.05 103	0.02 126	6.8 95	-3.0 1	88 106		2707	
14	1410 79058699	1410	2014	4.35	86	90	-0.87 90	-0.16 98	-250 94	-9.3 41	-17.6 35	0.00 100	-0.09 110	6.2 95	-1.7 25	82 103	MISTY SPRINGS SIRIUS	7105	
15	17004 89294623	1704	2017	6.34	86	87	-0.80 90	-0.94 89	-485 87	-14.2 1	-14.3 1	0.05 103	0.02 126	6.8 95	-3.0 1	88 106		2752	
16	1711 89295760	1711	2017	6.34	85	83	-1.16 86	-0.89 89	-677 83	-20.1 8	-17.3 8	0.07 104	0.05 131	8.9 93	-3.0 3	106 106		1126	
17	1506 81184095	272	2015	4.71	83	81	-1.20 86	-1.89 77	-420 89	-28.6 26	-15.7 25	-0.11 94	-0.01 122	-2.9 102	-6.3 15	90 112	GILLETTE JUNGLE	9085	
18	1663 89294599	1663	2016	6.11	82	84	-1.06 87	-0.94 89	-546 86	-22.1 32	-12.1 30	0.00 100	0.06 132	8.6 94	-3.0 16	88 106		9081	
19	12111 78645587	12111	2012	5.25	82	78	-1.52 82	-1.36 84	-757 80	-24.2 28	-27.4 26	0.06 103	-0.02 121	-5.8 104	-9.2 13	91 118		9036	
20	15118 89301196	15118	2015	5.84	81	78	-1.52 82	-1.32 84	-701 82	-28.7 9	-21.4 8	-0.01 99	0.02 126	1.2 99	-6.1 3	101 112		58	
21	1042 73564635	1042	2011	4.99	81	79	-1.48 82	-1.42 83	-490 87	-31.0 34	-18.6 31	-0.11 94	-0.02 121	1.2 99	-5.5 11	93 111		2140	
22	105 73564353	0105	2010	4.93	80	83	-0.93 89	-2.01 76	-781 80	-16.1 29	-22.2 27	0.15 108	0.04 129	16.7 87	-9.6 14	81 119		2427	
23	1701 89294607	1701	2017	6.34	78	84	-1.08 87	-0.94 89	-457 88	-24.5 33	-9.6 31	-0.06 97	0.06 132	4.5 97	0.0 16	67 100		9058	

Selection List: **Logix Merit Index (LMI)**

Animals are sorted on **LMI** *Inbreeding above 6.25 is high! Top 25% of the herd Bottom 25% of the herd R = Reliability Above breed average Top 10% of the breed Bottom 10% of the breed

Cow Information					Indices				Breeding Values								Pedigree	
Rank	FarmNr CompNr	Name	Birth. Year	% In- breeding	LMI	LPI	EFI	BWI	Milk Index <i>R</i>	BFat Index <i>R</i>	Prot Index <i>R</i>	BFat % Index	Prot % Index	Som Index <i>R</i>	CalvInt Index <i>R</i>	HLife <i>R</i>	Sire	Dam
24	1010 73565178	1010	2011	4.99	77	75	-1.63 81	-1.36 84	-1047 73	-28.6 35	-24.2 83	0.13 107	0.11 139	7.5 94	-7.8 14	93 2		2638

Herd: Extreme Cows per Trait

Top Ranking Cows

Breeding Values												Selection Indices											
Milk		Butterfat		Butterfat%		Protein		Protein%		Somatics		Calving Inter		Herd Life		LMI		LPI		Weight		EFI	
Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	Ind	Farm nr.	Ind	Farm nr.	Ind	Farm nr.	Ind
1840	-234	1840	-5.9	1720	0.16	1703	-4.6	1010	0.11	12111	-5.8	18012	-10.7	1711	106	1703	94	1840	95	105	76	1703	96
1811	-234	1811	-5.9	105	0.15	1811	-5.7	1720	0.07	1720	-3.1	1703	-9.7	15118	101	1840	93	1811	95	1506	77	1811	95
1410	-250	1720	-7.4	1010	0.13	1840	-5.7	1701	0.06	1506	-2.9	105	-9.6	1813	100	1811	93	1703	93	1042	83	1840	95
1703	-285	1839	-8.1	1710	0.12	1701	-9.6	1663	0.06	1662	-0.1	12111	-9.2	1703	99	1720	92	1839	91	1010	84	1839	94
13109	-296	1410	-9.3	1662	0.10	1839	-11.2	1711	0.05	15118	1.2	1010	-7.8	1811	98	1839	91	1720	90	12111	84	1720	94
1709	-405	1710	-9.8	1839	0.09	18012	-11.6	1703	0.05	1042	1.2	1506	-6.3	1662	97	18012	91	1410	90	15118	84	18012	92
1506	-420	1703	-10.4	1711	0.07	1828	-11.6	1662	0.05	1811	2.0	15118	-6.1	1839	97	1828	90	18012	89	1663	89	1828	92
18012	-421	1828	-11.7	12111	0.06	1813	-11.6	105	0.04	1840	2.0	1709	-5.9	1720	97	1813	89	1828	89	1713	89	1813	92
1828	-421	1813	-11.7	1828	0.05	1663	-12.1	1710	0.03	1709	3.7	1042	-5.5	1828	97	1709	86	1813	89	17004	89	1710	92
1813	-421	18012	-11.7	1813	0.05	1720	-12.4	1839	0.03	1701	4.5	1720	-3.1	1840	94	13109	86	13109	89	1703	89	17004	90

Bottom Ranking Cows

Breeding Values												Selection Indices											
Milk		Butterfat		Butterfat%		Protein		Protein%		Somatics		Calving Inter		Herd Life		LMI		LPI		Weight		EFI	
Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	EBV	Farm nr.	Ind	Farm nr.	Ind	Farm nr.	Ind	Farm nr.	Ind
1010	-1047	1042	-31.0	1506	-0.11	12111	-27.4	12111	0	105	16.7	1811	4.9	1701	67	1010	77	1010	75	1811	98	1010	81
105	-781	15118	-28.7	1042	-0.11	1010	-24.2	1010	0	1710	12.5	1662	3.7	105	81	1701	78	15118	78	1840	98	12111	82
12111	-757	1506	-28.6	1701	-0.06	105	-22.2	105	0	1703	9.9	1840	1.6	1410	82	105	80	12111	78	1410	98	15118	82
15118	-701	1010	-28.6	13109	-0.01	15118	-21.4	15118	0	1711	8.9	1813	1.0	1709	82	1042	81	1042	79	13109	98	1042	82
1711	-677	1701	-24.5	15118	-0.01	1042	-18.6	1042	0	1663	8.6	1701	0.0	1663	88	15118	81	1506	81	1720	89	1506	86
1662	-620	12111	-24.2	1663	0.00	1410	-17.6	1410	0	13109	8.1	13109	-1.2	17004	88	12111	82	105	83	1839	89	1711	86
1720	-594	1663	-22.1	1410	0.00	1711	-17.3	1711	0	1010	7.5	1410	-1.7	1713	88	1663	82	1711	83	1828	89	1701	87
1710	-556	1711	-20.1	1703	0.01	1662	-15.9	1662	0	17004	6.8	1663	-3.0	1710	88	1506	83	1663	84	1813	89	1663	87
1663	-546	105	-16.1	1709	0.02	13109	-15.9	13109	0	1713	6.8	1710	-3.0	18012	90	1711	85	1701	84	18012	89	105	89
1042	-490	1662	-14.4	1840	0.03	1506	-15.7	1506	0	1839	6.5	1713	-3.0	1506	90	1410	86	1662	86	1711	89	13109	89

Herd: Extreme Heifers per Trait

Top Ranking Heifers

Breeding Values								Selection Indices			
Milk	Butterfat	Butterfat%	Protein	Protein%	Somatics	Calving Inter	Herd Life	LMI	LPI	Weight	DFI
Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. Ind	Farm nr. Ind	Farm nr. Ind	Farm nr. Ind

Bottom Ranking Heifers

Breeding Values								Selection Indices			
Milk	Butterfat	Butterfat%	Protein	Protein%	Somatics	Calving Interv	Herd Life	LMI	LPI	Weight	EFI
Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. EBV	Farm nr. Ind	Farm nr. Ind	Farm nr. Ind	Farm nr. Ind

Single Gene Traits

0 = Does not carry the gene 1 = Carries one copy of the gene 2 = Carries both copies of the gene Empty field = Information not available

FarmNumber Regnr	Name Birth Date	Breed Frac (%)	% Homozy- gosity	Casein		DGAT1	LGB	Yellow Milk Fat	Horns / Polled		BLAD	DUMPS	CT	HST Haplotypes				
				Beta	Kappa				Celtic	Friesian				1	3	4	5	

