

Kalahari Red Genetic Analysis

SA Stud Book
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Kalahari Red Club



FDM: 226



CERTIFICATE
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General Information

This **Genetic Report** of your flock enables you to determine the genetic merit and potential of the animals in your herd relative to that of the breed. An animal's performance is determined by two factors, namely the environment and genetics. Good nutrition and management can improve performance, but an animal cannot perform better than its genetic potential. Superior performance due to the environment cannot be carried over to the next generation. It is therefore extremely important not to neglect genetic progress of your flock. Due to the interaction between environment and genetics, it is difficult to identify genetically superior animals on performance data. Estimated Breeding Values (EBVs) are therefore predicted for every animal to determine its genetic potential, as well its worth as a parent for the next generation. Through the use of EBVs, animals can be compared fairly **within the breed**, therefore across herds, years and production systems. Results presented in this report allow the breeder to identify the underlying genetics of the animals.

Genetic parameters

Genetic parameters (heritability and genetic correlations) are estimated on a breed-basis and are required for the prediction of breeding values. The **heritability** refers to the portion of the variation of a trait in a population that is due to transferrable genetics (the rest of the variation can be attributed to the environment and non-transferrable genetics). Some traits are genetically correlated, which means that a change in one trait will lead to changes in other traits. The strength of this association amongst traits is referred to as a **genetic correlations** and can be desirable or undesirable.

Breeding Values

The prediction of EBVs makes use of performance recordings of the animal as well as those of its relatives, pedigree information and genetic parameters. The deviation of the animal's measurement relative to the average of its contemporary group, forms the basis for identifying the animal's genetic potential for the trait. A **contemporary group** is a group of animals that have been exposed to the same environmental and biological effects, including herd, year, sex and age effects. After adjusting for differences in these effects, animals can fairly be compared and the difference in performance that still persist are then assumed to be due to differences in the genetic merit of the animals.

The EBV predicted for an animal at birth and until it has been measured, is the average EBV of its parents, since the animal received half of its genes from each parent. This mid-parent value makes the assumption that the same half of the parents' genes are carried over to all their offspring. In reality, each offspring receives a random sample of each parent's genes,

therefore mid-parent EBVs are still of low accuracy, but it does indicate the genetic level that can be expected due its parental history. An animal's true genetic merit can be predicted more accurately as more information becomes available, eg. when the animal has been measured or when the number of relatives with measurements increases. Estimated breeding values therefore change over time as more information becomes available. EBVs of animals are published with an **accuracy (%)**, which indicates how much information was available for the estimation of breeding values and therefore the confidence with which a breeder can use it. Factors that influence the accuracy of an EBV are the heritability of the trait, the number of measured relatives, the size of the contemporary group, the precision with which the measurements were taken and the completeness of pedigree information. An EBV with an accuracy of 85% or more is less likely to change significantly with subsequent genetic analyses.

Interpretation of breeding values

EBVs are expressed around a **base year** (5 years ago), which means that the average breeding value of the base year is set as zero and all breeding values are expressed relative to this average. An animal with an EBV of +1kg for weaning weight is therefore genetically superior by 1kg compared to an average animal born in the base year. EBVs therefore express genetic merit of animals relative to each other. The true performance of an animal cannot be calculated from the EBV, but it enables the breeder to know which animals will make a better contribution to the next generation. For easier interpretation EBVs are also expressed as breeding value indices. For these indices the average value of the **active population** is set as 100 with a standard deviation of 12. An index of 76 therefore indicates that the animal is 2 standard deviations below the average and an index of 112 indicates that the animal is 1 standard deviation above the average of the active population for the specific trait. Please note that negative EBVs are favourable for Inter-Lambing Period and Age at First Lambing, therefore shorter inter-lambing periods and younger ages at first lambing indicates better fertility. However, breeding value indices are expressed in the same way for all traits, therefore higher indices indicates desirability for the traits and lower indices are undesirable. This makes it easy to identify superior animals for all traits.

The data used in this evaluation has been obtained from LOGIX, 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.

Selection Indices

It is easy to select on a single trait, but that is not the best approach to follow. Selecting on only one trait can lead to the deterioration of performance in other traits due to genetic correlations. There are different traits that are important, some being more important than others. A selection index combines multiple traits, each with an economic weight to take the different levels of importance into account. EBVs for different traits cannot simply be added together, since the unit of measurement and range of the values differ and in some cases negative values are favoured. These factors are accounted for in the compilation of a selection index. An overall selection index includes EBVs of all the traits of economic importance, while other selection indices are more focused on specific breeding objectives. Selection indices are expressed around 100, with 100 being the average of the active population, with a standard deviation of 12. A selection index of 124 is therefore 2 standard deviations above the average and an index of 88 is one standard deviation below the average of the active animals of the population.

Two Indices are constructed for the Kalahari Red Goat breed, namely the Logix Merit Index and the Reproduction Index. These indices, their purpose and the contribution of the different traits to the indices are summarised as follows :

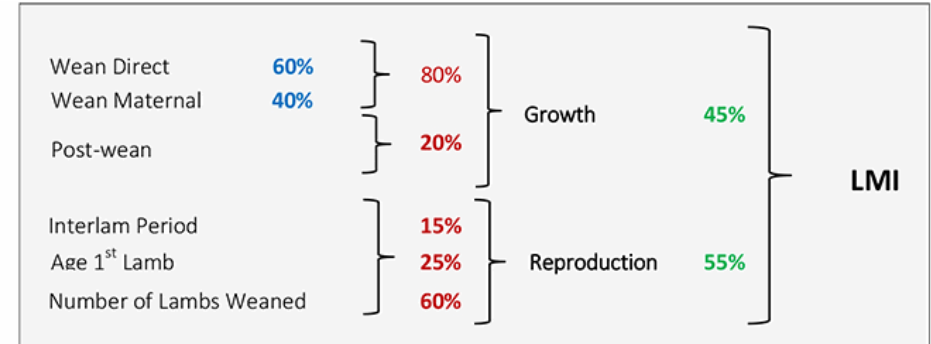
Logix Merit Index (LMI)

This index combines all the traits to select for a balanced, profitable animal that is fertile and delivers a desirable level of production while not reaching very large adult weights. Very large animals require more feed to meet their maintenance requirements, which makes them more expensive to keep and more likely to struggle during difficult times. Since large animals in a breeding flock are unfavourable, a penalty is placed on Post-Wean Weight EBV (indicated by the negative value) in the index. Selection based on the LMI will lead to breeding of balanced animals that will have the genetic potential to wean at a heavier weight (both due to its own potential and having dams that produce sufficient milk), lambs at an early age, lambs regularly, give multiple lambs and has lower maintenance requirements. This value is especially important for sustainability, which requires the selection of good, productive replacement animals for the flock.

The LMI is constructed as follows :

$$LMI = (0.0675 * AFL) + (0.1125 * ILP) + (0.264 * Wean Dir) + (0.176 * Wean Mat) + (0.27 * N_Lambs_Weaned) + (0.11 * Post-Wean Dir)$$

Schematically the LMI can be explained as follows :



Reproduction Index (RI)

This index includes Weaning Maternal), Number of Lambs Weaned, Age at First Lambing and Inter-lambing. This is especially an important index to consider in the development of a dam line.

The RI is constructed as follows :

$$(0.2 * AFL) + (0.2 * ILP) + (0.3 * Wean Mat) + (0.3 * N_Lambs_Weaned)$$

Schematically it can be explained as follows :



It is always important to consider the traits that contribute to the index individually when selection of animals is based on indices. It sometimes happen that an animal receives a good index due to its exceptional genetic merit of a specific trait, while some of the other traits of the animal in the index might be at undesirable levels for the specific flock's breeding objective, but masked in the index due to the exceptionality of that trait. A sound procedure is to rank animals based on the relevant selection index and then eliminate animals from the list that do not conform towards the flock's breeding objectives when considering the individual traits. Make use of all the available information.

Genetic Levels

Breeding Values

Eienskap	Flock**			Breed		
	All	Rams	Ewes	All	Rams	Ewes
Weaning Weight Direct	0.89	0.79	1.09	0.36	0.40	0.35
Weaning Weight Maternal	-0.19	-0.18	-0.21	-0.07	-0.04	-0.08
Weaning Weight Combined	0.25	0.21	0.34	0.12	0.16	0.10
Post-wean Weight	0.51	0.43	0.67	-0.14	-0.05	-0.18
Number Lambs Weaned	-0.24	-0.30	-0.13	-0.14	-0.16	-0.13
Total Weight Weaned	0.55	0.43	0.80	0.21	0.26	0.19
Age at First Lambing	1.18	0.47	2.61	0.28	0.39	0.23
Inter-lambing Period	-1.81	-1.05	-3.34	-0.73	-0.86	-0.67
Selection Indices						
Logix Merit Index	102	101	104	99	100	99
Reproduction Index	96	95	97	98	98	98
Inbreeding						
Inbreeding (%)	8.02	7.38	9.28	5.58	5.92	5.44
Number of Animals						
Number of Animals	21	14	7	11097	3241	7846

** Averages of all active animals in the flock.

Breeding Value Indices

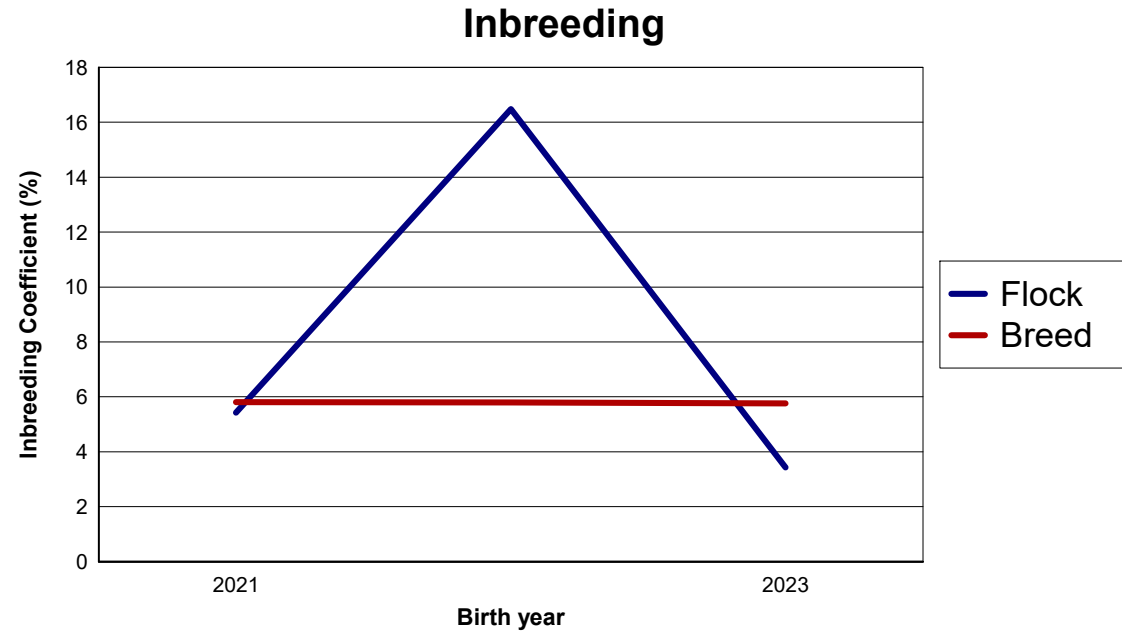
Trait	Flock **		
	All	Rams	Ewes
Weaning Weight Direct	107.0	105.8	109.6
Weaning Weight Maternal	95.5	95.7	95.2
Weaning Weight Comb	101.2	100.5	102.7
Post-wean Weight	105.5	104.9	106.7
Number Lambs Weaned	98.1	97.7	99.0
Total Weight Weaned	101.6	100.6	103.7
Age at First Lambing	100.6	101.7	98.5
Interlambing Period	100.2	98.4	103.8
Selection Indices			
Logix Merit Index	102.0	101.0	104.0
Reproduction Index	96.0	95.5	97.0
Inbreeding			
Inbreeding (%)	8.02	7.38	9.28
Number of Animals			
Number of Animals	21	14	7

** Averages of all active animals in the flock.

Inbreeding

NOTES

- Inbreeding primarily leads to decreased fertility and low survivability of lambs.
- The effects of inbreeding can be observed from 6.25% onwards.
- It is herefore highly recommended to record pedigree information as accurately and completely as possible and to use a selection programme for selection of unrelated rams.
- 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.



Level and Rate of Inbreeding

Year of Birth	Level* (%)	Rate (% / year)
2021 - 2023	3.44	-0.99
Recommended:	< 6.25	< 0.1 - 0.2

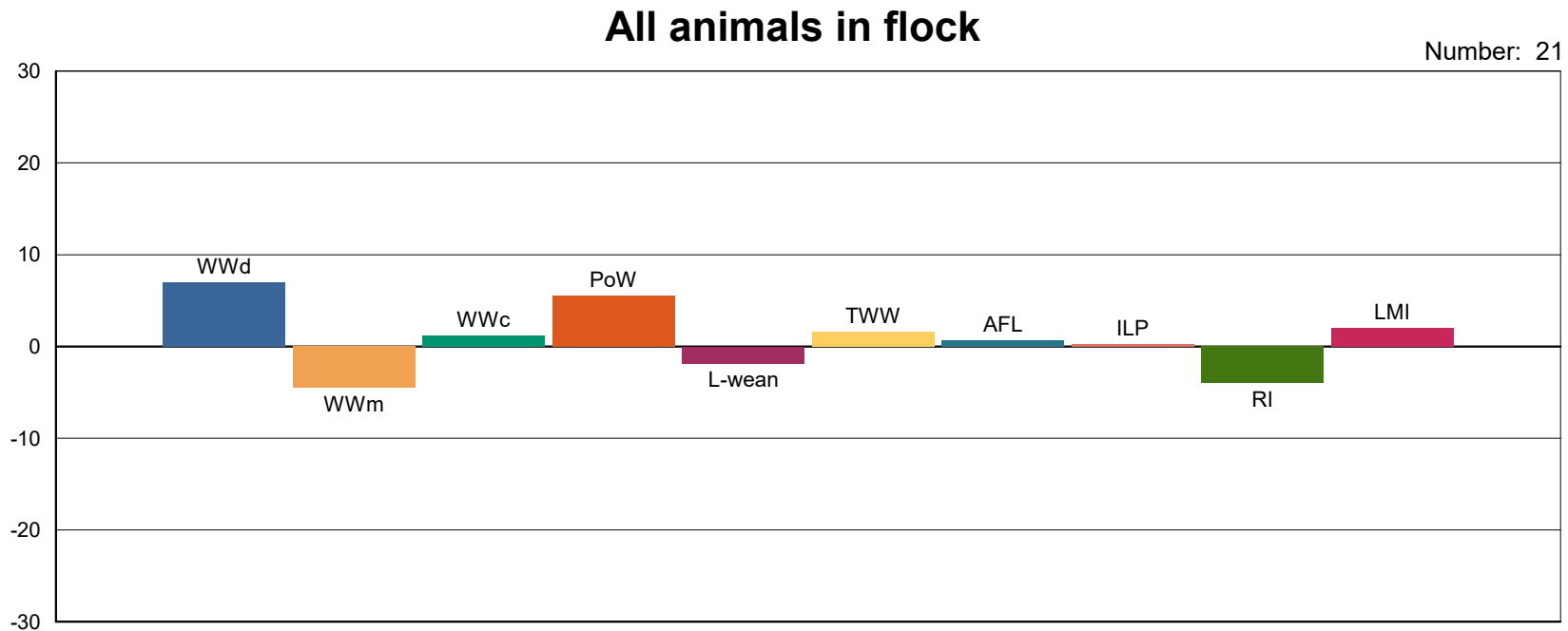
*Of the last year of birth

Pedigree Information

	Number	%
Known Sires	21	100
Known Dams	21	100

Note: Inbreeding can be under-estimated if pedigree information is incomplete or incorrect

Genetic Windows



WWd: Weaning Weight Direct
WWm: Weaning Weight Maternal
WWc: Weaning Weight Combined
PoW: Post-Wean Weight
L-wean: Number of Lambs Weaned
TWW: Total Weight Weaned
AFL: Age at First Lambing
ILP: Inter-lambing Period
RI: Reproduction Index
LMI: Logix Merit Index

The genetic windows allow a quick overview of the genetic status of the flock compared to the breed. The values presented here are the average EBV indices of all the active animals of the flock, of the dams and sires of the active animals of the flock, as well as of the active ewes and rams younger than 2 years old. An index of 100 is equal to the average of the active measured population. Due to the higher selection intensity on rams (selection is more strict since a much smaller percentage of young animals are retained in the flock), the expectation is for the average index of the sires to be higher than that of the dams. Remember that the EBV index for AFL and ILP are presented in such a way that an index above 100 indicates animals that have a lower EBV for these traits.

Genetic Windows

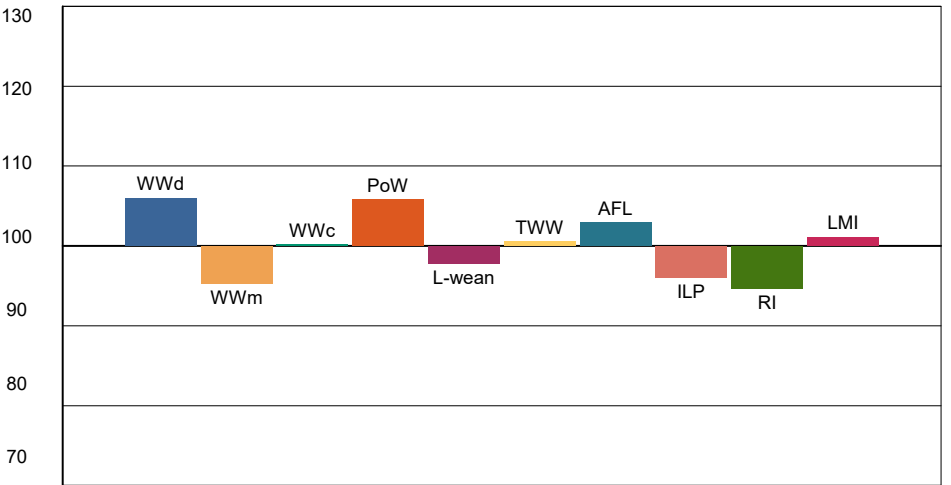
Dams

Number: 12



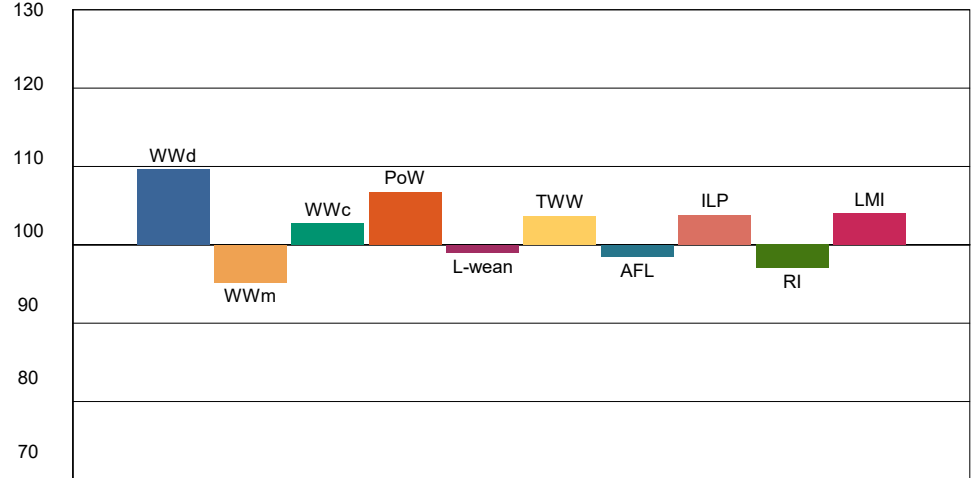
Sires

Number: 12



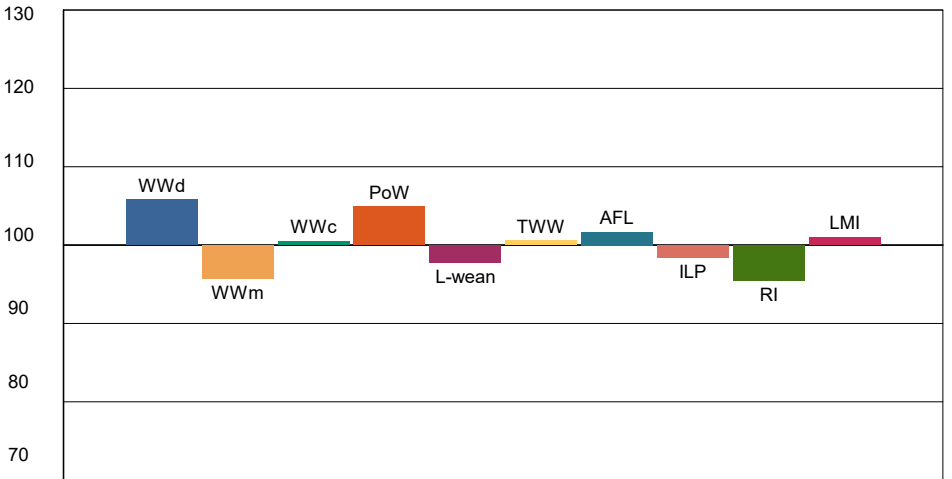
Young Ewes

Number: 7



Young Rams

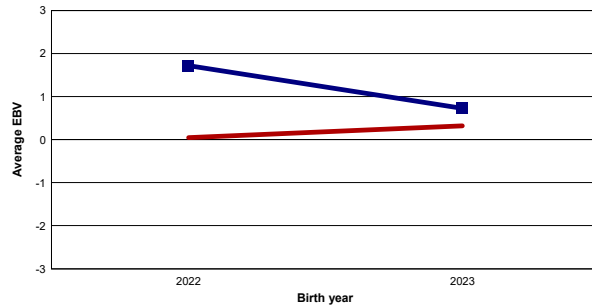
Number: 14



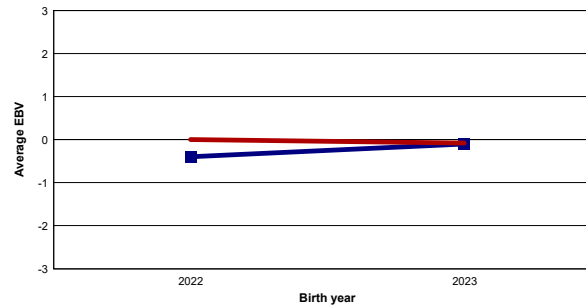
Genetic Trends

Genetic trends are based on measured animals that were bred by the specific breeder.

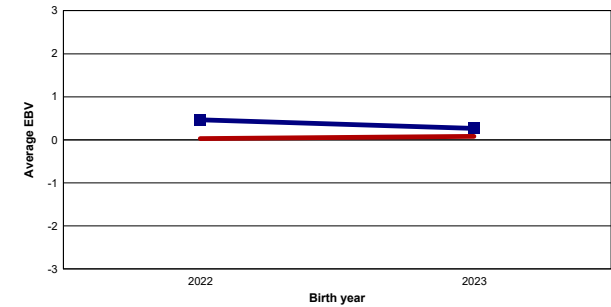
Weaning Weight Direct



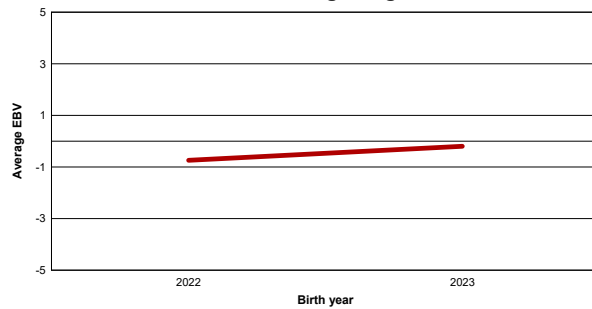
Wean Weight Maternal



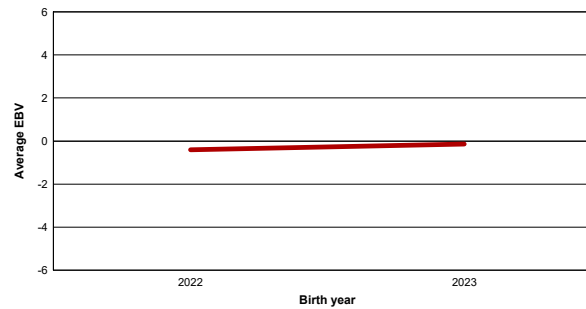
Weaning Weight Combined



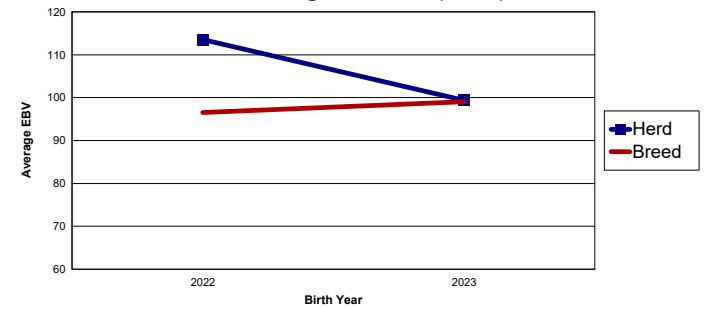
Post-weaning Weight



Number of Lambs Weaned

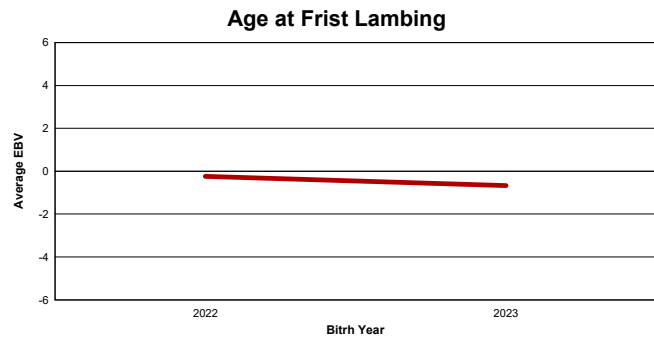


Total Weight Weaned (TWW)

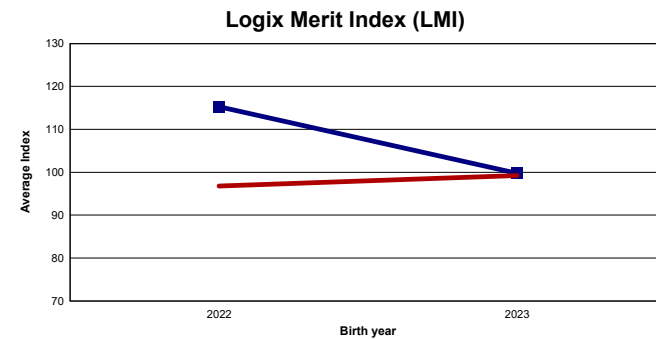
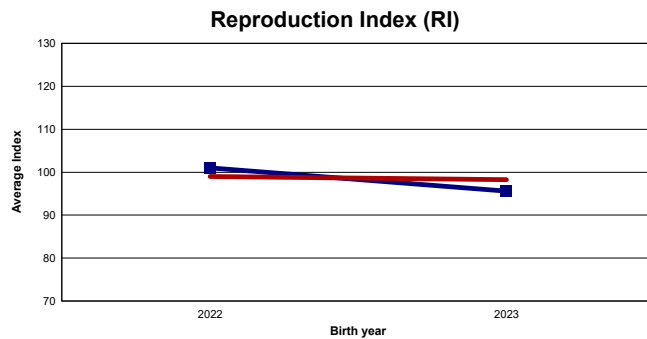
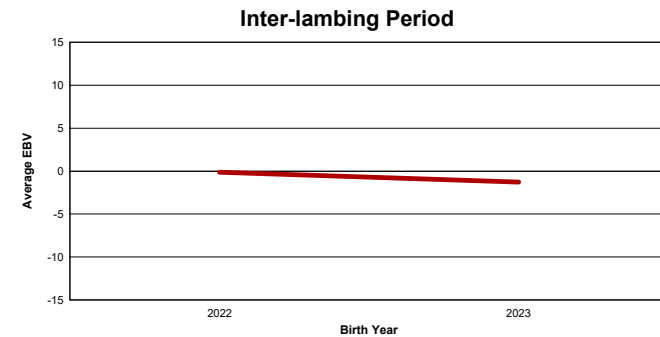


Genetic Trends

Genetic trends are based on measured animals that were bred by the specific breeder.



For AFL and ILP flock genetic trends below breed averages are desirable.



Genetic Trends of Breed

Birth year	Weaning Weight				Post-wean	Lambs Weaned		TWW		AFL		ILP		RI		LMI				
	EBV					EBV		EBV		EBV		EBV		EBV		EBV				
	Number	Dir	Mat	Comb		Number	EBV	Number	EBV	Number	EBV	Number	EBV	Number	EBV	Number	EBV			
2012	207	0.50	-0.62	-0.37	34	1.21	54	-0.08	207	100	287	4.33	88	-1.99	207	94	207	102		
2013	184	1.08	-0.47	0.08			103	0.17	184	106	186	3.71	94	-3.28	184	96	184	108		
2014	75	0.20	-0.26	-0.16			68	-0.21	70	-0.05	75	98	115	0.87	45	-1.48	75	96	75	99
2015	144	0.18	-0.30	-0.21			102	-0.66	98	-0.19	144	97	137	-0.13	74	-1.88	144	96	144	98
2016	108	0.06	-0.17	-0.14			87	-0.25	108	97	139	4.08	94	-5.29	108	99	108	98		
2017	271	0.30	0.02	0.17			104	-0.21	271	98	176	1.45	127	-1.54	271	98	271	97		
2018	168	-0.22	0.11	0.00			201	-0.03	168	96	268	2.94	208	-2.79	168	104	168	96		
2019	293	0.00	0.00	0.00			255	0.00	293	98	357	0.00	269	0.00	293	100	293	97		
2020	637	0.44	-0.06	0.16	14	-3.71	275	-0.09	637	101	623	-0.07	428	0.10	637	99	637	100		
2021	562	0.27	-0.05	0.09			258	-0.47	562	97	718	0.12	425	-0.61	562	97	562	97		
2022	1120	0.04	0.01	0.03			377	-0.74	271	-0.41	1114	97	780	-0.24	336	-0.14	1114	99	1114	97
2023	1344	0.32	-0.08	0.08			210	-0.21	143	-0.15	1344	99	473	-0.68	51	-1.29	1344	98	1344	99
2024	1469	0.44	0.01	0.23	113	0.46	1	0.40	1468	101	9	0.21			1468	100	1468	102		

Genetic Trends of Flock

Birth year	Weaning Weight EBV				Post-Wean	Lambs Weaned		TWW		AFL		ILP		RI		LMI	
	Number	Dir	Mat	Comb		Number	EBV	Number	EBV	Number	EBV	Number	EBV	Number	EBV	Number	EBV
2022	4	1.72	-0.40	0.47				4	114					4	101	4	115
2023	6	0.73	-0.10	0.26				6	99					6	96	6	100

Breeding Value & Selection Index Percentiles

The percentiles indicate the ranking of the animals' EBVs and Selection Indices within the active population.

For example, if an animal's EBV for a specific trait falls between the maximum and 99% percentile of the trait, it means that this animal ranks in the top 1% of the active population, or this animal's genetic merit for the trait is better than 99% of that of the active population.

Should the EBV for a specific trait falls between the 5% and 10% percentile, it means that the animal ranks in the bottom 10% of the active population for the specific trait, or the animal's genetic merit is worse than 90% of the active population.

Note that the percentiles for Age at First Lambing and Inter-lambing Period EBVs work on the reverse scale.

All Active Animals

Trait	AVG	SA*	Min	Percentiles(%)															Max
				1	5	10	20	25	30	40	50	60	70	75	80	90	95	99	
Weaning Weight Direct	0.36	0.66	-2.61	-1.30	-0.71	-0.43	-0.12	0.01	0.09	0.25	0.34	0.44	0.60	0.71	0.85	1.19	1.51	2.15	3.95
Weaning Weight Maternal	-0.07	0.47	-1.92	-1.06	-0.72	-0.57	-0.45	-0.39	-0.35	-0.24	-0.15	-0.02	0.13	0.23	0.31	0.57	0.81	1.22	2.09
Weaning Weight Combined	0.11	0.55	-2.32	-1.13	-0.76	-0.56	-0.33	-0.23	-0.17	-0.02	0.10	0.23	0.35	0.44	0.53	0.84	1.08	1.53	2.53
Post-Wean Weight	-0.14	1.09	-7.02	-3.27	-1.95	-1.48	-0.88	-0.68	-0.55	-0.32	-0.10	0.08	0.29	0.46	0.66	1.16	1.58	2.47	6.90
Number of Lambs Weaned	-0.14	1.28	-8.00	-3.00	-2.10	-1.60	-1.10	-0.90	-0.80	-0.40	-0.10	0.10	0.20	0.40	0.70	1.40	2.10	3.40	9.00
Total Weight Weaned	0.21	1.17	-5.41	-2.58	-1.76	-1.17	-0.64	-0.49	-0.29	-0.02	0.20	0.44	0.70	0.82	1.02	1.64	2.19	3.32	7.56
Age at First Lambing	0.28	-7.62	53.78	18.36	12.14	9.40	6.26	4.60	3.58	1.78	0.33	-0.91	-2.62	-3.84	-5.33	-9.19	-12.47	-18.98	-60.32
Interlambing Period	-0.73	-5.25	23.25	12.08	8.05	5.83	3.12	2.26	1.58	0.58	-0.50	-1.50	-3.13	-4.01	-5.05	-7.56	-9.81	-13.46	-22.24
Reproduction Index	98	10	54	76	84	87	90	92	93	95	97	99	102	103	105	110	116	126	147
Logix Merit Index	99	10	52	76	83	87	92	93	95	97	99	101	103	104	106	112	116	125	141

*SD : Standard Deviation. An indicator of how far breeding values/selection indices are distributed around the average.

Breeding Value & Selection Index Percentiles

All Active Rams

Trait	AVG	SA*	Min	Percentiles (%)															Max
				1	5	10	20	25	30	40	50	60	70	75	80	90	95	99	
Weaning Weight Direct	0.40	0.69	-2.61	-1.19	-0.73	-0.43	-0.08	0.03	0.11	0.28	0.38	0.48	0.65	0.78	0.92	1.26	1.56	2.27	3.81
Weaning Weight Maternal	-0.04	0.46	-1.74	-0.98	-0.68	-0.54	-0.44	-0.39	-0.32	-0.22	-0.11	0.02	0.15	0.24	0.33	0.58	0.81	1.16	2.01
Weaning Weight Combined	0.16	0.53	-1.67	-1.02	-0.67	-0.50	-0.29	-0.20	-0.12	0.03	0.14	0.27	0.38	0.48	0.58	0.85	1.08	1.48	2.51
Post-Wean Weight	-0.05	1.08	-6.28	-2.93	-1.84	-1.42	-0.80	-0.63	-0.47	-0.27	-0.04	0.16	0.43	0.56	0.74	1.26	1.69	2.54	6.90
Number of Lambs Weaned	-0.16	1.19	-5.00	-2.70	-2.00	-1.50	-1.10	-0.90	-0.80	-0.50	-0.20	0.00	0.20	0.40	0.80	1.40	1.90	3.20	6.00
Total Weight Weaned	0.26	1.11	-3.54	-2.35	-1.63	-1.08	-0.58	-0.41	-0.22	0.03	0.26	0.49	0.78	0.89	1.08	1.63	2.12	3.17	4.71
Age at First Lambing	0.38	-6.71	30.47	15.46	11.10	8.81	6.04	4.41	3.53	1.76	0.31	-0.89	-2.36	-3.38	-4.47	-8.17	-11.06	-16.75	-28.42
Interlambing Period	-0.86	-4.88	19.66	11.81	7.01	4.91	2.72	1.84	1.21	0.30	-0.58	-1.40	-3.06	-3.89	-4.82	-7.25	-9.39	-12.57	-22.02
Reproduction Index	98	9	59	79	85	87	91	92	93	95	97	99	102	103	105	110	115	126	142
Logix Merit Index	100	9	69	78	84	88	93	94	95	98	100	101	103	105	107	111	115	124	136

All Active Ewes

Trait	AVG	SA*	Min	Percentiles (%)															Max
				1	5	10	20	25	30	40	50	60	70	75	80	90	95	99	
Weaning Weight Direct	0.35	0.65	-2.53	-1.32	-0.71	-0.43	-0.13	-0.01	0.08	0.24	0.33	0.43	0.57	0.67	0.82	1.15	1.49	2.10	3.95
Weaning Weight Maternal	-0.08	0.48	-1.92	-1.10	-0.73	-0.58	-0.45	-0.39	-0.35	-0.26	-0.17	-0.03	0.11	0.21	0.30	0.57	0.81	1.27	2.09
Weaning Weight Combined	0.10	0.56	-2.32	-1.20	-0.79	-0.59	-0.34	-0.25	-0.19	-0.06	0.08	0.20	0.34	0.42	0.51	0.84	1.07	1.57	2.53
Post-Wean Weight	-0.18	1.09	-7.02	-3.48	-2.00	-1.51	-0.91	-0.71	-0.59	-0.37	-0.12	0.05	0.24	0.41	0.61	1.09	1.53	2.41	4.95
Number of Lambs Weaned	-0.14	1.31	-8.00	-3.20	-2.20	-1.60	-1.10	-0.90	-0.70	-0.40	-0.10	0.10	0.20	0.40	0.60	1.50	2.20	3.50	9.00
Total Weight Weaned	0.19	1.20	-5.41	-2.69	-1.80	-1.20	-0.66	-0.51	-0.33	-0.04	0.18	0.39	0.65	0.80	0.99	1.64	2.23	3.38	7.56
Age at First Lambing	0.23	-8.00	53.78	19.47	12.57	9.63	6.35	4.72	3.58	1.80	0.40	-0.95	-2.87	-4.14	-5.55	-9.74	-13.06	-19.72	-60.32
Interlambing Period	-0.67	-5.42	23.25	12.18	8.47	6.23	3.34	2.49	1.78	0.68	-0.45	-1.53	-3.16	-4.07	-5.16	-7.68	-9.95	-13.91	-22.24
Reproduction Index	98	10	54	76	83	87	90	92	93	94	96	99	101	103	105	111	116	126	147
Logix Merit Index	99	10	52	75	82	87	91	93	94	97	99	101	103	104	106	112	116	125	141

*SD : Standard Deviation. An indicator of how far breeding values/selection indices are distributed around the average.

Rams

Inbreeding in red is high

EBV - Estimated Breeding Value

Indices >=124
Above breed average
Indices <= 76

Acc: Accuracy of the breeding value
EBVs with an accuracy below 5% are not printed

Index: Expresses the EBV around 100 where 100 is set as the average EBV of active animals

Animal Information							Selection Indices		EBV - Weights				EBV - Fertility								
Animal			Parents			% In-breeding	Logix Merit Index	Reproduction Index	Wean Weight		Post-Wean	Number Weaned	TWW		AFL		ILP		Dam		
Comp no.			Sire Dam						Dir	Mat			Comb	EBV Acc Index	EBV Acc Index	EBV Acc Index	EBV Acc Index	EBV Acc Index	EBV Acc Index	EPI	Times Lambd
Active Breed Average:							100	100	0.36	-0.07	0.12	-0.14	-0.14	0.21	0.28	-0.73					
157 21 0074	93759967		49 19 0125	157 19 0057	2.64		99	99	0.01 42 96	-0.08 19 98	-0.08 95	-0.61 10 97	0.40 5 103	0.17 24 98	-1.83 26 105	1.40 14 93			3		
KR62 21 0089	92469444		KR62 19 0187	KR62 20 0205	7.02		97	92	0.47 52 102	-0.08 46 98	0.16 99	0.13 23 103	-0.70 22 95	-0.03 43 97	-4.39 41 109	5.12 26 84	104		6		
226 22 0001	96285382		147 17 0001	147 21 0090	4.37		109	102	0.96 63 108	-0.34 46 92	0.14 99	0.26 8 104	0.90 18 107	1.16 46 107	-1.55 32 105	-2.33 22 101	107		2		
226 22 0002	96285390		147 17 0001	147 21 0090	4.37		112	101	1.34 63 113	-0.41 46 91	0.26 101	0.77 8 107	0.90 18 107	1.47 46 109	-1.55 32 105	-2.33 22 101	107		2		
226 22 0003	96285408		147 17 0001	147 21 0038	29.30		122	100	2.60 62 129	-0.48 45 89	0.82 111	2.21 8 118	1.30 18 109	2.90 45 121	-2.77 30 107	0.73 21 94	100		2		
226 22 0005	96285424		104 17 0089	104 21 0033	14.95		86	92	-0.26 57 93	0.46 49 109	0.33 103	1.48 47 113	-2.60 29 81	-1.36 47 86	10.22 39 87	-6.39 22 111	92		2		
226 22 0008	96285457		100 16 0133	104 21 0129	17.31		101	97	0.84 38 106	-0.47 34 90	-0.05 96	-1.21 25 93	0.80 18 106	0.85 32 104	8.37 29 90	-5.83 20 110	100		1		
226 23 0001	96802590		KR62 21 0044	KR62 21 0202	4.04		89	85	0.34 30 100	-0.57 28 88	-0.40 89	-0.84 19 95	-1.10 17 92	-0.90 26 90	-3.06 31 107	2.15 21 91	100		1		
226 23 0002	98073216		KR62 21 0089	49 21 0145	3.79		102	98	0.49 29 102	0.03 26 100	0.28 102	0.25 16 104	-0.10 11 99	0.46 24 101	-4.07 22 108	2.93 14 89	100		1		
226 23 0006	98073265		KR62 21 0089	147 21 0090	3.25		103	94	1.04 54 109	-0.32 39 93	0.20 100	0.73 12 107	-0.30 16 98	0.54 39 102	-0.95 29 104	-0.73 20 98	107		2		
226 23 0007	98073273		KR62 21 0089	147 21 0090	3.25		107	92	1.72 54 118	-0.45 39 90	0.41 104	1.64 12 114	-0.30 16 98	1.09 39 106	-0.95 29 104	-0.73 20 98	107		2		
226 23 0008	98073299		157 21 0074	104 21 0033	3.02		92	92	0.47 53 102	0.13 33 102	0.36 103	0.74 24 107	-2.00 17 85	-0.60 37 92	5.00 24 95	-4.59 13 107	92		2		
226 23 0009	98073315		157 21 0074	104 21 0033	3.02		89	94	0.02 53 96	0.22 33 104	0.23 101	0.14 24 103	-2.00 17 85	-0.96 37 89	5.00 24 95	-4.59 13 107	92		2		
226 23 0011	98073349		157 21 0074	147 21 0038	3.02		107	99	1.00 53 109	-0.18 31 96	0.32 103	0.37 6 104	0.60 11 104	1.18 35 107	-0.89 22 104	0.47 14 95	100		2		
Ram Flock Average:							101	95	0.79	-0.18	0.21	0.43	-0.30	0.43	0.47	-1.05					
Number of rams in the flock: 14																					

Ewes

Inbreeding in red is high

EBV - Estimated Breeding Value

Indices >=124
Above breed average
Indices <= 76

Acc: Accuracy of the breeding value
EBVs with an accuracy below 5% are not printed

Index: Expresses the EBV around 100 where 100 is set as the average EBV of active animals

Animal Information							Selection Indices			EBV - Weights						EBV - Fertility									
Animal Comp no.			Parents Sire Dam			% In- breedin	Logix Merit Index	Reproduction Index	Wean Weight		Post-Wean	Number Weaned	TWW	AFL		ILP		Phenotype							
									Dir	Mat				Comb	EBV Acc Index	EBV Acc Index	EBV Index	EBV Acc Index	EBV Acc Index	EBV Acc Index	EPI	Times Lambd			
			Active Breed Average:				100	100	0.36	-0.07	0.12	-0.14	-0.14	0.21	0.28	-0.73									
104 21 0033 92491018	104 19 0028 104 19 0003	9.91	78	88	-0.12 68 94	0.55 59 111	0.49 106	0.69 46 107	-4.30 34 69	-2.15 57 79	11.82 41 85	-10.58 23 121	92	2											
147 21 0038 92402858	147 17 0001 147 19 0125	5.38	117	99	2.18 67 123	-0.31 56 93	0.79 111	1.60 8 114	0.90 22 107	2.42 52 117	0.05 35 102	-0.46 25 97	100	2											
147 21 0090 94465150	AH 17 0047 100 16 0289	2.80	110	96	1.79 67 118	-0.59 59 87	0.31 102	1.57 7 114	0.10 22 101	1.26 54 108	2.48 41 99	-6.57 30 111	107	2											
104 21 0129 92501774	104 18 0057 3 13 0185	11.87	97	87	1.16 56 110	-0.88 50 81	-0.31 91	-0.14 37 101	0.00 24 100	0.27 46 99	11.36 37 86	-7.70 26 114	100	1											
49 21 0145 93359305	49 18 0532 49 18 0138	2.67	107	105	0.51 25 102	0.14 23 103	0.40 104	0.37 21 104	0.50 5 104	0.95 19 105	-3.76 19 108	0.74 10 94	100	1											
226 22 0004 96285416	147 17 0001 147 21 0038	29.30	118	101	1.99 62 121	-0.36 45 92	0.64 108	1.40 8 112	1.30 18 109	2.41 45 117	-2.77 30 107	0.73 21 94		0											
226 23 0010 98073323	157 21 0074 147 21 0038	3.02	101	102	0.10 53 97	0.00 31 100	0.05 98	-0.83 6 95	0.60 11 104	0.46 35 101	-0.89 22 104	0.47 14 95		0											
Ewe flock average: Total ewes in flock: 7							104	97	1.09	-0.21	0.34	0.67	-0.13	0.80	2.61	-3.34									

Sires Used in Flock

*Inbreeding in red is high

EBV - Estimated Breeding Value

Indices >=124
Above breed average
Indices <= 76

Acc: Accuracy of the breeding value
EBVs with an accuracy below 5% are not printed

Index: Expresses the EBV around 100 where 100 is set as the average EBV of active animals

Animal Information			Parents & Progeny				Selection Indices		EBV - Weights				EBV - Fertility					
Animal ID Computer nr	% In- breedin	Sire ID Dam ID	1st Generation		2nd Generation		Logix Merit Index	Reproducti on Index	Weaning Weight		Comb EBV Index	Post-Wean EBV Acc Index	Number Weaned EBV Acc Index	TWW EBV Acc Index	AFL EBV Acc Index	ILP EBV Acc Index	DAM EPI Times Lambe	
			Progeny Number Weaned	Herds	Progeny Number Weaned	Herds			Dir EBV Acc Index	Mat EBV Acc Index								
			Active Breed Average:				100	100	0.36	-0.07	0.12	-0.14	-0.14	0.21	0.28	-0.73		
1	100 16 0133 77522084	4.21	3 12 0270 3 13 0770				105	106	0.52 50 102	-0.06 47 98	0.21 100	-2.27 34 84	1.50 28 111	1.37 44 108	5.38 43 94	-3.97 31 105	100 3	
2	147 17 0001 80078827	6.45	100 15 0044 100 16 0194	71	3	8 2	117	104	1.46 89 114	-0.35 67 92	0.38 104	0.73 13 107	1.70 28 112	2.13 67 115	-5.59 49 111	1.92 33 91	109 5	
3	AH 17 0047 81865321	2.80		132	1	31 1	117	94	2.77 94 131	-0.62 79 87	0.76 110	3.16 5 126	-0.40 25 97	1.91 72 113	-3.17 67 107	-3.66 48 105		
4	104 17 0089 85955888	2.80		75	2	15 1	93	96	-0.40 91 91	0.36 78 107	0.16 100	2.28 81 119	-1.00 47 93	-0.64 76 92	8.62 65 90	-2.20 38 101		
5	104 18 0057 82649740	5.01	100 16 0131 104 16 0029	31	1	9 1	100	82	1.78 86 118	-1.29 72 72	-0.40 89	1.82 64 115	-0.60 41 96	0.13 70 98	7.96 58 91	-9.35 36 118	133 7	
6	49 18 0532 92302728	6.60	3 14 0450 49 12 0493		1	1	106	104	0.24 31 99	-0.14 25 97	-0.02 96	-0.12 17 101	0.90 7 107	0.65 23 102	-7.84 35 114	2.54 18 90	3	
7	104 19 0028 85965689	2.80	104 17 0089 104 16 0042	62	1	15 1	80	78	0.78 91 106	0.22 79 104	0.61 108	2.26 82 119	-5.00 47 64	-2.00 76 80	8.32 68 90	-6.35 37 111	95 7	
8	49 19 0125 92213693	2.80	49 17 9142 49 16 0561		1	1	104	102	0.45 36 102	0.08 29 101	0.30 102	-0.23 20 100	0.50 5 104	0.82 26 104	-4.09 51 108	3.09 28 89	2	
9	KR62 19 0187 91031856	3.51	KR62 17 0777 KR62 17 0788	8	2	9 3	93	89	0.31 74 100	0.05 69 101	0.21 100	-0.79 46 96	-1.30 38 90	-0.42 64 94	-13.02 68 122	11.83 48 68	6	
10	KR62 21 0044 92438761	4.00	133 17 0026 KR62 19 0003				103	91	1.27 36 112	-0.51 32 89	0.12 99	0.34 11 104	0.40 12 103	1.00 29 105	5.08 40 95	-0.63 23 97	4	
11	157 21 0074 93759967	2.64	49 19 0125 157 19 0057	4	1		99	99	0.01 42 96	-0.08 19 98	-0.08 95	-0.61 10 97	0.40 5 103	0.17 24 98	-1.83 26 105	1.40 14 93	3	
12	KR62 21 0089 92469444	7.02	KR62 19 0187 KR62 20 0205	2	1		97	92	0.47 52 102	-0.08 46 98	0.16 99	0.13 23 103	-0.70 22 95	-0.03 43 97	-4.39 41 109	5.12 26 84	104 6	
			Sire Flock Average: Number of sires used in the flock: 12				101	95	0.80	-0.20	0.20	0.56	-0.30	0.42	-0.38	-0.02		

Ram Selection List: LMI

Animals sorted on LMI

Inbreeding in red is high

EBV - Estimated Breeding Value

Indices >=124
Above breed average
Indices <= 76

Acc: Accuracy of the breeding value
EBVs with an accuracy below 5% are not printed

Index: Expresses the EBV around 100 where 100 is set as the average EBV of active animals

Animal Information		Parents & Progeny				Selection Indices		EBV - Weights				EBV - Fertility			
Animal ID Computer nr	% In-breedi	Sire ID Dam ID	1st Generation		2nd Generation	Logix Merit Index	Reproducti on Index	Weaning Weight		Comb EBV Index	Post-Wean EBV Acc Index	Number Weaned EBV Acc Index	TWW EBV Acc Index	AFL EBV Acc Index	ILP EBV Acc Index
			Progeny Number Weaned	Herds	Progeny Number Weaned			Herds	Dir EBV Acc Index						
			Active Breed Average:					100	100	0.36	-0.07	0.12	-0.14	-0.14	0.21
1	226 22 0003 96285408	29.30	147 17 0001 147 21 0038			122	100	2.60 62	-0.48 129	0.82 111	2.21 8	1.30 18	2.90 45	-2.77 107	0.73 21
2	226 22 0002 96285390	4.37	147 17 0001 147 21 0090			112	101	1.34 63	-0.41 113	0.26 101	0.77 8	0.90 18	1.47 46	-1.55 109	-2.33 22
3	226 22 0001 96285382	4.37	147 17 0001 147 21 0090			109	102	0.96 63	-0.34 108	0.14 99	0.26 8	0.90 18	1.16 46	-1.55 107	-2.33 22
4	226 23 0007 98073273	3.25	R62 21 0089 147 21 0090			107	92	1.72 54	-0.45 118	0.41 104	1.64 12	-0.30 16	1.09 39	-0.95 106	-0.73 20
5	226 23 0011 98073349	3.02	157 21 0074 147 21 0038			107	99	1.00 53	-0.18 109	0.32 103	0.37 6	0.60 11	1.18 35	-0.89 107	0.47 14
6	226 23 0006 98073265	3.25	R62 21 0089 147 21 0090			103	94	1.04 54	-0.32 109	0.20 100	0.73 12	-0.30 16	0.54 39	-0.95 102	-0.73 20
7	226 23 0002 98073216	3.79	R62 21 0089 49 21 0145			102	98	0.49 29	0.03 102	0.28 102	0.25 16	-0.10 11	0.46 24	-4.07 101	2.93 14
8	226 22 0008 96285457	17.31	100 16 0133 104 21 0129			101	97	0.84 38	-0.47 106	-0.05 96	-1.21 25	0.80 18	0.85 32	8.37 29	-5.83 20
9	157 21 0074 93759967	2.64	49 19 0125 157 19 0057	4	1	99	99	0.01 42	-0.08 96	-0.08 95	-0.61 10	0.40 5	0.17 24	-1.83 26	1.40 14
10	R62 21 0089 92469444	7.02	R62 19 0187 R62 20 0205	2	1	97	92	0.47 52	-0.08 102	0.16 99	0.13 23	-0.70 22	-0.03 43	-4.39 41	5.12 26
11	226 23 0008 98073299	3.02	157 21 0074 104 21 0033			92	92	0.47 53	0.13 102	0.36 103	0.74 24	-2.00 17	-0.60 37	5.00 24	-4.59 13
12	226 23 0001 96802590	4.04	R62 21 0044 R62 21 0202			89	85	0.34 30	-0.57 100	-0.40 89	-0.84 19	-1.10 17	-0.90 26	-3.06 31	2.15 21
13	226 23 0009 98073315	3.02	157 21 0074 104 21 0033			89	94	0.02 53	0.22 96	0.23 101	0.14 24	-2.00 17	-0.96 37	5.00 24	-4.59 13
14	226 22 0005 96285424	14.95	104 17 0089 104 21 0033			86	92	-0.26 57	0.46 93	0.33 103	1.48 47	-2.60 29	-1.36 47	10.22 39	-6.39 22

Ewe Selection List: LMI

Animals sorted on LMI

Inbreeding in red is high

EBV - Estimated Breeding Value

Indices >=124
Above breed average
Indices <= 76

Acc: Accuracy of the breeding value
EBVs with an accuracy below 5% are not printed

Index: Expresses the EBV around 100 where 100 is set as the average EBV of active animals

Animal Information		Parents	Selection Indices		EBV - Weights				EBV - Fertility				
Animal ID	% In-breedin	Sire ID	Logix Merit Index	Reproducti on Index	Dir EBV	Weaning Weight Mat EBV	Comb EBV	Post-Wean EBV	Number Weaned EBV	TWW EBV	AFL EBV	ILP EBV	Phenotype
Computer nr		Dam ID			Acc Index	Acc Index	Index	Acc Index	Acc Index	Acc Index	Acc Index	Acc Index	EPI Times Lambd
Active Breed Average:			100	100	0.36	-0.07	0.12	-0.14	-0.14	0.21	0.28	-0.73	
1 226 22 0003 96285408	29.30	147 17 0001 147 21 0038	122	100	2.60 62 129	-0.48 45 89	0.82 111	2.21 8 118	1.30 18 109	2.90 45 121	-2.77 30 107	0.73 21 94	
2 226 22 0002 96285390	4.37	147 17 0001 147 21 0090	112	101	1.34 63 113	-0.41 46 91	0.26 101	0.77 8 107	0.90 18 107	1.47 46 109	-1.55 32 105	-2.33 22 101	
3 226 22 0001 96285382	4.37	147 17 0001 147 21 0090	109	102	0.96 63 108	-0.34 46 92	0.14 99	0.26 8 104	0.90 18 107	1.16 46 107	-1.55 32 105	-2.33 22 101	
4 226 23 0007 98073273	3.25	KR62 21 0089 147 21 0090	107	92	1.72 54 118	-0.45 39 90	0.41 104	1.64 12 114	-0.30 16 98	1.09 39 106	-0.95 29 104	-0.73 20 98	
5 226 23 0011 98073349	3.02	157 21 0074 147 21 0038	107	99	1.00 53 109	-0.18 31 96	0.32 103	0.37 6 104	0.60 11 104	1.18 35 107	-0.89 22 104	0.47 14 95	
6 226 23 0006 98073265	3.25	KR62 21 0089 147 21 0090	103	94	1.04 54 109	-0.32 39 93	0.20 100	0.73 12 107	-0.30 16 98	0.54 39 102	-0.95 29 104	-0.73 20 98	
7 226 23 0002 98073216	3.79	KR62 21 0089 49 21 0145	102	98	0.49 29 102	0.03 26 100	0.28 102	0.25 16 104	-0.10 11 99	0.46 24 101	-4.07 22 108	2.93 14 89	
8 226 22 0008 96285457	17.31	100 16 0133 104 21 0129	101	97	0.84 38 106	-0.47 34 90	-0.05 96	-1.21 25 93	0.80 18 106	0.85 32 104	8.37 29 90	-5.83 20 110	
9 157 21 0074 93759967	2.64	49 19 0125 157 19 0057	99	99	0.01 42 96	-0.08 19 98	-0.08 95	-0.61 10 97	0.40 5 103	0.17 24 98	-1.83 26 105	1.40 14 93	
10 KR62 21 0089 92469444	7.02	KR62 19 0187 KR62 20 0205	97	92	0.47 52 102	-0.08 46 98	0.16 99	0.13 23 103	-0.70 22 95	-0.03 43 97	-4.39 41 109	5.12 26 84	
11 226 23 0008 98073299	3.02	157 21 0074 104 21 0033	92	92	0.47 53 102	0.13 33 102	0.36 103	0.74 24 107	-2.00 17 85	-0.60 37 92	5.00 24 95	-4.59 13 107	
12 226 23 0001 96802590	4.04	KR62 21 0044 KR62 21 0202	89	85	0.34 30 100	-0.57 28 88	-0.40 89	-0.84 19 95	-1.10 17 92	-0.90 26 90	-3.06 31 107	2.15 21 91	
13 226 23 0009 98073315	3.02	157 21 0074 104 21 0033	89	94	0.02 53 96	0.22 33 104	0.23 101	0.14 24 103	-2.00 17 85	-0.96 37 89	5.00 24 95	-4.59 13 107	
14 226 22 0005 96285424	14.95	104 17 0089 104 21 0033	86	92	-0.26 57 93	0.46 49 109	0.33 103	1.48 47 113	-2.60 29 81	-1.36 47 86	10.22 39 87	-6.39 22 111	