

SANTA GERTRUDIS

GENOMIC BREEDING VALUE REPORT

June 2026



AYLESTONE FARM PTY LTD

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EBVs, EBVi's and GEBVs

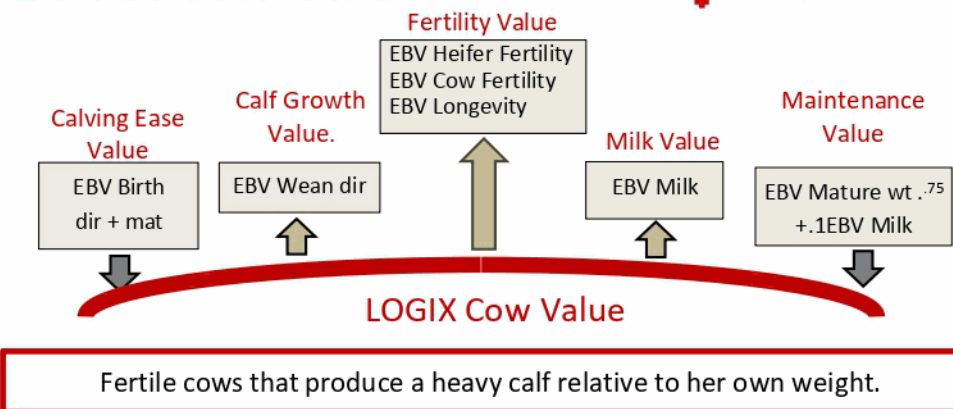
EBVi (Breeding Value Index): Genetic potential relative to the average (100) of the live (active) animals in the breed. Roughly 50% of the animals have values between 90 and 110. Values above 100, depending on the trait, tend to be in the more favourable direction.

EBV (Breeding Value): Genetic potential relative to the average of the animals born in the base year (1990), expressed in the unit of measurement.

GEBV (Genomic Breeding Value) Interpreted like the EBVi. (GEBV = EBV + Genomic information)

LOGIX Selection values combine different breeding values in a logical way. For example, Heifer Fertility (how early a heifer starts calving), Cow Fertility (how regular she calves) and Longevity (retention within the family) are combined to form the Fertility Value.

LOGIX Cow Value



Selection Values

LOGIX Cow Value



Selecting for:

- fertile,
- low maintenance,
- easy calving cows
- with heavy weaners

LOGIX Growth Value



Select for efficient growers on veld and in feedlot, as measured in Phase C and D Growth Tests.

LOGIX Carcass Value



Select for more meat on the carcass as measured from end weight in Phase C and D Growth Tests and RTU scanning.

LOGIX Production Value



80% LOGIX Cow Value +
20% LOGIX Growth Value

How to use the Cow Value

Selection values should be compatible with your selection goal.

AVERAGE ANIMALS

(NO GROWTH EXTREMES)

- Selection Values 90 to 110
 - Cow Value and Fertility Value average to high
- A safe choice, as animals are profitable in most environments.

GROWERS

(GOOD ENVIRONMENT)

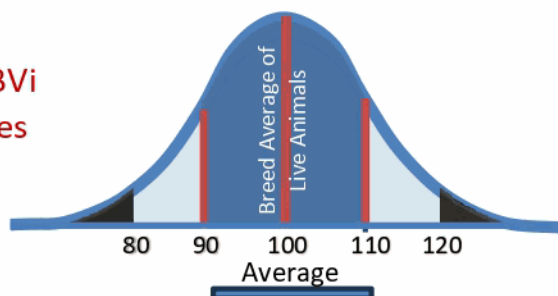
- WeanerCalf / Growth Value > 120
 - Cow Value and Fertility Value average to high
- Growers are usually heavier at birth (lower Calving Ease Value), and maturity (lower Maintenance Value).

LOW- MAINTENANCE ANIMALS

(HARSH ENVIRONMENT)

- Maintenance Value >110
 - Cow Value and Fertility Value average to high
- Lighter cows have a lower maintenance.

Interpretation of EBVi and Selection Values



Examples

Type of Animal	Cow Value	Calving Ease V	Weaner Calf V	Milk Value	Maint. Value	Fertility Value
Average	Med-High	Avg	Avg	Avg	Avg	Med-High
Grower	Med-High		High			Med-High
Low Maintenance	Med-High				High	Med-High

Contemporary Groups

The correct composition of contemporary groups is one of the cornerstones of BLUP breeding value estimation. Breeding values are estimated from the differences between animals exposed to the same environment, **as these differences are caused by genetics**. The following aspects are important:

1. Animals at the same time, place and treatment

A contemporary group is a comparable group of animals measured at the same time in the same environment. It is therefore a comparable group of animals that were together on the same farm or camp in the same year and season. If there are animals in the group that were treated differently, they should be given a separate treatment code because their performance is influenced by other environmental influences than the rest of the group. Examples of possible different treatments are when some animals received supplements or creep feed, sale or show animals, embryo donors, sick or foster calves or even purchased cows and calves. If bull and heifer calves or older cows and young heifers were in the same camp, they should be placed in the same group – corrections for sex, age and first calving of cows are automatically made during breeding value estimation.

2. Progeny of at least two sires, of which one is a link sire

The progeny of different sires needs to be compared in the same group in order to determine the sires' genetic merit relative to each other. At least one sire should be a link sire with progeny in other herds. Genetic links between herds are used to determine the position of sires in the breed. All sires are good link sires. Smaller herds could artificially inseminate some cows or allow some cows to be covered by another herd's bull.

3. Larger groups stabilise Breeding Values

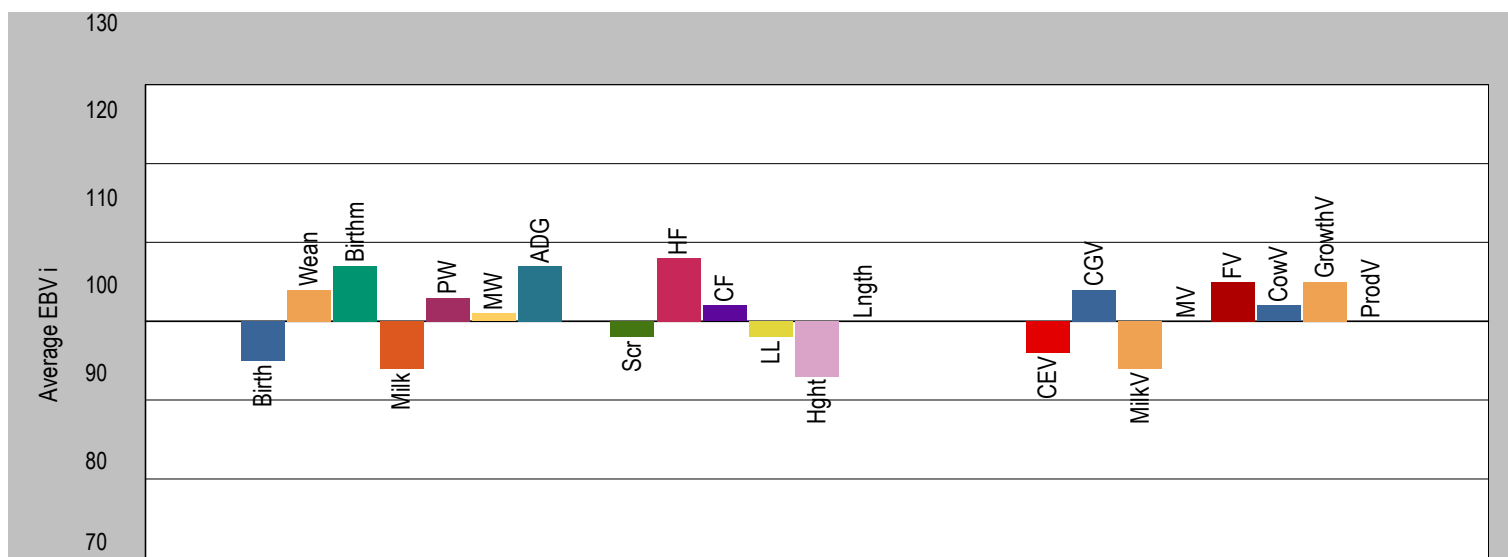
Larger groups result in more accurate and stable breeding values, as the mean and distribution of the group can be more accurately determined and are thus more representative. Groups should preferably have more than 5 animals. Weigh all the animals in the same group on the same day, as corrections for age differences are made during genetic evaluation. The use of breeding seasons rather than through the year calving will also increase contemporary group size. Groups with less than 3 animals are not included in breeding value estimation. An accidental mistake in a small group affects the animal itself, its family, all the other animals in the group and their families. The effect could be much less in large groups.

4. Measure all animals in the contemporary group

Weigh ALL the animals in the contemporary group, the good as well as the poor performers. Weigh animals before they are culled, so their parents can be penalized for their poor breeding.



Herd and Breed Averages



Breeding Values:

Birth:	Birth weight	Scr:	Scrotal circumf.
Wean:	Weaning weight	HF:	Heifer Fertility
Birthm:	Birth maternal	CF:	Cow Fertility
Milk:	Milk	LL:	Longevity
PW:	Post-wean weight	Hght:	Height
MW:	Mature weight	Lngth:	Length
ADG:	Average Daily Gain	Dr%:	Dressing%
FCR:	Feed Conversion Ratio	RMV:	Red Meat Yield
		Marb:	Marbling

Selection Values:

CEV:	Calving Ease Value
CGV:	Calf Growth Value
MilkV:	Milk Value
MV:	Maintenance Value
FV:	Fertility Value
CowV:	Cow Value (CV)
GrowthV:	Growth Value (GV)
ProdV:	Production Value (PV)

	Trait	EBV Herd	EBV Index	EBV Breed
Prewrite Growth	Birth Weight	1.57	95	1.15
	Wean Weight	17.0	104	14.5
	Birth Mat.	-0.35	107	-0.09
	Milk (Wn.Mat.)	-1.1	94	0.7
Postwean Growth	Postwean Wt	25.4	103	23.1
	Mature Weight	20	101	19
	ADG	125	107	95
	FCR			
Fertility	Scrotal Circumf.	8.8	98	10.1
	Heifer Fertility	-10.0	108	-3.8
	Cow Fertility	-6.2	102	-5.7
	Longevity	31.8	98	33.2
Frame	Height	8	93	12
	Length	24	100	25
Carcass	Dressing%			
	RedMeatYield			
	Marbling			

Selection Value	Ave. Herd
Calving Ease	96
Calf Growth	104
Milk	94
Maintenance	100
Fertility	105
Cow Value	102
Growth Value	105
Production Value	100

- Average of live animals in the breed: 100
- Above 100: **more favourable**,
- Below 100: **less favourable**

What does a sub-selection value above breed average (100) mean?:

Calving ease:	Smaller calf at birth - easier calving
Calf growth:	Heavier calves at wean due to growth potential of the calf
Milk:	Cows with more milk and better mothering ability
Maintenance:	Animals with low maintenance requirements (lower mature weight).
Fertility:	Cows/daughters that calve

Genetic Windows

Bulls on the farm

Bulls born in and earlier that are available for natural mating
130
120
110
100
90
80
70

Animals available for breeding

Total:	Cows born in and earlier
	130
	120
	110
	100
	90
	80
	70

Cow Herd

Total:

Sires of young animals

Sires (Natural mating and AI) of animals 3 years and younger
130
120
110
100
90
80
70

Results of previous selection decisions

Total:	Cows born in and earlier
	130
	120
	110
	100
	90
	80
	70

Cows older than 6 years

Total:

Selection possibilities

Bull calves

Bulls born in
130
120
110
100
90
80
70

Total:

Heifers born in
130
120
110
100
90
80
70

Heifer calves

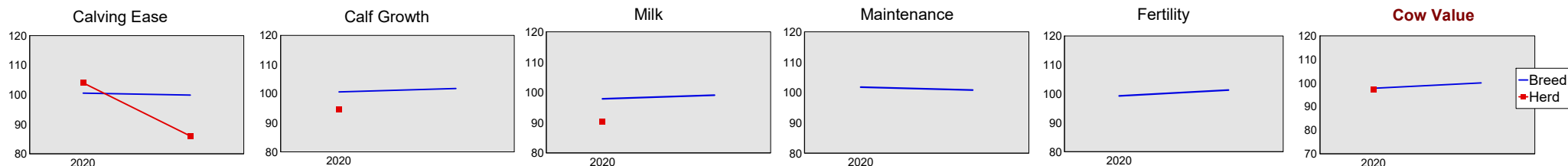
Total:

Summary of Cow Herd

			Selection Values (SV)								Calf Weight		Dam		Growth & Efficiency				Fertility				Frame		
Birth Year	No. Cows	Average Cow Value	Calving Ease	Calf Grwth	Milk	Maint.	Fertility	Cow Value	Growth Value	Prod Value	Birth Weight	Wean Weight	Birth Mat.	Milk (Wn.Mat)	Postwn Weight	Mature Weight	ADG	Kleiber	Scrotal Circumf.	Heifer Fertility	Cow Fertility	Longevity	Height	Length	
Cows in Breed Average:			100	100	100	101	100	100	99	99	100	100	100	100	100	99	99	99	99	99	100	100	100	99	99
2018	2	★★★★☆	86	111	109	84	100	105	119	106	89	111	95	109	114	118	125	128	107	103	101	95	108	114	
2020	2	★★★★	107	86	92	124	117	94	87	89	103	86	109	92	87	79	88	100	83	125	103	102	66	74	
2021	1	★★★★☆	89	110	84	104	102	100	99	97	86	110	116	84	105	95	99	101	99	102	104	99	97	93	
2023	4	★★★★☆	99	110	91	95	102	105	109	104	97	110	110	91	105	106	110	109	100	104	103	98	98	107	
Cows in Herd Average:			95	104	94	102	105	101	104	99	94	104	108	94	103	100	106	110	97	109	103	99	92	97	

Genetic Trends for On-Farm Traits

The graphs show the genetic gain of the herd relative to the breed. Only data of animals with measurements are included.



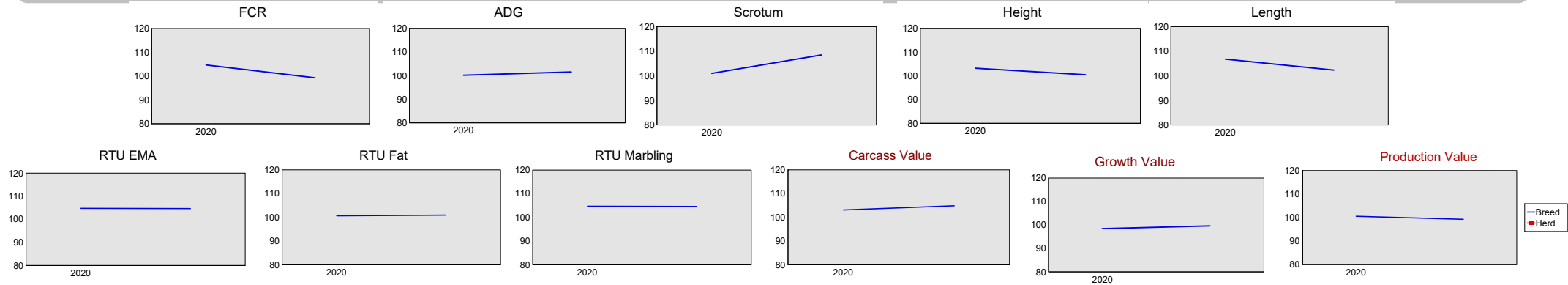
Herd

Birth Year	Calving Ease				Calf Growth			Milk			Maintenance				Fertility				Cow Value				
	Birth Weight		Mat EBV	Calv. Ease	Weaning Weight		Calf Growth	Milk (Wn.Mat.)		Milk	Postwean Weight		Mature Weight		Maintenance	Heifer Fert.		Cow Fert.		Longevity		Ferti- lity	
	Number	Dir EBV			Number	EBV		Number	EBV		Number	EBV	Number	EBV		Number	EBV	Number		EBV	Number		EBV
	2020	3	1.10	-0.54	104	3	11.6	95	3	-2.29	90												
2021	3	2.55	-0.33	86																			

Breed

Birth Year	Calving Ease				Calf Growth			Milk		Maintenance					Fertility						Cow Value		
	Birth Weight		Mat EBV	Calv. Ease	Weaning Weight		Calf Growth	Milk (Wn.Mat.)		Postwean Weight		Mature Weight		Mainte-nance	Heifer Fert.		Cow Fert.		Longevity			Ferti-lity	
	Number	Dir EBV			Number	EBV		Number	EBV	Number	EBV	Number	EBV		Number	EBV	Number	EBV	Number	EBV			Number
2016	2689	1.09	-0.08	101	1903	13.6	98	1903	-0.15	97	513	20.0	171	13	105	1216	-3.2	898	-4.6	5845	24.3	94	93
2017	2776	1.13	-0.10	100	2154	14.3	100	2154	-0.17	97	642	20.4	214	14	106	1172	-4.0	865	-4.7	5743	25.8	96	93
2018	2953	1.04	-0.09	101	2127	15.2	101	2127	-0.55	96	545	22.6	259	13	105	1227	-3.7	816	-5.4	5928	26.4	97	98
2019	3204	1.14	-0.09	100	2828	14.5	100	2828	-0.02	98	800	23.7	299	15	102	1176	-3.7	834	-5.7	5917	27.6	98	97
2020	3446	1.14	-0.11	100	3076	14.9	101	3076	0.02	98	695	24.1	284	17	102	1169	-3.4	671	-5.7	5916	28.1	99	98
2021	3336	1.21	-0.17	100	3400	15.5	102	3400	0.39	99	732	23.0	264	17	101	1027	-3.8	545	-5.9	5233	29.8	101	100
2022	3472	1.17	-0.15	100	3743	15.2	101	3743	0.08	98	748	23.5	178	18	100	765	-3.7	172	-6.3	1566	29.3	101	100
2023	3301	1.23	-0.18	100	3165	16.5	104	3165	-0.20	97	700	24.5	31	23	101	247	-2.3	2	-8.6			103	102
2024	3294	1.17	-0.17	101	3254	16.1	103	3254	0.61	100	574	26.6			99	3	-5.1					114	104
2025	2806	1.10	-0.13	102	1485	15.9	103	1485	1.02	101	145	16.0			104								105
2026	676	1.04	-0.10	102																			

Genetic Trends for Growth Test Traits



Herd

Birth Year	Growth									Frame						Carcass						Selection Values			
	FCR			ADG			Scrotum			Height			Length			EMA			Fat		Marbling		Carcass Value	Growth Value	Prod Value
	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi	RTU Number	EBV	EBVi	EBV	EBVi	EBV	EBVi			
2020																									
2021																									

Breed

Birth Year	Growth									Frame						Carcass						Selection Values			
	FCR			ADG			Scrotum			Height			Length			RTU Number	EMA		Fat		Marbling		Cracss Value	Growth Value	Prod Value
	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi	Number	EBV	EBVi		EBV	EBVi	EBV	EBVi	EBV	EBVi			
2017	73	-23	103	285	94	100	299	9.4	99	288	11	99	285	24	100	202	0.46	97	-0.06	98	0.61	102	99	98	95
2018	47	-22	102	220	85	98	275	9.1	98	248	11	98	220	22	98	123	0.82	101	0.06	99	0.78	104	103	96	101
2019	55	-26	106	256	101	101	338	10.2	100	253	13	101	183	27	103	206	0.95	103	-0.42	95	0.50	100	102	99	97
2020	30	-25	105	229	95	100	292	10.7	101	170	14	103	138	32	107	206	0.63	99	0.25	101	0.86	105	103	98	101
2021	35	-19	99	271	101	102	299	14.8	109	278	12	100	271	27	102	196	1.01	104	0.28	101	0.85	105	105	100	99
2022	22	-21	101	198	105	103	198	14.6	108	198	13	102	198	28	104	83	1.36	108	0.35	101	0.99	106	108	101	100
2023	28	-35	113	154	110	104	154	12.7	105	154	12	100	154	28	103	99	1.38	108	0.62	103	1.14	108	112	102	100
2024	28	-28	107	96	148	113	95	14.8	109	135	15	105	135	37	111	104	1.51	110	0.64	104	0.98	106	114	111	108
2025				7	82	97	7	16.1	111	19	10	97	19	20	96	2	1.79	113	1.49	110	3.03	132		96	107
2026																									

Sires

Bull				Selection Values							Calf		Dam		Growth				Fertility				Frame		Carcass			Measured Progeny		
ID	Index EBV Acc	Sire ID	Dam ID	Calv.	Calf	Milk	Maint.	Fertility	Cow	Growth	Prod	Birth	Wean	Birth	Wean	Post wn	Mature	ADG	FCR	Scrotal	Heifer	Cow	Long-evi	Height	Length	EMA	Fat	Marbling	Birth	Wean
				Ease Value	Grwth Value	Value	Value	Value	Value	Value	Value	Dir	Dir	Mat.	Mat.	wt	weight					Fertility	Fertility	ty						Grwth Test
DJW 180039		DJW 140035 DJW 150051	180039DJW	87	117	94	89	93	104	103	101	73	117	123	94	111	112	105	127	118	91	99	97	111	100	99	97	115	11	6
				77	77	51	26	48	60	52	58	3.49	23.8	-0.98	-1.2	31.6	31	115	-51	19.7	3.6	-5.4	31.1	18	25	0.61	-0.24	1.63	5	
												83	77	51	51	60	26	73	24	80	51	28	66	81	79	75	69	68		
FR 150090		SP 110076 FR 100039	GAFFEL	74	107	120	95	105	104	128	107	83	107	73	120	116	102	137	138	101	109	99	99	105	110	128	57	87	127	128
				95	96	90	79	86	86	88	86	2.62	18.3	0.94	6.5	35.0	21	251	-65	10.8	-11.1	-5.5	32.6	15	35	2.99	-5.39	-0.54	7	27 49
FR 150093		SP 110076 FR 060197	GEVAARLIK	83	114	116	87	93	107	126	109	92	114	75	116	127	112	133	116	103	96	96	92	113	125	150	44	85	93	84
				94	95	89	79	87	85	86	85	1.80	22.1	0.86	5.3	43.5	30	234	-38	12.0	-0.6	-4.8	27.7	20	51	4.82	-6.98	-0.71	4	22 43
JDH 200001		JH 120035 FR 180024	JDH20-01 NDLOVU	99	113	88	90	98	105	112	104	95	113	119	88	106	111	112	98	100	96	104	95	96	110	111	76	92		
				65	69	55	33	44	55	44	53	1.57	21.4	-0.82	-3.0	27.3	29	145	-17	10.2	-0.8	-6.5	30.0	9	36	1.60	-2.90	-0.11		
SS 170058		SS 130048 SS 130047	SS170058	103	79	99	114	118	87	93	84	99	79	112	99	85	85	98	109	85	128	109	94	54	70	97	88	69	10	8
				87	87	81	79	81	79	84	80	1.20	3.1	-0.56	0.4	12.1	5	86	-30	2.1	-25.7	-7.5	28.9	-16	-8	0.50	-1.31	-1.98		
												88	87	81	81	81	79	82	84	85	80	78	84	85	84	83	79	79		

Breeding Values and Accuracies: Bulls

Green: >120 High
White: 80-120 Average
Orange: <80 Low

Inbreeding in red is high

Value <80 Value >120

Breeding values with an accuracy < 5% are not printed

Animal		Selection Values								Birth		Wean				Growth			Fertility				Frame		Carcass		
ID	Index EBV Acc	% Inbreeding	Sire ID	Dam ID	Calv.	Calf	Milk	Maint.	Fertility	Cow	Growth	Prod.	Carcass	Birth	Wean	Postwean	ADG	FCR	Scrotal	Heifer	Cow	Longevity	Height	Length	EMA	Fat	Marbling
					Ease V	Grwth V	V	V	V	Value	Value	Value	Value	wt dir	wt mat	wt			Circ.	Fertility	Fertility	ty					
Name																											

Breeding Values and Accuracies: Cows

Green: >120 High
White: 80-120 Average
Orange: <80 Low

Inbreeding in red is high

Value <80 Value >120

Breeding values with an accuracy < 5% are not printed

Animal			Selection Values								Birth		Wean				Growth			Fertility				Frame		Carcass			
Index EBV Acc	% Inbreeding	Sire ID Dam ID	Calv. Ease V	Calf Growth V	Milk V	Maint. V	Fertility V	Cow Value	Growth Value	Prod. Value	Carcass Value	Birth wt dir	Birth mat	Mature wt	Wean wt	Wean mat	Cow-Calf Ratio (Wean)	Postwean wt	ADG	FCR	Scrotal Circ.	Heifer Fertility	Cow Fertility	Longevity	Height	Length	EMA	Fat	Marbling
ID Number Name																													
FR 180024 291157154 LEIGH	15	FR 150090 FR 150081	90 60	108 63	111 63	81 36	102 47	105 54	124 44	107 52	114 42	91 1.89 61	99 -0.07 57	121 39 36	108 18.9 63	111 3.9 63	108 73 54	113 32.9 39	130 223 43	127 -51 43	109 15.2 47	107 -9.4 50	94 -4.4 31	104 35.7 59	107 16 48	112 38 46	122 2.50 44	59 -5.13 41	93 -0.11 40
HH 180016 291156305 PATRICIA	2	FR 150093 FS 140257	81 59	113 67	107 52	87 16	98 44	104 52	113 40	104 50	111 34	86 2.32 62	90 0.28 46	114 32 16	113 21.5 67	107 2.6 52	111 81 45	115 34.8 33	119 173 39	107 -28 38	105 12.8 44	99 -2.6 44	108 -7.4 29	85 23.0 59	108 17 45	116 42 43	129 3.07 36	68 -3.88 33	99 0.42 32
JDH 200002 291315489 JDH20-02		SS 170058 SS 180003	107 64	84 67	89 43	132 28	116 35	92 51	88 42	88 49	76 33	103 0.85 70	109 -0.43 40	75 -4 28	84 5.8 67	89 -2.6 43	83 11 46	86 12.7 32	89 50 37	91 -9 41	76 -2.9 43	122 -21.2 34	107 -7.1 23	100 33.3 48	60 -12 44	70 -7 41	89 -0.15 39	95 -0.44 27	79 -1.21 27
JDH 200003 291315497 JDH20-03	1	SS 170058 SS 180065	106 64	87 67	94 44	116 31	117 35	95 51	86 43	90 49	79 36	103 0.90 70	108 -0.38 40	83 4 31	87 7.7 67	94 -1.2 44	88 23 47	87 13.2 34	87 41 39	93 -12 42	89 4.3 45	128 -26.1 35	99 -5.5 23	104 36.0 48	71 -6 46	78 1 43	79 -0.99 42	105 0.83 31	86 -0.62 31
JDH 210002 291377356 JDH21-02	2	DJW 180039 SS 180003	89 65	110 52	84 41	104 24	102 34	100 45	99 34	97 43	97 40	86 2.36 71	116 -0.70 40	95 15 24	110 19.9 52	84 -4.0 41	97 47 39	105 26.6 36	99 92 42	105 -26 24	99 9.4 46	102 -4.9 34	104 -6.4 24	99 32.3 45	97 10 47	93 17 45	98 0.52 42	100 0.18 39	103 0.75 39
JDH 230001 96695614 23-01	29	JDH 200001 FR 180024	95 44	110 47	99 42	86 25	100 32	105 39	118 31	106 37	111 29	93 1.73 46	109 -0.44 37	116 34 25	110 20.2 47	99 0.5 42	103 60 38	109 30.1 27	121 184 30	113 -34 29	105 12.7 33	102 -5.1 34	99 -5.5 22	100 32.9 40	101 13 34	111 37 33	116 2.05 30	67 -4.01 28	93 -0.11 27
JDH 230002 96695622 23-02	4	JDH 200001 HH 180016	91 43	113 48	97 38	89 18	98 31	104 38	113 30	104 36	110 26	91 1.94 46	105 -0.27 33	112 31 18	113 21.5 48	97 -0.2 38	104 64 35	111 31.0 25	115 159 29	103 -23 28	103 11.5 32	97 -1.7 32	106 -7.0 21	90 26.5 40	102 13 33	113 39 32	120 2.33 27	72 -3.39 25	96 0.15 25
JDH 230003 96695044 23-03	1	JDH 200001 SS 180065	104 49	109 50	86 43	98 30	106 34	107 42	102 32	104 40	102 32	101 1.09 51	112 -0.56 39	102 21 30	109 19.5 50	86 -3.6 43	96 42 41	101 23.6 28	100 95 32	92 -11 31	103 11.6 35	111 -12.2 35	99 -5.4 24	102 34.7 42	99 11 36	106 31 34	92 0.09 32	99 0.10 31	99 0.44 30
JDH 230004 96695051 23-04	1	JDH 200001 SS 180003	105 49	106 49	81 42	105 26	105 33	103 41	104 30	101 39	100 28	101 1.05 51	114 -0.61 39	94 14 26	106 17.9 49	81 -5.1 42	91 32 39	100 23.4 26	103 107 30	91 -9 29	90 4.7 33	104 -7.1 33	106 -7.0 25	98 31.7 41	89 6 33	98 23 32	104 1.01 29	90 -1.16 27	92 -0.12 26

Selection List on Cow Value

Cows 2 years and older

ID Sorted on ID		Name		Sire ID	Dam ID	% Inbreeding	Horned / Polled	Myostatin				Calving Ease Value Acc	Calf Growth Value Acc	Milk Value Acc	Maint. Value Acc	Fertility Value Acc	Cow Value Acc	Growth Value Acc	Prod Value Acc	
								nt821	Q204X	F94L	Genomic tested									
												★★★★★								
1	FR 180024	LEIGH		FR 150090	FR 150081	14.6						90 60	108 63	111 63	81 36	102 47	105 54	124 44	107 52	
2	HH 180016	PATRICIA		FR 150093	FS 140257	1.8						81 59	113 67	107 52	87 16	98 44	104 52	113 40	104 50	
3	JDH 210002	JDH21-02		DJW 180039	SS 180003	2.2						89 65	110 52	84 41	104 24	102 34	100 45	99 34	97 43	
4	JDH 230001	23-01		JDH 200001	FR 180024	28.8						95 44	110 47	99 42	86 25	100 32	105 39	118 31	106 37	
5	JDH 230002	23-02		JDH 200001	HH 180016	3.9						91 43	113 48	97 38	89 18	98 31	104 38	113 30	104 36	
6	JDH 230003	23-03		JDH 200001	SS 180065	0.7						104 49	109 50	86 43	98 30	106 34	107 42	102 32	104 40	
7	JDH 230004	23-04		JDH 200001	SS 180003	0.8						105 49	106 49	81 42	105 26	105 33	103 41	104 30	101 39	
												★★★★								
1	JDH 200002	JDH20-02		SS 170058	SS 180003	0.5						107 64	84 67	89 43	132 28	116 35	92 51	88 42	88 49	
2	JDH 200003	JDH20-03		SS 170058	SS 180065	1.3						106 64	87 67	94 44	116 31	117 35	95 51	86 43	90 49	

	EBVi	Description / Measurement	Goal	Low Value	High Value
Selection Values	Calving Ease Value	Difficult calving due to high birth weight	Average birth weight	High	Low
	Calf Growth Value	Calf's genetic ability for prewean growth	Heavy weaner	Light	Heavy
	Milk Value	Cow's genetic mothering and milking ability	Enough milk for calf	Less	More
	Maintenance Value	Maintenance requirement of cow (weight and milk)	Low cow maintenance	High	Low
	Fertility Value	Fertility and retention of cows and heifers	Fertile cows	Low	High
	Cow Value	Combination of calving ease, calf growth, milk, maintenance and fertility values (Rand-value per Ha)	Profitable cows	Loss	Profit
	Weaner Calf Value	Heavier weaners and more milk, with lower birth and cow weights	Heavy weaner	Light	Heavy
	Growth Value	Efficient growth on veld and in feedlot (Rand-value per animal)	Profitable growth	Loss	Profit
	Production Value	Combination of Cow- and Growth Values (Rand-value)	Profitable animals	Loss	Profit
	Carcass Value	Meat on carcass (Weight and RTU EBVs)	Meat on carcass	Less	More
Birth	Cow weight - birth	Cow weight at birth of calves	Mature cow weight	Light	Heavy
	Birth weight direct	Birth weight (Calf's genetic ability)	Average birth weight	Heavy	Light
	Cow-Calf birth	EBV Birth dir / EBV Mature cow weight	Average	Low	High
Wean	Cow Weight wean	Cow weight at weaning of calves	Mature cow weight	Light	Heavy
	Weaning weight direct	Weaning weight (Calf's genetic ability)	Heavy weaners	Light	Heavy
	Weaning weight mat	Weaning weight (Dam's genetic ability)	Good mothers	Poor	Good
	Cow-Calf Wean	EBV Wean dir / EBV Mature cow weight	High cow-calf ratio	Low	High
Growth & Adaptation	Post-Wean weight	12- and 18mth weights	Post-wean growth	Low	High
	Ave. Daily Gain	Average daily gain in growth test (Phase C and D)	Good growth	Poor	Good
	Veld Growth	ADG on veld (Phase B)	Good adaptation	Poor	Good
	Feed Conversion Ratio	100g feed intake /g weight gain	Feed Efficiency	Poor	Good
	Final Test Weight	Final weight in growth test (Phase C and D)	Heavy Carcasses	Light	Heavy
	Skin Thickness	Measured in growth tests	Thicker skin	Thin	Thick
Fertility	Scrotal Circumference	Scrotal circumference in growth test	Fertile bulls	Less	More
	Heifer Fertility	Age at first calving	Fertile heifers	Less	More
	Cow Fertility	First 3 inter-calving periods (ICPs)	Fertile cows	Less	More
	Longevity	Retention of progeny	Acceptable progeny	Poor	Good
Frame	Height	Shoulder / Hip height in growth test	Average height	Short	Tall
	Length	Length in growth test	Longer (more meat)	Short	Long
	Length:Height	EBV Length / EBV Height	Longer, not higher	Less desirable	More desirable
Carcass	Eye Muscle Area	RTU Eye muscle area	Muscle in carcass	Small	Big
	Fat	RTU P8 Backfat Thickness	Carcass quality & adaptability	Thin	Thick
	Marbling	RTU % Marbling	Juicy meat	Low	High
	Dressing%	Carcass weight / Live weight	High dressing %	Low	High

Notes on the interpretation of EBVs, EBVi's, sub-values and selection values

EBVi (EBVindex) is the breeding value index and is easier to interpret than the breeding value, especially for commercial farmers buying from stud farmers. The base of a breeding value index is 100, which is the average of all the live animals in the breed, and all values are expressed relative to this value. Values above 100 are always in a more desirable direction: an index of 105 for AFC indicates a genetic potential to calve earlier. Note that a very high index is not always desirable. For certain traits, such as birth weight, average values can be better.

EBV: (Estimated Breeding Value) indicates the genetic potential of the animal for a specific trait. It is presented in the unit of measurement and relative to the average of animals born in the base year (1990 for most breeds and traits). Higher values for certain traits are better while lower values for other traits are better, for example, an EBV of -2 for AFC (age at first calving) indicates that the animal has the genetic potential to calve 2 days earlier than the average heifer in 1990 (the base year). Earlier calving is better and therefore low breeding values (high breeding value indices) are better. For weaning weight, higher values are better.

Sub-values combine similar breeding values in a scientific manner to simplify the selection of animals. For example, AFC (age at first calving) and ICP (inter-calving period) are combined to form the sub-value Fertility by taking the heritability and economic importance in consideration. The sub-value is expressed in an index format, thus an animal with a sub-value of 110 for Fertility will genetically be above average compared to the live animals in the breed.

Selection Values (Cow Value and Growth Value) combine the sub-values into a single value. This gives a quick and easy indication of the combined genetic value of an animal compared to the breed. It is advised to still look at the sub-values to see where the strengths and weaknesses lie.

How to use breeding values to select animals

Selecting animals on breeding values is easy if you know how. There is a common saying that “good nutrition can mask poor breeding”. This is very true. If an animal that is genetically inferior is fed well, it can appear as a great animal. This great performance will not be passed over to future generations. An animal that is genetically superior can appear to be inferior if its environment did not allow it to reach its true potential. It is best to select animals that are most adapted to the environment and can reach their full potential. To continuously adapt the environment to the animal can be expensive.

The reason why the use of breeding values is such a valuable tool is because it “removes” the environmental effect that contributes to the performance.

Scientific methods are used to determine how much of the performance is due to genetics and to identify genetically superior animals. This involves the measurement of animals under controlled environments, complete record keeping and pedigree information. *If performance recording and pedigree information are not done correctly, breeding values of these animals will not be useful.* Keep in mind that breeding is a long-term option: the effect of a bull selected/bought today will only show much later. If it is a good decision, his daughters will become part of the breeding herd and contribute to overall profitability in future.

Even if a bull is not perfect in all aspects, knowing the shortcomings will allow strategic selection with suitable cows. Traits are genetically correlated, meaning that a change in one trait can lead to a change in another. This change can be favourable or unfavourable. An increase in weaning weight can lead to an increase in birth weight, which can lead to calving difficulty. It is therefore advisable to not only select on a single trait. Take other traits in consideration to avoid negative effects.

How to improve the herd genetically

The first and most important aspect is to know what type of animal will improve the herd genetically. This can be determined through the following factors:

What happens to the calves? For example: used as replacement heifers, sold as stud animals or sold to commercial breeders who sell weaner calves.

How much feed is available? The availability of feed (or the hardness of the environment) determines the optimal frame size. If feed is abundant and the environment is less harsh, larger animals would be ideal. If not, medium framed animals would be ideal.

What is the genetics of the cow herd? Are they the wrong frame type, grow too slowly, do not have enough milk, etc.? Always aim to breed a calf that is superior to its dam.

Conclusion

Different types of bulls are suitable for different types of cows, environments and breeding objectives. Inbreeding should be avoided or limited as much as possible. Mating programs are available to aid in the pairing of bulls and cows.

The data used for this evaluation is pedigree information and performance data found on LOGIX as provided by breeders. All attempts are made to present accurate information. SA Stud Book takes no responsibility for the use and interpretation of information presented in this report.

