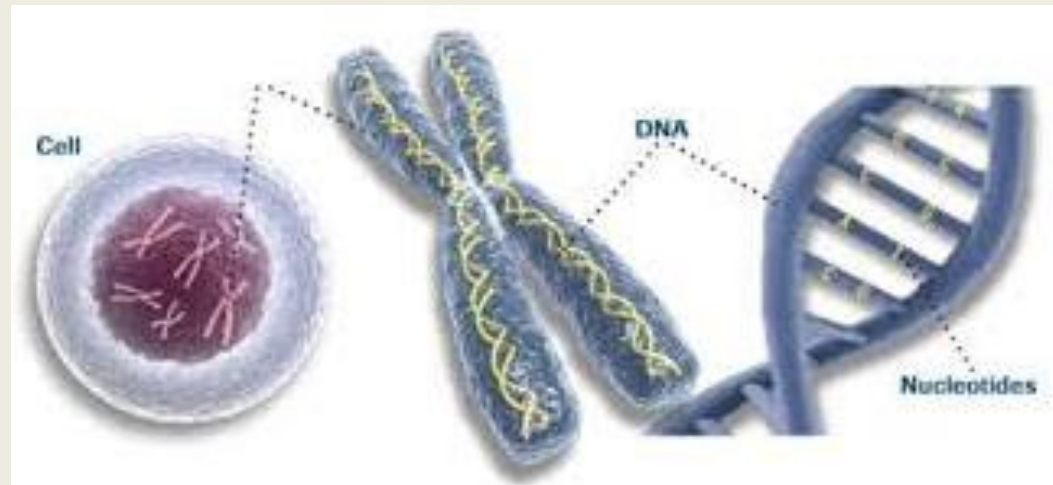


BEGINSELS VAN TEELWAARDES



Johan Styger
BTB Simmentalers

BEGINSELS VAN TEELWAARDES

BLUP

- Best linear unbiased prediction

EBV (Breedplan)

- Estimated breeding values

EPD (estimated progeny difference, USA)

- Teelwaardes

VLEISBEESTE

- Wat is die basis van ons teelbesluite?
- *Subjektief*
 - *Gegrand op persepsies*
- *Objektief*
 - Gegrand op feite

Wat is die waarde van die bul ?



- sy voorkoms ?
- sy vleiswaarde ?
- die waarde van sy nageslag !

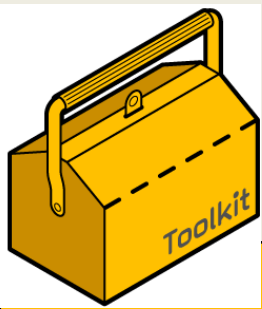


BEGINSELS van EBV's

Genetika

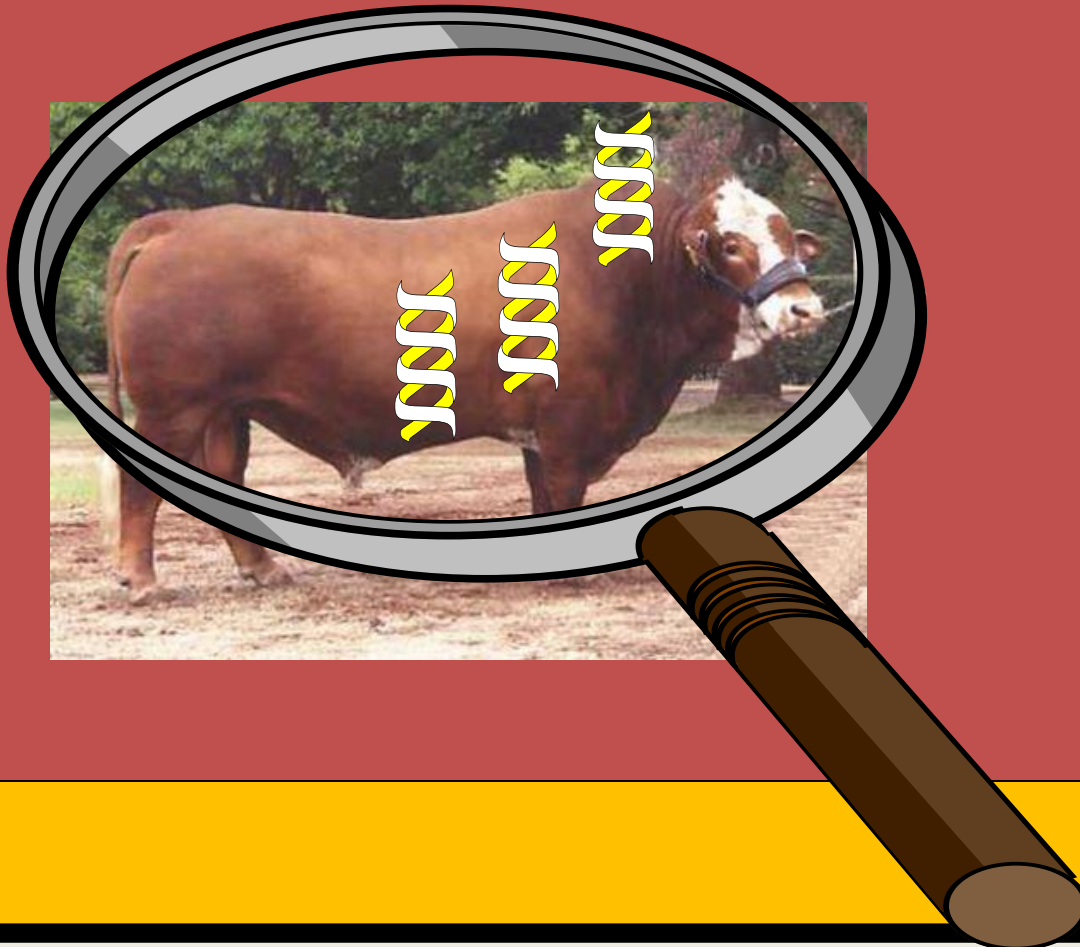
Statistiek

Omgewingsinvloed

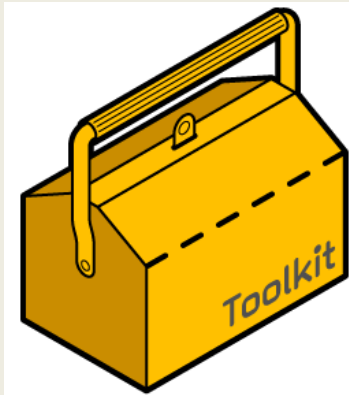


GENETIKA

Probleem: Ons kan nie die gene sien nie!



AGBU



GENETIKA

Mendelian Sampling

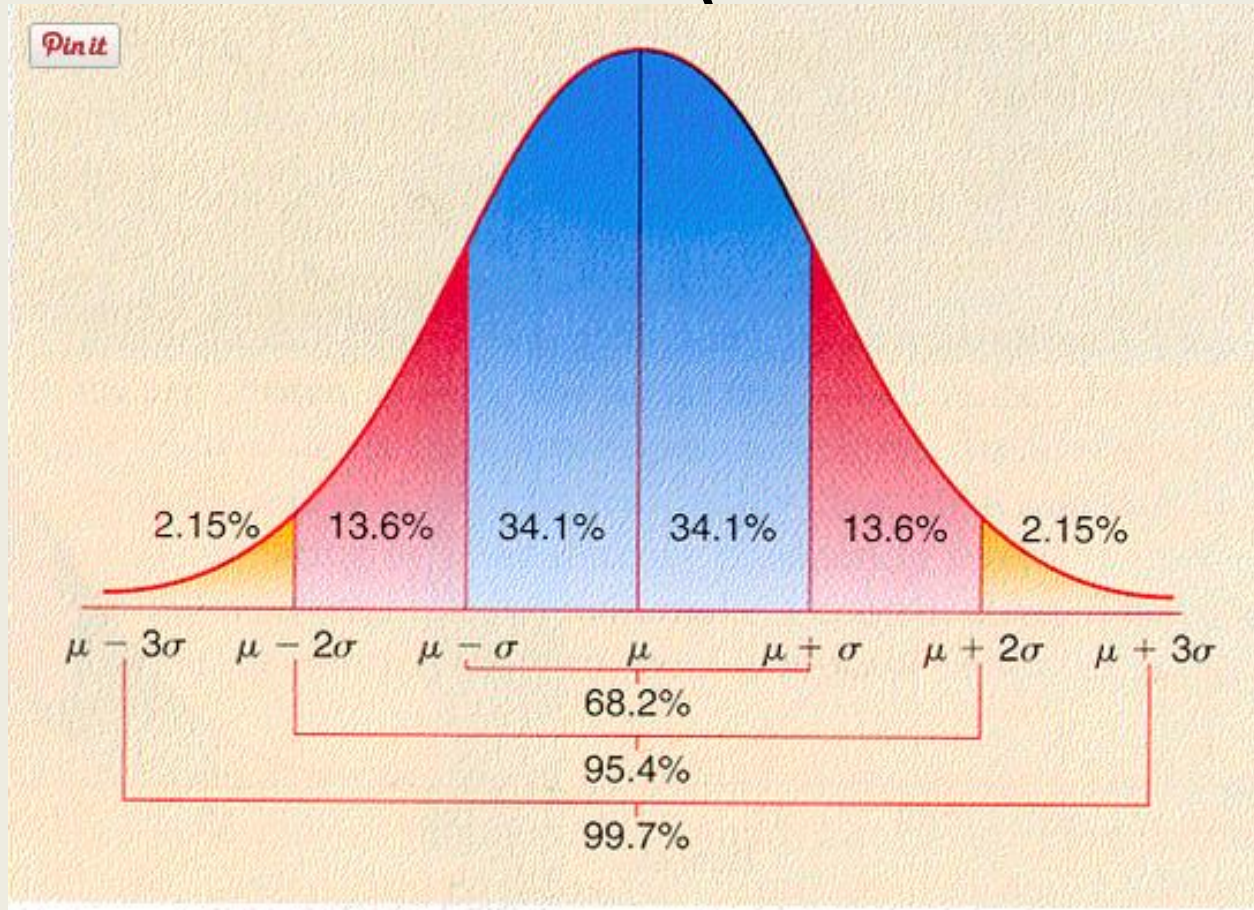
Law of inheritance 1865



Genes from sire: + + + + + + + - - - 7

Genes from dam : + + + + + - - - - - 5

NORMAL DISTRIBUTION (luck of the draw)

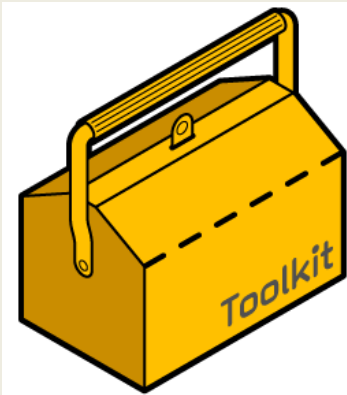


Progeny: Worst - - - - - + + (2)

Progeny: Best + + + + + + + + + + (10)

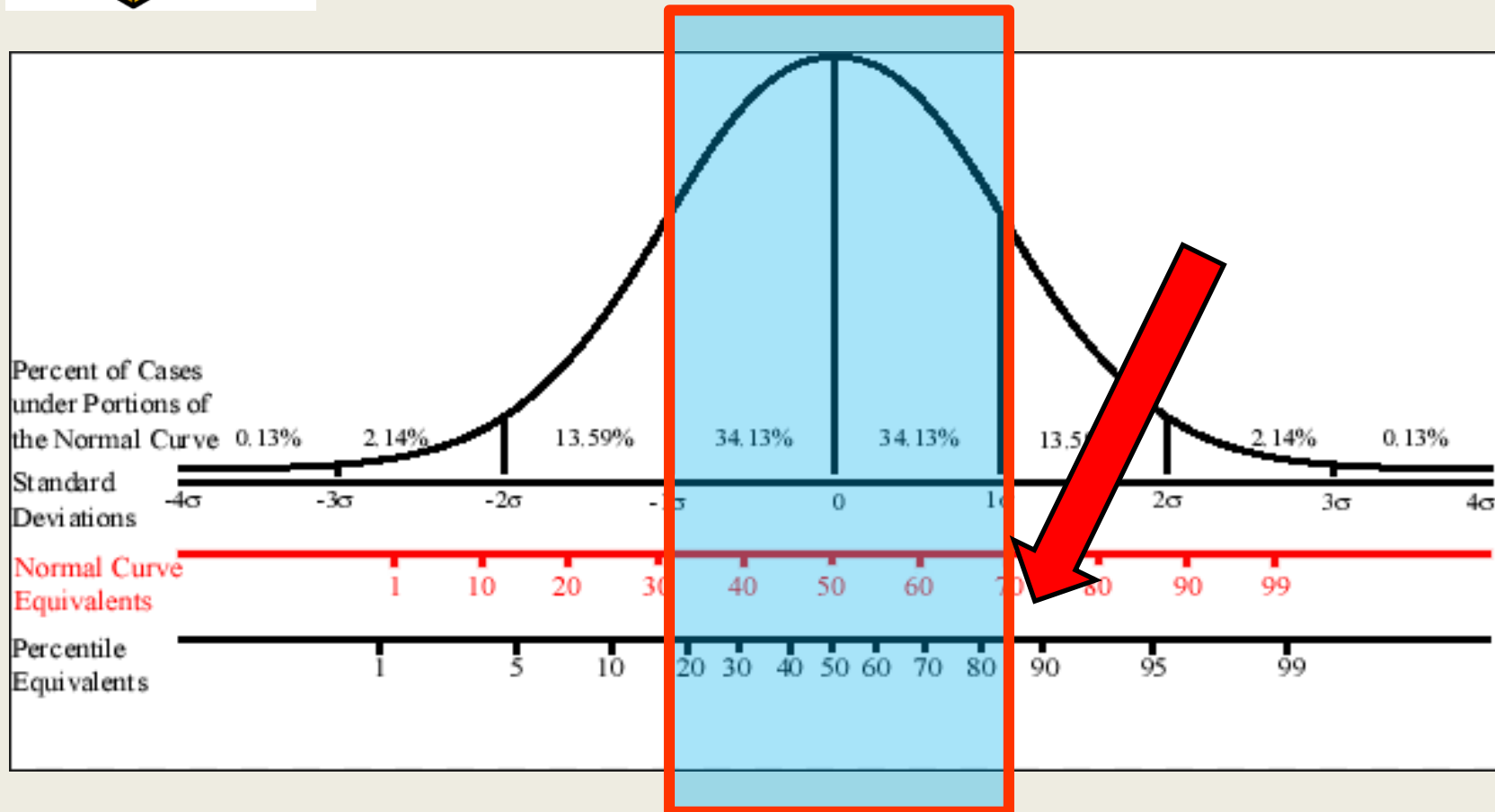
Progeny: Average + + + + + + - - - (6)





STATISTIEK

PERCENTILE GRAPH

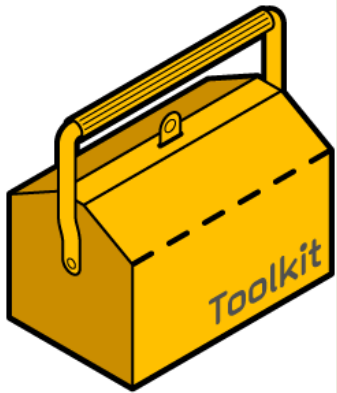


May 2015 South African Simmentaler GROUP BREEDPLAN EBVS - Percentile Bands for all 2013 born animals

Use this table as a guide to compare individual animals with the current genetic level of the breed

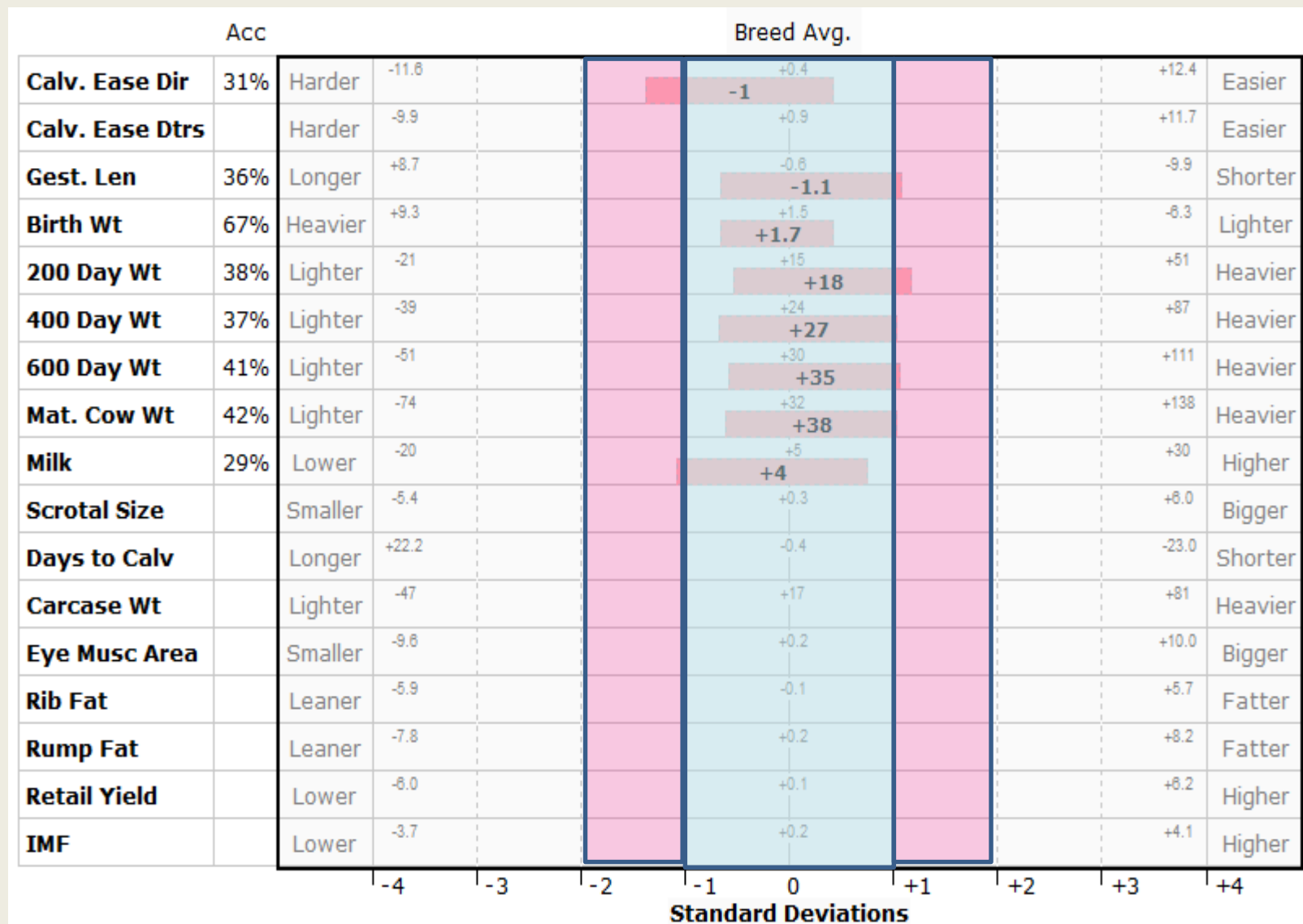
	Calv-Ease		Birth		Growth					Fert		Carcase						Indexes		
	Dir	Dtrs	GL	Bwt	200	400	600	Mwt	Milk	SS	DC	Cwt	EMA	Rib	Rump	RBV	IMF	SF	SG	TS
	%		days			kg					cm	days	kg	sq.cm	mm		%		R	
High 1%	+8.0	+5.9	-2.6	-1.0	+26	+41	+53	+59	+9	+1.1	-3.0	+30	+1.6	+0.3	+0.7	+1.0	+0.3	+108	+181	+219
High 5%	+5.5	+4.2	-1.9	+0.0	+22	+36	+46	+51	+8	+0.8	-1.9	+26	+1.1	+0.1	+0.5	+0.7	+0.2	+86	+151	+187
High 10%	+4.2	+3.4	-1.6	+0.4	+21	+33	+42	+46	+7	+0.7	-1.4	+24	+0.9	+0.1	+0.4	+0.6	+0.2	+75	+135	+171
High 15%	+3.4	+2.9	-1.4	+0.6	+20	+31	+40	+43	+7	+0.6	-1.2	+22	+0.7	+0.0	+0.3	+0.5	+0.2	+69	+124	+162
High 20%	+2.7	+2.5	-1.2	+0.8	+19	+30	+38	+41	+6	+0.5	-1.0	+21	+0.6	+0.0	+0.3	+0.4	+0.2	+64	+117	+154
High 25%	+2.2	+2.2	-1.1	+1.0	+18	+29	+36	+39	+6	+0.5	-0.9	+21	+0.5	+0.0	+0.2	+0.4	+0.2	+59	+111	+147
High 30%	+1.8	+1.9	-1.0	+1.1	+18	+28	+35	+38	+6	+0.4	-0.7	+20	+0.4	-0.1	+0.2	+0.3	+0.2	+56	+106	+142
High 35%	+1.4	+1.7	-0.9	+1.2	+17	+27	+33	+36	+5	+0.4	-0.6	+19	+0.4	-0.1	+0.2	+0.3	+0.1	+53	+102	+137
High 40%	+1.0	+1.4	-0.8	+1.4	+16	+26	+32	+35	+5	+0.3	-0.5	+19	+0.3	-0.1	+0.1	+0.3	+0.1	+50	+98	+132
High 45%	+0.6	+1.2	-0.7	+1.5	+16	+25	+31	+33	+5	+0.3	-0.4	+18	+0.3	-0.1	+0.1	+0.2	+0.1	+47	+94	+127
50%	+0.3	+0.9	-0.6	+1.6	+15	+24	+30	+32	+5	+0.3	-0.3	+17	+0.2	-0.1	+0.1	+0.2	+0.1	+45	+91	+122
Low 45%	-0.1	+0.7	-0.5	+1.7	+15	+23	+29	+30	+4	+0.2	-0.2	+17	+0.2	-0.1	+0.1	+0.2	+0.1	+42	+87	+118
Low 40%	-0.4	+0.5	-0.4	+1.8	+14	+22	+28	+29	+4	+0.2	-0.2	+16	+0.1	-0.2	+0.1	+0.1	+0.1	+40	+84	+114
Low 35%	-0.8	+0.2	-0.3	+1.9	+14	+21	+26	+27	+4	+0.1	-0.1	+16	+0.1	-0.2	+0.0	+0.1	+0.1	+37	+80	+109
Low 30%	-1.2	-0.1	-0.2	+2.0	+13	+20	+25	+26	+4	+0.1	+0.0	+15	+0.0	-0.2	+0.0	+0.1	+0.1	+35	+77	+104
Low 25%	-1.6	-0.4	-0.1	+2.2	+12	+19	+24	+24	+3	+0.1	+0.1	+14	+0.0	-0.2	+0.0	+0.0	+0.1	+32	+73	+98
Low 20%	-2.1	-0.8	+0.1	+2.3	+12	+18	+22	+22	+3	+0.0	+0.2	+13	-0.1	-0.2	+0.0	+0.0	+0.1	+29	+69	+92
Low 15%	-2.7	-1.2	+0.2	+2.5	+11	+17	+21	+20	+3	-0.1	+0.4	+13	-0.2	-0.3	-0.1	+0.0	+0.0	+25	+63	+85
Low 10%	-3.5	-1.7	+0.4	+2.7	+10	+15	+19	+17	+2	-0.2	+0.5	+11	-0.3	-0.3	-0.1	-0.1	+0.0	+20	+57	+76
Low 5%	-4.6	-2.5	+0.7	+3.0	+8	+12	+15	+13	+1	-0.3	+0.8	+10	-0.4	-0.4	-0.2	-0.2	+0.0	+13	+46	+62
Low 1%	-6.9	-4.0	+1.4	+3.8	+5	+7	+8	+4	-1	-0.8	+1.5	+6	-0.8	-0.5	-0.4	-0.3	-0.1	-1	+24	+36

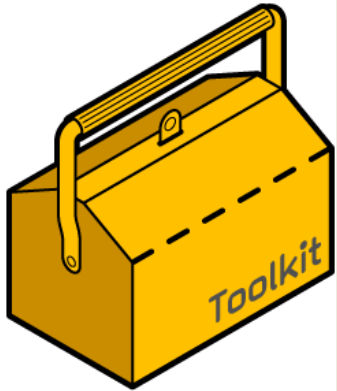
OORERFLIKHEID



Trait	Heritability
Direct: Birth weight	0.37
Direct: 200-Day weight	0.18
Direct: 400-D weight	0.27
Direct: 600-Day weight	0.30
Direct: Mature Cow Weight	0.39
Direct: Scrotal Size	0.36
Direct: Days to Calving	0.06
Maternal: Birth weight	0.07
Maternal: 200-Day weight	0.10

SWING GRAPH

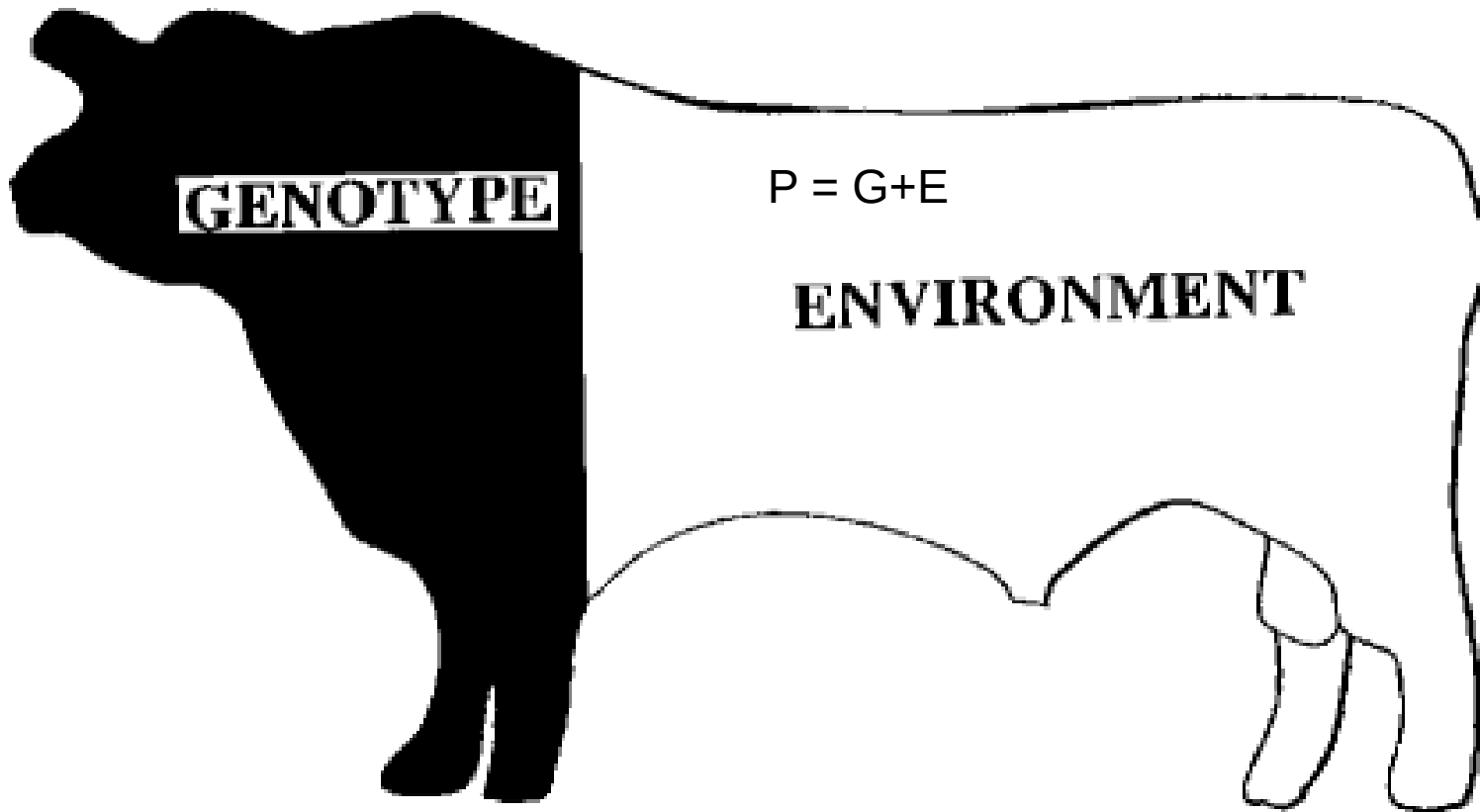




OMGEWING

$$P = G + E$$

Phenotype = genotype + omgeving











=



?



BTB

WAT IS 'N TEELWAARDE ?



WAT IS 'N TEELWAARDE ?

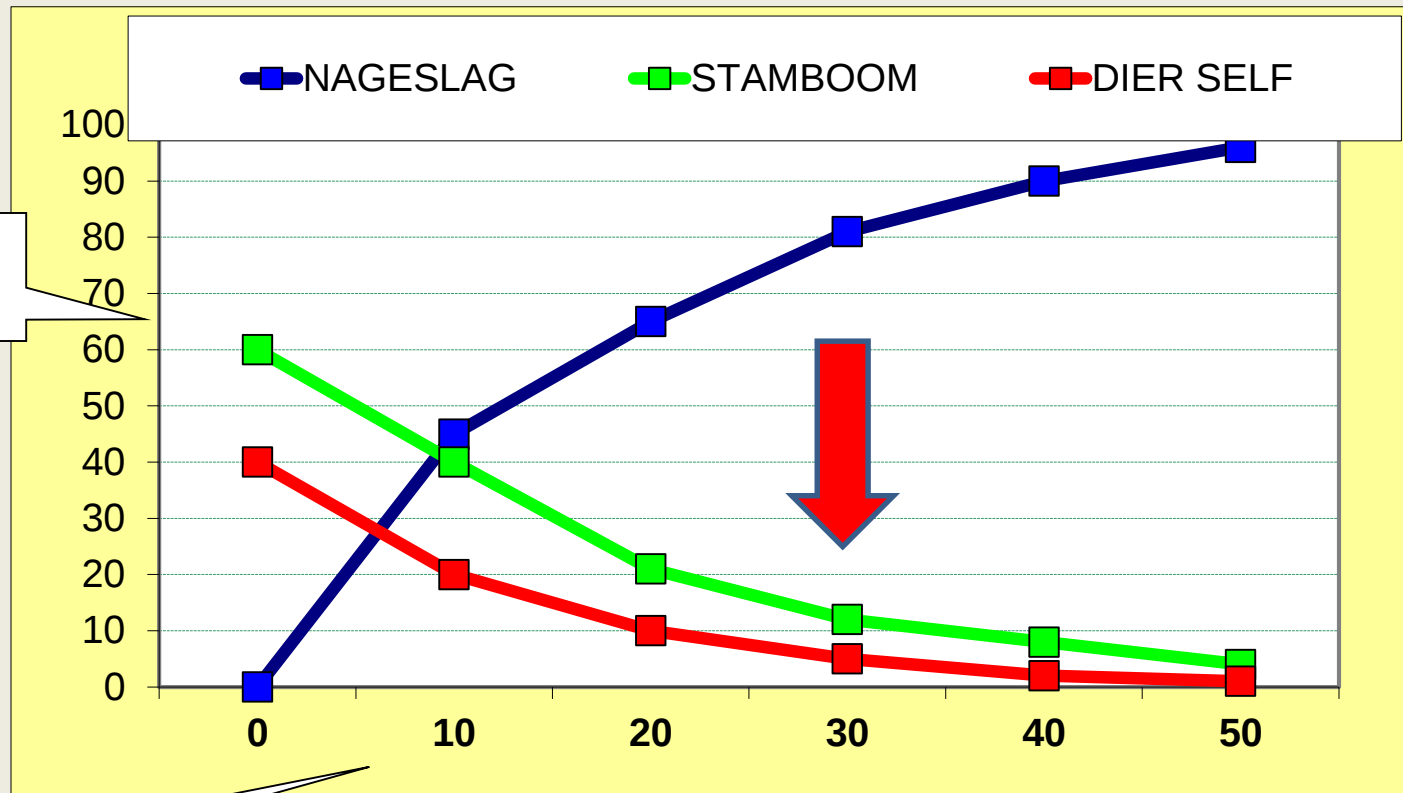
—'n Voorspelling van die verwagte verskil tussen twee diere t.o.v die prestatie van hulle nageslag

Hoe word teelwaardes bereken?

- Word bereken vanaf:
 1. Prestasie van alle bekende **FAMILIELEDE (Stamboom)**
 2. **DIER se eie prestasie**
 3. **NAGESLAG van die dier**
 - die **VERWANTSKAPPE** tussen **PRESTASIE** en **OORERFLIKHEID**

EBV's gebruik 3 bronne van inligting

(30% oorerflik)



% bydare tot
teelwaarde

Getal nageslag

EBV Berekening

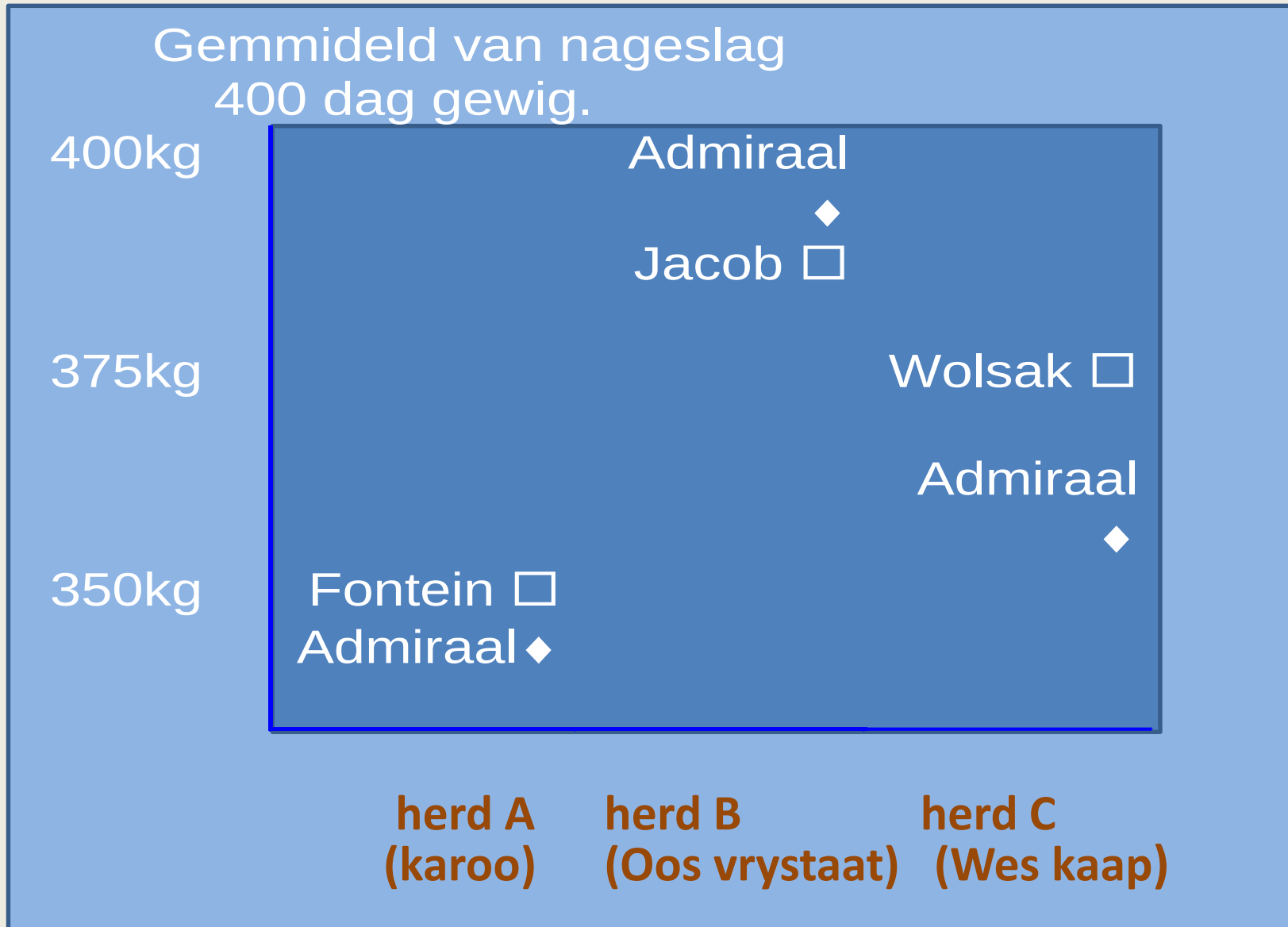
- **EBV= (weight of individual – average weight of group) x heritability**
= (380 – 350) x 0.2
= 30 x 0.2
= + 6 kg

•

•



BREEDPLAN gebruik koppelings om tussen kudde te vergelyk



DIREKTE NAGESLAG VERGELYKINGS

Fontein vs. **Admiraal** = + 5kg

Jacob vs. **Admiraal** = - 5kg

Wolsak vs. **Admiraal** = +10kg

	Fontein	Jakob	Wolsak	Admiral
EPD	+ 5kg	- 5kg	+10kg	0kg} (Base)
EBVs	+10kg	-10kg	+20kg	0kg} (Base)

EPD waardes is gelyk aan helfte van die EBVs want die nageslag kry helfte die gene



Update on Brahman Bin Round 2 Animals Growth and Carcase

Presented by
Paul Williams

Brahman BIN

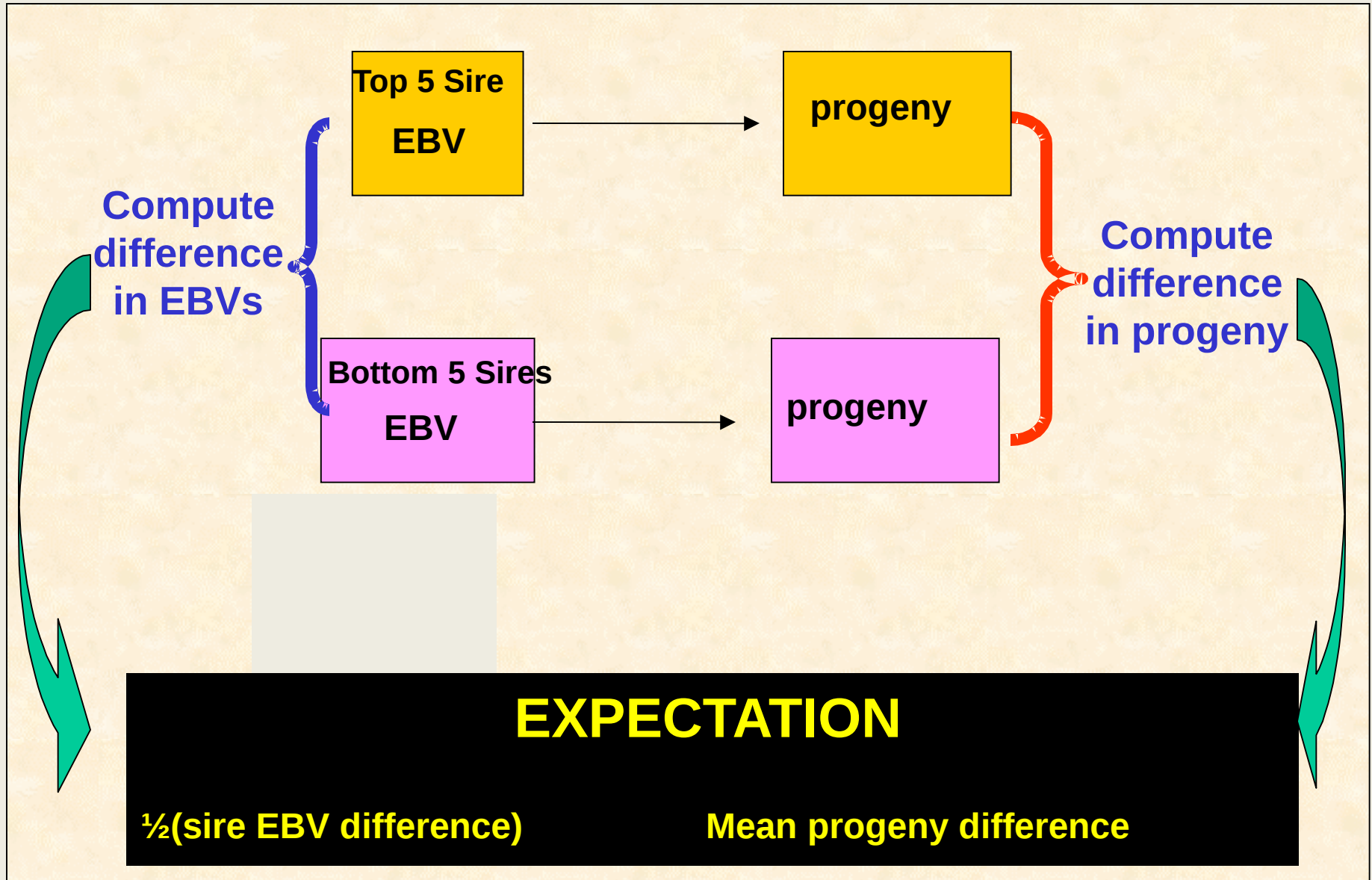
Round 2 no 3 Growth and Carcase



Background

- 22 Round 2 and 19 Round 1 Catch up Sires
- 305 No.2 steer progeny
- 312 heifers progeny
- Belmont – 58 steers & 53 Heifers
- Barranga – 129 steers & 132 Heifers
- Camboon R1– 62 steers & 77 Heifers
- Camboon R2 – 56 & 50 Heifers

Evaluating EBVs



Weight EBV's

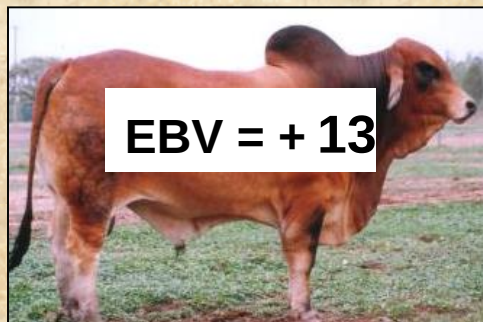
- **R2 Steers from Barranga**



“Barranga Steers”

**200 Day
Weight**

Bottom 5 Sires



Top 5 Sires



**Expect 8.5
kg**

Breed Av 2012 born animals 18 kg
Round 2 bin sires 21 kg



233 kg

9 kg
difference

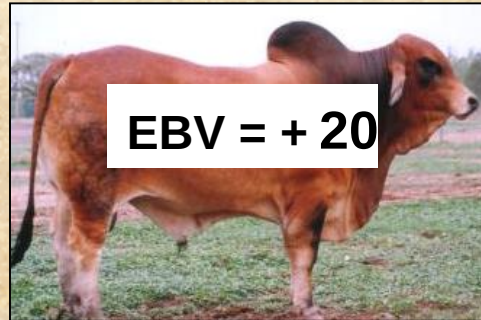


242 kg

“Barranga R2 Steers”

**400 Day
Weight**

Bottom 5 Sires



Top 5 Sires



Expect 11 kg

Breed Av 2011 born animals 25 kg
Round 1 Bin Sires 34 kg



275 kg

15 kg
difference

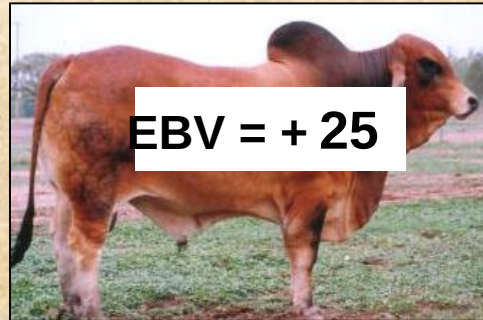


290 kg

"All R2 Steers Adjusted for Age, Wt & Origin"

**600 Day
Weight**

Bottom 5 Sires



Top 5 Sires



Expect 18 kg

Breed Av 2012 born animals 34 kg
Round 2 Bin Sires 43 kg



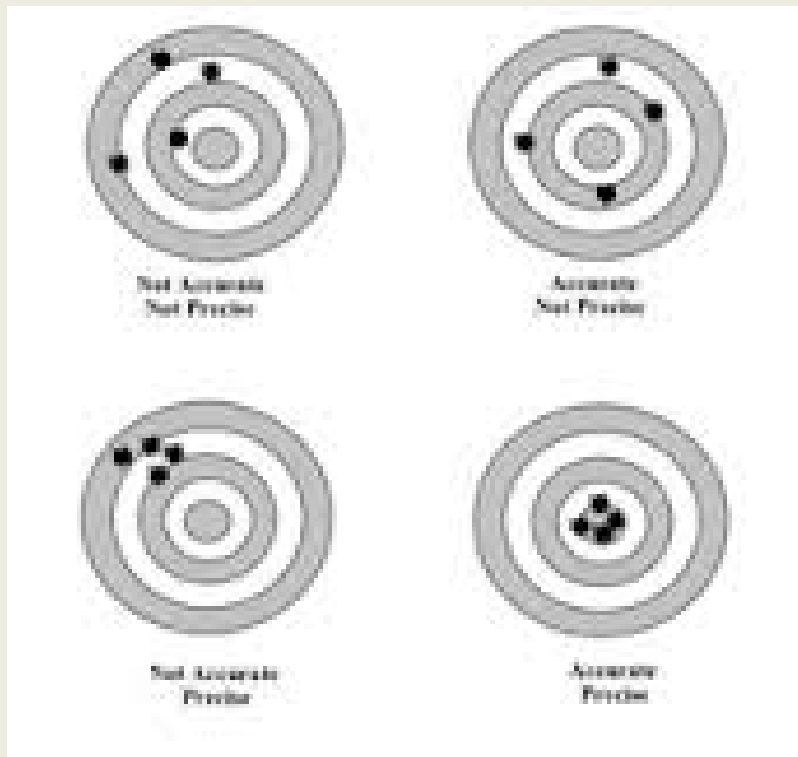
410 kg

**20 kg
difference**



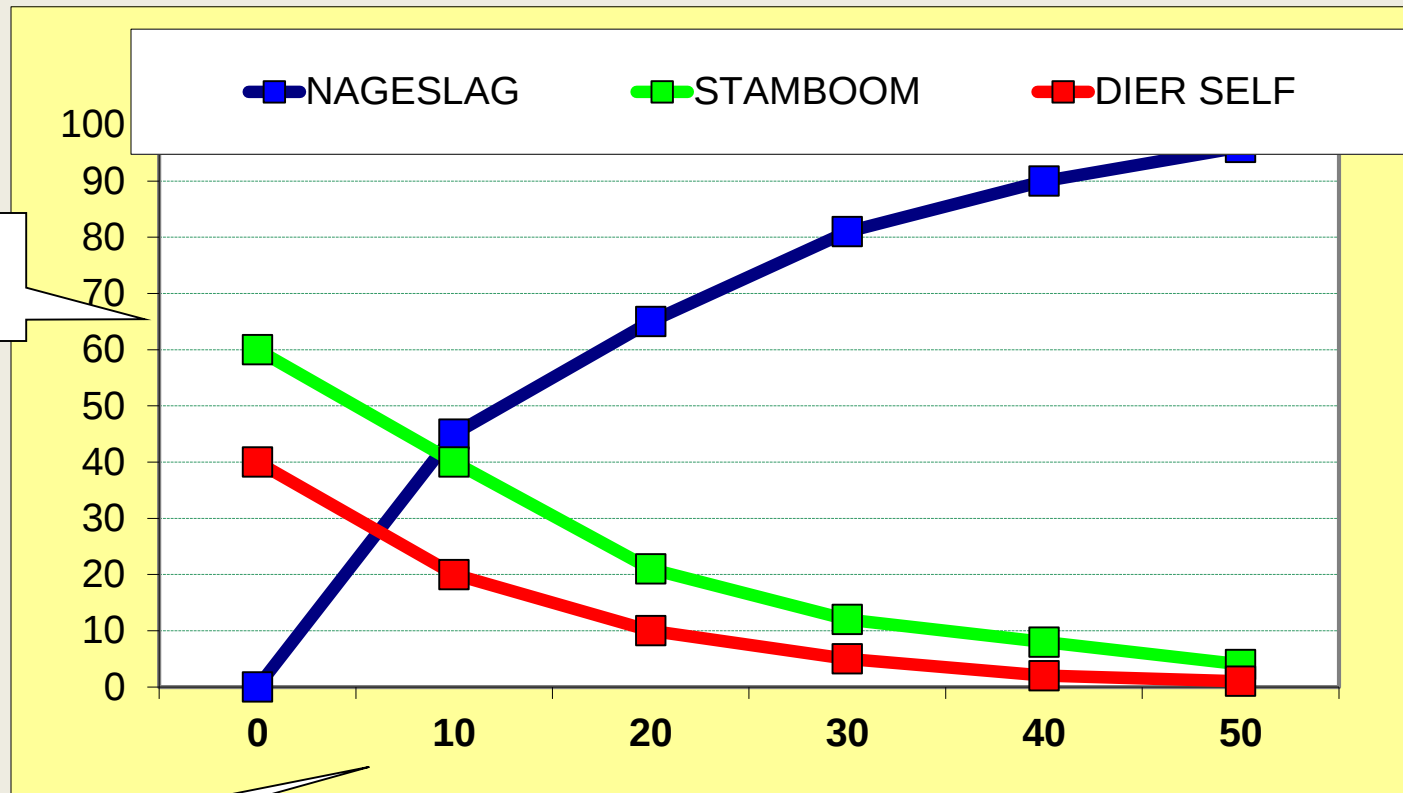
430 kg

INCREASING THE EFFECTIVENESS OF PERFORMANCE RECORDING



EBV's gebruik 3 bronne van inligting

(30% oorerflik)

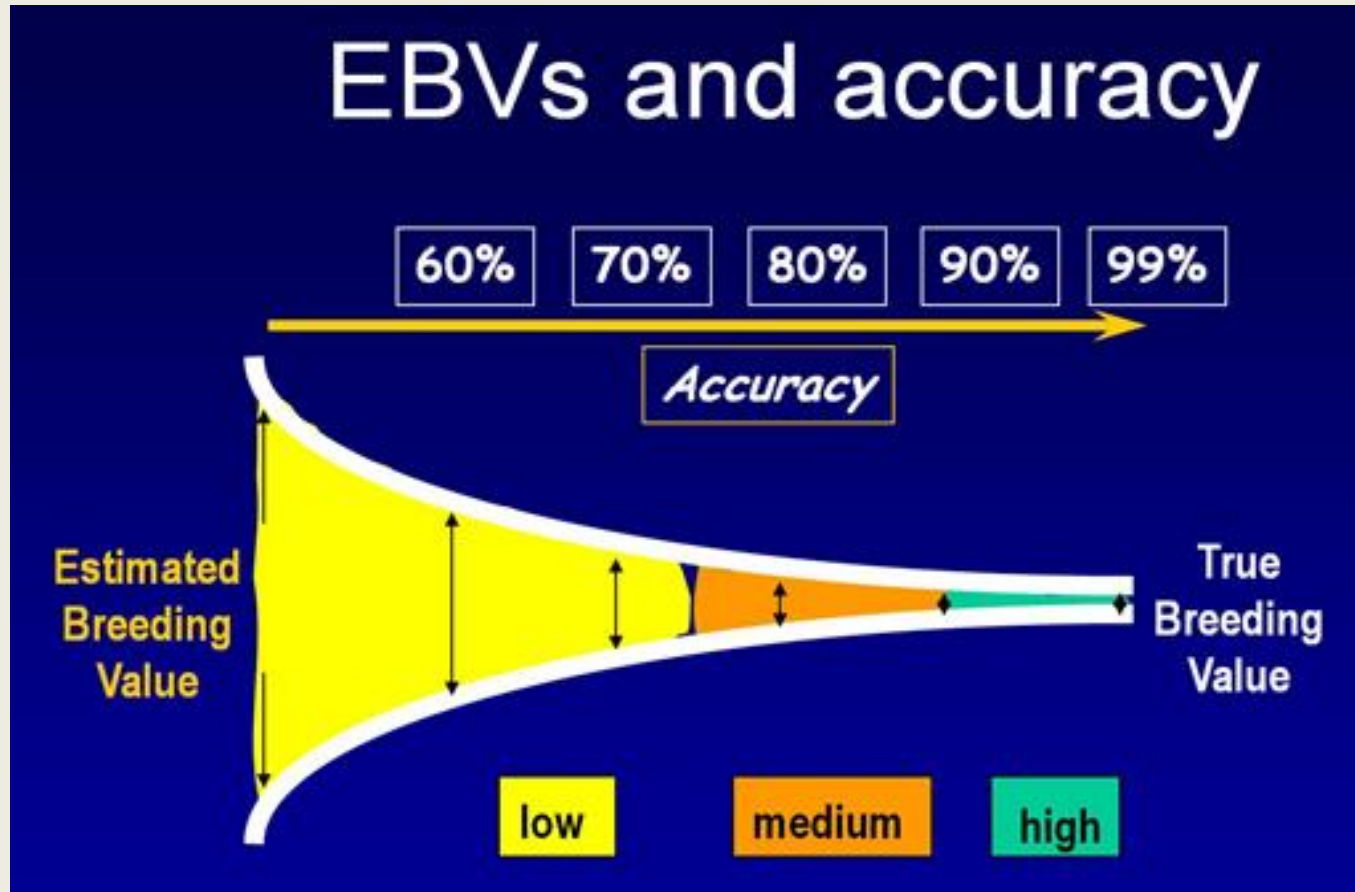


% bydare tot
teelwaarde

Getal nageslag



ACCURACY OF EBV



UNDERSTANDING EBV ACCURACY

- **Accuracy < 50%** **LOW**
 - Use with caution, only pedigree derived
- **50% < Accuracy < 75%** **MEDIUM**
 - Indicator of generic value, some animal data incorporated
- **75% < Accuracy < 90%** **HIGH**
 - Very useful indicator of generic value, some swing expected
- **90% < Accuracy** **ACCURATE**
 - What you see is what you get !!!!

EBV AKKURAATHEID %



Nageslag data beschikbaar

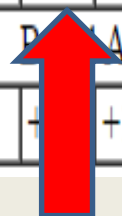
GEEN	< 50%	50 tot & 75%	75 tot 90%	> 90%
	Laag	Middel	Hoog	Akkuraat



RISIKO TOENAME

ONVOLLEDIGE DATASTELLE

January 2015 South African Simmentaler GROUP BREEDPLAN EBVS																	
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt. (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+4.7	+3.1	-1.0	+1.4	+19	+28	+35	+37	+2	-	-	+20	-	-	-	-	-
Acc	37%	34%	29%	45%	50%	47%	45%	42%	35%	-	-	35%	-	-	-	-	-
Birth Wt. Avg. EBVs for 2013 Born Calves Click for Percentiles																	
EBV	+0.4	+0.9	-0.6	+0.4	+15	+24	+30	+32	+5	+0.3	-0.4	+17	+0.2	-0.1	+0.2	+0.1	+0.2

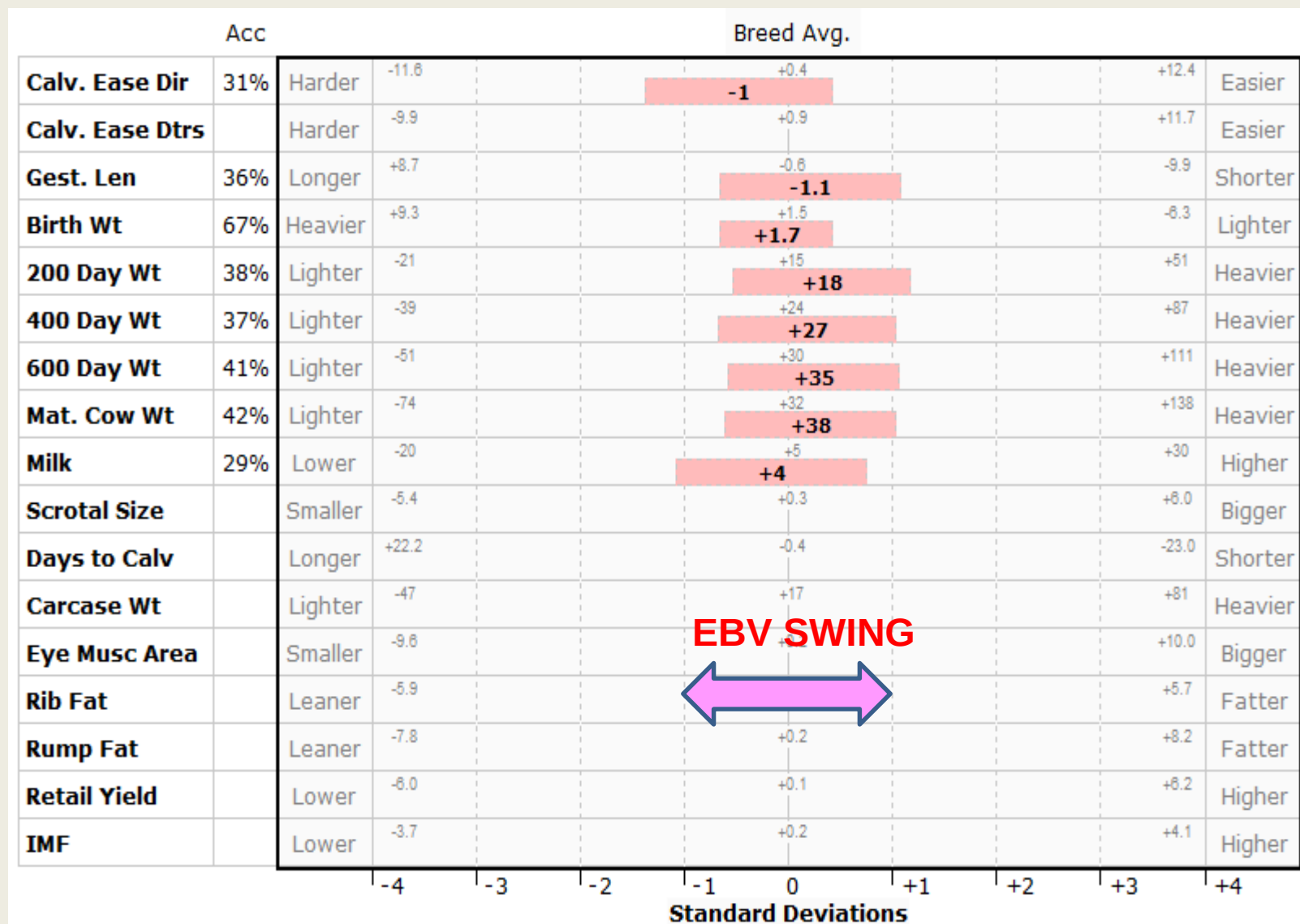


ONVOLLEDIGE DATASTELLE

January 2015 South African Simmentaler GROUP BREEDPLAN EBVS																	
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	-1.0	-	-1.1	+1.7	+18	+27	+35	+38	+4	-	-	-	-	-	-	-	-
Acc	31%	-	36%	67%	38%	37%	41%	42%	29%	-	-	-	-	-	-	-	-
Breed Avg. EBVs for 2013 Born Calves Click for Percentiles																	
EBV	+0.4	+0.9	-0.6	+1.5	+15	+24	+30	+32	+5	+0.3	-0.4	+17	+0.2	-0.1	+0.2	+0.1	+0.2


Traits Observed: BWT

SWING GRAPH



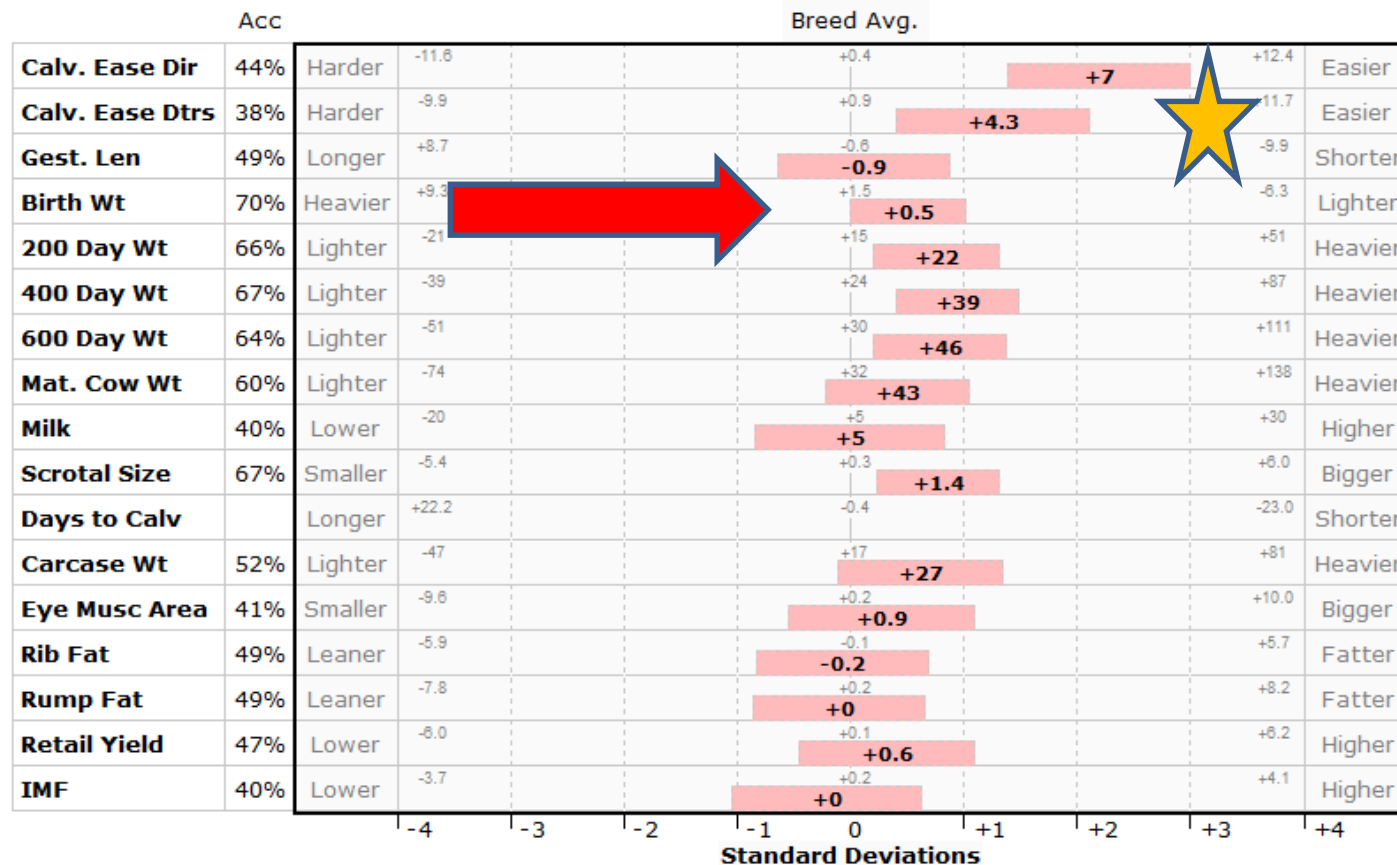
VOLLEDIGE DATASTEL

January 2015 South African Simmentaler GROUP BREEDPLAN EBVS																	
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)	Birth Wt (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+7.0	+4.3	-0.9	+22	+39	+46	+43	+5	+1.4	-	+27	+0.9	-0.2	0.0	+0.6	0.0	
Acc	44%	38%	49%	70%	66%	67%	64%	60%	40%	67%	-	52%	41%	49%	49%	47%	40%
Breed Avg. EBVs for 2013 Born Calves Click for Percentiles																	
EBV	+0.4	+0.9	-0.6	+1.5	+15	+24	+30	+32	+5	+0.3	-0.4	+17	+0.2	-0.1	+0.2	+0.1	+0.2

Traits Observed: BWT,200WT,400WT,SS,FAT,EMA,IMF

SWING GRAPH

EBV Standard Error Graph for BTB CORK



THE ULTIMATE DATASET

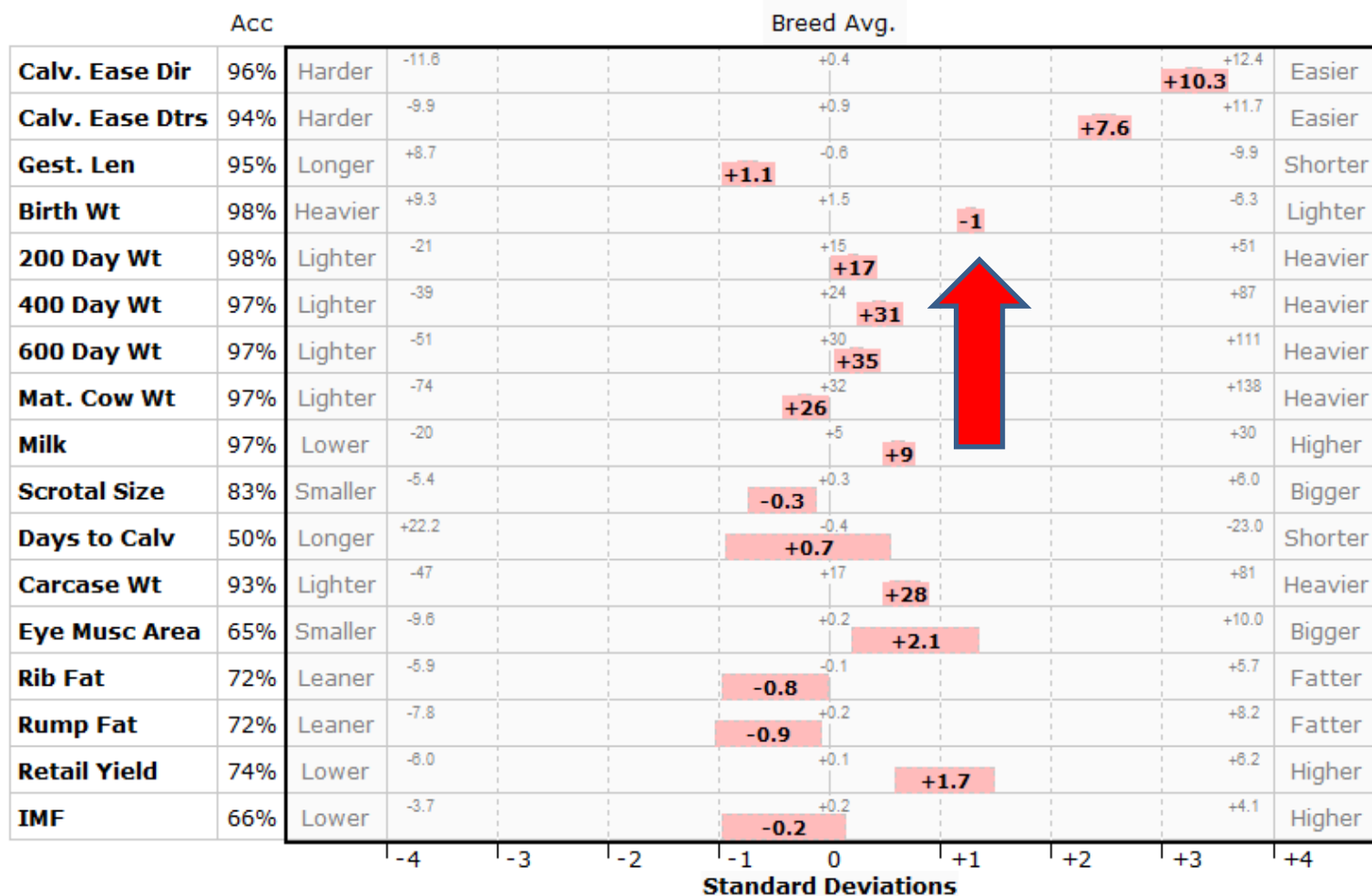
January 2015 South African Simmentaler GROUP BREEDPLAN EBVS																	
	Calving Ease DIR (%)	Calving Ease DTRS (%)	Gestation Length (days)		200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Days to Calving (days)	Carcase Wt (kg)	Eye Muscle Area (sq cm)	Rib Fat (mm)	Rump Fat (mm)	Retail Beef Yield (%)	IMF (%)
EBV	+10.3	+7.6	+1.1	-1.0	+17	+31	+35	+26	+9	-0.3	+0.7	+28	+2.1	-0.8	-0.9	+1.7	-0.2
Acc	96%	94%	95%	98%	98%	97%	97%	97%	97%	83%	50%	93%	65%	72%	72%	74%	66%
Breed Avg. EBVs for 2013 Born Calves Click for Percentiles																	
EBV	+0.4	+0.9	-0.6	+1.5	+15	+24	+30	+32	+5	+0.3	-0.4	+17	+0.2	-0.1	+0.2	+0.1	+0.2

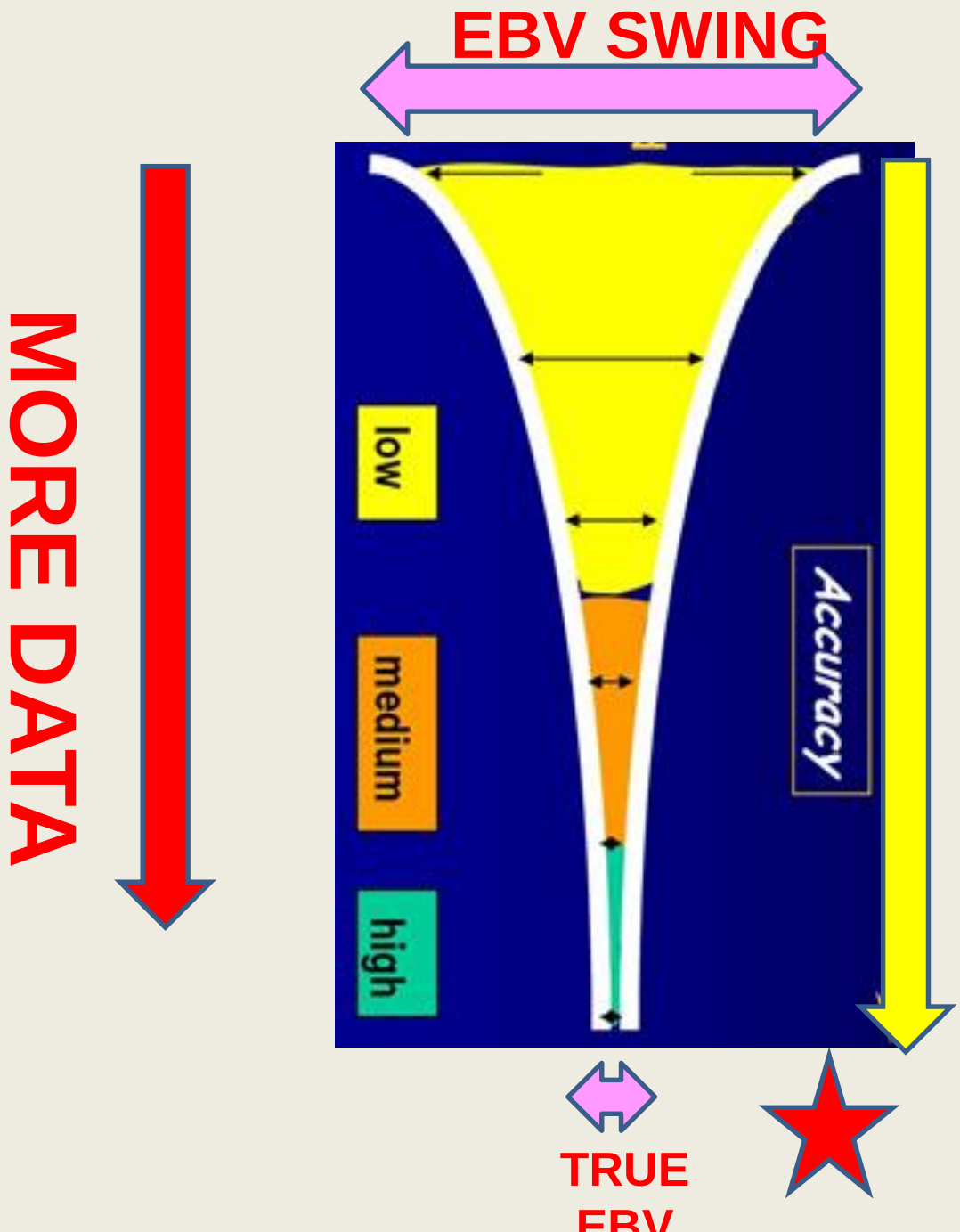
Traits Observed: BWT,200WT(x2),400WT(x2),SS

Statistics: 8, Progeny Analysed: 1470, Scan Progeny: 9, Number of Dtrs: 334

THE ULTIMATE SWING GRAPH

EBV Standard Error Graph for RU-DEV JIM





VERBETERING VAN AKKURAATHEID

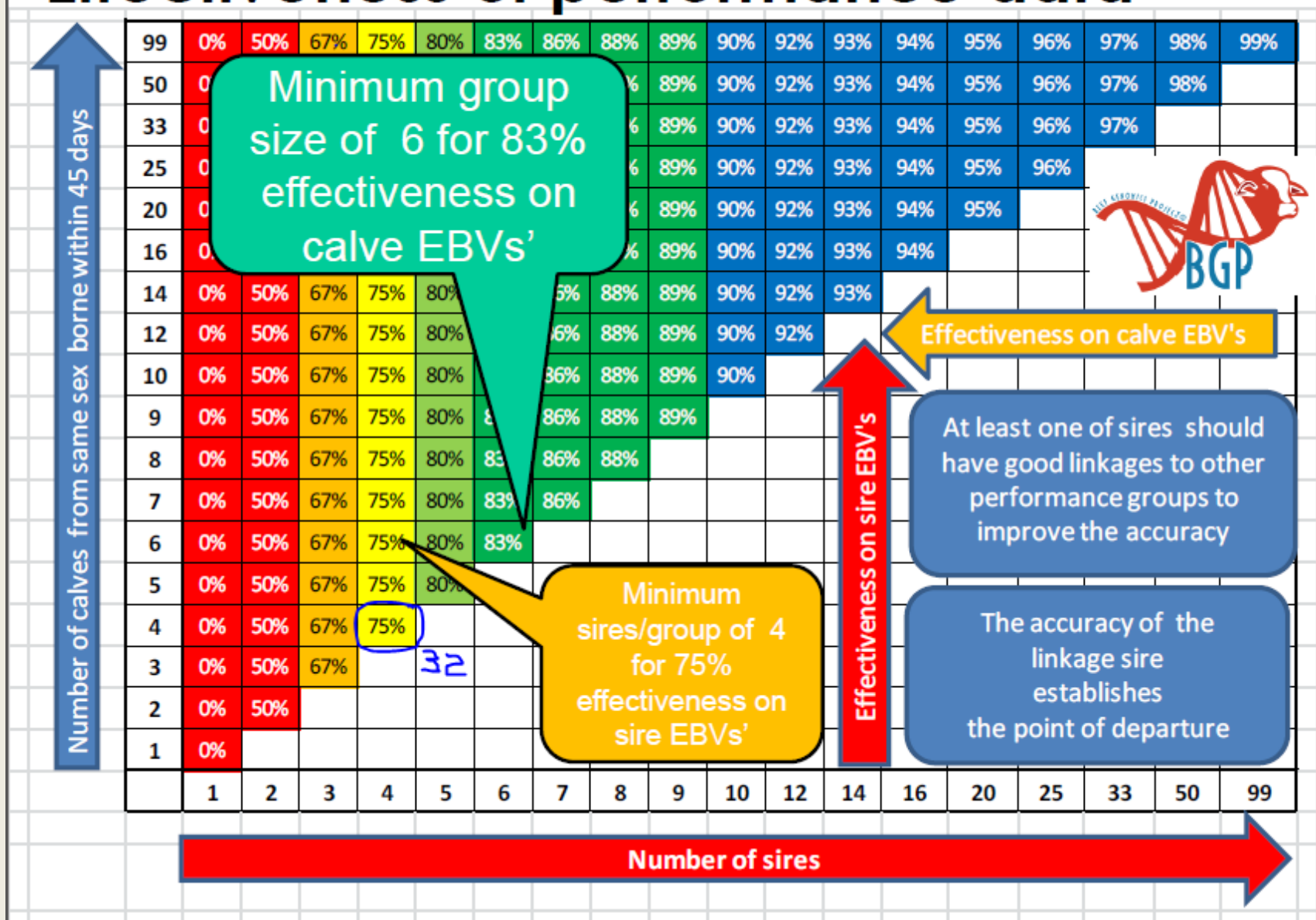
- Increase contemporary group size
 - Shorter mating season (limit number of age slices)
 - Weigh all on one day



VERBETERING VAN AKKURAATHEID

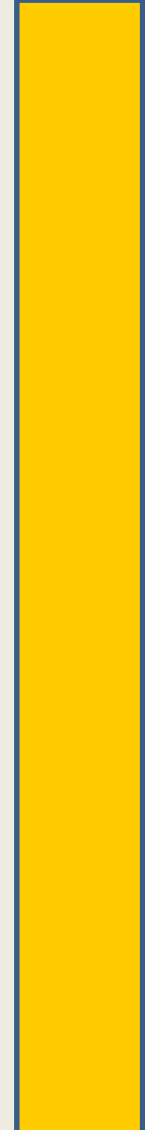
- **Gebruik meer bulle en beplan dekgroepe**

Effectiveness of performance data



VERKORT DEKSEISOEN

KALWERS per JAAR	100	KALWERS per JAAR	100
Dekseisoen  1 Jan tot 31 Des		Dekseisoen  84 dae	
Aantal bulle	2	Aantal bulle	5
Aantal groepe (45 dae)	8	Aantal groepe (45 dae)	2
Kalwers/groep/geslag/bul	3	Aantal kalwers per groep	5
Verwagte akkuraatheid	50%	Verwagte akkuraatheid	80%



VERBETERING VAN AKKURAATHEID

- **MOETS:**

- Gebruik koppel vaars (meer is altyd beter)
 - KI (gebruik van die BGP bulle)
 - Ruil bulle uit
 - Roteer bulle tussen telers
- Verander jou koeigroepe elke jaar
- Gebruik bulle uit kuddes met goeie akkuraatheid (3 ster +)
- Weeg, meet, scan en score BCS

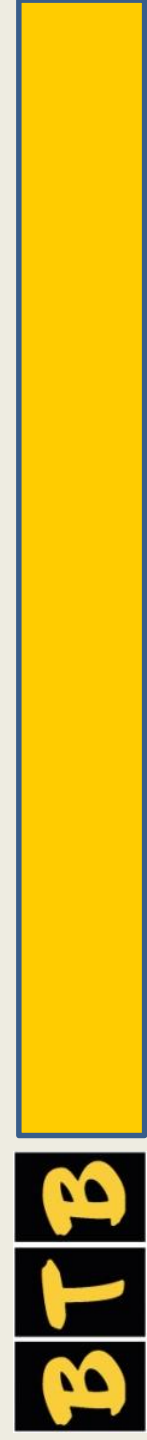
- **MOENIES**

- Moenie klusenaar teling bedryf nie
- Moenie al die bulle in een jaar vervang nie.
- Moenie die vroulike nageslag van 'n bul almal met dieselde bul dek nie.
- Moenie voorkeur behandeling aan geselekteerde diere gee nie.



STANDARD BREEDPLAN MEASUREMENTS

GROWTH	FERTILITY	CARCASE	OTHER	FUTURE
Bwt	SS	EMA	BCS	HH
200d	DTC	IMF	NFi	CS
400d	GL	FAT		Docility
600d	CE-dir			Structure
MCW				Udder score



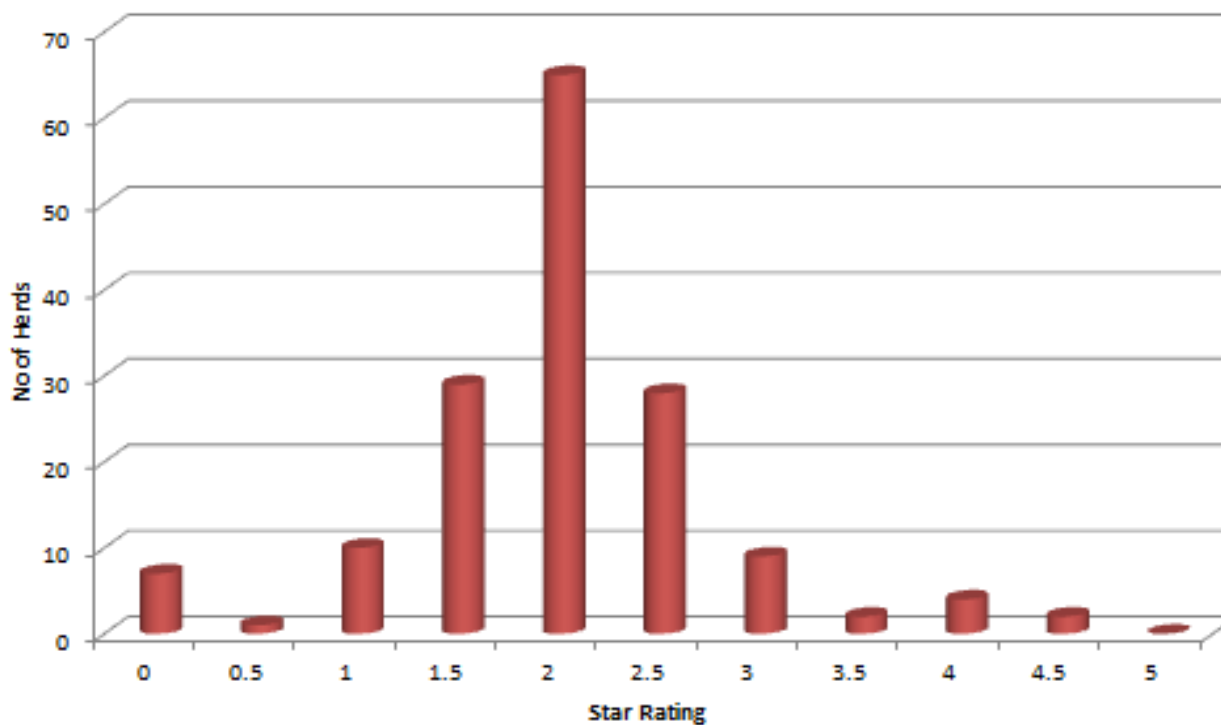
Birth weights



Completeness of Performance Star Ratings



Completeness of Performance Star Rating Distribution



Criteria Used to Generate "Completeness of Information" Summary

For each individual trait, a score of 1–10 is allocated based on the percentage of animals recorded for that trait. The score of 1 – 10 is then multiplied by the "Multiplier" to create a score out of the "Max Score". For example, if 91% of animals had a DOB recorded, a score of $9 \times 1.25 = 11.25 / 12.5$ would be given.

Block	Trait	Max Score	Score											Multiplier
			10	9	8	7	6	5	4	3	2	1	0	
Animal / 40	DOB	10	>=95%	>=90%	>=85%	>=80%	>=75%	>=70%	>=65%	>=60%	>=55%	>=50%	<50%	x 1.0
	Sire	10	>=95%	>=90%	>=85%	>=80%	>=75%	>=70%	>=65%	>=60%	>=55%	>=50%	<50%	x 1.0
	Dam	10	>=95%	>=90%	>=85%	>=80%	>=75%	>=70%	>=65%	>=60%	>=55%	>=50%	<50%	x 1.0
	Sex Ratio	5	0.9 - 1.1	0.8 - 1.2	0.7 - 1.3	0.6 - 1.4	0.5 - 1.5	0.4 - 1.6	0.3 - 1.7	0.2 - 1.8	0.1 - 1.9	<0.1 - >1.9	-	x 0.5
	Recipient Dam	5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.5
Weight / 50	200	12.5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.25
	400	12.5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.25
	600	12.5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.25
	MCW	12.5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.25
Carcase / 30	EMA	12.5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.25
	Rib	6.25	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.625
	Rump	6.25	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.625
	IMF	5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.5
Birth / 35	AI Date	10	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.0
	Calving Ease	15	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.5
	Birth Weight	10	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 1.0
Fertility / 40	Scrotal	20	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 2.0
	DTC	20	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 2.0
Other / 5	Docility	0	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.0
	Structure	5	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.5
	Flight Time	0	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.0
	DNA	0	>90%	>80%	>70%	>60%	>50%	>40%	>30%	>20%	>10%	>0%	0%	x 0.0

* If a herd does not have any calves bred by AI, a maximum score is allocated for AI date. Likewise, if a herd does not have any calves bred by ET, a maximum score is allocated for recipient dam.

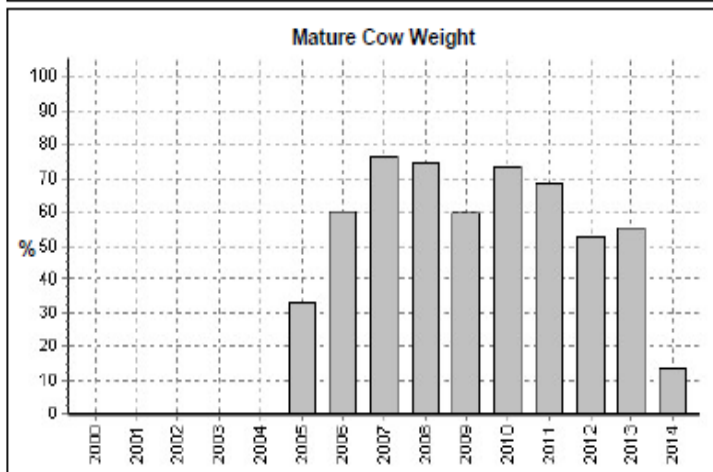
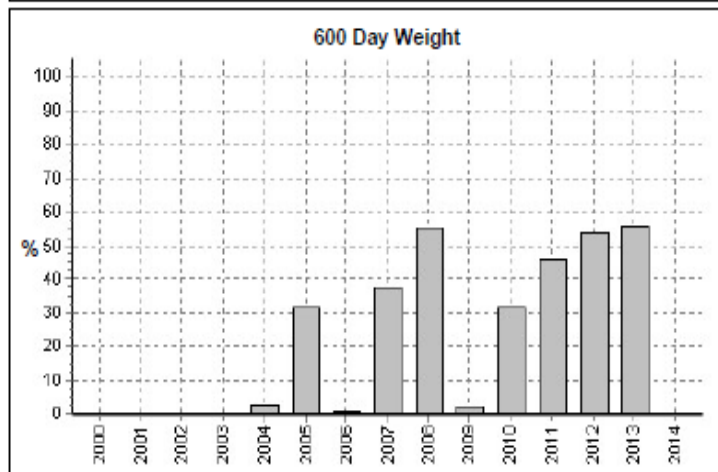
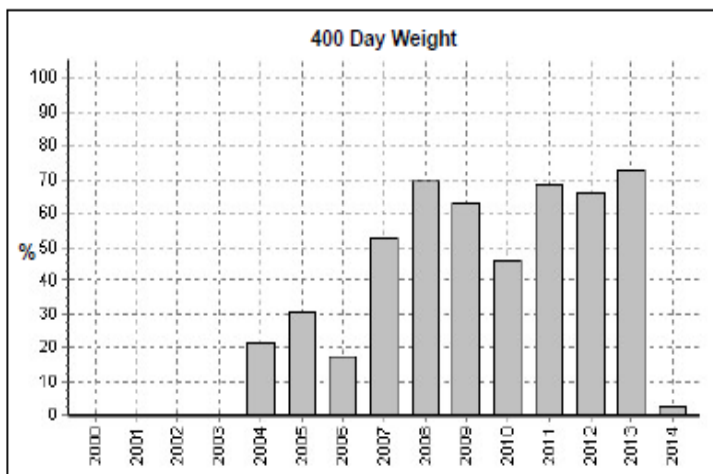
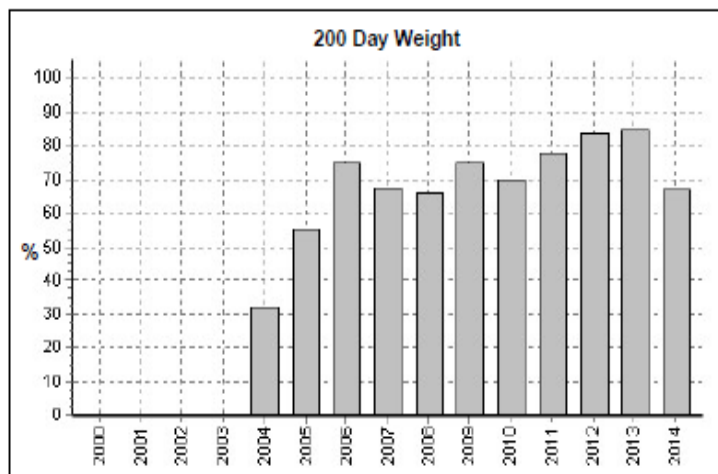
Once the individual traits have been scored, the scores are tallied to give a total score for each trait block, plus an overall score out of 200. The overall score is also given a rating on a 0-5 scale based on the scale provided below. the overall score and rating are calculated for each individual calving year, plus averaged across the past 5 year period.

Rating	5	4.5	4	3.5	3	2.5	2	1.5	1	0.5	0
Score	165+	150 - 165	135 - 150	120 - 135	105 - 120	90 - 105	75 - 90	60 - 75	45 - 60	30 - 45	0 - 30

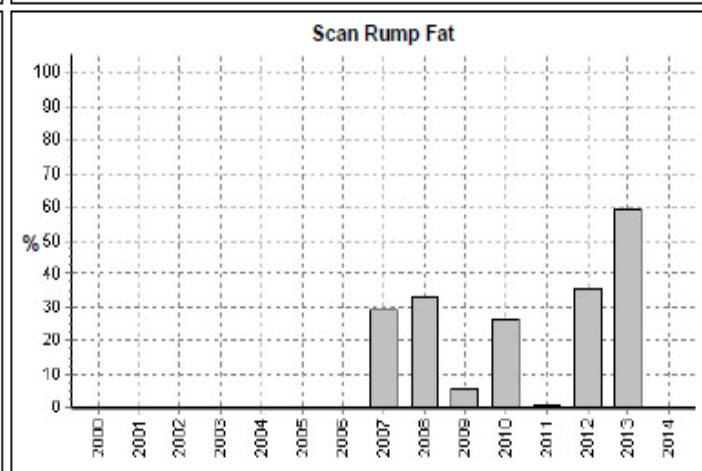
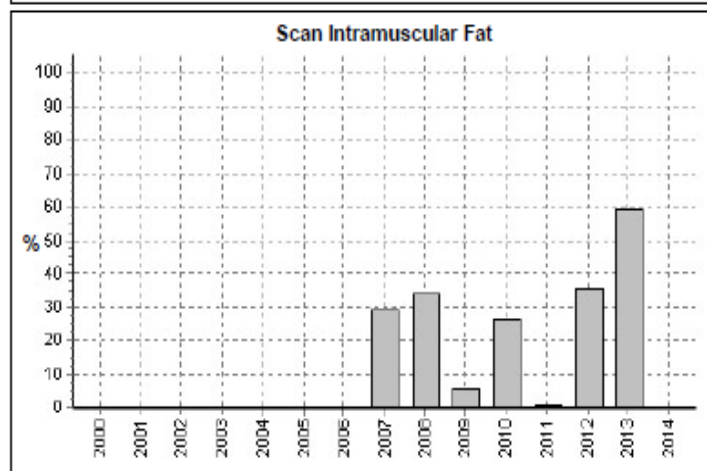
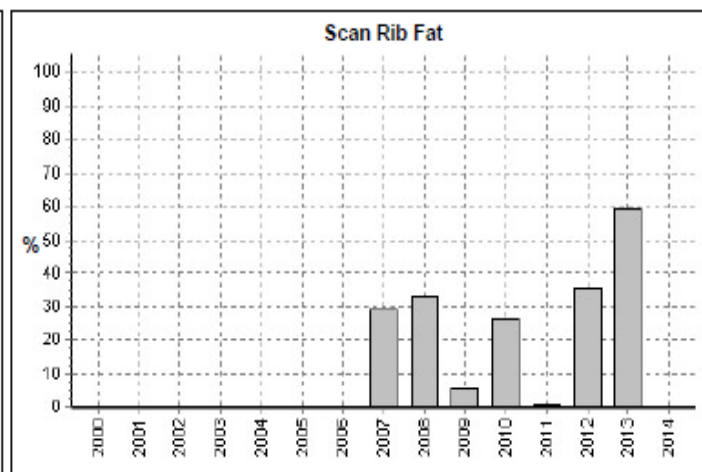
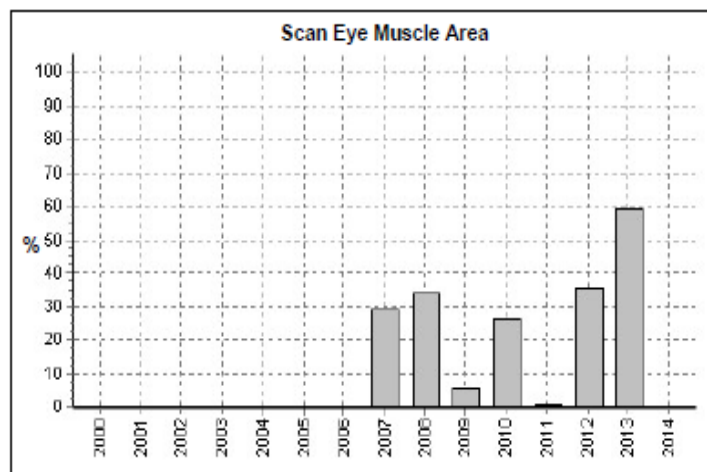


BTB

BTB Completeness of Performance Weight



BTB Completeness of Performance Carcase



BTB
Completeness of Performance
Completeness of Information Summary

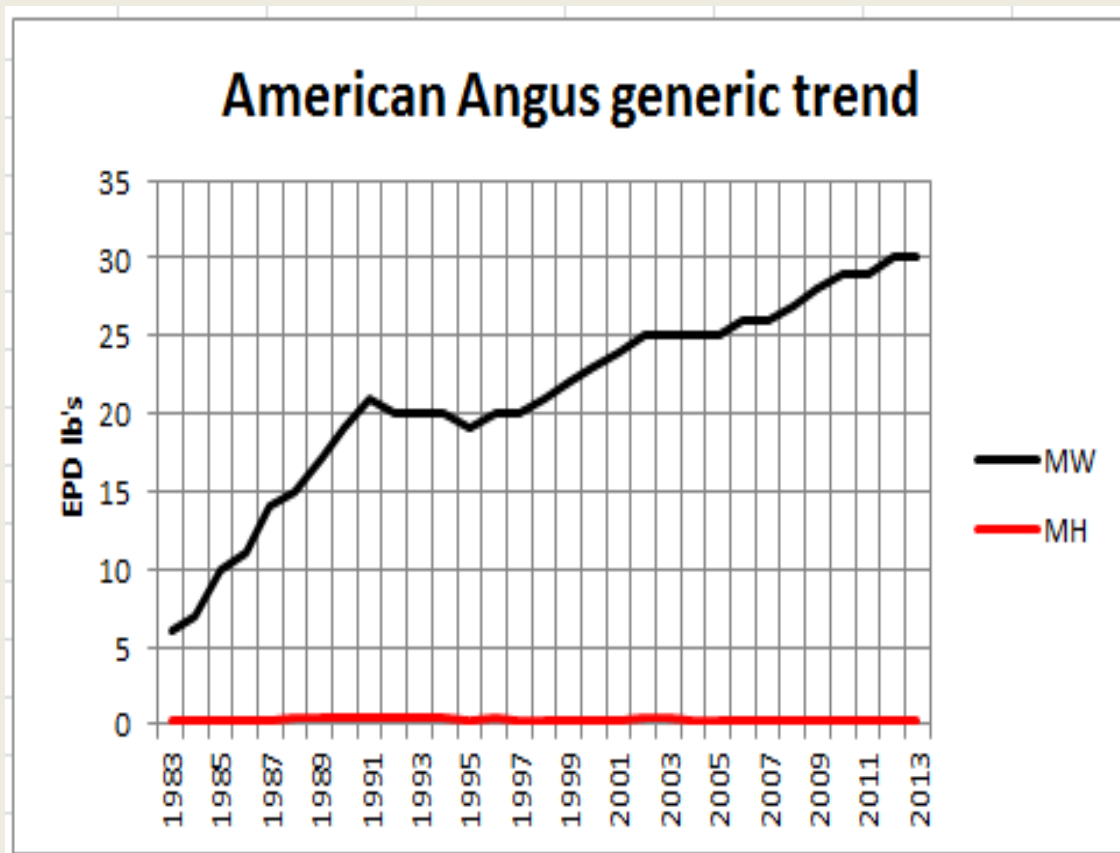
Calving Year	Animal Details (/40)	Weight Traits (/50)	Carcase Traits (/30)	Birth Traits (/35)	Fertility Traits (/40)	Other Traits (/5)	Total (/200)	Rating (/5)
2000	16	0	0	10	0	0	26	0
2001	0	0	0	0	0	0	0	0
2002	16	0	0	10	0	0	26	0
2003	16	0	0	10	0	0	26	0
2004	23	10	0	18	2	0	52	1
2005	37	23	0	34	6	0	100	2.5
2006	39	23	0	32	2	0	95	2.5
2007	40	31	9	34	2	0	115	3
2008	40	35	12	35	30	0	152	4.5
2009	40	28	3	35	22	0	128	3.5
2010	40	30	9	35	16	0	130	3.5
2011	40	34	3	35	32	0	143	4
2012	40	35	12	35	30	0	152	4.5
2013	40	36	18	35	32	0	161	4.5
2014	40	13	0	35	18	0	106	3

Calving Year	Animal Details (/40)	Weight Traits (/50)	Carcase Traits (/30)	Birth Traits (/35)	Fertility Traits (/40)	Other Traits (/5)	Total (/200)	Rating (/5)
2008 - 2012	40	32	8	35	26	0	141	4



FUTURE EBV's

* HH- Hip height



FUTURE EBV's

* HH- Hip height



- Dankie

B

T

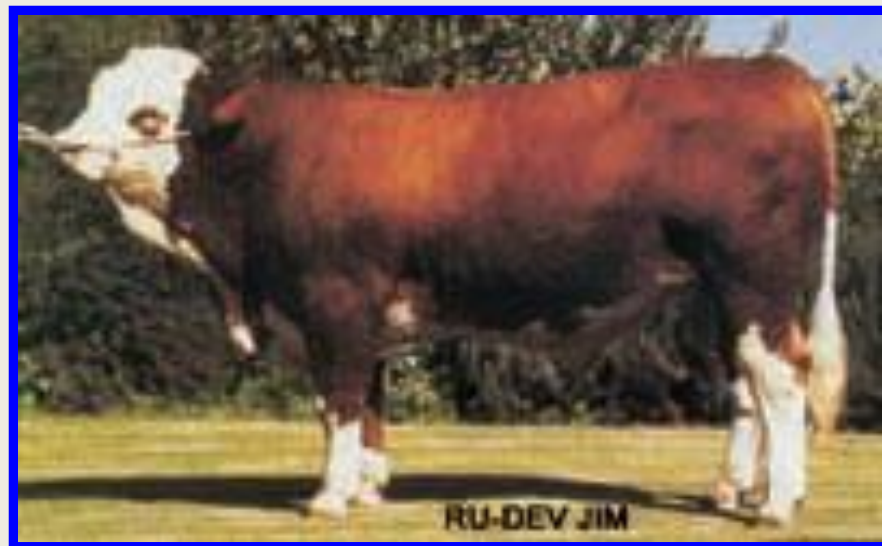
B



Bul se geboortegewig as maatstaf van nageslag se geboortegewig/kalwingsgemak



Hy weeg 43 kg



Hy weeg 43 kg

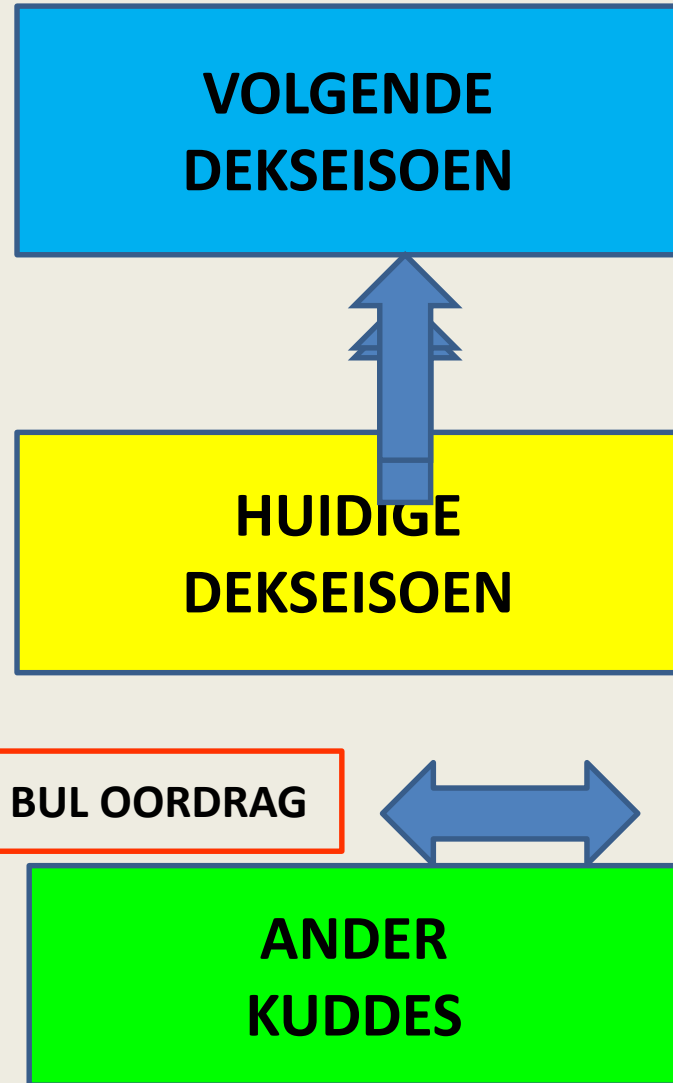
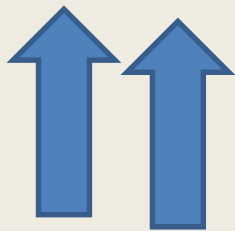
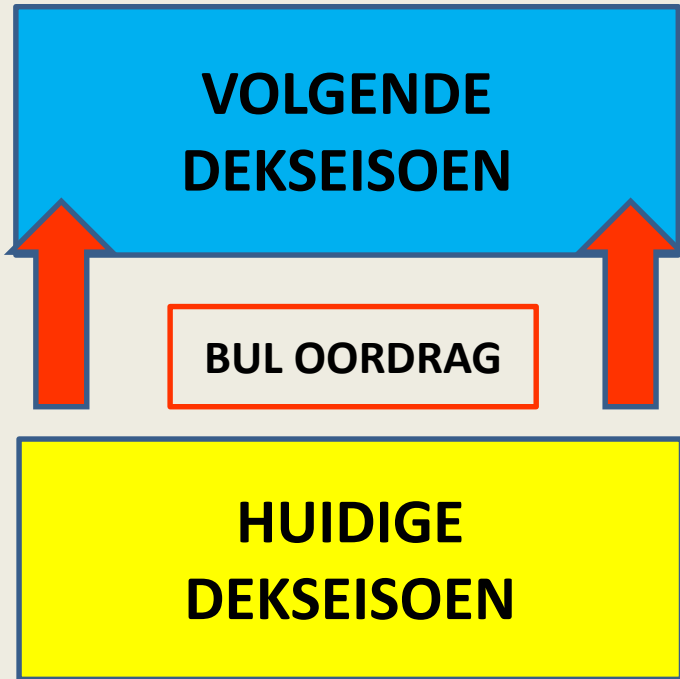
2003 Hoë AKKURAATHEID BREEDPLAN TEELWAARDES

Geboortegewig dir = Bottom 1%
Kalwingsgemak = Bottom 0.5%

Geboortegewig dir = Top 1%
Kalwingsgemak = Top 0.5%

END

VERBETER AKKURAATHEID





Goeie koei??

Watter een se dogters kalf makliker ?
Wat se die beoordelaars.



2003 HOE AKKURAATHEID BLUP TEELWAARDES

Kalwingsgemak dogters =
Top 2%

Kalwingsgemak dogters =
Bottom 5%

•

•

BTB

