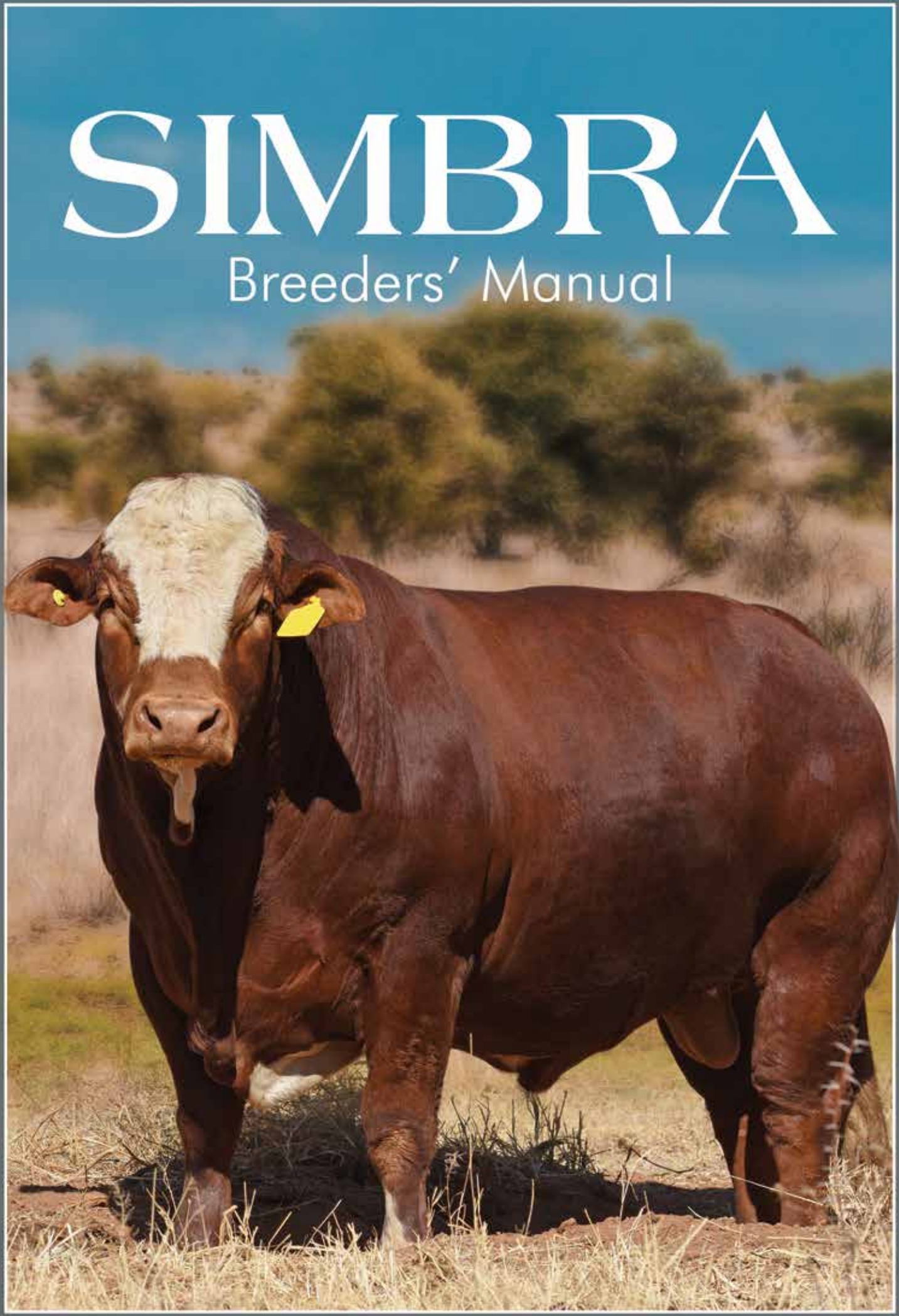
SIMBRA

Breeders' Manual



CHD 1930

A lifetime of dedicated breeding brought us to a point where we combined the best genetics in our embryo program

CHD 1824

CORZEL
SIMBRA STUD

CORNELIS DERKSEN | 082 415 0515 | Viljoenskroon
zeldaderksen@gmail.com

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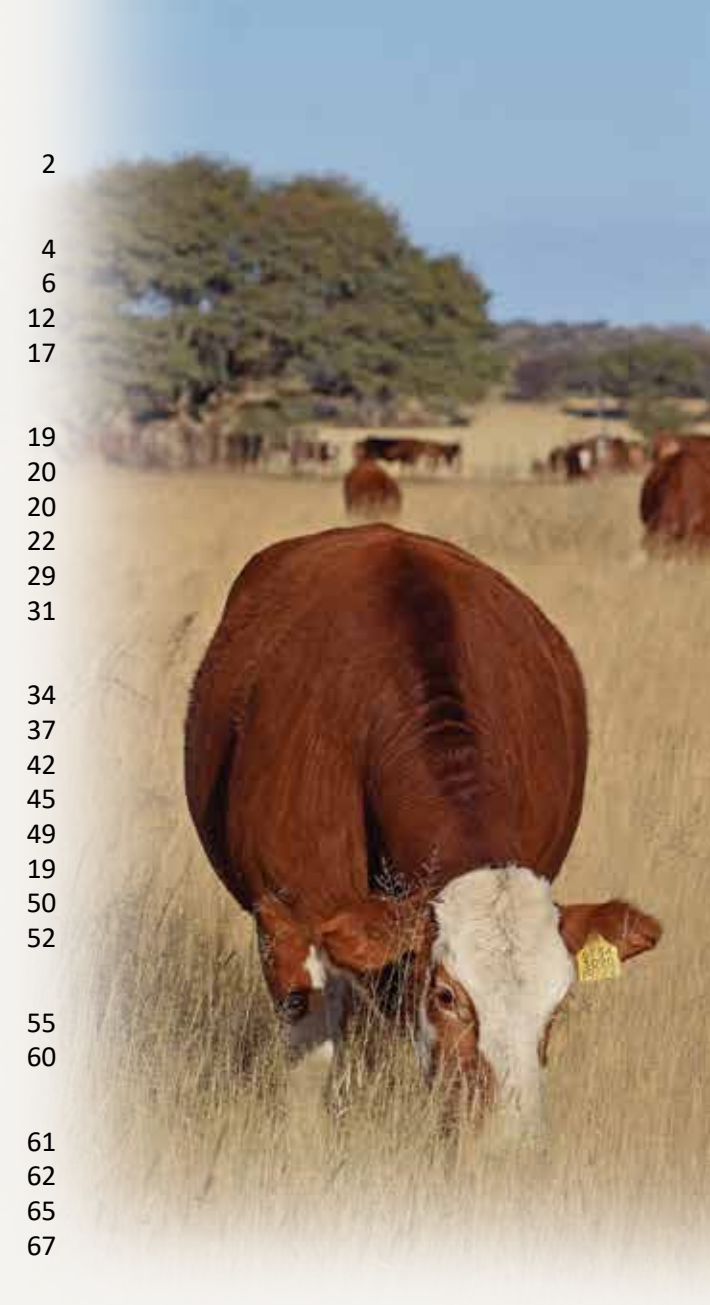

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Letter from the Chairman

- TITO VORSTER

Dear Simbra Member,

On behalf of the Simbra Cattle Breeder's Society of Southern Africa, I'd like to express my grateful thanks to you for considering Simbra cattle for your production system and wish you every success in your Simbra beef enterprise. The beef production climate is continually evolving and requires progressive breeders to meet economic demands. At Simbra our mission is to provide quality service and leadership that promotes genetic progress within the breed and ensures a high return on investment for our valued members. Parallel to the requirements of the global livestock industry, we hope that Simbra breeders share our vision to produce safe, high-quality sought-after beef profitably, whilst maintaining animal welfare and a low carbon footprint.

This Breeders' manual aims to provide Simbra breeders with the essential information, procedures, and tools to make informed decisions and apply them in their production systems. Thereby facilitating the profitable production of a highly sought-after product that is well adapted to South Africa's unique and diverse farming conditions and meets the demands of the beef industry.

Thank you to the following parties and individuals who made this publication possible.

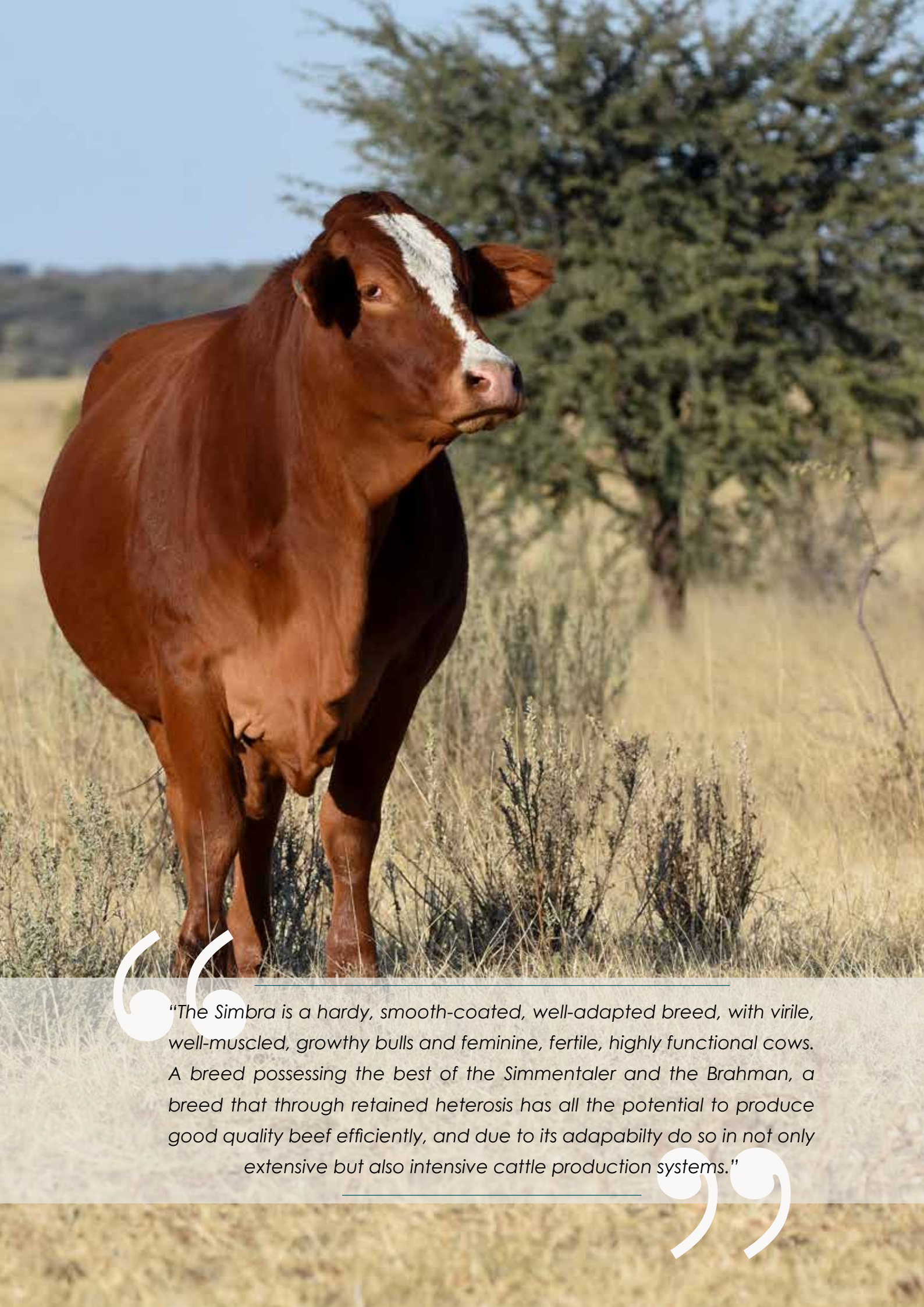
- Our Simbra Breeders for choosing Simbra as their breed
- Service providers who took up the opportunity to advertise
- The editor, Simbra Office team, and marketing committee for your commitment and hard work.

Enjoy the manual, read it often, give your feedback to the office. Welcome to the Simbra Family, we look forward to working with you.

JacMar Simbras

Jaco Maré 082 388 4294 | jacomare@lantic.net
HARTEBEESFONTEIN

Fokus op jou toekoms!



"The Simbra is a hardy, smooth-coated, well-adapted breed, with virile, well-muscled, growthy bulls and feminine, fertile, highly functional cows. A breed possessing the best of the Simmentaler and the Brahman, a breed that through retained heterosis has all the potential to produce good quality beef efficiently, and due to its adapabilty do so in not only extensive but also intensive cattle production systems."

Why the Simbra Breed?

The evolutionary development of Simbra's parent-breeds differs greatly. The Simmental from central Europe was adapted to long cold winters and used for both milk and beef. Zebu cattle, the genetic pool from which the Brahman breed is derived, originates from India, an environment of heat, humidity, disease, and parasites. The purpose of the Simbra was to raise a breed that could adapt to diverse South African environments, not only the physical environments but also production systems and market requirements. To achieve this goal, the milk and beef production capacity of the Simmentaler was combined with the adaptability, disease resistance, and hardiness of the Brahman. The Simbra breed is an easy to farm with breed that has cows and heifers with outstanding maternal ability and reproduction, and bulls that thrive in all production systems.

Why Stud Breeding?

The difference between stud breeding and commercial breeding is the recording of pedigree and performance data and after genetic analysis, the interpretation and application of that data. It is imperative that a measurable process is in place to ensure that stud animals make genetic progress and ultimately transmit that genetic potential to next generation of both stud and commercial animals. A balanced approach that places sufficient emphasis on genetic and phenotypic traits that have economic relevance, as well as optimal utilisation of all available resources is the key to successful stud breeding.

Breeding Program

The modern breed development differs from past breeding programs that implemented closed Herd Book policies and restricted the flow of favourable genes. Simbra does not believe in a closed Herd Book concept, the dominance of a few sires, inbreeding, or selection based on visual evaluation alone. Simbra thrives off maximising heterosis effects and does not approve of any form of inbreeding that results in the loss of within-breed heterosis.

Due to the large environmental variation under which Simbra breeders farm as well as differing bull buyer preferences, we believe in the maintenance of sound genetic variation within the breed, allowing breeders to develop a type of animal which performs best in their environment. Flexibility is allowed in breeding Simbras' through the Open Herd Book policy so that a breeder can dictate the optimum combination best suited to their environment, management and customers. The environment determines the ideal blood composition. In temperate regions where weaner production is important, we tend to see a higher percentage of Simmentaler, and where environmental stress levels are higher, we tend to see a higher percentage of Brahman coming through.

The overall goal we strive for is to breed an animal that is a profitable producer and for which there is a demand in the industry. The Simbra breeders aim to breed a medium-framed animal, adapted to his/her environment, that will perform well in extensive environments. Reproduction enjoys the highest priority at all levels and, at Simbra, is the best barometer of the correct constitution (appearance of an animal), hardiness (reaction to environmental stress), and adaptability (to thrive and produce in a certain environment).

SIMBRA Breeding Policy

Simbra CUM Register (AA)				
♂		♀		♀
Simmentaler (Registered)	x	Sanga/Sanga Composites	=	Simbra Cum F0
Simmentaler (Registered)	x	Zebu/Zebu Composites	=	Simbra Cum F0
Brahman (Registered)	x	Bos Taurus/Sanga or their Composites	=	Simbra Cum F0

Simbra (Registered)	x	Any of the Above	=	Simbra Cum F0 or Simbra Cum F1 (If Sire Verified)

Simbra F1 Register (A)				
♂		♀		♂ ♀
Simbra (Any F Generation)	x	Brahman (Registered)	=	Simbra F1
Simbra (Any F Generation)	x	Simbra Cum F0	=	Simbra F1 ♀
Simbra(Any F Generation)	x	Simmentaler (Registered)	=	Simbra F1
Simbra (Any F3/F4)	x	Any Beef Breed with 25% Brahman Influence (Registered)	=	Simbra F1
Any Beef Breed with 25% Brahman Influence (Registered)	x	Simbra (Any F3/F4)	=	Simbra F1
Simmentaler (Registered)	x	Brahman (Registered)	=	Simbra F1
Simmentaler (Registered)	x	Simbra Cum F0	=	Simbra F1 ♀
Simmentaler (Registered)	x	Simbra (Any F Generation)	=	Simbra F1
Brahman (Registered)	x	Simmentaler (Registered)	=	Simbra F1
Brahman (Registered)	X	Simbra Cum F0	=	Simbra F1 ♀
Brahman (Registered)	x	Simbra(Any F Generation)	=	Simbra F1

** Any F1 Cum Inspected Before 1 March 2013*

** Only female animals born out of Simbra Cum F0 cows may be added to the F1 register. Shown By the symbol* ♀

**Any Cum Female that has been Simbra Sire Verified, becomes a Simbra Cum F1*

Some Examples of The Different the Breeds Found in S.A	
Sanga	Afrikaner, Bonsmara, Tuli, Nguni, Drakensberger, Hugenoot
Zebu	Boran
Bos Taurus	Angus, Hereford, Charolais, Limousin, Wagyu,

Simbra F2 Register (B)				
♂		♀		♂ ♀
Simbra (F1/F2/F3/SP)	x	Simbra F1	=	Simbra F2
Simbra F1	x	Simbra (F1/F2/F3/SP)	=	Simbra F2

Simbra F3 Register (C)				
♂		♀		♂ ♀
Simbra (F2/F3/SP)	x	Simbra F2	=	Simbra F3
Simbra F2	x	Simbra (F2/F3/SP)	=	Simbra F3

Simbra SP Register				
♂		♀		♂ ♀
Simbra (F3/SP)	x	Simbra F3	=	Simbra SP
Simbra F3	x	Simbra(F3/SP)	=	Simbra SP

**All animals to be registered must be inspected and approved by a Society Official, in accordance with the Breeds Standards. This inlcudes any animal to be introduced into the Simbra CUM F0 Register.*

Summary of SIMBRA BREEDING PROGRAM and By-Laws

Please note that the By-Laws stated below pertaining to the Breeding Program and Policy are summarised and only contain some of the most pertinent information, the complete original copy of the Constitution can be obtained from the Simbra Website (www.Simbra.org) or the Simbra Office.

1.2.1) The Simbra Herdbook

Base Animal Register: This is compiled of any registered and sire-verified Simmentaler or Brahman animals.

F0 Development Register: This is compiled of Simbra type *CUM* animals presented for inspection from 1 March 2013 that comply with the inspector's phenotypical evaluation according to the Breed Standards. This female is identified with an AA marking in her ear; any bull calf born out of a F0 *CUM* animal is not for registration. The breeding policy approved on 9 September 2021 allows the introduction of F0 *CUM* animals from the following crosses, registered and sire-verified Simmentaler x Sanga/Sanga Composites; registered and sire-verified Simmentaler x Zebu/Zebu Composites; registered and sire-verified Brahman x Bos Taurus/Sanga/Sanga Composites. Female progeny resulting from any of the afore-mentioned crosses can be introduced as F0 *CUM* animals.

F1 Development Register: This is compiled of daughters and sons from multiple/single sire mating's of base animals that comply with the requirements determined by the council, and must come from fully registered Simmentaler, Brahman, or Simbra Bulls. Progeny resulting from crosses between registered base sires (Simmentaler/ Brahman) with Simbra F0 *CUM* females may have female F1 progeny added to the F1 development register, male progeny resulting from these crosses are not for registration. As per the decision made on 9 September 2021, matings of any registered Simbra bull with F0 *CUM* females, may have female progeny registered as F1. A registered Simbra F3/ F4 crossed with any registered beef cattle breed containing a minimum of 25% Brahman influence has progeny eligible for the F1 development register. As of 1 March 2013, any Simbra F0 *CUM* that complies with the Inspectors evaluation and has been Simbra sire-verified through DNA verification, is eligible to become an F1 *CUM.*

F2 Development Register: Is compiled of daughters and sons from multiple/single sire matings from F1 x F1, F2, F3, or fully registered animals The Simbra is a combination of Simmentaler and Brahman and at an F2 Register level should clearly exhibit the characteristics of both these breeds F3 Development Register: Is compiled of daughters and sons from single sire matings of F2 x F2, F3, or fully registered animals.

Fully Registered: Is compiled of daughters and sons from single sire matings of F3 x F3 or fully registered animals come into consideration for registration in the final/ fully registered herdbook.

Except in the case of Simbra CUM F0 and CUM F1 no Simbra with horns shall be registered.

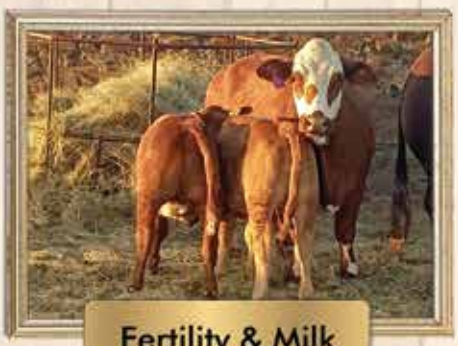
1.2.2) Registration/Recording in the Herd Book

Inspection is a pre-requisite for registration, no animal will otherwise be registered except by special approval of the Breed Director. Animals that

JHA- *the face of the future*

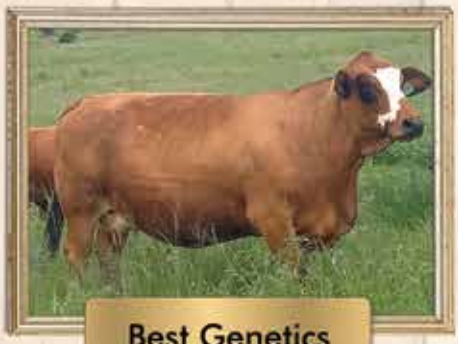
SELECTION

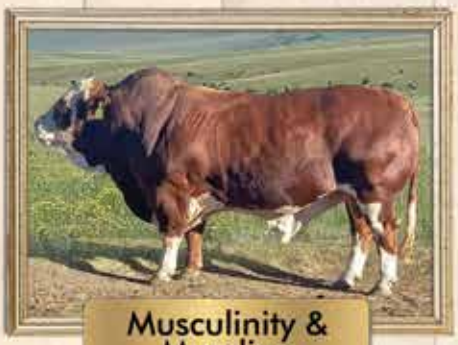
is based on the following Simbra traits

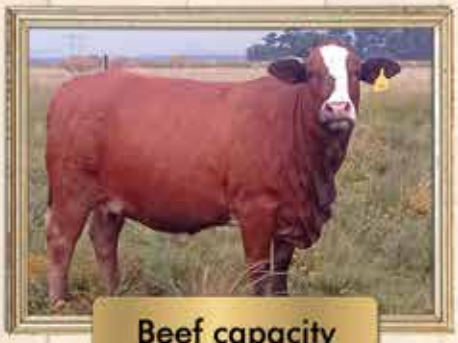

Fertility & Milk


Heavy weaning weight

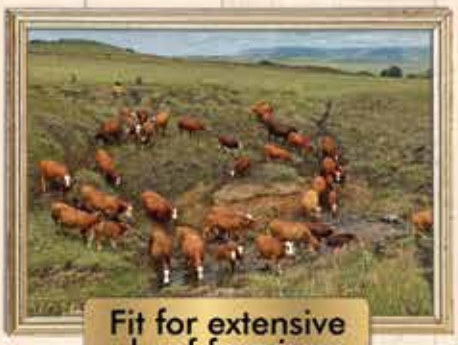

Good calf cow weight ratio

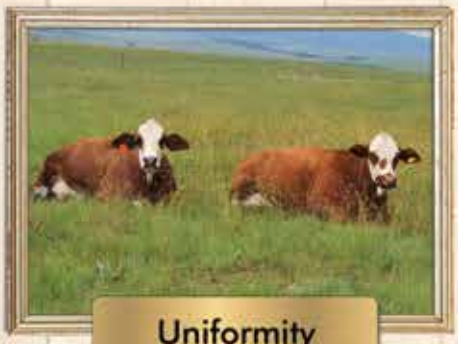

Best Genetics


Musculinity & Muscling


Beef capacity


Hair Quality


Fit for extensive beef farming


Uniformity


Medium frame

Annual Bull Production Sale

August, Bull Ring Auction House

SIMBRA Jamica

RUSTHOEK, VOLKSRUST

JANCO 072 364 3047 | **JAMES** 082 781 4135

Ondeka Simbra

THE STUD THAT MAKES THE DIFFERENCE

We strive to breed adapted, fertile Simbras with good growth characteristics, enough fat deposition and plenty of meat, to create a difference in our client's pockets.

To underline and support our breeding goal, we support our strict visual selection with important scientific selection methods.

We have been awarded in 2020 and 2021 as the most fertile Simbra herd in southern Africa for 75+ cows.

To further guarantee our clients the genetic performance of our animals, we record full sets of data on all measurable traits, which reflects in a Breedplan 5 out of 5 Star Rating; for Completeness of Performance.

For the past 11 years we make use of carcass scanning technology to identify animals with the ability to store and attain fat together with excellent carcass traits. This enables our animals to strive on extensive rangeland conditions.

We stand to our core values of integrity and honesty and are fully committed to our animals and our breeding program to satisfy our client's needs.

BREEDPLAN COMPLETENESS ★★★★★

Simbra

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do not pass inspection are rejected and cancelled in the Herd Book. A daughter of a rejected parent will be required to be inspected before she can be registered as F0/F1. The council maintains the right to cancel any registration or recording that has already been done if false/incorrect information has been furnished.

1.2.3) Notice of Births and Recording of Calf Book Animals

The birth of a calf must be reported to the office by the breeder on the prescribed birth notification form or in another approved format irrespective of whether such calf was born alive/ dead, is purebred or a cross, or is retained for registration or not. Birth Notifications must be handed in at the office within the period prescribed by the council (122 days) or be liable to a late birth notification fee.

1.2.4) Identification

The society's system of permanent identification of animals is an ear tattooing that must be applied by breeders with utmost care and wellbeing of the animal. Calves born alive must be identified by the breeder in the left ear (preferably) using the breeders' approved herd letters, the last two figures of the year in which the calf was born, followed by consecutive numbers that indicate the sequence in which the calves were born and thereafter followed by the correct letter suffix. E.g. CBG2125C would be the 25th calf born in 2021 and the C suffix indicates that this calf is an F3 calf. For practical sorting and filtering of animal IDs on your computer system it is recommended that if you have fewer than 90 calves per year then you should begin your numbering system at CBG2111C, and if you have more than 90 calves per year then you should begin your numbering system at CBG21101C. The table below explains how the suffixes are allocated. The suffix is always one symbol higher than the lowest suffix of the parent and "grades up" until an F4 or studbook proper animal.

No identification number combination may be repeated. F0 CUM and F1 Cum animals are identified by the breeder's herd letters and an identification number that has not been used before followed by an AA or an A for F0 and F1 CUM animals respectively.

Dam	x	Sire	=	Calf
Base (Simmental)	x	Base (Brahman)	=	A
AA	x	A	=	A
AA	x	B	=	A
AA	x	C	=	A
A	x	A	=	B
A	x	B	=	B
A	x	C	=	B
B	x	B	=	C
B	x	C	=	C
C	x	C	=	No Suffix (SP)
SP	x	SP	=	No Suffix (SP)

A Standard of Excellence of a breed is a detailed manual based only on appearance and is used by breeders and judges, and inspectors for the identifying of animals with desirable characteristics.

Standard of Excellence

The breed is par excellence a medium-framed maternal breed with the characteristic features of extensive adaptability, high fertility, good maternal characteristics (easy calving, good milk production), high relative weaning weight, and also the ability to produce a desirable carcass weight directly off the veld. The Simbra Standard of Excellence is made up of three parts. 1.3.1) General Appearance; 1.3.2) Conformation; 1.3.3) Discriminations & Disqualifications

1.3.1 General Appearance

1. Purity	• Characteristic traits must conform to this Standard of Excellence: an adapted beef breed with the good characteristics of both meat and adaptability. • The Simbra is a combination of Simmentaler and Brahman and at an F2 Register level should clearly exhibit the characteristics of both these breeds.
2. Type, balance, and form	• A Versatile breed that has a sufficient amount of both meat and milk • Animals should exhibit distinct purity of sex, and a good frame, be symmetrically outlined and stand squarely with hind legs well placed. • Bulls should be more muscular than females.

3. Character	• Temperament: Calm, manageable and placid with an alert appearance. • Sexual purity (Bulls): ▪ Strong, masculine with good overall muscular development, especially on neck and hump, across the forearm, shoulder, eye muscle and hindquarter. ▪ No excessive fat, especially in flanks, brisket and around the tail head. ▪ Well-developed uniform testes and epididymis, sheath not pendulous and uncontrollable. ▪ Hair coating in bulls will be more than females, however, not too course and woolly, also darker hair over the neck, hump, rump and thighs. • Sexual Purity (Female): ▪ Female appearance, wedge-shaped outline, especially when in milk. ▪ Not over-muscular, large, heavy, or robust. ▪ No excessive fat deposits on any part of the body. ▪ Well-developed genital organs and a well-attached udder. ▪ Heifers with visual udder and teat development.
4. Quality	• Joints firm and dry, hair short and dense with smooth texture, skin pliable, soft and supple, of medium thickness, hooves strong, closed, and of good quality and texture.

1. Head and neck	• Head: Adequate width with moderate length. • Forehead: Good width between eyes, tapering slightly towards the poll which might exhibit a moderate curve. • Eyebrows: Prominent, large with pliable, thick skin round the eyes. Not too prominent in females. • Muzzle: Wide, oval-shaped and strong. • Mouth: Wide and strong with broad lips. • Nostrils: Wide-set, large and oval. • Teeth: Large and strong, incisors fitting well against the pad. • Horns: Naturally polled or dehorned. • Ears: Moderate length, fairly wide and flexible, without excessive hair covering on the inner section. • Eyes: Large, bright, with a placid expression and flexible eyelids, eyebrows inclining slightly downwards, protecting eyes from insects, grass and sun. • Neck: Muscular in bulls, graceful and slender in females, well attached to head and shoulders, moderate development of dewlap that appears loose and folded. • Hump: Well-developed rounded hump in males, small in females;
2. Forequarter/ shoulder / brisket	• Shoulder-blade: Slope slightly forward from top to bottom (seen from above in a downward direction) with the desired arch and strong muscle attachment to the chest, withers, and neck (full behind shoulders). • Shoulders: Good width between the shoulder points, not prominent, however. • Chest: Good relative chest depth and width, (Brisket not too prominent). • Forearm: Well-muscled forearm in bulls.
3. Centrepiece	• Long, wide, and deep with good spring of rib. • Should blend well into fore- and hindquarter. • Back is straight, long, broad with well-developed lengthy muscling. • Loin is broad and well-muscled. In bulls, loin muscling sometimes appears prominent. • Ribs are broad, long, and well-sprung, slanting slightly to the rear.

1.3.2 Conformation

4. Hindquarter	• Long, wide, and deep with well-developed muscles, joining the hindquarter firmly to the centrepiece. • Good width between hips, pins and thurls. Hips appear slightly prominent in females. • Rump has good length from hips to pins with an obvious slope down from front to back viewed from the side. • Thighs are wide, well-muscled, outside thighs extending below the flank to a well-developed second thigh; inner thighs are amply filled with adequate length. • Tail head exhibits a slight curve, not too deeply attached to rump. • Tail is long with a good switch.
5. Legs, hooves, stance, and stride	• Legs: Strong, oval, and widely placed to facilitate an easy and free-moving stride. Finer bone structure in females. • Joints: Strong, firm, resilient, well developed, and dry with the correct angle. Achilles well developed. • Hooves: Uniform, of medium size, oval, deep and closed
6. Udder and Teats	• Udder: Well-attached at the front and rear, long, broad and of moderate depth. Exhibits four clearly defined and balanced quarters. Udder covered with short, soft, silky hair. • Teats: Uniform, cylindrical, pointed and squarely placed and of adequate length and size.
7. Skin and Hair	• Skin of moderate thickness, ample, pliable, loose, and supple. • Hair short, glossy, and slightly oily on touch.
8. Colour and pigmentation	• Pigment is not a prerequisite for female animals but is strongly recommended. • F1 to SP bulls must have more than 50% pigment per eye. • Hair colour may vary.
9. Size and Weight	• Medium framed animals, that have a low maintenance energy requirement and reproduce regularly in natural conditions

1.3.3 Discriminations and Disqualifications

Emphasis should be placed on functional efficiency. Animals with congenital defects or other defects that impair the functional efficiency of the animal should, in accordance with the Constitution be disqualified.

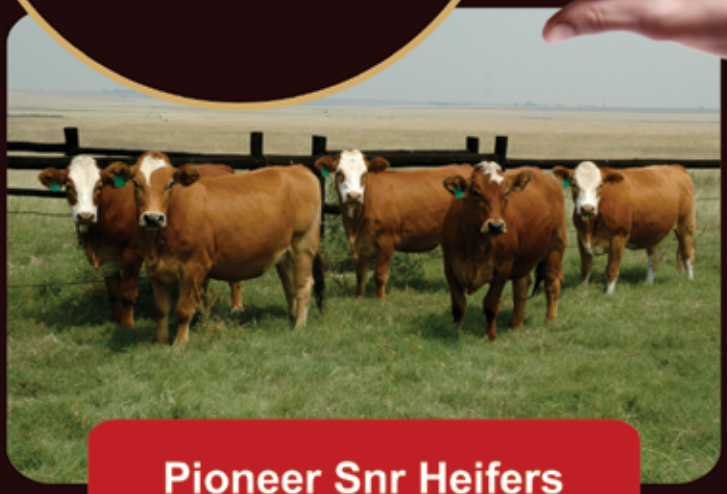
CRITERIA FOR DISQUALIFICATION	
1. Overall	**2. Head**
• Any signs of impurity. • Temperament – aggressive. • Animals with a lanky appearance without capacity and depth. • Excessively large animals or pony type. • Poor or excessive muscling. • Bone structure too fine or too coarse. • Woolly or frizzy hair coating. • Thin and tight skin (especially in bulls). • Poorly pigmented animals (with reference to eye pigment)	• Skew, twisted face or muzzle. • Skew mouth. • Excessively long or short lower jaw. • Fine or pointed mouth. • Compact or excessively long head (coffin). • Heavy lower jaw in females. • Underdeveloped eyebrow-ridges. • Bulls with less than 50% eyelid pigment per eye are disqualified. • Horns are a disqualification.

Lightning strikes twice...

DELFT
ITS IN THE MIX
SIMBRA STUD

Spot the difference

HDL09141B Pioneer Snr



Pioneer Snr Heifers

The Pioneer bloodline brings exceptional breadth, bone and breeds the most beautiful heifers imaginable. PRR Pioneer was one of the best bulls used in the Pine Ridge Stud, Excelsus Pioneer was one of the best bulls used at the Excelsus and Best bull studs and Pioneer Jnr has been one of the best breeding bulls at The Delft Simbra Stud. To add this tremendous bloodline to your breeding operation contact Tito Voster at 082 557 9198.

EXL14140C Pioneer Jnr

Pioneer Jnr Heifers

Distinguished Genetics

Conestoga Farming

Graeme Currin 082 893 8147

www.conestogafarming.co.za

3. Shoulders

- Shoulders too loose and/or upright.
- Prominent shoulder points.
- Prominent dorsal vertebrae.

4. Legs

- Faulty stance and stride.
- Patella fixation (stringhalt).
- Small, upright hocks.
- Laminitis.
- Cow hocked.
- Sickle hocked.
- Bent front legs (X-legged, bow legged).
- Pigeon-toed.
- Weak pastern joints (limp or short and stiff/ steep and/or sprung).
- Weak hooves (wide split, roll claws, divergent claws).

5. Rump and Tail

- Flat, roofy or excessively sloping rump.
- Prominent tail head.
- Skew tail head.
- Lack of width in pin bones.

6. Chest, back and centre piece

- Devil's grip and/or girded.
- Hollow or severely arched back (humped back).
- Flat centre piece, little rib spring.
- Narrow chest.

7. Reproduction Traits

Male

- Bulls with a steer like or feminine appearance.
- Scrotal circumference below set minimum requirements.
  - <400kg = 30cm
  - 401-450kg = 31cm
  - 451-500kg = 32cm
  - 501-550kg = 33cm
  - 551-600kg = 35cm
  - >601kg = 36cm
- Long, fleshy, pendulous, and uncontrollable sheath (Sheath classification 1-4).
- Inversion of the laminae interna (prolapse).
- Chryptorchidism, aplapsy, hypoplacia.
- Twisted scrotum and testes.
- Epididymis absent or underdeveloped.
- Long, pendulous scrotum.
- Overdeveloped sheath skin.

Female

- Females with steer-like or masculine appearance.
- Small, infantile vulva.
- Poor udder development.
- Dangling and/or unbalanced udder.
- Misshapen teats (too large, too small, conic, bottle, balloon).
- Overdeveloped navel skin.
- Must have calved by 39 months and cannot have an Inter calving period of more than 720 days.

Set an OBJECTIVE

As the saying goes: "If you shoot at nothing, you'll hit it everytime". Every production system requires a clearly defined objective, this objective should be manageable, measurable and related to a certain amount of time. Each objective should also have a set of sub-objectives that help you to reach your end goal.

Typically, these goals should be along the lines of:

- Increase the number of calves weaned than the previous season/year, given the same number of cows in the breeding herd.
- Increase kilograms of calves weaned corrected for 200-days.
- Increase in conception percentage of cows exposed to the bull.
- Shortening of calving seasons from 63 days to 42 days or even shorter.

Adjust your goals to further add value to your operation.

- Instead of just selling weaner calves, do "backgrounding", utilise pastures/resources and sell more bio-mass.
- Where practical, increase the value of cull heifers by exposing them to the bull and selling them as in-calf heifers.
- Round off older cull cows before selling them.

Always plan your herds production system with the buyer in mind, consider the different marketing channels and sectors and familiarise yourself with their requirements. At the end of the day, quality has a price, and this works hand-in-hand with producing a reliable product. If you are selling weaners, invite your buyers to view the weaners when they are younger, give them a chance to see the value in the product you are selling them, let them see how the weaners have performed in your production system.

The cow herd is the "factory" of any calf production system – they are the multipliers; more cows equal more calves, and more calves equals a higher turnover. The bulls are the "benefactors" they contribute to the genetic potential of the herd, drive genetic progress and determine the intrinsic value of the cow herd, and ultimately the profitability thereof. Despite the use of a few sires compared to females (1:30) per season, their genetic impact/contribution is enormous. For example, by maintaining a replacement rate of 8 heifers from a breeding herd of 30 cows over four seasons, the resulting genetic contribution of the previous three bull generations to the breeding herds 87.5%, emphasising the importance of buying the right bull. Performance tested bulls are one way of ensuring that bulls carry the desired genetic potential to make a positive economic impact in your herd. However, it is not only the genetics of the bull that need to be correct, but bulls must also conform to the correct phenotypic standards as well, they should be functionally efficient.

Many traits have antagonistic relationships between them, where too much emphasis on one trait results in unwanted responses in another trait. For example, placing too much emphasis on 200-day weaning weight might result in increased birth weights and more calving problems. For this reason, a balanced approach should be taken, consider these traits together to find the perfect balance between heavy weaners and a low percentage of calving incidents. Take the time to learn about and understand the relationships between traits when setting up an objective and do not include too many traits in your objective – by overcomplicating it you only slow the rate of progress.

Allflex SenseHub Monitoring System

The **SenseHub Beef** monitoring solution brings a new management approach to the beef cattle sector.

A smart, modular cow monitoring solution, SenseHub Beef delivers actionable information on the reproduction, health, and well-being status of individual cows and groups. With SenseHub Beef, farmers can make data-driven decisions for maximised productivity and improve beef herd breeding decision-making capabilities.

Flexible, high-performance beef cow monitoring that meets your needs today and long into the future.

Precise Guidance

For operations that use Artificial Insemination, this means precise cycling information, including highly accurate heat detection, detection of both anestrus cows and cows suspected for abortion, which all make breeding more cost effective and less labor intense. Ultimately, you gain precise guidance on insemination timing.

In natural breeding herds, knowing when a cow's last heat occurred, as recorded in the system, helps predict the calving date, instead of only relying on pregnancy checks.

Accurate health reports on each cow provide actionable insight for proactive, individualized health management. This is particularly effective for optimizing the health and well-being of an animal during the breeding, calving, and weaning phases.

In addition, access to information can be anywhere at any time from your mobile device. This, together with real-time alerts for issues like heat or cow distress, alleviates a producer's concern about missing an important event.

A variety of application plan levels, up-front and extended payment plan options, and user devices are available. You can also choose between ear tags or neck tags.

SenseHub Beef will enable smarter, more sustainable farming with the insights and analytics needed to optimize the productivity of every cow. By extending better livestock monitoring, we're ensuring a secure and prosperous future for more farmers and their families.

Heat Detection

- Detects 90-95% of real heats including silent heats
- Highlights optimal timing for artificial insemination
- Shows the 21 day cycle of your cows

Cattle Health Monitoring

- Calving distress alerts
- Reduce involuntary culling, mortality & medical treatment
- Early health distress alerts

Herd Group Monitoring

- Assess changes to nutrition, health and housing
- Maintain herd consistency
- Your whole group and herd on one graph

Interested in SenseHub? Call us on +27 (0)21 854 8877 and we will assist you with more information.

The *Animal Improvement* and Animal Identification Act

The Livestock Identification Act (Act No. 6, 2002) contains very important provisions that Simbra breeders should be aware of. Stud animals, registered at the South African Studbook and the Livestock Registering Federation, have a unique and different identification mark compared to normal commercial livestock. The alternative way of marking stud animals was authorised by the Registrar of Animal Identification, as provided for in Section 8 of the Animal Identification Act 6 of 2002. The Stud Breeders Association registers their members and issue with them a unique Animal Identification Mark, which does NOT reflect on the AIDA and the SAPS database. Stud Societies also issue their members with proof of their registration and the unique Herd Designation Mark registered to that member. Stud animals should be transported with this mark ONLY to stud auctions when sold as stud animals, to other stud breeders, or at agricultural shows or any other stud gathering. As with the AIDA, proof of stud registration MUST always be made available to prove ownership of the livestock if requested by an authorised person or SAPS member. Broadly speaking, the Act determines that all animals older than weaning age MUST be permanently marked with the unique mark registered for every owner. Within 14 days of stud animals being cancelled, such an animal must be permanently identified according to the provisions of the Act. Preferably any stud farmer must have two different sets of brandmarks on their livestock. Firstly, the Stud mark for identifying, trading and transporting stud animals. Secondly the AIDA (commercial) mark (see sections 5(1) and 7(1) (a) of the Animal Identification Act), for any stud animals that have been cancelled as stud animals or are to be traded commercially as non-stud animals, private sales or to be slaughtered at an abattoir. Please take care to read and understand the provisions of The Livestock Identification Act, 2002 (Act No. 6 of 2002), copies of which can be found on the following website: www.nda.agric.za

The Simbra *Numbering System*

The South African numbering system varies between breeds and registering authorities. By law, members MUST use the system prescribed and approved by the respective Society and Registrar of Animal Improvement (2.1 – The Animal Improvement and Animal Identification Act).

Herd Designation Mark (HDM): All registered members apply to the registrar for their Herd Letters (more commonly known as a Herd Designation Mark), which can either be a 2 or 3 letter combination. E.g., ABC, AZ or AZM. No figures (0-9) are allowed. You can also use these herd letters as your brand. These are unique within a breed and identify you as a breeder.

Numbering System: The numbering system used is the HDM as per above, followed by the year of birth and a sequential number as calves are born. E.g., ABC2125 would be the 25th calf born in the year 2021.

Prefix: The prefix, also known as herd name, cannot be more than 18 characters, the name of a town, city or post office is not acceptable. For Example, Mooisim, Deltasim would be suitable prefixes.

Branding & *Tattooing*

Branding: Brand marking and freeze branding entails burning a permanent scar into the animal's hide; the surface of the hide is damaged and looks different when it heals. Brand marks remain on the hide because the hair does not grow back properly on the scars. With freeze branding, whiteish hair grows back on the scar and thus leaves a mark on the hide. Custom-made branding and freezing irons in the shape of letters and digits in accordance with the society HDM's or commercially registered brands are used to apply the marks. The recommended maximum size of brand letters is 100mm x 100mm and the minimum is 40mm x 40mm with a 20mm space between letters.

Tattooing: Tattooing involves pricking an animal's hide and then staining the pricked parts with a marking ink that leaves a permanent mark. A special pair of tattooing pliers with custom-made tattoo letters or digits (needles) is usually used. Tattooing is a popular method of identification that can be applied to all farm animal species. Animals with a pigmented hide, like black animals. Are tattooed with a special coloured marking ink, for example a green ink. The recommended maximum size of tattooing letters is 20mm x 20mm with a 6mm space between letters. Due to limited space in the ear, you may tattoo the HDM above and then beneath that tattoo the ID number, the correct suffix can be tattooed once sire-verification has been received.

Bleka Trust
Simbra & Simmentaler Stoet

BLEKA

Simbra & Simmentaler Stoet

WILLIE DE KLERK 082 202 5911 · bles1973@gmail.com

Teelbeleid: melk, vrugbaarheid, speengewigte

MEDIUMRAAM, GEHARDE, VELDUITGEGROEIDE BULLE WAT WERK

Protocol for *Registering Calves* AND DNA COLLECTIONS

Registering Calves: Weigh the calf within 24 hours. Make sure to keep a record of the Sire and the Dam ID's. Apply an ear tag after the calf is born. Mark the ear tag with your HDM, Year of Birth and sequential numerical number (ABC2115). Send in your births on the Simbra Calf Registration form. You have 122 days from the date of birth to register your calves free of charge thereafter you will be accountable for a late registration fee (all fees are VAT Exclusive).

DNA Sample: The Simbra constitution requires that all calves born after 1 September 2022 must have a Sire that is SNP genotyped to be eligible in the Herdbook. You may use microsatellites or SNPs to verify the calves to the sires (note that if you use microsatellites then the sire must have a microsatellite profile as well as a SNP profile). DNA samples can be sent in the form of a TSU (tissue sample), semen or a hair sample. For hair samples, take one pencil-thick hair sample from the switch of the tail and put it into an envelope that is clearly marked with the Animal ID. Be careful not to cross-contaminate hair samples, keep hair samples from one animal clear and away from the samples of another animals. Under no circumstances should you put two separate animal samples in one

envelope. It is important that enough hair sample is collected to send one sample to the laboratory and to store an additional sample at the Society Biobank (in other words two hair samples are required). To collect the hair samples, follow the steps below:

STEP 1

Pull **(do not cut)** hair from the tail switch, not the tail head. Pull hair in the opposite direction from which the hair is laying. This results in less breakage than pulling straight out from the tail

STEP 2

Make sure the hair is free of fecal material and dirt

STEP 3

Roots (hair follicles) must be clearly visible. Approximately 30 hair roots are needed per sample. For animals with finer hair, a minimum of 50 to 60 hairs is desired

STEP 4

Properly record the animals ID on the envelope/s. Send the correct forms along with the samples to the Simbra Office

Once hair samples have been taken the samples can be sent to the Simbra Office in a standard envelope. The 780 Form must also be completed and emailed to the society as well. Each breeder is required to purchase one haircard and one Biobank envelope per sample. Once the Samples arrive at the society the office staff will process the sample by adding the sample to the haircard to be sent to the chosen lab and store the second sample in a Biobank envelope. All the Simbra DNA pipeline documents and tutorials can be obtained from: https://simbra.org/how-to-become-a-better-breeder/#documents

Genetic Defects

You will notice that there is an option to test for genetic conditions when sending DNA samples for SNP genotyping. Some of the genetic conditions offered in the Standard Bundles are as follows:

Congenital Myasthenic Syndrome

This condition is more commonly known as CMS and is caused by a deletion of the homozygous base pair 20 (470del20) that codes for the epsilon subunit of the acetylcholine receptor at the neuromuscular junction. It causes progressive muscular weakness in muscles and muscle development from birth. First-hand accounts of symptoms have been observed where a heifer calf had been weak at birth and unable to rise. When helped to its feet it would walk for 30-45 minutes before collapsing and having a chance to suckle from its dam. This calf's strength gradually declined and it died at three months of age. In another account a farmer reported having several weak calves in previous years; they had appeared normal at birth but became progressively weaker after four to seven days".

Pompes (Generalised Glycogenesis)

This condition is caused by a lack of activity in essential enzyme acidic-a-glucosidase. It causes glycogen to build up inside the muscle and nerve tissue with normal tissue function. This condition is also inherited in a simple recessive manner where heterozygotes are normal. In the majority of cases, muscle function is compromised and affected calves suffer from progressive muscular weakness. The disease is progressive with signs becoming most obvious when the animal is stressed at times of weaning or poor nutrition. In the progressive stages, calves experience difficulty rising, they may be found lying on their sides and paddling in an attempt to stand up. Affected calves tend to die between 6-12 months of age. In some cases, glycogen accumulation in the heart muscle can result in a sudden heart attack.

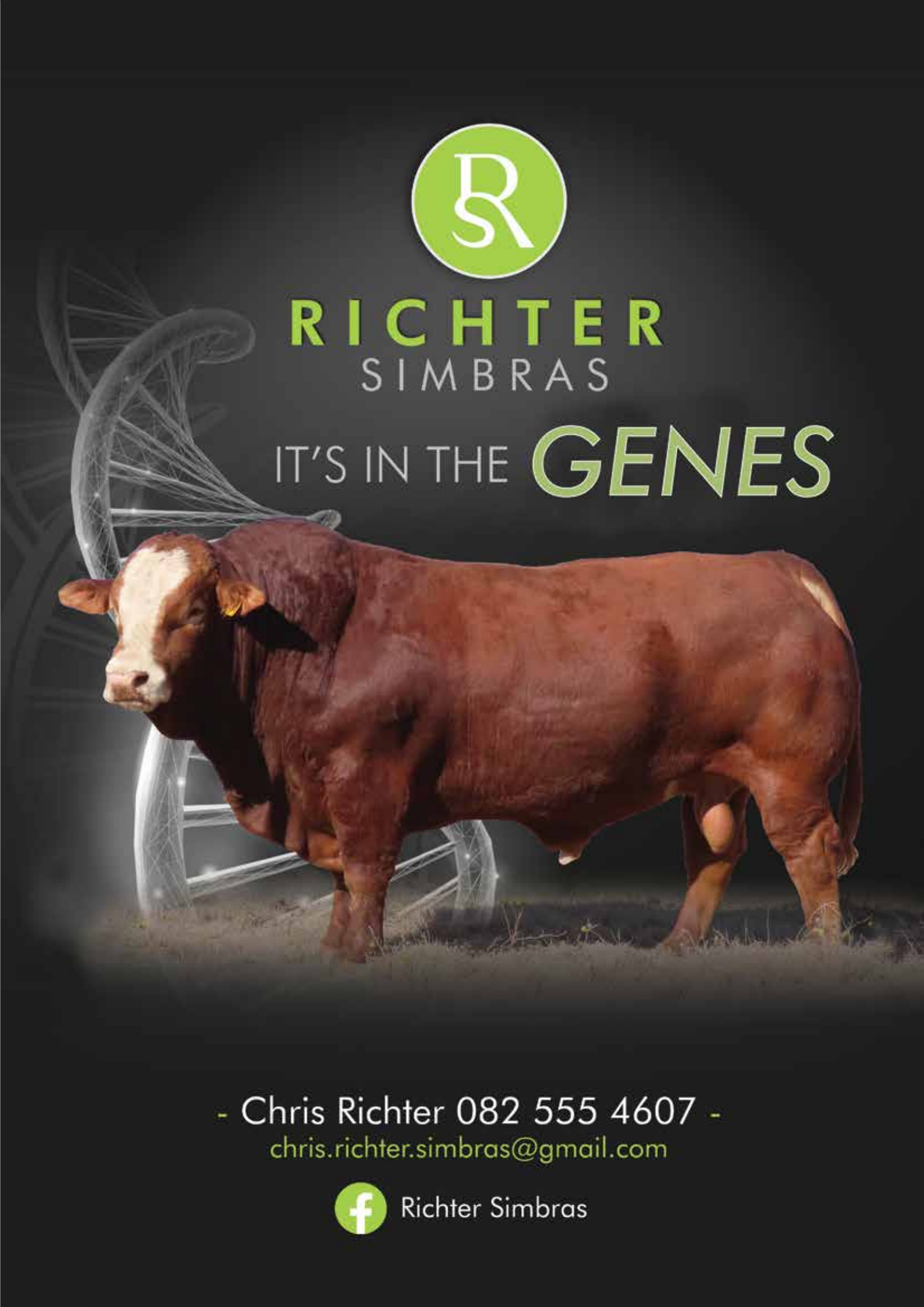
Myostatin (Double Muscling)

Myostatin is found in all mammals and influences the protein that controls muscle development. Natural mutations of gene produce proteins that are less effective at controlling muscle development, and often results in increased muscle mass (double – muscling). Myostatin is inherited in a simple recessive manner where heterozygotes are normal. The are 9 known variants but the following three are of primary interest: F94L, Q204X and Nt821. Depending on which mutations are present, some matings might result in increased calving difficulty as a result of increased birth weight and may also result in cows producing less milk. Calving ease, and milk ability are crucial to success in an extensive system.

If you have any further questions about these genetics conditions, or the interpretation of SNP results. Please contact the Simbra Office.

RICHTER
SIMBRAS

IT'S IN THE *GENES*



- Chris Richter 082 555 4607 -

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Richter Simbras

ZIMEYER GENETICS CENTRE

MIDDLE OF THE ROAD

"Middle of the road" is a term well known by experienced stockman. This strategy keeps you in the game and staying in the game should be a mindful goal we all need to strive for.

Middle of the road can handle change the best.

We live in a time where climate is changing, values are shifting, and technology is moving at a pace at which only the dedicated few can keep up with. In an era where information is available at our fingertips many a stockman seems wary of the change that has pushed our century-old industry into the genetic age. This reality has caused some to push back. Others have opted to adopt the new and unknown to various levels of success. Here-in lies the opportunity, for growth and change always come with risk but thankfully for those who dare to dream and take calculated risk also bears the opportunity of reward.

Easy fleshing, early maturing, balanced, fertile, high yield, restaurant meat quality, and adaptable animals will serve ourselves and our clients no matter what your market. Some of these attributes are prevalent in certain breeds and others thrive in niche markets.

We need to adapt and grow with the needs and demands of our end-user, the Consumer.

Too many feels this means losing the hard-earned yards of adaptability, stayability, and good stockmanship; this viewpoint will be to our detriment. This is like Mercantilism, an economic viewpoint held from the 16th to the 18th century in Europe and this drove new and future markets away from the nations with this view as they limited imports. At first glance, this seems a safe and secure way forward, but it has a negative effect on long term growth as it eliminates competition and creates a constant fight for limited resources.

We should remain cognizant of the direction the world-wide Beef industry is moving in with specific reference to the Consumer perceptions of our practices and our products. A Free-market view allows for greater competition and therefore drives productions cost downwards and increases value and profit. It encourages newcomers to engage and create value in the long term. The era we live in demands us to be competitive and provide measurable data as to how our animals perform and even measurable (trace-able) data of the environment in which we operate. We have a responsibility to evolve and adapt as stockman and to embrace the new and uncertain and apply the wisdom of the genetic era.

We should be more like the cattle we strive to breed, adaptable and efficient not allowing uncertainty of change to steal from us the opportunity at hand.

OUR GENETICS.
YOUR ADVANTAGE.

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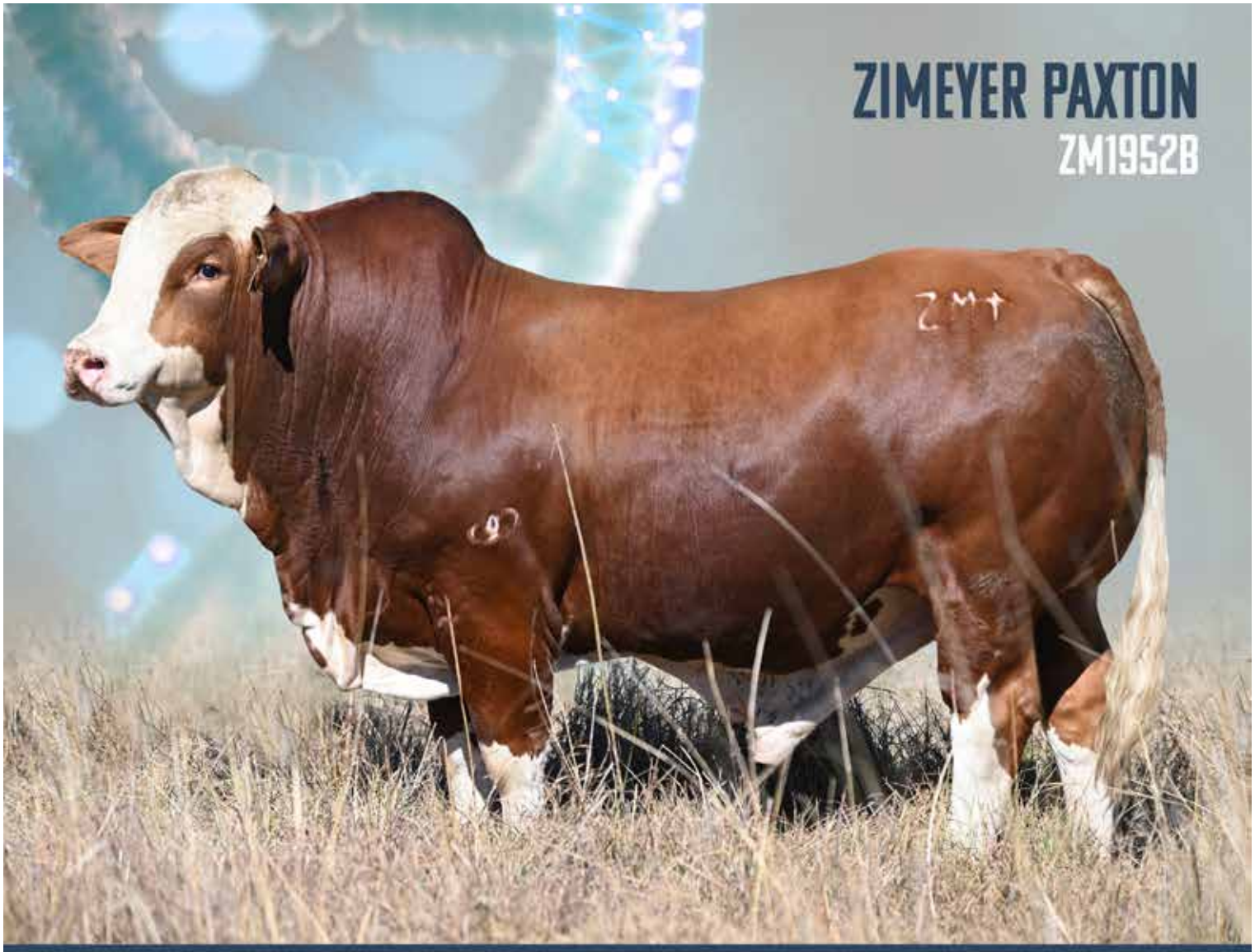

OUR GENETICS. YOUR ADVANTAGE.

ZM

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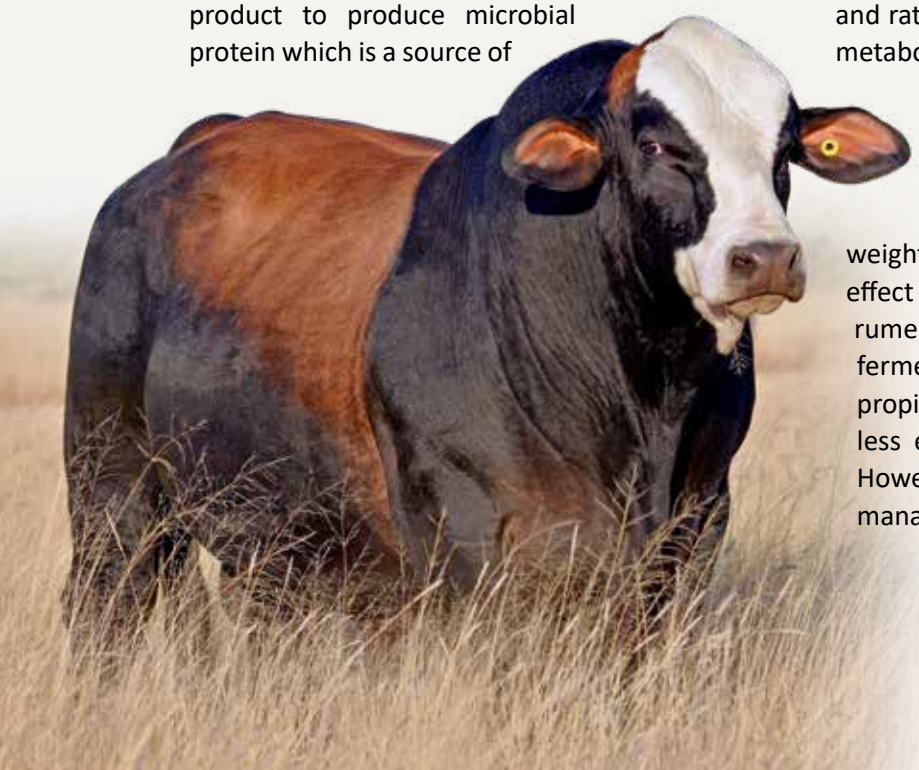
Tau Fase D – filled with nutritional value

Tau Phase D bull grower is a complete feed formulated specifically for optimal growth and muscle development in young bulls. Phase D consists of a variety of protein sources of which RDP (rumen degradable proteins) and RNDP (rumen non-degradable proteins) are part. The quality of protein sources, especially the bypass proteins, play an important role in the muscle development of the animals. A good example of bypass proteins that is used in Phase D is soya oilcake. There are also different energy sources as well as ionophores, vitamins and minerals to balance Phase D according to the animals' needs.

Protein is a collective term for nitrogen-containing sources that laboratories use to calculate a crude protein value. What is important to know, is the total NPN (non-protein nitrogen) and the total individual amino acids (AA) available in the rumen and lower digestive system (small intestine and colon) to ensure that the animals' specific production goals are reached. The biggest difference between RDP and RNDP is where the protein is degraded. Proteins are broken down by the rumen microorganisms into peptides, amino acids and ammonia (NH3) and are known as rumen degradable proteins (RDP). The micro-organisms then use the end product to produce microbial protein which is a source of metabolizable protein in the small intestine. There is a part of the proteins that is not broken down in the rumen, known as bypass proteins (RNDP) which are absorbed in the small intestine. The goal is to bypass the rumen and optimize microbial population because it can be a relatively inefficient process with unnecessary losses of expensive proteins and leads to the production of greenhouse gases, CO2 and methane gas. A decrease in the degradation of proteins in the rumen increases the efficiency of protein utilization because protein is digested more efficiently in the lower digestive tract.

Phase D has energy sources consisting of carbohydrate (sugar, starch and fibre) which are then broken down into volatile fatty acids (propionic acid, acetic acid and butyric acid) which are absorbed from the rumen and provide energy for various body functions. Glucose is synthesized in the liver from propionic acid which is then used for body tissue. Propionic acid production depends on starch digestion rate which can be influenced by multiple factors. Carbohydrate balance in the diet has an important impact on production because it has an effect on the amount and ratio of volatile fatty acids produced in the rumen. The amount and ratio of volatile fatty acids produced can alter metabolism and distribution of nutrients.



Ionophores is an additive used by cattle producers for improving animal health and performance. This additive is fed to cattle to improve feed efficiency and the rate of weight gain. Ionophores are designed to have an effect on the microbial population found in the rumen. The overall effect is to modify rumen fermentation in favour of the more efficient propionate production and away from the less efficient acetate and butyrate production. However, it does not replace excellent management.

Advantages of using ionophores:

- Lower incidence of acidosis
- Lower incidence of feedlot bloating
- More efficient use of protein
- Prevention coccidiosis

A major factor that is often forgotten is that microorganisms (bacteria) in the rumen of the animal need several minerals to ensure optimal digestion. Know and manage the type of trace minerals, as well as potential antagonists (factors that can interfere with their absorption and utilization) that can occur in feed or drinking water (such as heavy metals, high lime and sulphur levels).

Hoof growth is always a big discussion when it comes to preparing bulls for auctions. If too much starch is ingested, the digestion of starch causes endotoxins which then cause laminitis (inflammation of the ligaments) which leads to hoof growth. If Tau Phase D is fed correctly, hoof growth will not occur due to the well-balanced formulation. Animals need enough exercise to sand down their hooves, especially in sandy soils, to prevent the occurrence outgrown hooves. Minerals especially phosphate and zinc deficiencies lead to the outgrowth of hooves.

Nutrition plays an enormous role in optimizing reproduction. Phase D has a unique vitamin and mineral composition that is highly absorbable to promote fertility. Tau specifically focused on minerals that are antagonists to prevent mineral deficiency to occur.

Focus on the whole picture. Feed the right animals that have the genetic potential, keep them healthy and reproduction will increase profitability. Tau Phase D is balanced with each nutrient considered as to unlock the animal's genetic potential. Know your animals, their health and nutritional needs or consult an expert who knows it and plan your nutrition and management program accordingly.

NUTRITION

Natural Grazing

One of the most important aspects to consider and one of the largest drivers of profitability is stocking rate. An open cow weighing approximately 570kg should theoretically consume about 3.7 tons of dry matter per year. Knowing this, the size of your cows and their nutritional requirements should comply with your stocking rate. Natural grazing is valuable renewable food source and its nutritional value (quality) and availability play a significant role in the sustainability and profitability of your beef production system. A proper grazing system is critically important to ensure that your cattle can be farmed both sustainably and in harmony with the environment. Do not farm against nature.

For an animal to produce and reproduce naturally it is necessary to maintain the correct body condition score. Maintain optimal grazing conditions so that throughout grazing you can maintain body condition of calves through peak growth, cows through lactation and heifers and cows when they are exposed to the bull.

Supplementary Roughage

In times where natural grazing is scarce/low quality it is remains essential to make good quality roughage available in sufficient quantities. Cattle still need to be able to obtain enough nutrients, gut fill and metabolizable energy. Buying in supplementary roughage presents its own challenges in terms of cost and availability, a good practice to instil is to store high quality, nutrient dense, palatable roughage for times when grazing is scarce.

Supplementary Licks

It is very important to understand that lick supplements are not intended to replace feed (fibre-rich roughage) but are intended to stimulate/feed the rumen micro-organisms in such a way that they are able to maximise utilisation out of low-quality roughage sources. This is why in winter, when quality of roughage is lower, we feed protein supplement or winter licks. In the summer the requirements are different, there is generally higher quality roughage available, but animals might need production licks to make sure that they are in optimal body condition and energy balance for reproduction. Feeding supplementary licks is a program that requires careful and proper management. It should be financially viable, whilst unlocking profit potential for the producer. It is important to know when and how to transition between summer and winter lick programs.

Production Licks

Depending on your production system, it is important to make sure that breeding animals are optimally grown out and develop properly in line with their natural growth curve. It might make sense, for example, to assist heifers with a production lick to improve reproduction.

The purpose of this writing however is not to provide a lesson in nutrition, but to encourage producers to establish relationships with their local nutritionists/ feed companies and to work with them to develop sustainable feeding programs.

NEW IMPROVED FORMULATION

BEEF FAT 33+

YOUR CATTLE AND YOUR PROFIT GROW TOGETHER!

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With **Molatek**'s expertly formulated protein concentrate, **Beef Fat 33+**, it's not only your beef cattle that will be showing off their bulging muscles and increased mass ... your pocket will be bulging with extra profit as well.

- Economical beef cattle finishing with the lowest cost per kg mass increase.
- Includes a growth enhancer which stimulates feed conversion and growth rates.
- Uses high-quality natural protein which is balanced according to the amino acid profile needed for optimal carcass growth.
- Counteracts feeding disorders and coccidiosis.
- Ensures maximum profit.
- Suitable to finish off bulls and show cattle.

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Beef Fat 33+ (V1735?) (Act 36 of 1947)

MOLATEK

Upper Marketing A32309

The recording of performance data forms the basis of stud breeding and allows for the calculation of arguably the most valuable tool in modern stud breeding, Estimated Breeding Values (EBVs). The use of which, in conjunction with traditional selection techniques, facilitates genetic improvement in the herd. An animals true additive genetic breeding value is never known, which is why we use statistical procedures such as BLUP to get an estimation (EBV) as close to possible to the animals true breeding value. This EBV represents the value of an animal as a genetic parent, it quantifies the part of the individual's genotypic value that is due to independent and therefore transmittable gene effects.

When to RECORD *Performance Data*

The figure below shows a timeline which explains what traits to record and when and it can be used in conjunction with the LRF Test plan to help you plan your performance recording programs. The data that is collected from this recording program is then used to calculate EBVs.

Joining	Birth	Weaning	Yearling	18 Months	Maturity
Mating Program Details	Date of Birth	200 Day Weight	400 Day Weight	600 Day Weight	Cow Disposal Code (Heifers and Cows)
AI Dates	Birth Weight	Mature Cow Weight (on dams)	Scrotal Circumference		Mature Cow Weight
Preg Test Resuls	Calving Difficulty Score	Docility score	← Scanning Measurements (EMA, Fats, IMF%) →		
	Recipient Dame Details	Flight Time	← Abattoir Carcasse Data →		
			← Structural Score Information →		

Using the timeline above you can plan your performance recording according to your calving seasons. If you have two calving seasons, when one group is weaned you can weigh the previous years 400d weights, and 400d weights will generally be in the same month as the current years birth weights etc.

Two Calving Seasons	Birth	200-day	400-day	600-day
2016 Calf crop_Winter	May-16	Nov-16	May-17	Nov-17
2016 Calf crop_Summer	Nov-16	May-17	Nov-17	May-18
2017 Calf crop_Winter	May-17	Nov-17	May-18	Nov-18
2017 Calf crop_Summer	Nov-17	May-18	Nov-18	May-19
2018 Calf crop_Winter	May-18	Nov-18	May-19	Nov-19
2018 Calf crop_Summer	Nov-18	May-19	Nov-19	May-20
2019 Calf crop_Winter	May-19	Nov-19	May-20	Nov-20
2019 Calf crop_Summer	Nov-19	May-20	Nov-20	May-21

		LRF Test plan Execution version 21.2				
When measured	**What to measure**	**Requirements**	**How to Submit (1)**	**Age ranges of Animals**	**Slice Groups (2)**	**EBV's and outputs to be generated**
Mating Season	Reproduction:- Days to Calving (DTC) Gestation Length	Record bull in, bull out dates Do preg test and record females not in calf, including heifers Submit all mating dates for whole herd annually, including disposed animals with **DTC disposal codes**	Electronically via *HerdMaster or Society Mating (DTC) spreadsheet	All serviceable females in mating herd, including all **DTC disposal codes** for the year	A maximum three month breeding season recommended. Continuous mating not applicable	Days to Calving (DTC) Gestation Length (GL)
Calving	Birth Weight (BW)	Weight	With Birth notifications	Within 24 hours of calving	45 d	Birth Weight
	Calving Ease Scores	Score 1 (Unassisted) to 6 (Elective Surgical)				Calving ease direct and daughters
TSU (Tissue sample unit) or Hair sample (preferably at calving)	DNA profile (SNP test)	Is an on farm responsibility. All societies: Send 2 x hair cards (60 hairs each) to society. Or send 1 TSU + 1 hair card to society.	Producer submits TSU or Hair samples. Hair samples managed by Society; Breed Society forwards sample (s) to DNA laboratory.	n/a	n/a	Genomic EBV's (GEBV's)
Weaning (WW) (200 day)	200-day Weight	Weaning weight	Electronically via HerdMaster or Society Excel spreadsheet	80 to 300 days	45 d	200 day weight
						Milk
	Sheath/Naval	Score from 1 (pendulous) to 9 (clean)		80 to 300 days	45 d	Sheath/Naval (Research)
	Docility	Score All breeds (1 = docile to 5 = aggressive) Brahman (1 = aggressive to 9 = docile)		80 to 300 days	45 d	Docility
	Mature Cow Weight (MA)	Weigh cows at wean of calves		870 to 3900 days		MCW (first four records used)
	Body Condition (BC)	Score cows for BC at time of MCW measurement (preferably at wean) Score from 1 (Emaciated) to 9 (extremely Fat)		At weaning of calf	60d	Adjusted MCW (Research)
	Hip Height of the cow (HH)	Hip Height of the cow		870 to 3900 days		Frame score (Research)
Yearling (YW) (400 day)	400-day weight	Weight	Electronically via HerdMaster or Society Excel spreadsheet	301 to 500 days	60 d	400 day weight
	Scrotum	Scrotum circumference (cm) preferably done on same day at 400-day weight		300 to 700 days	60 d	Scrotum

Ultrasound scanning	Carcass traits and weight	Accredited scanner to do scanning preferably at 400-days or 600-day weight	Data to be given to producer. Submits RTU data to Society within 24 hours, electronically via HerdMASTER or Society Excel spreadsheet	300 to 800 days (Must be in best condition)	60 d	Carcase wght, Eye-muscle-area, rib-and rump fat, % retail-beef-yield, inter-muscular-fat
	Scrotum	Scrotum circumference (cm) done on same day as weight required for Ultrasound	Electronically via HerdMASTER or Society Excel spreadsheet	300 to 700 days	60 d	Scrotum
	Hip Height (HH)	Hip height in cm	Electronically via HerdMASTER or Society Excel spreadsheet	500 to 800 days	60 d	Frame score (Research)
18 months (FW) 600 day	600-day weight	Weight	Electronically via HerdMaster or Society Excel spreadsheet	500 to 900 days	60 d	600 day weight
	Scrotum (if not measured at 400-day weight)	Scrotum circumference (cm) preferably done on same day at 600-day weight		500 to 700 days	60 d	Scrotum
During NFI test	Net Feed Intake	Calan gate: 28 day adaptation, followed by 84 days testing GrowSafe or similar: 10 to 21 day adaptation, followed by 70 days testing Sernick: 28 day adaptation followed by 84 days testing Minimum contemporary group size of 5 animals with a minimum of two sires' progeny per group (recommended that one sire is a link sire). **Refer to LRF test protocol**	Results to be submitted to Society by test station in correct format (ILR2)	210 to 700 days at start of test. The LRF however recommended the following: Minimum age of 210 days at start of adptation or such higher age to measure SS before end of test after 300 days of age.	60 d	NFI (post wean)
					60 d	NFI (feedlot finishing)
Abattoir records & Image scanning	Live weight; Fat depth (Rib); Carcass weight; Dressing %; Hump height; Optional:-Meat & fat Color; IMF% (1 - >12 %);PH & Temperature	Minimum contemporary group size of 5 animals with a minimum of two sires per group (one sire should be a link sire). Animals can be from a RFI test group, on farm or natural pastures. Must be a contemporary group fed through life in same conditions until age of cull. To be done by abattoir and/or image scan operator.	Data submission by abattoir & scan operator to Society	Cull age determined by each Breed based on best finishing age for Breed and finishing system; 300d to 1000d	60d	Carcase weight Marbling % Fat depth (mm) % Fineness EMA Fat color (Research) Meat colour (Research)
Meat lab	Fat depth (Rib); -Meat & fat Color;IMF% (1 - >12 %);PH & Temperature; Warner-Bratzler (tenderness) Optional: Fatty acid profiles	Minimum contemporary group size of 5 animals with a minimum of two sires per group (one sire should be a link sire). Animals either be from a NFI/RFI test group, on farm or natural pastures. Must be a contemporary group fed through life in same conditions until age of cull.	Data submission by meat lab to Society. Meat sample for meat lab to be collected marked and packed to meat lab	After standardized ageing period after slaughter within contemporary group	60d	Eye Muscle Area Rib fat, % inter-muscular-fat Tenderness Fat color (Research) Meat colour (Research) Fatty Acid Profiles (Research)

The LRF Test Plan and Explanation of EBVs

The term rubbish in = rubbish out if often use when discussing the Breedplan analysis. In other words, the reliability of EBVs is a direct reflection of the reliability (quality and quantity) of the performance information submitted to Breedplan. The LRF Test plan can be used as a guide to ensure that you are recording performance data correctly. This plan details when to record, what to record, and also what EBVs will be obtained. It is important to record all traits that are important to either you or your clients. The recording of Weaning Weights and Days to Calving is compulsory for Simbra, and recording of 400 and 600 day and Mature Cow weights is strongly recommended. Do not rely solely on pedigree and minimal trait recording to generate EBVS. It is also important to note that all animals must be measured, the recording of selected animals will not accurately reflect the entire contemporary group, if Breedplan can't make an adequate comparison then the EBVs produced may be biased or misleading. Adopt a whole herd recording strategy!

Mating Season

During the mating season, it is important to record reproduction information such as days to calving and gestation length. This can be done by recording bull in and bull out dates, recording pregnancy testing information, and recording females not in calf (including heifers). EBVs that are generated from this include Days to Calving and Gestation length. Days to Calving is a preferred measure over inter-calving period because it encapsulates more of the economically important fertility characteristics, such as early puberty, early conception, shorter gestation and a better post-partum return to estrus.

Days to Calving (DC) EBVs: are estimates of genetic differences between animals in the time from the start of the joining period (when the female is introduced to a bull) until subsequent calving, and they are expressed in days. A shorter (negative) DTC EBV aims to identify those females that reach puberty earlier, conceive earlier in the breeding season, deliver calves after a short gestation, and return to estrus sooner after calving.

Calving

At the time of calving, it is important to record all calving information. This includes recording the

Animal ID of the Sire and Dam of the calf, the weight of the calf, and the calving ease of the mother. This information should be recorded within 24 hours of calving. EBVs that are generated from this information are Birth Weight EBVs.

Birth Weight (BW) EBVs: are estimates of the genetic differences between animals in calf birth weight, expressed in kilograms. Calving difficulty has an obvious negative impact on the profitability of a herd through increased calf and heifer mortality, slower re-breeding performance and potential veterinary expenses. Whilst lower BW EBVs are favoured for calving ease, they are also associated with lower growth potential. Care needs to be taken to find a balance between BW and growth.

Weaning

At weaning it is important to record 200-day weight and docility of the calf, and mature cow weight, body condition score, and hip height of the cow. This information should be recorded between 80 and 300 days after calving for traits measured on the calf, and between 870 and 3900 days for traits measured on the cow. EBVs that are generated from this information are 200-Day Weight EBV, 200-Day Milk EBV and Mature Cow Weight EBV.

200 Day (200) EBVs: are estimates of the genetic differences between animals in live weight at 200 days of age due to their genetics for growth. The 200 EBV is a measure of an animal's early growth to weaning and is expressed in kilograms. It is an important trait for breeders turning off animals as vealers or as weaners. Larger more positive 200 EBVs are generally more favourable.

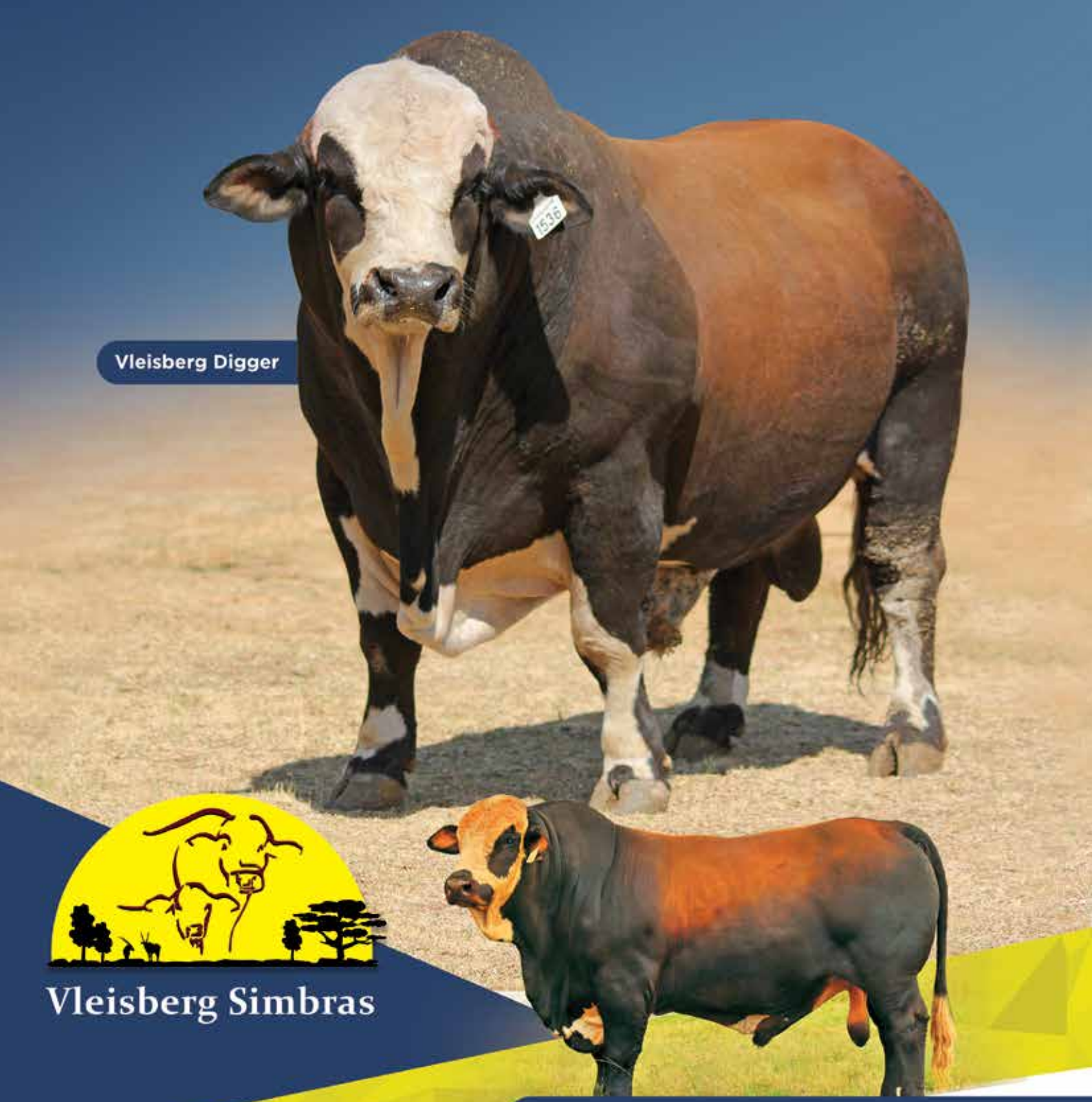
200 Day Milk (Milk) EBVs: indicates the expected difference in the weight of the calf at 200-days due to the maternal effect of the cow. They indicate the animal's milk-production ability. In the case of sires, this estimates the maternal influence that his daughters will have on the 200-day weight of their progeny (the sires' grand progeny). Larger, more positive Milk EBVs are generally more favourable. When the milk EBV is too high, an antagonistic response might be seen in days to calving, care should be taken to find a balance between these traits.

Mature Cow Weight (MCW) EBVs: are an estimate of the genetic difference in cow weight at five years of age and are based on the weights recorded for cows at the same time as the 200- day weights are recorded for their calves, it is highly recommended that hip height and body condition of the cow are recorded at this time as well. MCW EBVs are expressed in kilograms and provide an indication on cow feed requirements where heavier cows to eat more and are more expensive to maintain. Care should be taken to identify "curve-benders" when looking at MCW EBVs due to the positive correlation between MCW and other growth traits. A rough guide is that MCW should be less than that same animals 600D EBV.

Yearling

At 400 days it is important to record 400-day weight and scrotal circumference (males). This information should be recorded between 301-500 days for 400-day weight and between 301 to 700 days for scrotum circumference. EBVs that are generated are 400-Day weight EBV and Scrotal Circumference EBV.

400-Day (400) EBVs: are estimates of the genetic differences between animals in live weight at 400 days of age, expressed in kilograms. This EBV is important for breeders turning off animals as yearlings. Larger more positive 400 EBVs are generally more favourable.



Vleisberg Simbras

A good bull is not an expense but an investment.

The first twelve breeding bulls in the market sired by Digger brought in R1,163,000

TRIFECTA SIMBRA•GROEP

LID VAN DIE TRIFECTA GROEP

Hanré Bester
073 057 7747

Scrotal Circumference (SC) EBVs: are an estimate of the genetic differences between animals in scrotal circumference at 400 days of age, expressed in centimeters. SC EBVs provide an indication of the bulls genetic merit for several fertility traits. Increased SC is associated with earlier age at puberty, increased semen production and improved semen quality. There is also evidence that SC is associated with improved female fertility and earlier age at puberty in a bull's daughters. Larger more positive SC EBVs are generally favourable.

Ultrasound Scanning

Breedplan calculates EBVs for carcass traits based on live animal ultrasound scanning and abattoir carcass data. For live animal ultrasound recording it is important to record scanning information on Rump Fat Depth, Rib fat Depth, Eye Muscle Area (EMA) and Intramuscular Fat (IMF). Scanning information must be recorded between 300-800 days and animals should be in good condition. Hip height can be recorded between 500-800 days. EBVs that are obtained include an EBV for Eye Muscle Area (EMA) and Intramuscular Fat (IMF) and Retail Beef Yield. Although the South African meat classification system does not currently, directly remunerate fat coverage or intramuscular fat, these EBVs are important for future market positioning.

Eye Muscle Area (EMA) EBVs: are estimates of the genetic differences between animals in eye muscle area at the 12/13th rib site and are expressed in square centimeters. EMA EBVs are an indication of muscularity and have a positive relationship with Retail Beef Yield. Sires exhibiting larger EMA for their weight and lean fat cover tend to produce a higher Retail Beef Yield. Larger more positive EMA EBVs are generally more favourable.

Intramuscular Fat (IMF) EBVs: are estimates of genetic differences between animals in intramuscular fat (marbling) at the 12/13th rib site, expressed as a percentage. IMF is important for those markets where a premium is paid for marbling. IMF has a positive relationship with scan fat depth. Higher IMF is generally more favourable.

Retail Beef Yield (RBY) EBVs: are estimates of genetic differences between animals in boned out retail beef yield and are expressed as a percentage. RBY has a small negative correlation with weight, therefore selection for RBY while ignoring growth selection may result in lower total meat yield in kilograms. Larger more positive RBY EBVs are generally more favourable.

18 months

At 600 days it is important to record 600-day weight and scrotal circumference if it was not measured at 400-days. 600-day weight should be recorded within 500-800 days. EBVs obtained include an EBV for 600d weight and scrotal circumference if not measured at 400 days.

600-Day (600) EBVs: are estimates of the genetic differences between animals in live weight at 600 days of age, expressed in kilograms. This EBV targets the production of animals suited for heavy weight grass-fed or grain fed markets. Larger more positive EBVs are generally more favourable.

Net Feed Intake – NFI

Due to the different nature of the Net Feed Intake Test a protocol must be obtained from the office. NFI is a measure of feed efficiency. There are two phases of in which feed efficiency EBVs can be calculated for (1) Net Feed Intake (Post Weaning); (2) Net Feed Intake (Feedlot Finishing). EBVs for NFI can be obtained if animals are sent to test stations for such tests.

Net Feed Intake (NFI) EBVs: are estimates of the genetic differences between animals in feed intake at a standard rate of weight gain, expressed in kilograms. They provide an indication of which animals you would expect to produce progeny that eat less feed per day and have lower maintenance requirements. Lower, more negative NFI EBVs are more favourable.

Feed Efficiency

NET FEED INTAKE

The overall aim of beef cattle breeding is to improve profitability through genetic progress. Feed costs are arguably the largest, most variable input costs and any reductions made herein will increase profit. This, among other reasons, is why feed efficiency has become so important in cattle breeding. It is important to note that feed efficiency is a broad term and there are several different measures of feed efficiency (Archer et al. 1999), the term you are likely most familiar with is Net Feed Intake (NFI) which is also often referred to as residual feed intake, they are, however, the same thing.

Why do we use Net Feed Intake as the preferred measure of feed efficiency? Koch et al. 1963 suggested that feed intake could be adjusted for body weight and weight gain, effectively partitioning feed intake into two components (1) the feed intake expected for a given level of production (referring to the expected requirements for an animal of a certain age, breed and stage of reproduction or growth); and (2) the residual portion. This meant that we would be able to identify animals that deviated from their expected level of feed intake, where more efficient animals have lower (negative) residual feed intakes. Still not following. Net Feed Intake is the difference, negative (better) or positive (worse), between the actual amount of feed the animal consumed to gain weight and the expected amount of feed consumed by the animal, given the animals weight at the time of consumption. Net Feed Intake, as all other traits, is measured within a contemporary group to ensure comparability of data and to eliminate all environmental conditions during measurement.

Most of the confusion that arises around Net Feed Intake generally stems from not properly understanding the trait definition. The Breedplan definition of Net Feed Intake EBVs is that they are estimates of the genetic differences between animals in feed intake at a **standard weight and rate of gain** for a given feeding phase (post-wean or finishing respectively). This implies that Net Feed Intake is independent of weight and growth rate. It is also important to understand the relationship

between Feed Conversion Ratio and Net Feed Intake, although they are positively correlated there is one distinct difference between them. Net Feed Intake is uncorrelated with body weight and growth rate, whereas Feed Conversion ratio is NOT independent of weight and growth rate, if selection is placed on Feed Conversion Ratio alone it could potentially result in larger cattle with a higher maintenance requirement. Always apply a balanced approach to when choosing which traits to include in your breeding objective, do not single trait select.

Misconception #1

- Feed Efficiency only makes sense if you have a terminal production system where all the calves are sent to the feedlot, and not maternal systems wherein heifers are kept as replacements.

The truth in this statement comes down to the measure of feed efficiency that is being referred to (remember there are a few). Since Net Feed Intake is a trait that is independent of weight and growth rate it can be used to measure feed efficiency in either system. Archer et al. 1999 found that Net Feed Intake during the post-wean period and at maturity had high positive genetic correlations suggesting that selection decisions based on Net Feed Intake measured during the post-weaning period has the potential to translate to genetic improvements in Net Feed Intake of the cow herd (i.e., maternal systems). Heritability estimates of Net Feed Intake have ranged from 0.26 to 0.58, and generally fall within the moderate heritability range and tend to be similar to estimates for growth traits. Therefore, it can be expected that with sufficient data, selection for Net Feed Intake would be effective.

Misconception #2

- It takes 2.5 times more energy to create a pound (0.4545kg) of fat than it does to create a pound of muscle, therefore by selecting for feed efficiency you are inadvertently selecting for taller, leaner, later maturing animals that do not have the propensity to put on fat.

Depending on age, sex and level of production approximately 65-70% of the total energy required for meat production is used for maintenance, leaving approximately 30% of energy intake for growth and reproduction (Cabezas-Garcia et al. 2021). Differences in efficiency of growth may be due to differences in composition of gain. For example, Ferrel and Jenkins (1998) showed that differences in rate of water, protein and fat deposition influence efficiency and rate of body weight gain primarily because fat has higher energy density than either protein or water. Although more energy expenditure is required for fat versus protein deposition, maintenance of protein requires more energy than maintenance of fat (Crews 2005). Therefore, although it indeed takes more energy to create a pound of fat compared to muscle, this is not affected by selecting for Net Feed Intake which focuses on selecting animals with a lower maintenance requirement (Lisa Rumsfeld (Vytelle) – Personal Communication).

Misconception #3

- Daughters of feed-efficient bulls will be tall, late maturing, and difficult to get bred.

Once again, since NFI is a measure independent of weight (body size) and growth rate, daughters of feed-efficient bulls (based on NFI) will not necessarily be taller or later maturing. Net Feed intake has a very low phenotypic correlation with fat deposition (0.17) and marbling, therefore selection for NFI can be done without significantly compromising fat deposition. A balanced approach to selection whereby you include fat measurements in your breed objective should further ensure this.

In conclusion, feed costs represent a significant portion of the total cost of beef production, therefore genetic improvement programs for reducing input costs will likely include traits related to feed utilization. In contrast to traditional ratio type measures of efficiency (FCR), residual feed intake is uncorrelated with body weight and growth rate, which at least partially alleviates concerns over the long-term implications of selection and antagonistic correlated responses for mature size and maintenance requirements.

Acknowledegements

Lisa Rumsfeld - Vytelle

Homozygous Polled Bull

Kiriaké Roma

Semen available

Progeny of **Homozygous Polled Kiriaké Roma**

Kiriaké Simbras

Grassfed Polled Simbras Galore!

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Importance of Contemporary Grouping

The BLUP analytical procedure used by Breedplan to generate EBVs is designed to remove any known environmental effects from the EBV, thus leaving a value that represents only the independent additive genetic (transmittable) effects. BLUP removes the known environmental effects by constructing contemporary groups. A contemporary group is a group of animals that have experienced a similar environment with respect to the expression of a trait.

Contemporaries typically perform in the same location, are the same sex, are of similar age and have been managed alike. If contemporary groups are incorrectly formed, the EBVs will be less accurate and possibly misleading. The underlying principle behind contemporary groups is that only animals that have had an equal opportunity to perform can be directly compared together within a contemporary group.

Breedplan automatically creates contemporary groups of animals for comparison based on the criteria outlined in the figure below. The exact criteria will differ depending on the trait being analysed.

Automatic	Automatic, but can be Breeder Influenced	Breeder Supplied
Herd	Breed	Breeders Management Groups
Calving year	Weight Date	
Sex of Calf	Calf Age (slicing)	
Twins/Single		
Birth Status (Embyo Transfer)		
Age of Dam		

Despite the automatic contemporary grouping procedures applied by Breedplan software, it is still EXTREMELY important to specify breeders' management groups. For Example, animals who have been supplemented feed in preparation for shows need to be specified, animals who fell sick and lost condition prior to weighing, even if there are significant differences in grazing quality/ quantity between camps of your groups, all of these need to be specified in order to adjust for environmental effects.

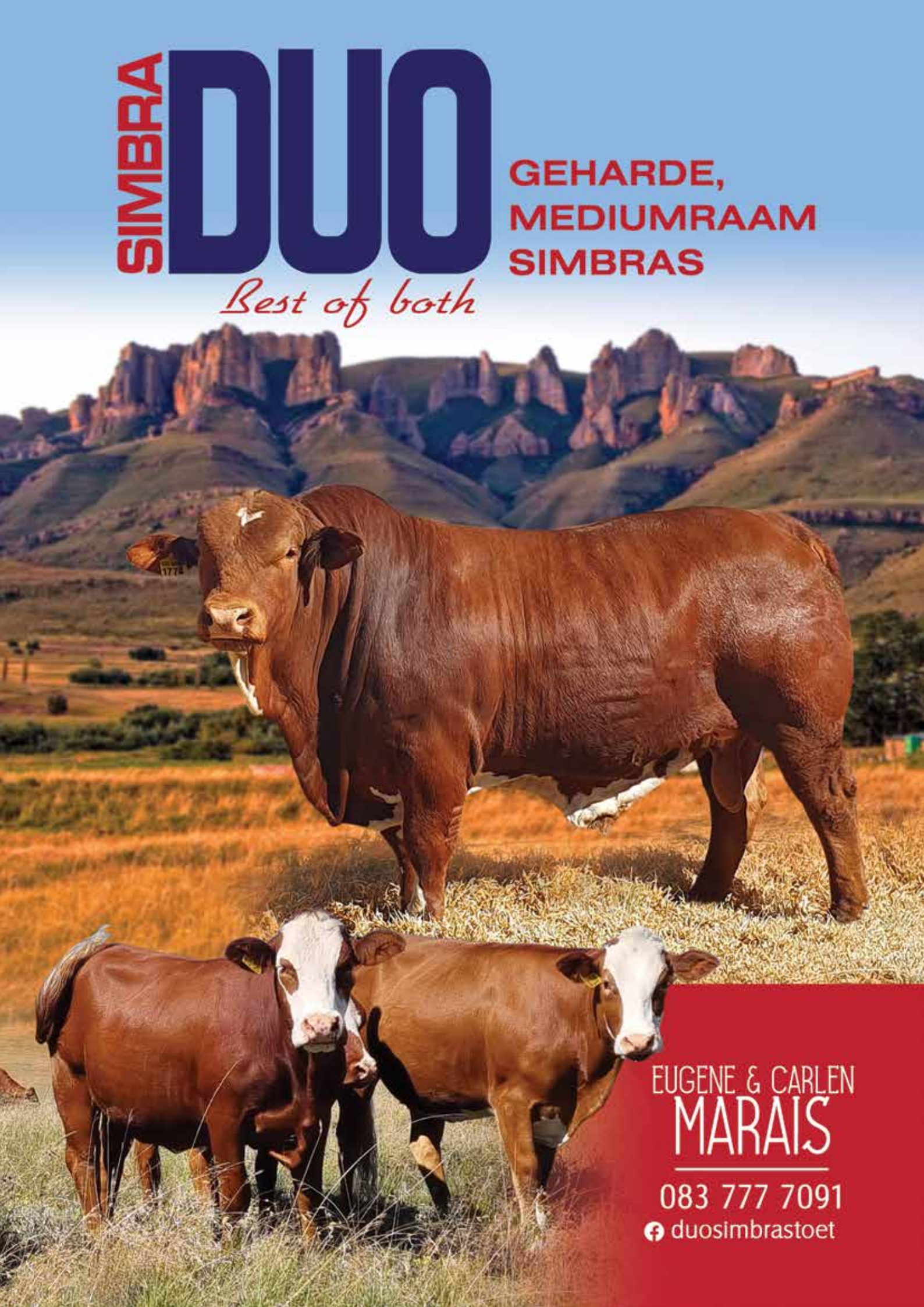
without careful management. To overcome this: Restrict calving periods to 6 – 8 weeks since calves are generally only included in the same group if they are born within 45 or 60 days of one another. Run all calves under the same management conditions. If it is required to split the group, try to weigh the whole group before separating them. Weigh all animals in a group on the same day. Use more than one sire, in instances where smaller herds only have a few sires, try to make

Animal	Weight	Improper Single CG CG Deviation	Management	Correct CG CG Deviation
1	311	+8	No Creep Feed	+17
2	285	-18	No Creep Feed	-9
3	280	-23	No Creep Feed	-14
4	300	-3	No Creep Feed	+6
5	295	-8	Creep Feed	-18
6	324	+21	Creep Feed	+11
7	327	+24	Creep Feed	+14
8	305	+2	Creep Feed	-8
AVERAGES				
Improper Single CG	303			
No Creep Feed	294			
Creep Feed	313			

The table above illustrates the effects of improper contemporary grouping. In a scenario where all animals are put it into one contemporary group (yellow) irrespective of the fact that they had different feeding programs the contemporary group average is 303kg. In this contemporary group Animal 1 has an EBV of +8kg which places that animal with a ranking of 3rd overall. However, if correct contemporary grouping is applied (No Creep Feed and Creep Feed), then you can see that of all the animals that were not fed creep feed, this animal has an EBV of +17kg which ranks this animal 1st in its contemporary group. From this example you can see that the effect of improper contemporary grouping is large, and the correct contemporary group specification by the breeders is extremely important.

Although it is important to specify contemporary groups, care should also be taken that the contemporary groups do not get too small. If there are only a few animals to which its performance can be directly compared, then the performance records for that animal cannot be effectively used in a Breedplan analysis. Small contemporary groups are frequently experienced by smaller herds use of reproductive technologies such as Artificial insemination to improve herd linkages. If you are using AI technologies try to time it so that AI calves are born around the same time as natural calves.

Another thing to consider with contemporary groups is single sire contemporary groups. In the same way it is important to have more than one calf represented in each contemporary group, it is also important to have the progeny from more than one sire represented within a contemporary group. Where all the calves in the contemporary group are from the same sire, there are no other calves by sires to which the performance of these calves can be compared (i.e., effective progeny). In this instance performance records submitted for those calves cannot be effectively used in the Breedplan analysis to calculate the EBVs of their sire. Consciously manage your contemporary groups so that more than one sire is represented in each contemporary group.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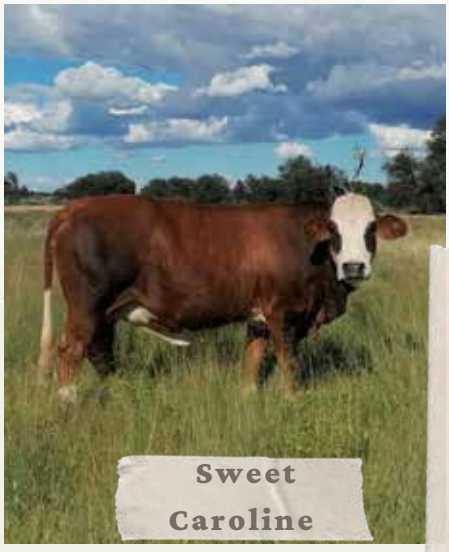

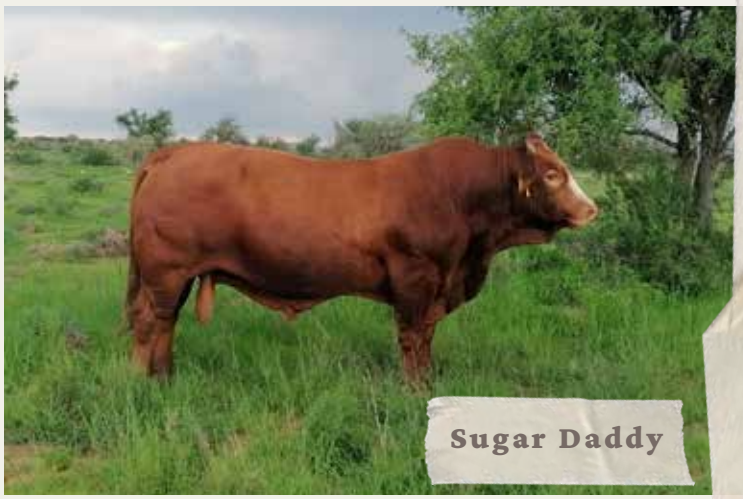

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SETTING THE STANDARD SINCE 07

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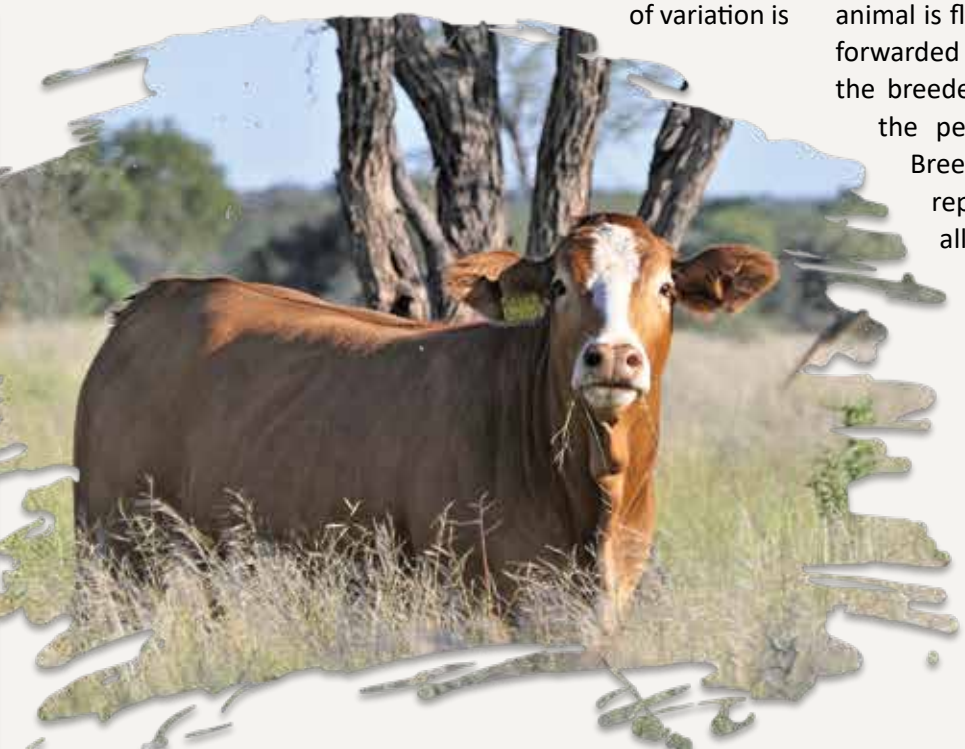
Importance of Genetic Linkage

Another important component of the Breedplan analysis is the ability to compare the resulting EBVs of animals running under different conditions. This is achieved using genetic linkage. Genetic linkage is established by the use of common sires across herds. To compare animals from different environments, herds must have some performance recorded progeny from common animals (typically common sires), which are used to benchmark one herd against another. Genetic linkage is also important within a herd to compare animals born in different years and raised in different contemporary groups. At the within-herd level link sires provide linkage between contemporary groups and dams can provide additional genetic linkage across years. To maintain a level of genetic linkage do not replace all of your sires from one year to the next, so that across year comparisons can be made. Also use sires that have progeny recorded for other traits in other herds.

Outliers

As part of the ongoing verification of performance data that is collected, Breedplan checks the variation in performance records between animals within each contemporary group. While certain degree of variation is expected within each group, when the difference between a performance record for an animal and the average of all animals in that contemporary group is greater than expected, the record for the animal is flagged as an outlier. An outlier report is forwarded to the relevant herd. This report gives the breeder the opportunity to correct or verify the performance for the outlier animal, if Breedplan receives no response to the outlier report, the outlier herds are excluded for all future Breedplan analyses. Ignoring the outlier reports is a common cause of performance herd problems. Verify and correct all outlier reports as soon as you receive them.



HERD HEALTH

General

When it comes to animal health, prevention is better than care! Producers are often faced with challenges when it comes to diseases. Foot and Mouth is a highly contagious, widespread disease in South Africa and requires every farmer to take up action and ensure that they have strict biosecurity protocols in place. Having good biosecurity protocols in place also helps to manage and minimise the chances of getting other diseases such as BM (contagious abortion), which is also a zoonotic disease meaning it can be transmitted to people – All herds should be regularly tested for BM, and animals bought into the herd should be quarantined and tested before being introduced into the cow herd. It is mandatory to vaccinate all females using either S19 or RB51 for BM. Having biosecurity protocols in place also minimises the transmission of venereal diseases such as Trichomoniases and Vibrioses.

Although it is important to have biosecurity protocols in place, it doesn't end there. It is important to understand which antibiotics/ vaccines to use when and to do so responsibly, different conditions require different treatments. It is recommended that you establish good relations with your local vet or veterinary technologist. They will help you to plan a vaccination program and establish protocols using the right equipment and in the correct manner and help you to understand differences in application when administering subcutaneously or intramuscularly. It is crucial that producers know where to administer the drugs and to ensure that the cold chain is maintained, as well as understand the effects and side effects that drugs might have on gestation status (especially when using live vaccines). If animals are to be slaughtered it is also important to know the withdrawal period of any drug that might have been administered. Also, be aware of tick-borne diseases, especially when buying animals into your herd, some animals may or may not have a natural resistance to diseases such as heartwater, red-water and dry gall sickness or anaplasmosis.

Supplementation of Vitamins and Minerals is also an important aspect that should not be forgotten. Although certain mineral levels can be increased through feeds and in some instances maintain those levels more effectively, you can also quickly increase vitamin/mineral levels via injections.

Vaccination Program

Maintaining good herd health directly affects profit through improved production and reproduction and decreased mortality. Some vaccinations are good practice and others are a necessary practice. It is good practice to vaccinate for multiclostridial diseases and other lung ailments such as:

- Lock Jaw, botulism, quarter evil and oedema
- BVD (Bovine Viral Diarrhea), Pasteurella and respiratory diseases.

Other viral diseases that can be prevented quite effectively are:

- Three-day stiff sickness
- Lumpy skin disease
- Rift Valley Fever

Make sure to apply vaccines according to the recommended dosages.

Dip and Dosage Program

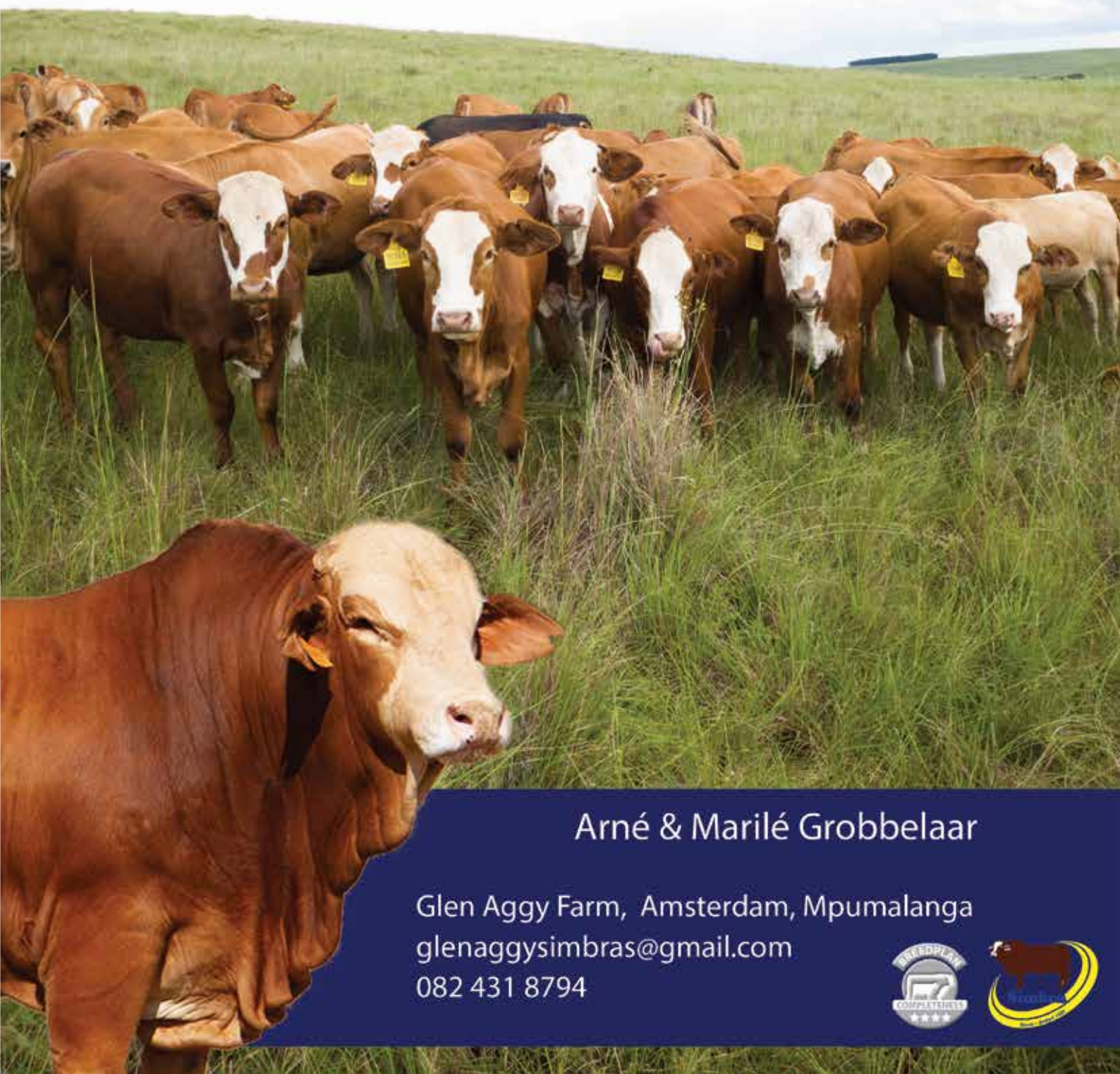
Parasites, and the diseases they can transmit, have a negative impact on production and reproduction. It is important to follow a structured dipping program to avoid these negative effects.

It is important to determine the cause of death in a herd – often something has broken out and there is a chance that more animals will be affected. Consult experts to determine what is going on and how to prevent recurrences.

BUILD A GOOD RELATIONSHIP WITH A VETERINARIAN, TECHNOLOGIST OR ADVISOR TO A PHARMACEUTICAL COMPANY AND TOGETHER PLAN A COMPLETE LEGAL HEALTH PLAN.

GLEN AGGY SIMBRAS

QUALITY THROUGH INTEGRITY



Arné & Marilé Grobbelaar

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Biosecurity Control Template

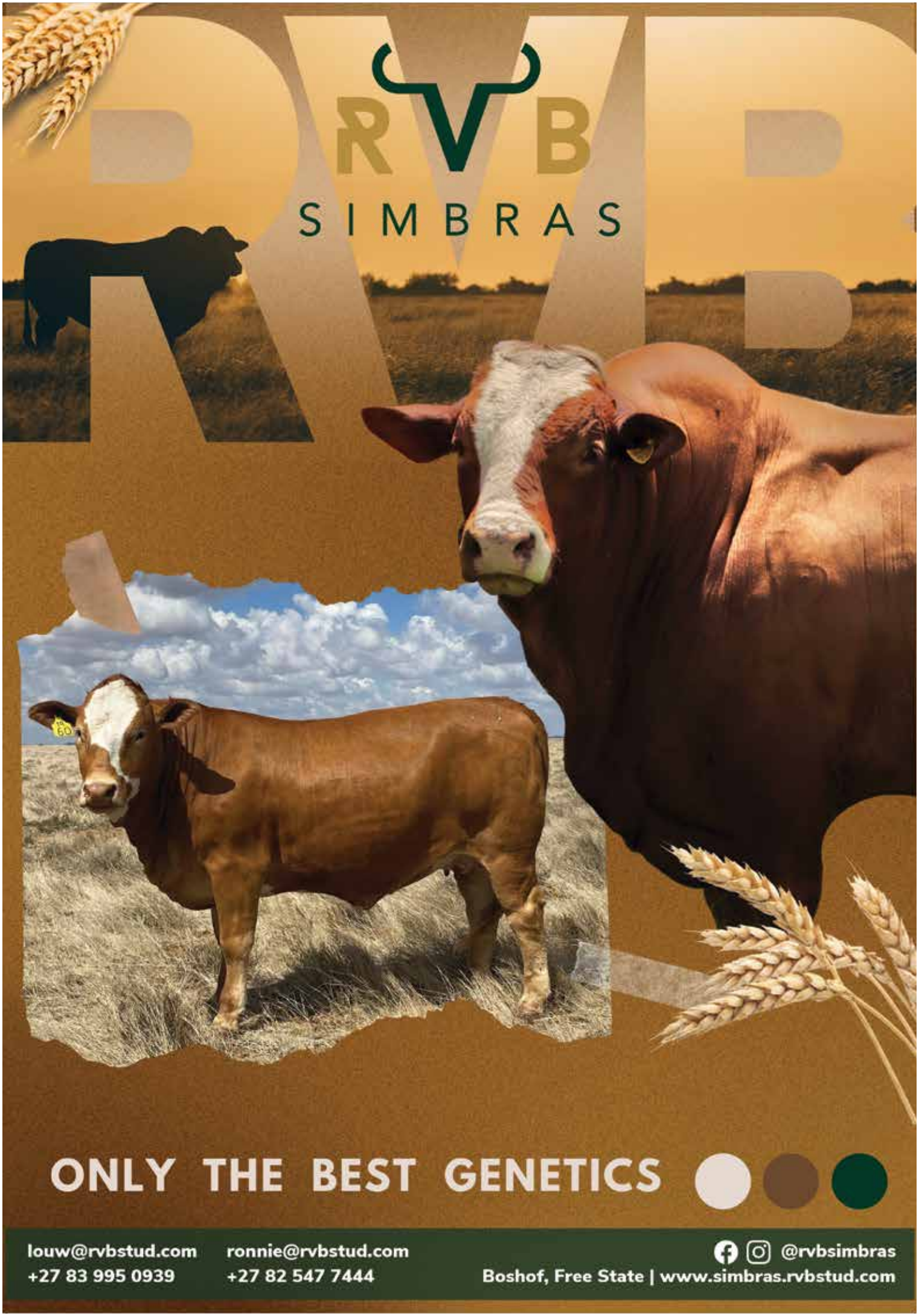
Inputs - Livestock, Water, Feed, etc.

1	Livestock	Procedures	Yes	No	N/A
1.1	Are all new stock that arrive on the property inspected for their health status?	Pre-purchase, inspection or veterinary inspection/ certification			
1.2	Do newly introduced animals livestock undergo a period of quarantine?	Isolate and segregate (14 to 21 days recommended)			
1.3	Are livestock of unknown health status kept separate from vulnerable stock (i.e. young or pregnant)?	Isolate and segregate (14 to 21 days recommended)			
1.4	When Livestock are away from the home property, e.g., for shows, are hygiene and quarantine strategies in place to manage biosecurity risks to livestock and properties	Isolate and segregate (14 to 21 days recommended)			
2	**Feed**		**Yes**	**No**	**N/A**
2.1	Does the property have any restrictions on the feeding of products derived from vertebrate animals e.g., bonemeal?	Restrict feeding of raw animal materials to ruminants			
2.2	Does the person responsible for the purchase of feed ensure the supplier provides some form of certification?	Request certification			
2.3	Is feed inspected on delivery to ensure it is fit for its purpose (e.g., free of pest damage, or visual contaminant)				
2.4	Is feed stored in a manner that prevents contamination by livestock, vermin, wildlife, and domestic animals, and other feed sources?	Ensure that feed bunks, feed sheds are clean and secure			
3	**Water**		**Yes**	**No**	**N/A**
3.1	Are there procedures in place to ensure the quantity and quality of water are suitable for the type of livestock under production?	Monitor water points regularly			

People, Vehicles, and Equipment

4.1	Employees and Family		Yes	No	N/A
4.1.1	Are there strategies in place to minimise (reduce the number of entry points), monitor, and record (e.g. visitors log) the movement of people and vehicles over the property?	Locking of external gates. Discuss expectations with persons moving on the property			
4.1.2	Are owners and staff aware of the importance of minimising the lending and borrowing of equipment between properties? If lent, has the equipment been properly cleaned before and after use?	Minimise lending, if lent, clean correctly before use on the farm			

4.2	Visitors, contractors, and service personnel		Yes	No	N/A
4.2.1	Are farm contractors such as vets, livestock agents, and transport vehicles notified of their permitted areas of access on the farm?	Identify persons who pose a higher biosecurity risk. Communicate procedures with high-risk persons			
4.2.2	Is the use of protective clothing and personal cleanliness encouraged on your property?	Encourage come clean, go home clean practices from visitors including livestock agents and contractors.			
4.2.3	Are there facilities in "permitted access areas" available for farm contractors and visitors to clean their boots and equipment?	Provide clean-down equipment or facilities			
4.3	**Vehicles and Equipment**		**Yes**	**No**	**N/A**
4.3.1	Are vehicles and equipment cleaned prior to moving from a high-risk to a low-risk area?	Clean down of equipment			
4.3.2	Is there sufficient signage available to inform visitors of your biosecurity requirements and what procedures you want them to adhere to?	Provide entry signage			
	Production Practices				
5.1	**Livestock Monitoring**		**Yes**	**No**	**N/A**
5.1.1	Are your livestock inspected regularly to ensure early detection of sick animals?	Report unusual signs of disease as soon as possible to our local animal health authority. Conduct routine inspections			
5.1.2	Do you increase the frequency of inspections during periods of higher risk such as increased insect/wildlife activity?	Report unusual signs of disease as soon as possible to our local animal health authority. Conduct routine inspections			
5.2	**Animal Health Management**		**Yes**	**No**	**N/A**
5.2.1	Have you implemented practices that help protect your livestock from diseases endemic to your region?	Review best practice management for livestock health and welfare			
5.2.2	Do you seek advice from a vet or animal health technician in relation to any unusual sickness or death?	Report unusual signs to a vet as soon as possible			
5.2.3	In the event of a disease or outbreak, can affected and suspect animals be isolated and treated if necessary?	Isolate sick animals. Keep treatment records until the animal has permanently left the property			
5.3	Carcass, Manure, and Effluent Management		Yes	No	N/A
5.3.1	Are there procedures in place to manage effluent dispersal to minimise disease?	Seek current government guidelines on waste management and regulation			
5.3.2	Are carcass-disposal and household garbage disposal areas contained and secure to prevent access by livestock, feral animals, and wildlife?	Fence off dead-animal pits and garbage pits to prevent livestock and feral animals from accessing carcasses and food waste			
5.4	Fences		Yes	No	N/A
5.4.1	Are the property fences, especially boundary fences regularly inspected and adequately maintained to prevent stock from straying	Regularly undertake maintenance of existing fences			
	Outgoing Products				
6.1	Are all livestock for transport fit (screened) to load and selected to minimise potential welfare issues, disease, and/or contamination spread through transport?	Ensure welfare standards are adhered to at all phases of transport			
	Train - Plan - Record				
7.1	**Training**		**Yes**	**No**	**N/A**
7.1.1	Do all the personnel responsible for management and husbandry understand their role in the implementation of biosecurity practices on-farm, and know how to identify sick livestock?	Personnel training and instruction on animal health and welfare, including disease recognition and reporting			
7.1.2	Do all the personnel responsible for management and husbandry know where to find contact details for vets/animal health technicians in event of suspected emergency animal disease	Place important contact details in a visible location			
7.2	**Documentation and Record Keeping**		**Yes**	**No**	**N/A**
7.2.1	Do you record animal health activities and treatments to maintain a healthy herd history, and provide accurate data as such when selling livestock?	Record treatment history			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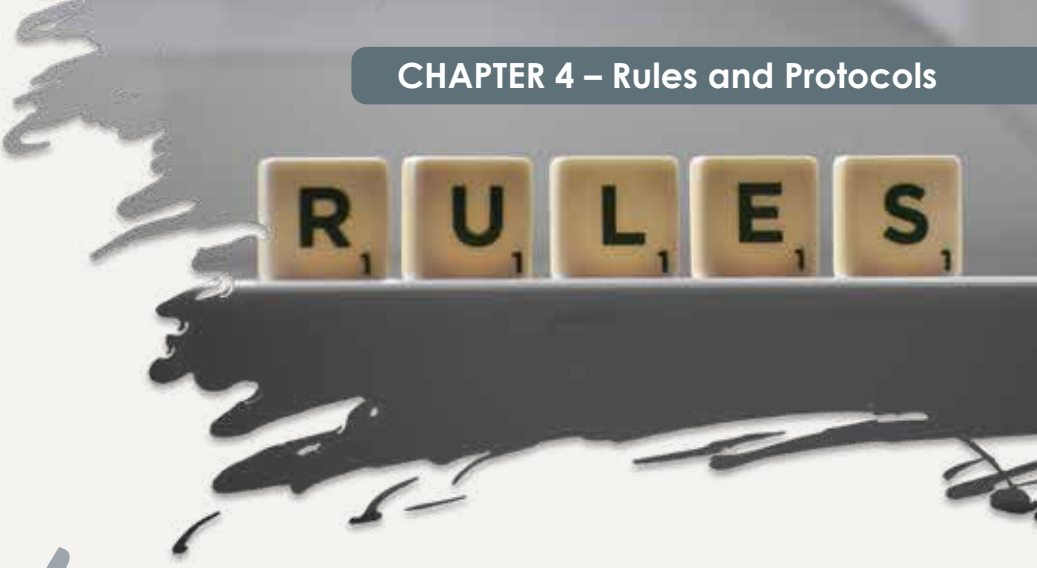

Auction Rules

Please note that the official sale rules are available on the Simbra website or from the SImbra office. The rules here are a condensed summary of the auction rules.

Introduction

The purpose of the auction rules is to ensure as far as possible that all Simbras that are offered at auctions still meet (even if they were previously inspected) the breed standards and an acceptable criteria in terms of fertility and/or reproduction as well as certain health requirements, and applies to all public/online/catalog auctions. All Simbras so sold therefore take place subject to the rules of the society. Registered Simbras that do not comply with the rules may not be offered for sale on auction.

There are three sections in an official Simbra auction catalog:

A) ***Registered**: Registere bulls (with S brand on left shoulder), and registered females, and calfbook animals under 12 months or suckling calves.*

B) ***Cum Heifers**: Heifers that have already been recorded as Cum animals in the Simbra herdbook system*

C) ***Commercial Heifers**: Simbra type females that are phenotypically of such quality that they can be considered as Cum animals.*

It is the sellers' responsibility to make sure that all information of sale animals is fully integrated into the system. Information from auction animals, lot numbers and comments must reach the office at least 6 weeks prior to the auction date. Information must be submitted by e-mail in the prescribed format. One trial catalogue will be drawn up, which will indicate all outstanding information. Breeder has 3 business days to email corrections and outstanding information to the office. Second trial will be proposed for seller approval after which catalogue will be finalized.

General

1.1 *All animals must be inspected a maximum of 30 days before an auction by an accredited inspector/selector who will act as guardian*

1.2 *Suggested guardian remuneration is R1500 per day, plus accommodation if required and travel costs – payable by the seller*

1.3 *Bulls must be scored according to the Simbra Linear classification system, and females must receive an overall appearance score.*

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1.4 *Animals that do not meet minimum standards may not be offered for sale.*

1.4.1 *All bulls that will sire calves (eligible for registration) born from 1 September 2022 must be genotyped and have a SNP genotype on record before a pregnant animal or a cow with young calf referred to herein is offered on auction*

1.4.2 *All Simbras offered on public auction are sold subject to the Auction Rules of the Society*

1.4.3 *Auction Flyer/Pamphlet is subject to approval before it may be published on social media and the website, and must display the official Simbra Logo.*

Auction Rules

1.1 *The seller must, upon signing these auction rules, be able to submit proof in writing that his auction animals have been tested clean for TB within 60 days before the auction and all females animals that have already calved have tested clean for CA, or submit a CA3 certificate/ vet certificate that specifies that all animals have been tested clean within the last 12 months. All females offered on auction must be vaccinated against Brucellosis with RB51/S19*

1.2 *Animals under 1 year on the date of auction are recorded as calfbook and will be transferred to the buyer at the sellers' expense. Members of the Society can offer these animals between 1 and 3 years of age for full registration in the herdbook.*

1.3 *The Seller has signed and submitted the "Sellers Declaration":*

1.3.1 *That the animals offered are tattooed and checked, and that they correspond to the records of the society. If the buyer can provide proof within 30 days of the auction that the animal is not tattoed or been wrongly tattooed guarantee 6 will apply.*

1.3.2 *That all bulls, no longer than 30 days before the acuction (i) have been certified as fertile by a veterinarian or registered veterinary technologist in the prescribed format with reference to, motility, morphology and scrotal circumference, must be evalauated and specfied on the report and is guaranteed by the seller until 7 calendar days after auction date or in certan special cases 7 days after the buyer has taken delivery of thebull. Original fertility certification must be available from seller for 1 year after the auction date. If the buyer presents a veterinary certificate proving the contrary within 7 days of the auction (or in special cases as previously aranged with the seller from the receipt of the bull), guarantee 6 will apply.*

1.3.3 *Any guarantees regarding the freezing of semen will be made by a seperate agreement between buyer and seller*

1.3.4 *That alll bulls have been tested clean for Thrichomoniasis and Virbriosis.*

1.3.5 *That all sires of calves that are eligible for calfbook registration and that are not yet on record with the society, and bulls from which cows are in calf, as well as semen, have a SNP genotyping profile on record and that the bulls are registered.*

1.3.6 *That animals offered as in calf have been certified as such by a veterinarian or registered veterinary technologist and such certification is available upon request from the seller up to one year after the auction date.*

1.3.7 *Animals appearing in one of these three parts of the catalogue must comply with the following rules:*

A) ***Part A of the catalogue is Registered Simbras***

(1) *Open heifers may only be offered up to the age of 30 months*

(2) *A heifer in calf must calve before 39 months*

(3) *A cow without a calf at foot must be certified in calf and the expected calving date must not be later than 18 months after her last calving date, and such a cow must not have been open for more than 18 months between calve.*

(4) *CUM animals must have had atleast two or more calvings after registration, and if without a calf at foot must be certified in calf, and the expected calving date must not be later than 18 months after her last calving date, and such a cow must not have been open for more than 18 months between calvings.*

(5) *Embrio donors must be in calf within 18 months since the last flush date*

(6) *Simbra bulls must be 22 months or*

older, must be registered, thus wearing the S Brand on the left shoulder as a guarantee that the bull meets the minimum phenotpyic breed standards, has a 200-day weight on record and be sire verified through DNA verification.

B) ***Part B of the catalogue is CUM Simbra Heifers***

(1) *Breeder/seller must have confirmed the birth date of the animal*

(2) *Open CUM heifers may only be offered up to the age of 30 months*

(3) *A CUM heifer offered as in calf must calve before or at 39 months of age*

(4) *Animals sold under this section must be clearly marked and tattooed with the seller's herd letters, year of birth and unique serial number.*

C) ***Part C of the catalogue consists of Simbra Type Females***

(1) *Simbra type females that do not meet the above two sections can be sold here*

(2) *The animals quality must be of such a nature that they can be entered as CUM F0 animals in the Simbra Herdbook System*

1.3.8 *If these certified in calf animals are certified not in calf by a registered veterinarian or veterinary technologist within 48hours of the auction, guarantee 6 will apply.*

1.3.9 *If a female animal is sold as open or not in calf and is certified in calf by a veterinarian within 30days of the auction, guarantee 6 will apply.*

1.3.10 *Guarantee 6: If the neccessary evidence is provided to the seller in writing within the relevent period that any of the animals purchased do not comply with the rules as stipulated above, the seller will, at the option of the buyer, replace any animal in question with another animal of equal value or refund the purchase price*

THE COUNCIL AND STAFF OF THE SIMBRA CATTLE BREEDERS' SOCIETY OF SOUTHERN AFRICA ARE IMDEMNIFIED AGAINST ANY CLAIMS OF BUYERS THAT MAY ARISE FROM SALES ON THIS SALE. THE SIMBRA CATTLE BREEDERS' SOCIETY ARE INDEMNIFIED AGAINST ANY DAMAGE THAT WE OR ANY THIRD-PARTY MAY SUSTAIN AS A RESULT OF UNSAFE OF DEFECTIVE PRODUCTS SUPPLIED BY THEM.

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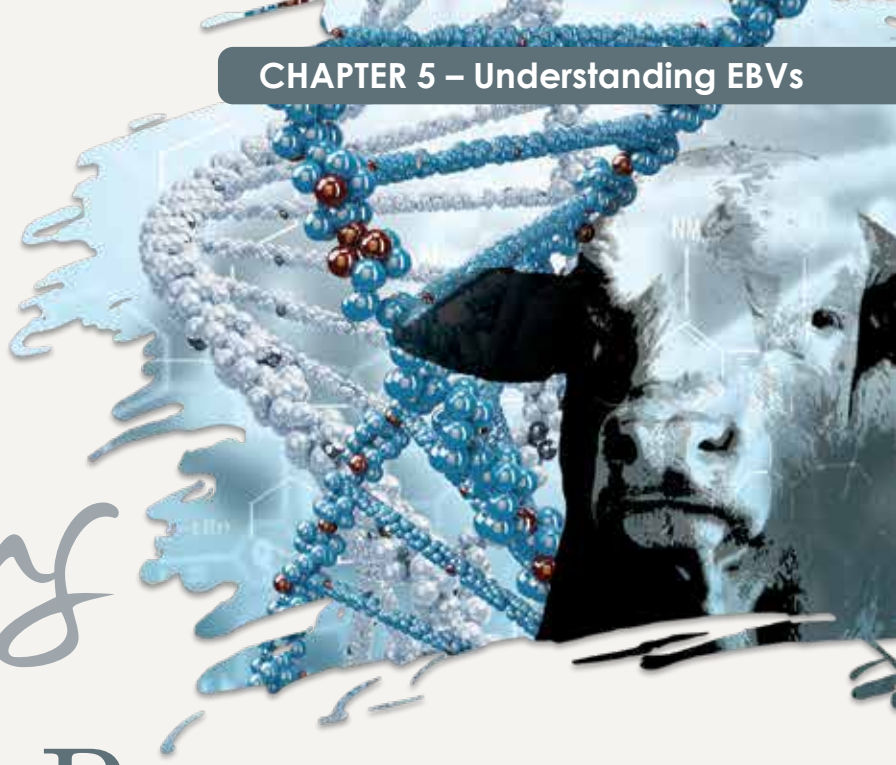
Inspections

Inspections serve as a quality guarantee of phenotypic characteristics for the buyer of registered animals and ensures that all registered animals comply with the minimum breed standards. No animal may be registered unless it has been phenotypically evaluated and approved by an inspector according to the Breed Standards. Calf book females must be inspected between the ages from 12 months and calf book bulls must be inspected from 18 months. All bulls must be inspected on the linear classification system, the inspection of females via the linear classification system is optional but highly recommended. All bulls that pass inspection must be branded with the Simbra "S" Brand. Animals that exceed the maximum age for inspection (36 months) may be presented for inspection subject to a late inspection fee. It is the responsibility of the breeder to ensure that animals are inspected at the correct ages. An owner who is unhappy with the inspection may (within 7 days) lodge an appeal with the Breed Director. The Breed Director will then appoint a breed examiner who will re-inspect the animal within 14 days of receipt of such an appeal. The appellant will be liable for inspection costs of the breed examiner. An inspector may not act as an inspector for his own animals. An inspection may be performed by a member of the accredited inspection panel, cost to be carried by the member according to the prescribed fee structure, or as agreed upon. At any publicly held Simbra Auction, it is compulsory that all animals be screened/ inspected (bulls via the linear classification system). If an animal does not pass inspection, it may under no circumstances enter the auction ring. It is the responsibility of the breeder/seller to arrange inspections/screenings. A list of available inspectors is available on the Simbra website.



Factors driving Genetic Progress

The phenotype (what we see) is comprised of genotype and the environment. You should all be familiar with the formula P = G + E. The goal of a stud breeder should be to add value through performance by means of genetic improvement. A farmer generally has two main ways in which he can attempt to raise the performance of the animals. He/she can either improve their genetic environment (E) or try and change their genetic make-up to increase their genetic potential (G). The various traits of cattle are genetically controlled and inherited through genes that contain basic hereditary material. These genes can be manipulated to achieve genetic improvement by either increasing the frequency of favourable genes or combinations of genes by selection or by introducing new genes into the population thereby facilitating genetic progress.

Accuracy: Accuracy is the strength of the relationship between true breeding value and its estimated breeding value being used for selection. Accuracy of selection depends on a number of factors. Heritability being one of them, any steps taken to increase heritability – managing animals uniformly, taking careful measurements, and using correct contemporary groups will increase accuracy of selection. The Higher the accuracy the more genetic progress is expected.

Variation: explains the differences that exist among the best animals for a given trait and the worst animals for the same trait. If there is little genetic variability for a trait, we expect to see less/

$$\text{Genetic Progress} = \frac{\text{Selection Intensity x Accuracy x Genetic Variation}}{\text{Generation Interval}}$$

The major factors which affect efficiency and genetic progress are as follows:

Selection Intensity: is the intensity with which a subset of animals in a given group is selected to breed the next generation. Breeding every animal in the population would be a low selection intensity, and on its own, would not contribute to genetic progress in the next generation. On the contrary, identifying the top 20% of the population and breeding them exclusively would represent a high selection intensity and drive genetic progress in subsequent generations. The higher the selection intensity the more genetic progress is expected.

slower genetic progress. The higher the variation the more genetic progress.

Generation interval: is defined as the average age of the parents when their offspring are born and represents the time interval between generations. The shorter the generation interval the more rapid the genetic progress.

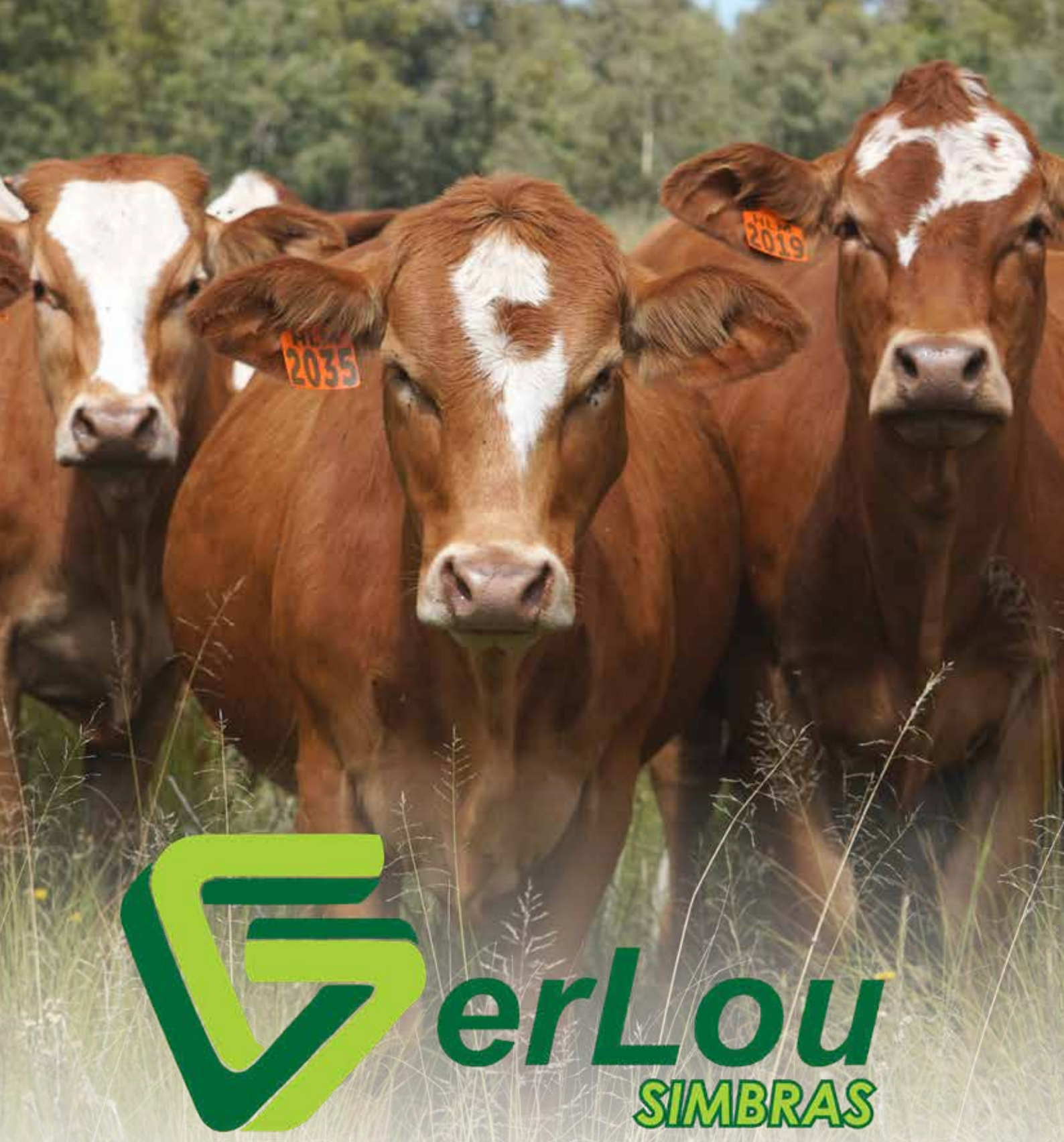
This basic formula forms the “Key Equation” to animal breeding and should always be kept in mind.

Estimated Breeding Values & Accuracies

An EBV is the average genetic value of an animal as a genetic parent, it quantifies the genotypic value that is due to independent gene effects and therefore transmittable gene effects. The BLUP statistical procedure used to calculate EBVs removes the environmental effects from this value. EBVs should always be assessed with their accuracies and the current breed average when making selection decisions. Comparing EBVs with the breed average gives you an indication of how the animal compares with the current genetic level for the breed for each trait. If we consider an animal with +25kg EBV for 200-day weight with the breed average of +16kg this indicates that this animal is genetically superior by 9kg (i.e.25-16 = 9) than the current genetic level for growth at 200 days. It is also important to remember that only half of an animals EBV is passed onto the progeny. At birth, an animals EBV is made up (approximately) of 50% of the Sires EBV and 50% of the Dams EBV for that respective trait. When Breedplan calculates an animals EBVs they are published in a table form.

October 2021 South African Simbra BREEDPLAN															
	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	-0.6	+2.6	+25	+39	+50	+55	+4	+1.4	-	+24	-1.3	-0.9	-1.1	0.0	-0.1
Accuracy	45%	75%	72%	69%	71%	60%	41%	68%	-	60%	45%	53%	53%	44%	33%
Breed Avg. EBVs for 2019 Born Calves Click for Percentiles															
EBV	-0.8	+1.2	+16	+24	+31	+34	+4	+0.7	-1.5	+17	+0.2	-0.3	-0.4	+0.2	+0.0

Traits Analysed: BWT,200WT,400WT(x2),600WT(x2),SS,FAT,EMA



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These EBVs are accompanied by an accuracy which reflects the relationship between the True EBV and an Estimated EBV and provides an indication of how much a breeder can rely on an EBV, and how much risk is associated with it.

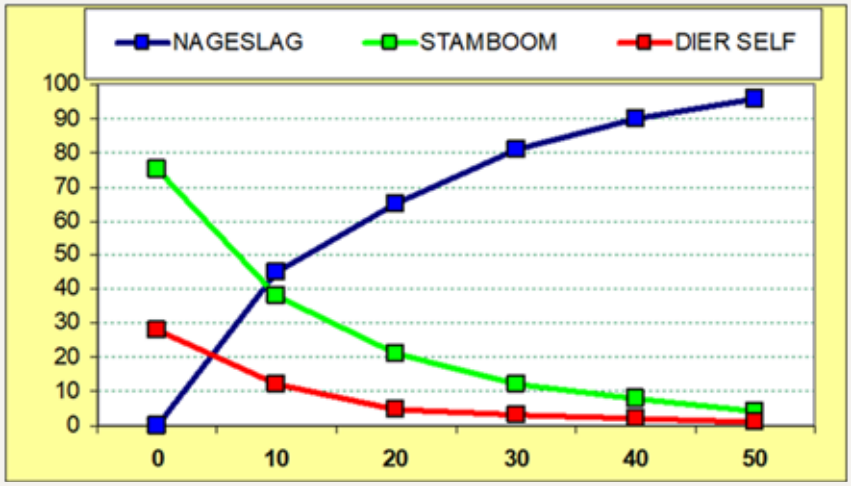
Accuracy	Reliability	Risk
<50%	Low	High
50-74%	Medium	Medium – High
75-90%	Medium-High	Medium
>90%	High	Low

Another useful tool to be applied when selecting an animal is the EBV Standard Error Graph. It depicts EBVs in graphical form and the possible change in an animal's EBVs for each trait. It does this by considering the accuracy of the EBV and the amount of data that has been collected for that specific trait. The horizontal bar for each trait displays one standard error either side of the current EBV value, meaning that statistically, there is a 67% chance that the true breeding value for this trait will be within this range. This provides an indication of where an animals' true EBV lies and can be a very useful tool in selection, especially for younger animals with low EBV accuracies.

As previously mentioned, performance records form the basis from which EBVs are calculated, but more specifically there are three sources of performance records that are required for accurate EBV calculation:

- Pedigree Performance
- Own Performance
- Progeny Performance

Pedigree Performance includes performance data that has been collected on an individual's parents, sibs and half-sibs etc. Own performance records are those traits measured on the animal itself, and Progeny performance records are those performance records collected on the animals' offspring.

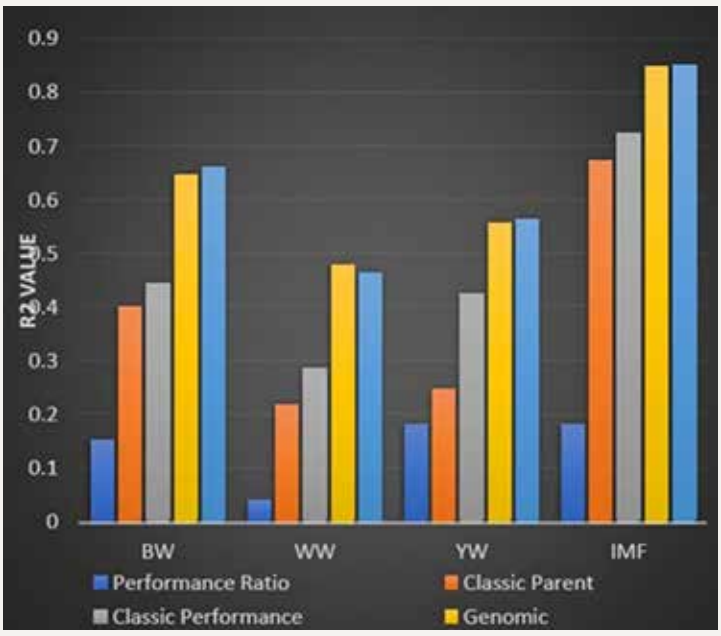


The graph above shows the percentage contribution of each source of information plotted against the number of progeny records. It can clearly be seen that as the number of progeny records increase, less emphasis is places on pedigree and own performance records when calculating EBVs.

Genomics

The Simbra Society of Southern Africa has applied to participate in the Beef Genomics Program (BGP) with the next round (Round 2) set to start in 2022. The BGP is a multi-million-rand project funded by the Technology and Innovation Agency (TIA) and started in April 2015. The main aim of the project is to gather good, reliable data on difficult to measure traits such as feed efficiency, carcass traits, maternal (milking ability) and also on female fertility. Simultaneously whilst gathering this data, the society aims to reach 2000 genotypes to be able to run a genomic genetic evaluation and obtain genomic estimated breeding values (GEBVS).

Genomics is the study of how DNA (genome) is organized and expressed as traits. Genomics makes use of genetic markers (Single Nucleotide Polymorphisms or SNPs) to help us understand portions of the chromosome that might influence certain traits of interest, the more markers the better the chance of detecting major genes that influence quantitative genetic traits. You can request genotypic tests (SNP) to be performed on your animals by sending Hair, Blood, Semen or Tissue samples to the Simbra Office (Contact the office for more information). For genomics to be effective, there needs to be genomic and phenotypic data collected on thousands of animals in a reference population. The Breedplan analysis then takes into consideration the known relationships between phenotypes and genotypes to calculate genomic breeding values. Genomic data has been seen to add the largest increases in accuracy to estimated breeding values, and when it comes to modern technology has become a primary driver behind genetic progress. Simbra Breeders are encouraged to take hair/tissue samples for genotyping of their animals.



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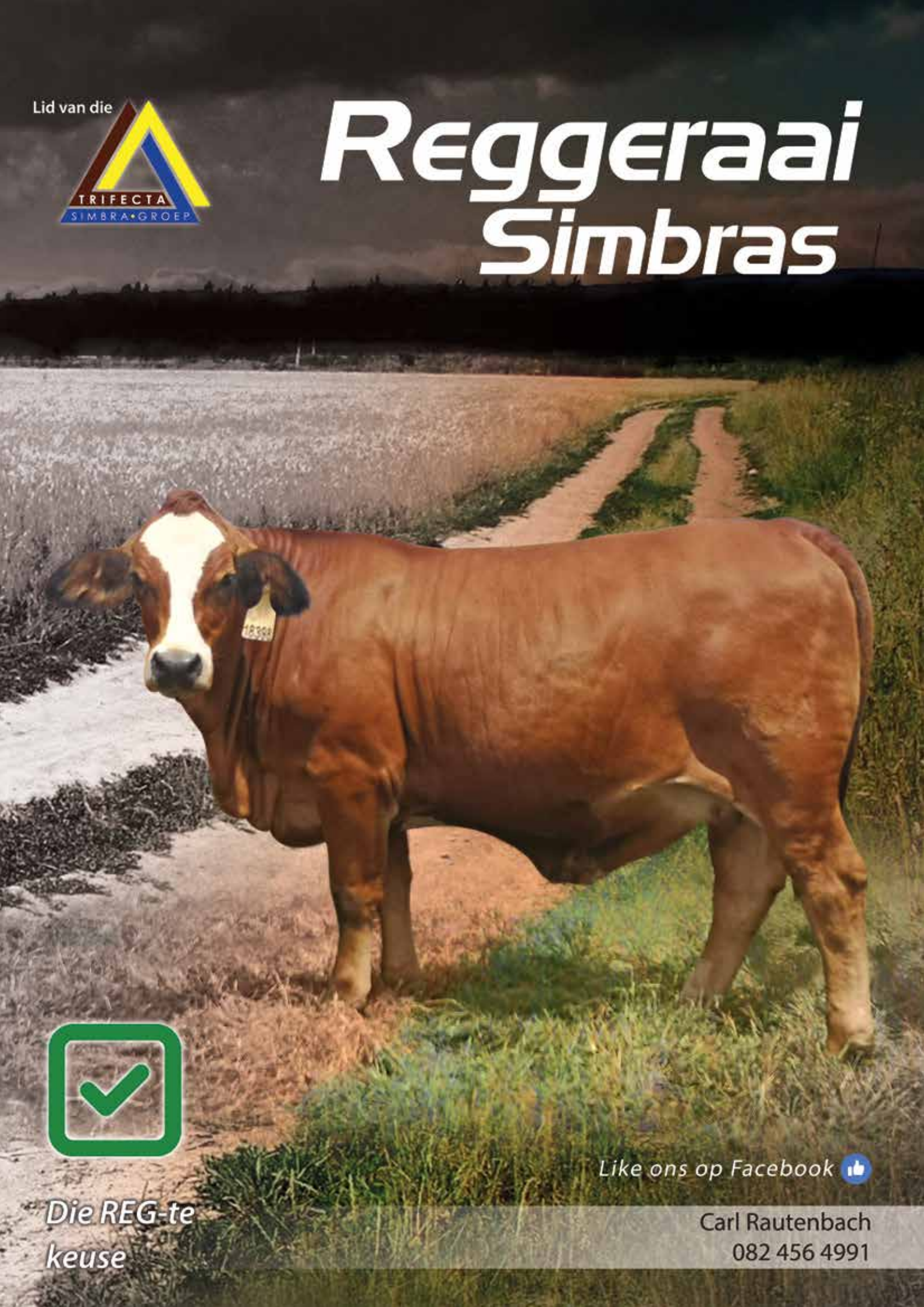

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DNA The Key to your herd's potential

Advances in molecular technology, especially in genomics, have made a whole new set of tools available to the farming industry. With the simple act of pulling and submitting tail hairs, farmers now have access to pedigree information, know the risk of inherited diseases and even have predictions for growth and breeding potential of his/her animals.

The first genetic markers used in the livestock industry was blood typing in the 1960s. The technology has since progressed to the use of microsatellites in the 1990s and is slowly but surely moving towards the standard use of single nucleotide polymorphisms (SNPs). Microsatellites are still widely used today in various livestock species for parentage verification.

A single marker by itself, won't be able to pinpoint the parents of a calf out of possible hundreds of nominations, but when several of these markers are combined and used for analysis, it becomes a powerful tool in creating unique profiles for each animal in order to confirm their parentage. For a parental pair to be verified, both the dam and sire must each contribute one copy of each of the calf's markers to its profile (table below – left hand side). The calf in the table below is, for example, *121* and *139* at marker ***BM2113***. The potential dam has copies: *121* and *137* available. The potential sire has two copies of *139* available at this marker. The calf has inherited his *121* from the dam, and his *139* from the sire. For a parentage to be declared valid, we must be able to see one copy from each of the parental profiles present in the calf's profile for every marker.

Marker	Calf	Dam	Sire		Marker	Calf	Dam	Sire
BM1824	180/180	180/182	180/180		***BM1824***	180/190	180/182	182/182
BM2113	121/139	121/137	139/139		***BM2113***	121/139	121/137	139/139
ETH10	211/211	211/217	211/211		***ETH10***	211/215	209/217	211/211
ETH225	151/154	150/154	140/151		***ETH225***	151/154	150/154	140/151
ETH3	121/125	117/121	117/125		***ETH3***	121/125	117/121	117/125
INRA23	208/214	208/208	214/214		***INRA23***	208/216	208/208	214/214
SPS115	248/254	248/254	248/248		***SPS115***	248/254	248/254	248/248
TGLA122	137/149	137/137	143/149		***TGLA122***	137/149	137/137	143/149
TGLA126	115/115	115/115	115/117		***TGLA126***	115/115	115/115	115/117
TGLA227	87/97	87/93	77/97		***TGLA227***	87/97	87/93	77/97
TGLA53	154/166	154/172	166/176		***TGLA53***	154/166	154/172	166/176

In the event of a mismatch, the parentage is declared invalid. The table above (right hand side) demonstrates mismatches between the calf and nominated parents (in red). At marker ***BM1824***, the calf is *180* and *190*. The *180* could have been inherited from the dam. However, if we look for the calf's *190* from the sire's profile, we see he does not have it available for the calf to inherit. The sire therefore falls out on this marker as a possible parent. At marker ***INRA23***, the calf is *208* and *216*. The calf could possibly have inherited it's *208* from the nominated dam. The calf therefore needs to inherit its *216* from the sire. However, the sire has only *214* available, so he falls out as possible sire at this marker. For this comparison, only the dam can therefore be accepted as a valid parent.

The main function of these DNA profiles is parentage and identity verification. It is important to verify parentage for the following reasons:

- More **accurate breeding** selections. New trends in animal production systems tend to encourage farmers to produce larger numbers of animals per farm in response to environmental constraints. In this type of setup, several animals are bred together on the same day or give birth on the same day, which can lead to pedigree recording errors.
- **Genetic improvement** of the population thanks to more accurate economic breeding values (by incorporating the correct parents' data in the calculations).
- Identification of bulls that over and under perform in the stud.
- Identification of problem bulls in the stud - those responsible for calving problems or mutations in the stud.
- It allows farmers to sell animals at a higher prices based on verified pedigrees.

Within the DNA, we can also look at inherited single gene traits. These traits are controlled by a single gene, and include traits such as: coat colour, double muscling or polledness; but also include harmful mutations such as POMPE, osteopetrosis or developmental duplications. These traits follow the basic rule of inheritance: Each gene will have two copies of itself which will influence the expression of the particular trait. The calf inherits 1 copy of the gene from its dam and 1 copy of the gene from its sire. The main reasons for single gene trait testing is that breeders may want to select for specific external traits (and therefore need to know what variants the parents have available); and secondly that farmers may want to prevent recessive, detrimental mutations from creeping into their stud. An example of this is a farmer who would like to breed for black coats in their herd. The farmer wants to know whether any of them will be carriers of red coat colour. Although the black coat is dominant to red, recessive genes can still slip through. When two black cattle are bred with each carrying a copy of the red variant, there is a 25% chance that the ensuing calf will have a red coat. Therefore, if breeders want to breed for a specific trait, it is beneficial to know which varieties are carried in the herd before selecting breeding pairs.

Breeders should also, of course, be on the lookout for detrimental mutations, which could put animals at risk of developing inherited diseases. Although animals may appear healthy, they may also be carriers of recessive conditions. When a farmer then unknowingly mates a carrier pair, there is a chance that the conceived calf will inherit both these detrimental variants, 1 from dam and 1 from sire, and will then be affected by the condition itself. However, breeders do not have to remove animals from their herds when the animal has a carrier status for a recessive mutation. They should just be attentive to not breed known carriers with other carriers. Suddenly removing too many animals from the breeding program based on their carrier status can be just as detrimental to a herd's diversity and health. Fewer animals result in fewer gene variations available for recombination: the smaller the diversity of the herd, the higher the chance of unexpected recessive genes establishing themselves within the herd.

The last piece of information we can obtain from DNA, are the multiple gene traits – these are traits that are under the control of several genes simultaneously. These traits are difficult to test for, precisely because there are so many genes involved in the expression of a specific trait. Initially, geneticists were unable to test for these traits at all, farmers had to rely on pedigree data to predict how those traits would express

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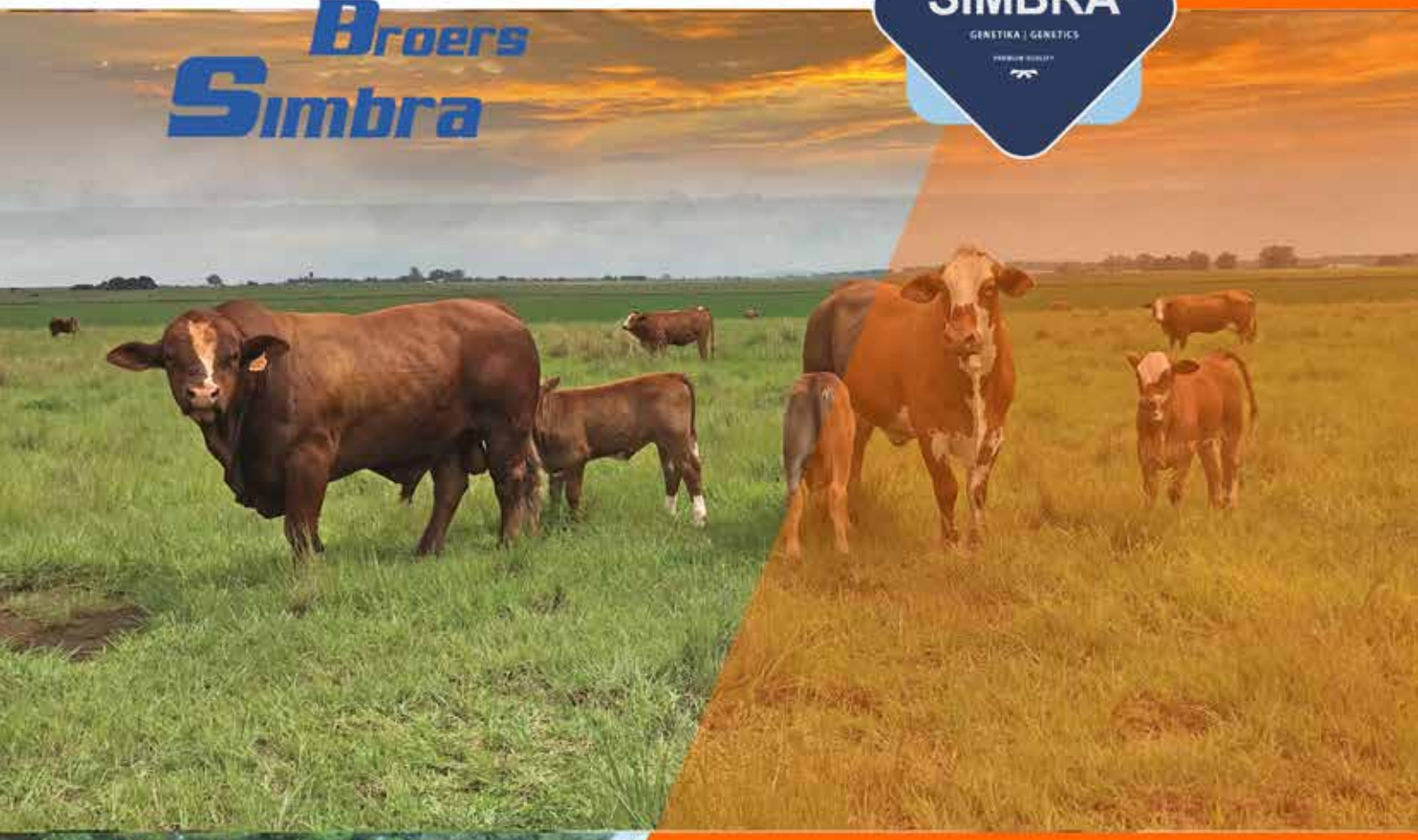

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themselves in future generations. With the onset of estimated breeding values predictions, we had no way of determining the animal's true genotype for these traits. The calculations for these values had to rely on the data of cumulative pedigrees, as well as the physical characteristics recorded during evaluations of the animals. The simplest way of thinking of these calculations, is that the calf's economic breeding value will be the sum of half of mother's EBV and half of father's EBV values. Although it doesn't sound too complex, there are many factors to consider when calculating these values.

The power of traditional EBVs lie in the fact that the accuracy of these values improve over time, with the incorporation of additional information, such as the inclusion of the calf's phenotypic data as it matures, as well as the calf's offspring phenotypic data when you start breeding with that animal. It is also over time, that we see how full of siblings' EBV values begin to differ from each other (due to their genetic makeup and reaction to their environment). The important thing to consider here is that these traditional EBVs take a lot of time to put together. The key, however, to genetic progress is the ability to make accurate decisions faster. The only way to make faster decisions about an animal, is to add their genetic results to these calculations. This genotypic data can therefore now be included in traditional EBVs in order to convert the EBVs into genomically enriched EBVs.

Why is it important for producers to have their animals genomically tested?

- There is an **increase in the accuracy of the traditional EBVs**. The more accurate the EBV values are, the more confident you can be in the animals you select for your breeding programs. If the animals are supplied to commercial breeders, these improved values may ultimately enable you to provide better customer service, as your chances are better of being able to provide the buyer with an animal that will meet their needs.
- Including genomic breeding values in the calculation EBVs will result in faster genetic turnovers. With traditional EBV values, data must be collected over a long period of time before accurate predictions can be made as to whether or not the animal will be profitable. However, when calves can be tested genomically, and those values added to calculating their EBVs, you can decide earlier in the calf's lifetime whether it will be worthwhile to invest further time and money in the calf.
- It also enables farmers to make a prediction for characteristics, such as marbling or fertility, that could only be measured much later in the animal's life. Breeders can therefore decide what to do with their bull/heifer, before the animal has had the chance to genetically contribute to their herd.

Accurate parentage verification is a key component in taking a farm's herd improvement plan to the next level. One of the biggest challenges for farmers during calving season is the time required to consistently monitor and accurately record calving details for a sustained period. Parentage verification is also especially important when multiple bull matings are used in a stud. Not only does it highlight problem pairings and good matches, but DNA testing can make calving times much easier to manage, because you can verify parentage with certainty, without having to be there to record every birth. Genomics should be seen as an additional tool that can be added to your farming strategy. It should be combined with your breeding objectives, traditional EBVs, farm management plan and nutrition programs to provide you with the most information to enable you to make the most informed decisions and at the end of the day, give you the best value for money for your animals.

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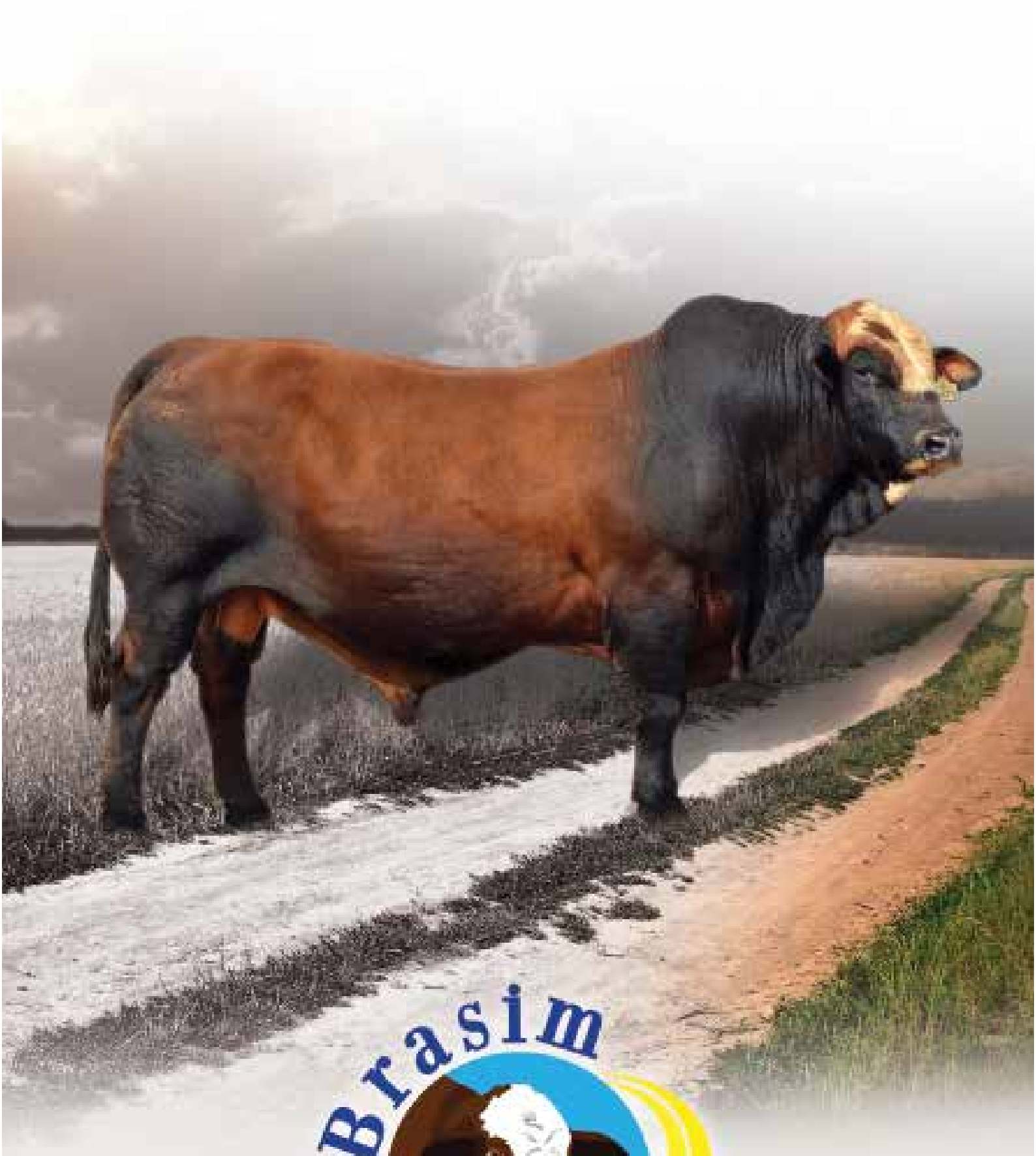

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