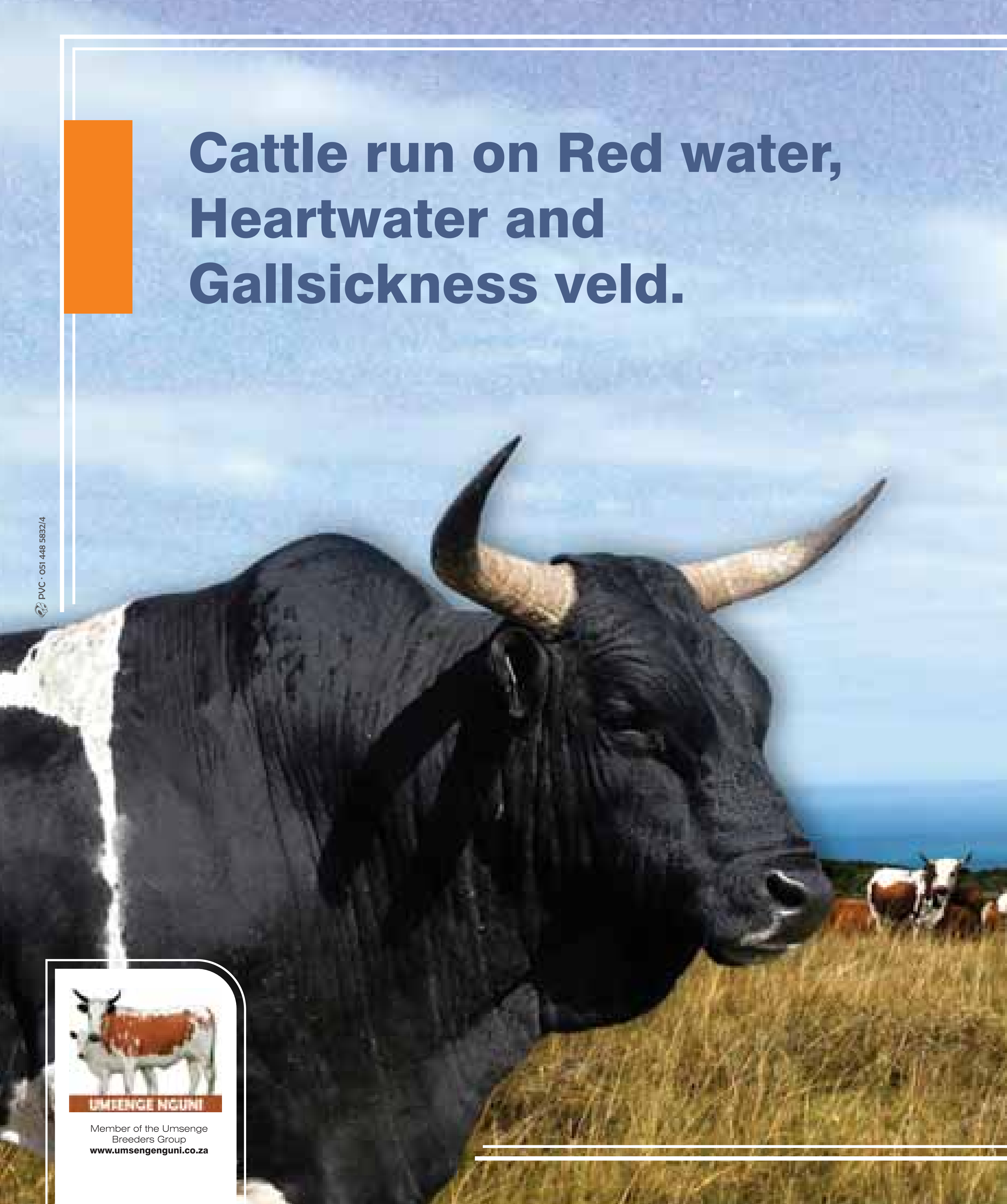
NGUNI

THE BREED THAT EXCELS IN MATERNAL TRAITS


Cattle run on Red water, Heartwater and Gallsickness veld.
PVC · 051 448 5832/4
UMSENGE NGUNI
Member of the Umsenge Breeders Group
www.umsengenguni.co.za


Kragga Kamma
Ngunis
Neil and Monica Dawson
Tel: 041 379 5699
Cell: 072 238 4425
one.neildawson@gmail.com
P.O.Box 50502
Colleen Glen
Port Elizabeth, 6018
AUCTION DATE:
11 May 2017 & 28 September 2017

2017 NGUNI JOURNAL · NGUNI JOERNAAL 2017

CONTENTS / INHOUD

NGUNI
The breed from the past for the future

REGULARS

LEADERSHIP

ANIMAL SCIENCE

PHYSIOLOGY

BREEDING

TRAINING

AWARDS

CLUBS

PRODUCTION

PASTURE SCIENCE

COVER PHOTO

TOVERVELD

Our main focus is not to change the breed, but to maintain the traits by selecting cattle producing the highest weight of beef per hectare.

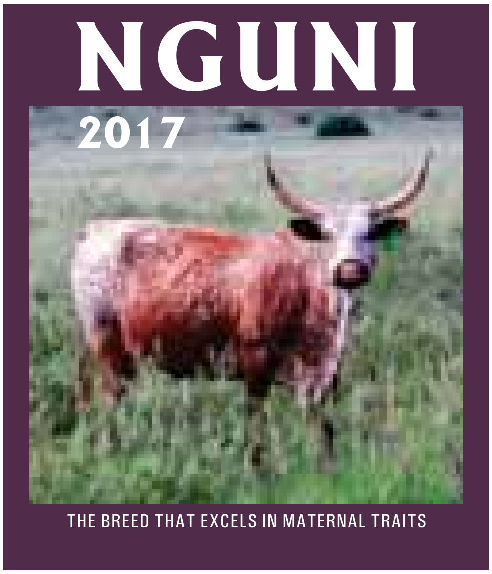
It also implies that we aim for maximum kilograms meat for the amount of feed consumed and with the lowest possible input cost.

After weaning, all male animals are evaluated to make a first cut on bull selection. Those that do not make the cut are castrated.

Due to the sentiment of feedlots towards Nguni's, oxen are kept on the veld until they reach a weight on the foot of at least 400kg and then slaughtered.

Between fifteen and twelve present of females are selected annually for replacement females and the rest put up for auction. Any animal showing temperament problems, even after weaning and branding are either culled or used for terminal cross breeding. All cattle are weighed monthly. This allows a close inspection of every single animal on a monthly basis.

The Afrikaans saying "jy moet meet om te weet" is true. During the past few years a wealth of information has been gathered and used to adapt the management and business approach.



Since 2014 Toverveld participated in the genetic evaluation of its herd. The genetic as well as visual evaluation of the cattle will be the consideration in our selection criteria. ■

Danie van Zyl 082 738 2357
Dawie Kotzé 073 626 6873

Uitgegee deur / Published by:
Nguni Beestelersgenootskap / Nguni Cattle Breeders' Society
• **Tel:** 051 448 7302/3 • **Faks:** 051 448 7304
• **E-pos:** info@ngunicattle.info • **Website:** www.ngunicattle.info

Uitleg & Ontwerp van Joernaal: Pendulum Visual Communication
Pres. Steynstraat 38A, Westdene, Bloemfontein
• **Tel:** 051 448 5832/4 • **E-pos:** studio@pvconline.co.za
• **Website:** www.pvconline.co.za

JOERNAAL **NGUNI 2017** JOURNAL

ADVERTEERDERS / ADVERTISERS

Elmien Willemse
Editor

NGUNI 2017 EDITORIAL

This Journal is meant to be a journey in unfolding and understanding animal breeding. It gives insight into our core business which is breeding. The main objective of stud breeding is to improve the breed and sustain profit.

These basic principles of breeding serve as a GPS towards your specific breeding destination - your breeding objectives.

The breeding objectives have to meet the needs of the industry or a specific niche in the market. Every Nguni breeder is a business leader that sells genetics and has the responsibility to deliver profitable genetics to fellow breeders as well as to commercial farmers. This Journal has plenty of proof that Nguni cattle have many unique economic values.

South Africa has a unique beef industry and our society is a member of the ICAR accredited service provider. We can proudly prove that we are also part of a bigger world.

The face of the industry changes all the time. Acknowledge that in the past, the Nguni breed held many good characteristics. Recognise the realities of the present. Now, proceed to an active process of creating that future for the Nguni breed in the industry.

Compiling this Journal I again realise: "Excellence is never an accident; it is the result of high intention, sincere effort, intelligent direction, skilful execution and the vision to see obstacles as opportunities."

JE MOET DE WAARHEID NIET VERWARREN MET DE MEINING VAN DE MEERDERHEID

- Loesje

Archie du Plessis
President

UIT DIE PEN VAN DIE PRESIDENT

Die ernstige en lang droogte, wat in die grootste deel van ons land gebreek is, het weer die uniekheid én sterkpunte van die Nguni bevestig. Daar is egter nog dele in die land waar dit steeds baie droog is. Die afgelope drie jaar al hoop ons dat die gety teen die landbou - en spesifiek teen die Nguni - sal draai. Gelukkig het die gety begin draai wat die natuur aanbetref en tot 'n mate ook wat die Nguni-pryse aanbetref.

Die droogte en ook die prys-diskriminasie het egter sy tol geëis. Die Nguni Beestelersgenootskap van Suid-Afrika het heelwat stoettelers verloor, hoofsaaklik as gevolg van hierdie twee faktore. Die meeste van die lede wat bedank het, het hul Nguni's behou en boer nou kommersieel.

Die droogte het ook 'n tekort aan speenkalwers en aanteel-diere veroorsaak. Dit het op die korttermyn baie gehelp dat die pryse in 'n mate herstel het. Alhoewel daar steeds 'n prysdiskriminasie is, is dit minder. Ons moet net nie die tekens verkeerd lees en later onkant betrap word nie. Die droogte gaan nog 'n lang nadraai hê.

Die Nguni Beestelersgenootskap het aan die einde van 2016 'n baie insiggewende proefneming met 200 Nguni-kalwers gedoen. Die kalwers is van dwars oor die land heen uit 24 verskillende kuddes bymekaar gemaak. Hulle is ook nie uitgesoek nie, om sodoende 'n goeie verteenwoordiging van die Nguni-ras te verkry. Die resultate is in die finale verwerkingstadium en sal so gou moontlik aan alle lede beskibaar gestel word. Persoonlik dink ek dat ons baie waardevolle inligting uit die proefneming sal kry. Wat baie duidelik is, is dat daar 'n baie groot variasie in die ras is. Daar is diere wat baie goed gedoen het en ook diere wat nie so goed gedoen het nie. Die verskil bring weereens die belangrikheid van meting/weeg na vore.

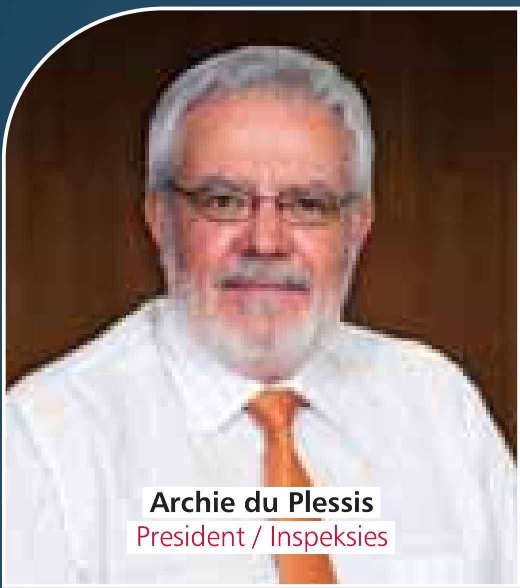
Die Nguni Beestelersgenootskap het die "One size fit all" -benadering van diere-aantekening se waarde-toekennings vir sekere eienskappe verander om ons unieke ras beter te pas. Dit behoort die vrees dat diere-aantekening ons ras sal verander, weg te neem. Dit behoort ook meer lede aan te moedig om deel te neem aan diere-aantekening. Om meer sinvol aan die nuwe tegnologie soos genomika deel te neem, sal daar meer stoettelers moet deelneem aan diere-aantekening.

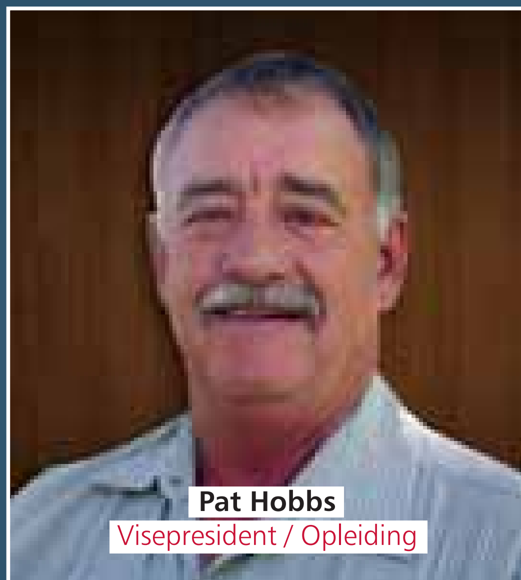
Ons as stoettelers sal ons toenemend daarop moet toespits om net die beste genetika aan ons kliënte, asook die kommersiële teler, te verskaf. Sodoende kan hulle weer op hulle beurt net die beste produk aan hul kliënte verskaf. Om dit moontlik te maak, sal daar meer telers (verkieslik almal) moet meet/weeg om die swakker diere uit te haal. Dit bring weer eksta koste mee, maar stoetteling behoort as eerste prioriteit genetiese verbetering te beoog en nie net om diere te vermeerder nie. Dit moet 'n passie wees en dit verg toeweiding. Dit is stoetteling.

Daar is alreeds baie suksesverhale oor hoe Nguni-telers en -boere hulle diere bemark. Ek dink dit is tyd dat ons meer verantwoordelikheid neem vir die bemarking van ons produk. Ons moenie so maklik aan ons neuse gelei word deur agente nie. Ons het 'n uitstekende ras met baie unieke eienskappe - wat tot ons voordeel is. Ek glo die Nguni is besig om sy plek in die mark te vind. Sterkte en lekker boer – veral daar waar dit goed gereën het.

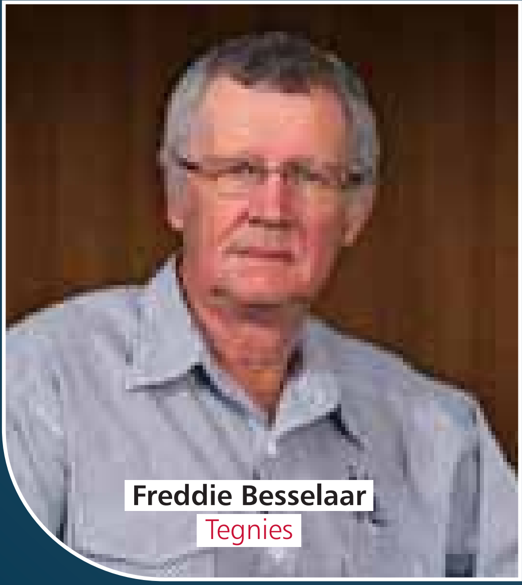
2017

NGUNI RAAD


Archie du Plessis
President / Inspeksies


Pat Hobbs
Visepresident / Opleiding


Frans Lubbe
Finansies


Freddie Besselaar
Tegnies


Elmien Willemse
Promosies & Bemarking


Neil Dawson
Promosies & Bemarking

NGUNI CATTLE BREEDERS' SOCIETY OFFICE REPORT FOR 2016

Yolanda Venter (Office and Technical)
Maki Moshao (Inspections and Administration) & **Louise du Toit** (Finances)

Our members and their animals for 2016:

Members (as on 29 January 2017)	256
New members that joined in 2016	7
Resignations in 2016	57
Female animals (as on 29 January 2017)	32 183
Male animals (as on 29 January 2017)	10 099

TECHNICAL

Seven sales were held under the auspices of the Society in 2016. All the data of these animals were verified to ensure that they meet the minimum breed standards of the Society. Reinstatements were done for seventy-six animals. One Registered Nguni bull and fifteen Registered Nguni cows were exported to the United Arab Emirates. The breeders were Breslau Nguni's and Rous Brothers. Two AI bulls of Mr Freddie Besselaar were approved.

In April 2016, forty doses of semen were exported to Namibia from an approved AI bull. Embryo plus handled the exportation.

PROJECTS

Sernick Feedlot Project

A Nguni feedlot project was conducted at Sernick Feedlot, near Edenville. The aim of this project was to determine the reasons for the discrimination against Nguni animals in the feedlot and to determine whether this practice is fair to the breed.

This project also aims to investigate the optimal finishing of Nguni steers and what feeding regimes could alleviate the discriminatory practices applied by feedlots against the Nguni.

The specific objectives for the projects were:

- To determine the optimal feeding period, linked to live and carcass weight(s).
- To determine the effect of age and maturity on feedlot performance.
- To determine the optimal feeding regime and ration, suitable for Nguni steers
- To record composition changes linked to carcass suitability for different market segments by using weight and ultrasound recordings.
- Linking available BLUP breeding values to feedlot performance (progeny).
- Using the information for the determination of markets and alternative feedlotting for Nguni cattle.

BEEF GENOMICS PROJECT

The Nguni Society joined the Beef Genomics programme and several meetings and workshops were attended. The Society collected more than 173 DNA samples from identified animals and three semen straws of identified sequence bulls.

INSPECTIONS

Inspection applications	177
Inspections done	140
Annual inspections for animals approved	4 360
Animals failed inspections	320
Animals stood over	142
Special inspections for animals approved	143
Special inspections for animals failed	3
Appeal inspections	None

SA STAMBOEK STUD BOOK

Marietjie Delport
SA Studbook

COMMUNICATION AND MARKETING

The Nguni society was involved in the following exhibitions:

Nampo
Mega Week
Free State RPO Congress
Lesotho Expo (The Society's first Nguni's were sold at the Expo by Mr Hannes du Toit).

A calendar and journal were compiled and distributed to the breeders. The journal is also published on the website.

MEETINGS

Four council meetings were held in Bloemfontein during 2016. An Inspectors refresher course and the AGM were held on 10 and 11 November at Maselspoort. A Strategic session was also held after the inspection refresher course. An evening function was held afterwards.

TRAINING

A Beginners Course was held at the Potchefstroom College of Agriculture from 23 to 25 February 2016. Twenty-eight third-year students attended the course. The practical was held at Bandini Farms just outside Potchefstroom

The Jacobsdal Agricultural High School Information day was held on 2 March 2016 at the school. Twenty-five grade ten learners attended the day.

A three day Beginners course was held at the University of Limpopo for fifty-six fourth-year Agriculture students from 5 to 7 April 2016. The practical was held at the Research farm of the University and also at Mr Lukie Steenkamp's farm at Potgietersrus.

A short course was presented for about fifteen Nguni beneficiaries (Gauteng IDC project) on 26 May 2016.

A Beginners course was held on 4 October 2016. A Junior Inspectors course was held on 5 and 6 October 2016 at Bloemfontein. The practical was held on the farm of Mr Andre Nel near Brandfort. Nine people attended the courses and eight people passed as junior inspectors.

OFFICE

Yolanda Venter attended the following meetings:

- Voermol/SA Studbook Breeding Symposium
- Free State RPO Congress
- Nampo meeting
- Large stock forum - SA Studbook
- SA Studbook AGM
- Discussions regarding changing of cow values

Louise du Toit attended the following courses:

- Payroll and HR requirements
- PwC annual post-Budget Speech panel discussion
- Annual Tax Seminar
- Tax and Labour law and payroll

Maki Moshao attended an occupational health and safety meeting held by SA Studbook.

The office manager, Yolanda Venter, attended the 34th Annual Congress of the South African Society for Agricultural Technologists (SASAT) at Upington on 6 to 8 September 2016. She also presented a poster with the title: "The inheritance of coat colour genes in Nguni cattle". She was awarded first place for the best poster presented.

The Nguni Society was awarded the second place for the compilation of the best SA Studbook annual report for 2015 (out of sixty-four breeds from SA Studbook).

The annual audit was done by PwC during October. The Society's finances are in a healthy condition. A very good report was received from the auditors.

The drought had a negative effect on membership of the Society, but breeders are still positive about the breeding of Nguni's, especially in drought and harsh conditions.

Yolanda Venter
Office Manager

GROOTFONTEIN AGRICULTURAL COLLEGE & MIXED PRODUCTION UNIT MINI-FARM


Second year students


Third year students


Netball Team

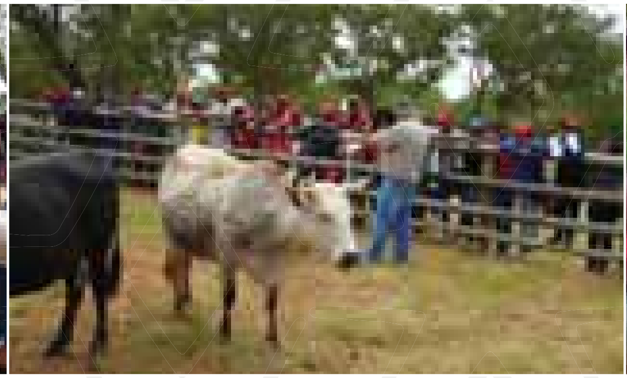

Best student 2016 - Mixed Production Unit. Miss NC Nqayi


Time for a braai


First Rugby Team - Pannar Rugby Week


First year students

University of Limpopo, Polokwane


Potchefstroom Agricultural college



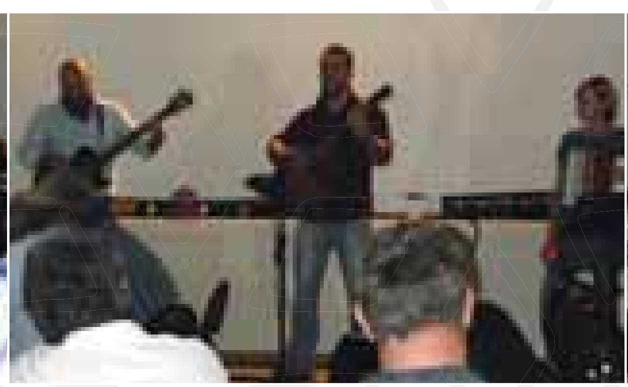
Junior Inspector's Course

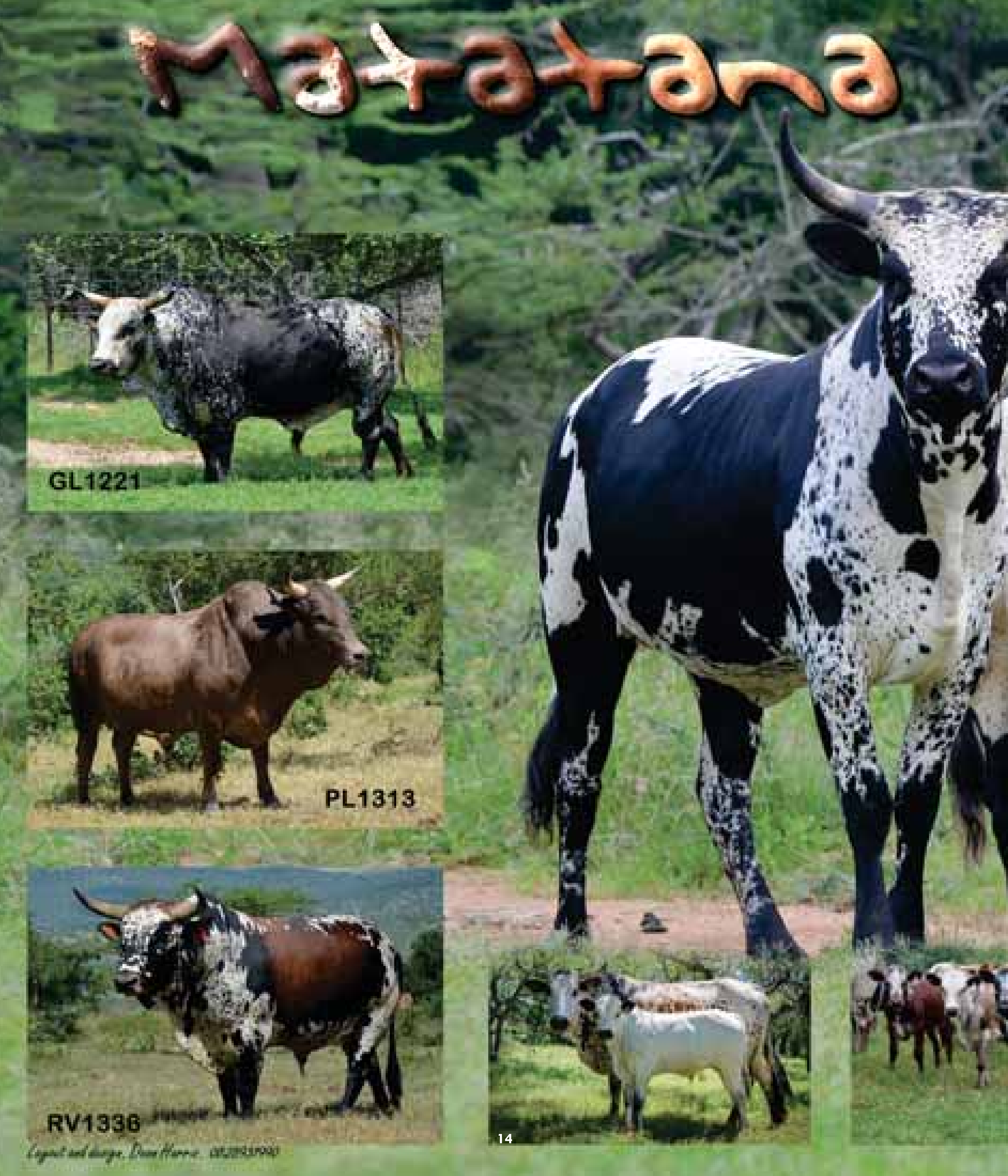


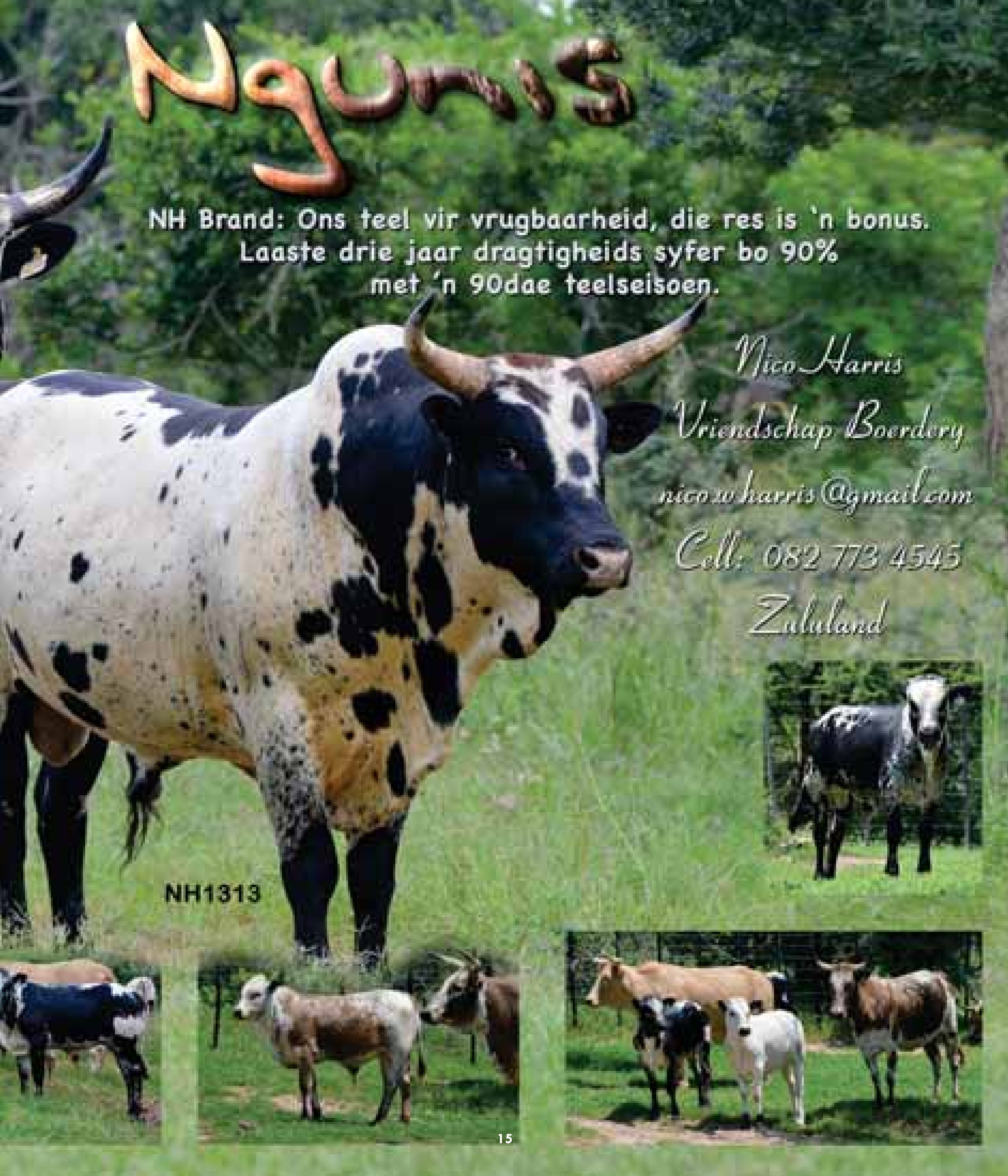
Ghanzi Show 2016

NAMPO 2016

Annual General Meeting




Matatana
GL1221
PL1313
RV1336


Ngunis
NH Brand: Ons teel vir vrugbaarheid, die res is 'n bonus.
Laaste drie jaar dragtigheids syfer bo 90%
met 'n 90dae teelseisoen.
Nico Harris
Vriendschap Boerdery
nicowharris@gmail.com
Cell: 082 773 4545
Zululand
NH1313

LEADERSHIP THE ESSENTIALS

by **Erwin Schwella**

The understanding and practicing of leadership can vary from being somewhat complicated to being very challenging and complex. In this article on leadership, the approach will be to provide some of the essentials of leadership. In this endeavor, the first focus is on what leadership is.

Leadership is primarily focused on reaching goals and objectives and to reach the goals and objectives in cooperation with a team, inspired and motivated by leadership. Put differently, leadership aims to get things done in cooperation with others.

Leadership is a call to action and leadership calls for action. This can be called leadership of the hands.

As part of the call to action and the action following on the call, leaders must inspire, motivate, convince and lead by example to get their teams to do things and get things done.

Leadership that does not get things done is not leadership, but merely passing time and mostly converting fuel into noise. At the end of each day, leaders should ask themselves very pertinently what their leadership contributed to get things done.

To get things done leaders need competencies and commitment. The leadership competencies to get things done, which is the primary purpose of leadership and the priority process leaders should be aiming at and engaged in, are:

1. ***The competency of situational assessment.*** *Leaders must be able to scan the contexts with in which they operate like a fighter pilot scans the space that surrounds him with a radar scan and the radiologist scans the state of the health of a body with a CT scanner. This continuous scanning requires an understanding of trends in the areas of:*

a. the **economy,** in terms of markets, consumer preferences, supply and demand for products and production and distribution effectiveness and efficiency,

b. **politics,** in terms of who has power and influence, how this power and influence is used and to whose benefit it is used by the powerful and influential as well as understanding over which power and influence the leader and his group possess in order to use their power and influence to convince or force things for them to benefit,

c. **society,** in terms of who the people are who have to be served through service delivery and/or who use the goods or services produced and distributed by the leader and his group and also what their needs, preferences, consumer behavior and priorities are,

d. **technology,** in terms of which instruments can be used for the beneficiation of services and products, from a wide range of tools and techniques, for example from improved husbandry science and techniques in agriculture services and products, to which sophisticated information and computer technologies may be available for improved decision-making, production and delivery,

e. **legal and regulatory provisions** and changes to make sure that leader and team actions comply with the law and other regulatory mechanisms,

f. **the ecology,** to remain in harmony with the environment, as failing to do so will lead to declining sustainability of the soil, water, the air and all of the life supporting conditions and systems required for life on earth to thrive and even to merely survive.

2. ***The competency of envisioning.*** *Essentially this competency uses the creative and imaginative capacity of the leader to facilitate reachable dreams linked to action into a shared vision. The vision must be a compelling and inspirational vision of an improved and idealistic future. Visions have to inspire, excite and mobilize teams to strive towards and reach the inspiring shared vision.*

3. ***The competency of rational analysis.*** *This competency requires understanding and interpretation of the challenges and opportunities in the context and the competency to, through analysis, find the evidence on which to base leadership decision-making. This competency for analysis links to thoughtful and mindful leadership of the head, which requires intelligence, thinking and strategy. The competency of rational analysis links to mind-fulness, focus and experience to, over time, cultivate wisdom in dealing with difficult challenges to which there are no easy answers.*

4. ***The competency of implementation,*** *which includes management aspects where programs and projects are programmed from the vision and the plans, operationalized, budgeted and costed, rolled out and where delivery takes place on the ground and in reality. Leaders should be managers and managers should be leaders - depending on which competencies are required at a given time.*

5. ***The competency of control*** *through observation of progress - or the lack thereof, and monitoring and evaluation of and for performance. This control, monitoring and evaluation are necessary in order to act appropriately to keep things on track, if things are working out, or to change tack and tracks, if things are not going well. Progress and performance have to be monitored and evaluated and confirmed, if objectives are being reached, or corrected if objectives are not met.*

6. ***The competency to learn and to build*** *the lessons learnt back into the functioning of the system or organization. This competency requires systems thinking capabilities and result in systemic continuous quality improvement as the lessons learnt inform systems re-design.*

Leadership is about getting things done. This is leadership of the hands, which is a fundamental necessity for leadership and leaders. Leadership of the hands, as active and action leadership results in reaching objectives and performance, if linked to the competencies of envisioning, analysis, implementation, control and learning.

Leadership of the hands as active leadership needs to be integrated with leadership of the head. Leadership of the head requires analysis, thinking, logic, systems thinking, intellectual and cognitive capacity, comparison, knowledge, validation, verification and reasoned rationality. Leadership of the head requires competency in the areas of:

- **Thinking** based on the finding and assessing facts and evidence and determining choices based upon verified evidence using logic and rational reasoning.
- **Observation** in the most objectively possible way of what the situation is, what the challenges and options are and to correlate and validate observation against reality while specifically compensating for own subjectivity and individual and group bias which may be based on ideology or emotion rather than on ideas and evidence.
- **Decision-making** on the basis of the consideration in a mindful and thoughtful way what the factual base as discovered points to as a considered and wise course of action.
- **Implementation** competencies, again requiring planning, doing, assessing, learning and adapting capacity with the team and the leader.

The cerebral, cognitive, evidence and rational leadership of the head has to be combined with active leadership of the hands for impact and effect in reaching goals and objectives effectively and efficiently.

DON'T BE
UPSET BY THE RESULTS
YOU DIDN'T GET WITH THE
WORK YOU DIDN'T DO.

It is important to realize that leadership of the hands and the head are necessary, but not sufficient conditions for effective and ethical or good leadership. Leadership of the hands and the head have to be considered and practiced in the context of leadership of the heart and leadership of the soul, which refers to the pathos and ethos of leadership and relates to feeling and morality and ethics. Leadership of the heart requires humanity, caring, empathy, consideration, sympathy and emotional intelligence.

Essentially the basics of leadership of the heart combined with leadership of the hands is best captured in the golden rule of doing unto others as you want done onto yourself.

Mere leadership of the hands can be very instrumental and mere leadership of the head can be very cold and clinical if not imbedded in leadership of the heart which links it to caring and empathy.

Concretely leadership of the heart can be linked to the competencies of emotional intelligence which have been identified as:

- *The competency of self-awareness, which requires of leaders to know and deal constructively with their individual personal strengths and weaknesses.*
- *The competency of social awareness which is the competency to act appropriately and with considerateness and care in social situations.*
- *The competency of self-management which requires leaders to recognize, understand and manage their own emotions through competent and appropriate self-management.*
- *The competency of relationship management in order to recognize, understand and influence the emotions of others through competent and appropriate relationship management.*

In summary, emotional intelligence is about self-awareness, altruism, personal motivation, empathy and the ability to love and be loved by friends, partners, family, team members and other groups of people with whom the leaders engage and interact.

Leadership of the soul is about ethics and morality.

It is about leading good and leading well.

In leadership contexts ethical competence as a first step of enabling conditions requires a set of knowledge, skills and attitudes, that enable a person to adequately deal with moral challenges and make decisions and behaviors that meet high ethical standards

Concretely, the competencies required to lead ethically and morally have been identified as honesty, trustworthiness, respect, responsibility, fairness, caring and citizenship.

Ethical leadership competencies result in good leadership whereas unethical leadership results in bad leadership. The impact of these two poles of leadership of the soul for a public governance context is captured in the following quote:

"Good leaders globally… guide governments of nation-states to perform effectively for their citizens. They deliver high security for the state and the person; a functioning rule of law; education; health; and a framework conducive to economic growth. They ensure effective arteries of commerce and enshrine personal and human freedoms. They empower civil society and protect the environmental commons."

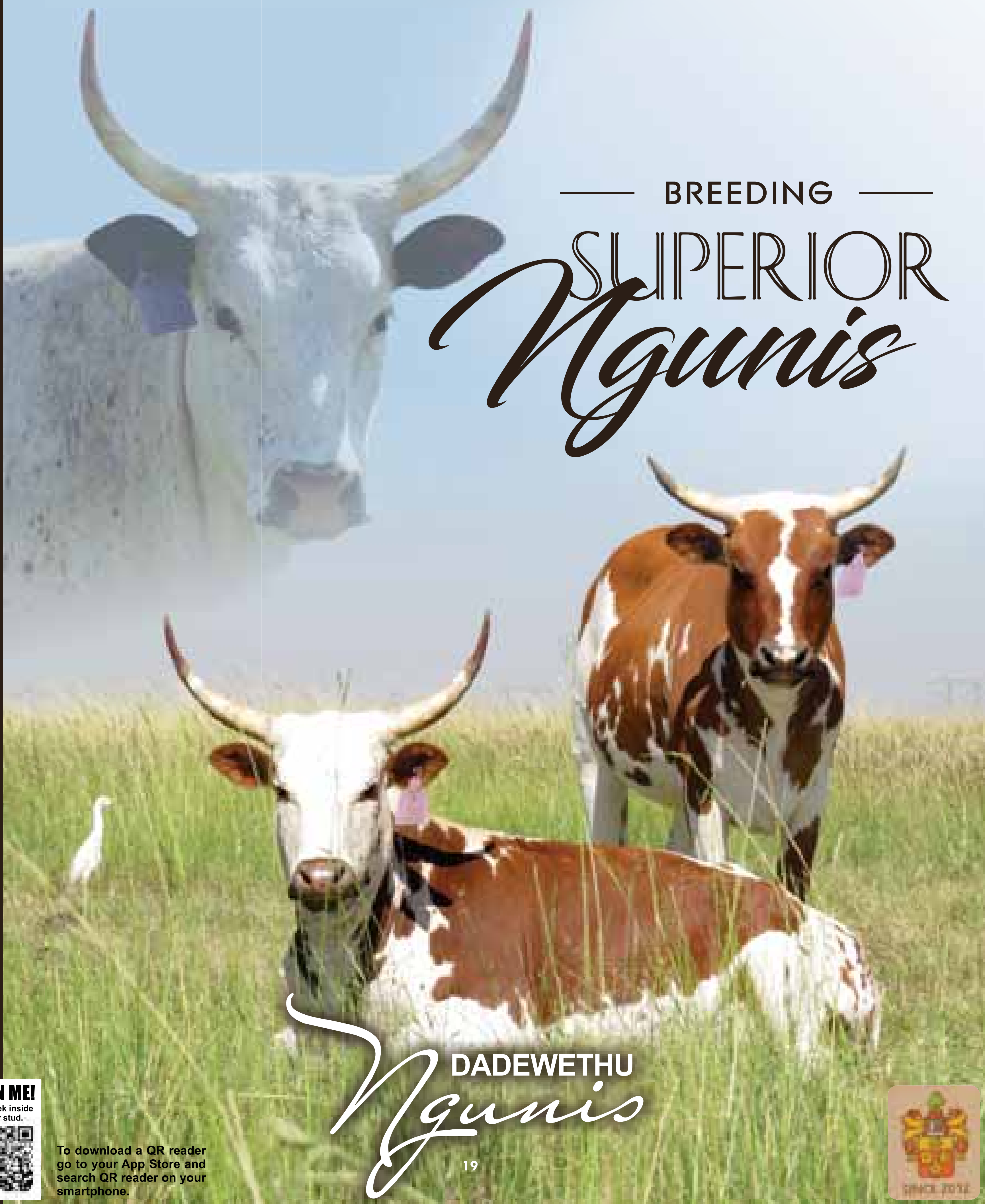
Crucially, good leaders also provide their citizens with a sense of belonging to a national enterprise of which everyone can be proud. They knit rather than unravel their nations and seek to be remembered for how they have bettered the real lives of the ruled rather than the fortunes of the few.

Less benevolent, even malevolent, leaders deliver far less by way of performance. Under their stewardship, roads fall into disrepair, currencies depreciate and real prices inflate, health services weaken, life expectancies slump, people go hungry, schooling standards fall, civil society becomes more beleaguered, the quest for personal and national prosperity slows, crime rates accelerate, and overall security becomes more tenuous. Corruption grows. Funds flow out of the country into hidden bank accounts. Discrimination against minorities (and occasionally majorities) becomes prevalent. Civil wars begin." Rotberg (2003)

The benevolent effects of good leadership of the soul as ethical and moral leadership as opposed to bad leadership as unethical and immoral leadership of the soul in the context of governance can also be worked out in other contexts of society such as the political, economic and social contexts.

In conclusion essentially leadership is about setting and reaching visionary purposes, goals and objectives through getting things done with others in ways which are effective and ethical. It is as simple and as complicated and complex as that. It requires capacity and commitment from leaders who are found not only in the formal leadership positions in a team, but within all of the leadership spread throughout the team.

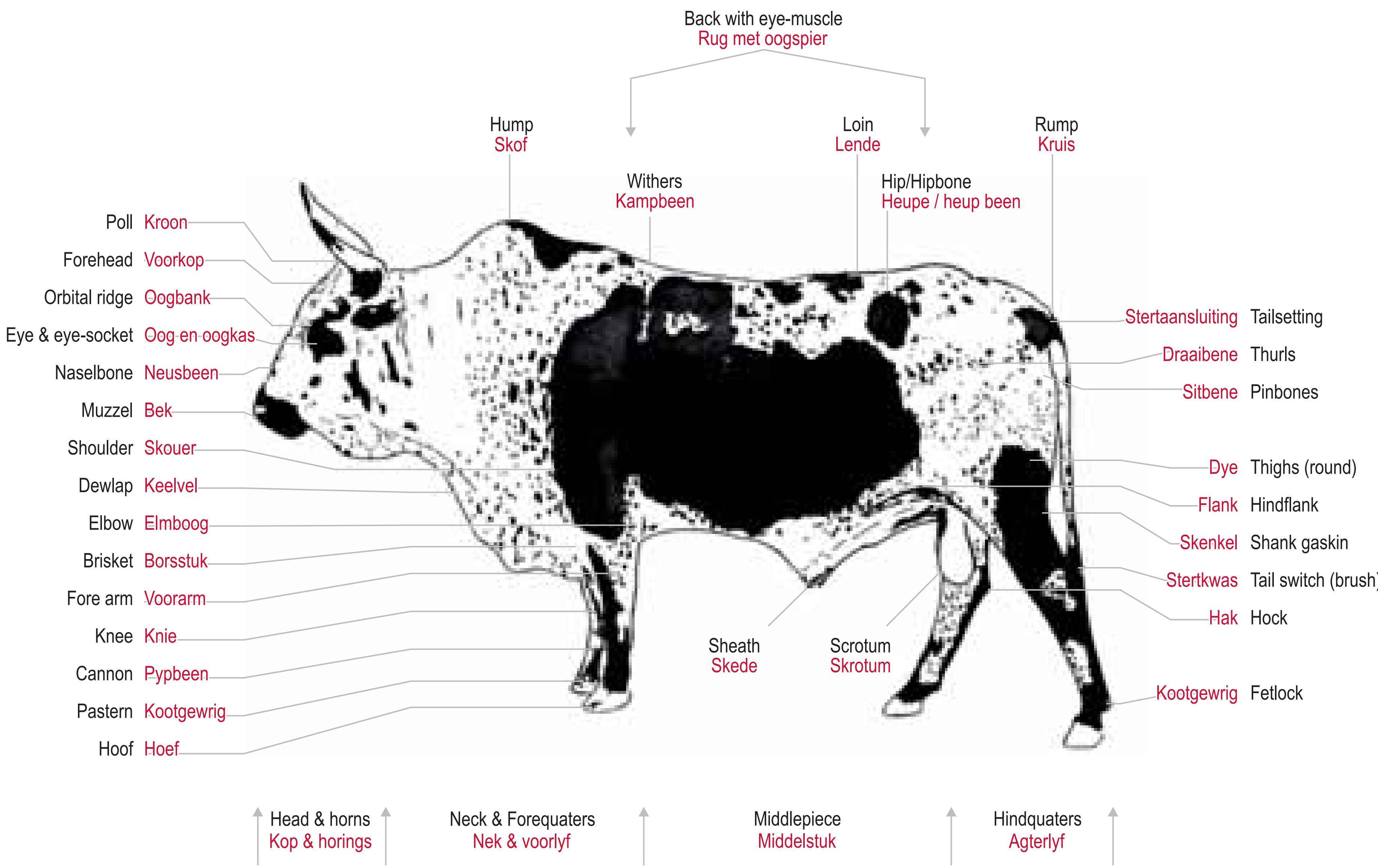
It is of less use if the leader and the members of the team have capacity to lead towards results, but not the commitment to do so, or alternatively the commitment to attempt leadership, but not the capacity to do so. Effective and ethical leadership requires capacity and commitment to practice and learn from leadership of the hands, the heart, the head and the soul. In essence, it is about conscious and conscientious committed and competent leadership by and for all concerned.



BREEDING
SUPERIOR
Ngunis
DADEWETHU
Ngunis

NGUNI BULL MORPHOLOGY

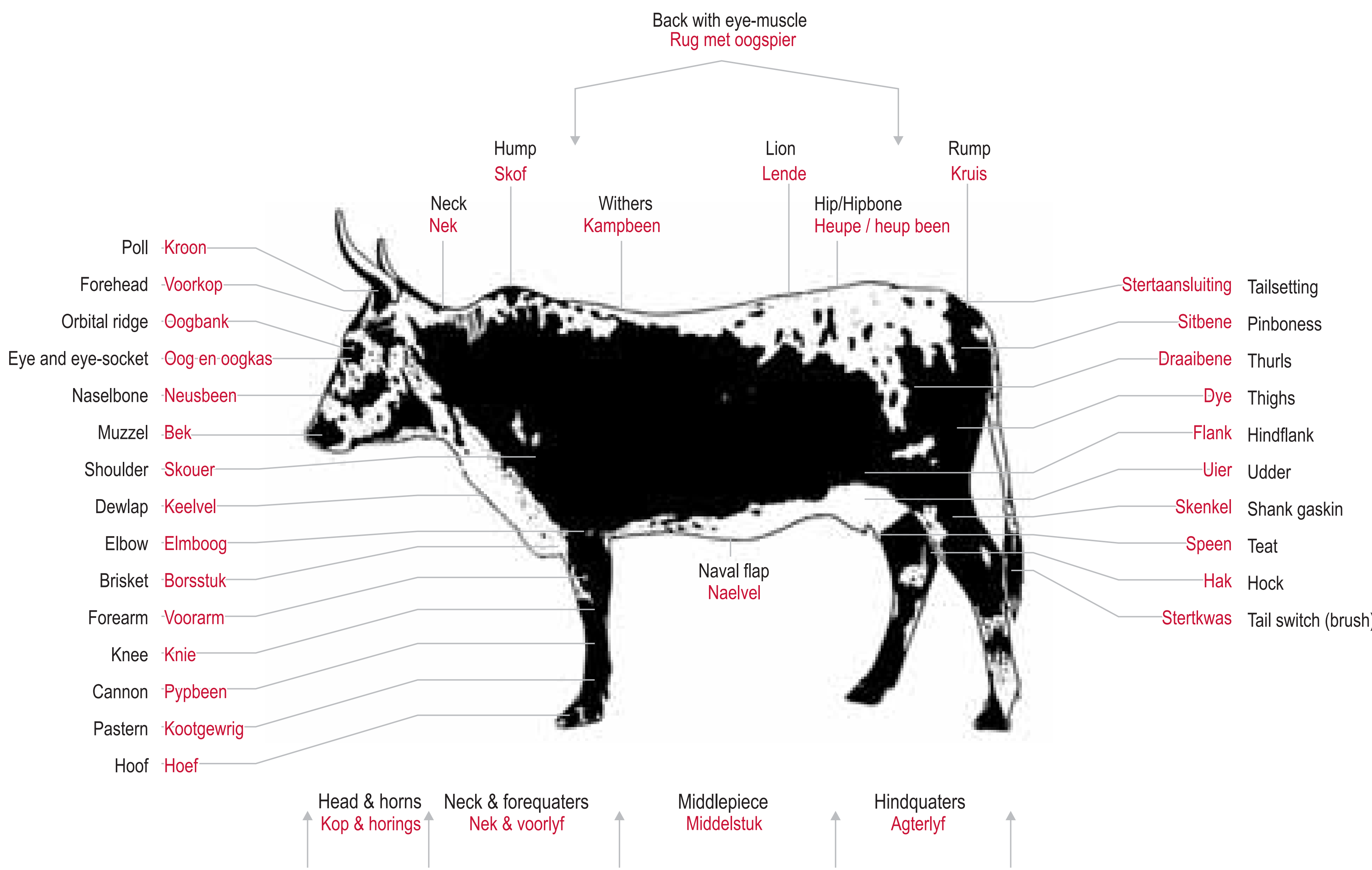
An example of a Nguni Bull with descriptive headings
'n Voorbeeld van 'n Nguni-bul met beskrywing van liggaamsdele



NGUNI COW MORPHOLOGY

An example of a Nguni Cow with descriptive headings

'n Voorbeeld van 'n Nguni-koei met beskrywing van liggaamsdele



EASTWICK

• STUD FARM •








DIE NGUNI IDEALE MOEDERLYN

VIR VLEISBEESPRODUKSIE ONDER SUID-AFRIKAANSE TOESTANDE.

Dr. Danie Odendaal – Direkteur: Veearts Netwerk met spesifieke belangstelling in Kuddegesondheid en Produksiebestuur
E-pos: danie@v-data.co.za

Die Nguni is 'n beesras wat oor honderde jare deur natuurlike omstandighede geselekteer is om te oorleef en aan te teel. Onder hierdie omstandighede was daar nie moderne medisyne soos antibiotika en parasietbeheermiddels nie. Net so was daar ook nie aanvulling van seisoenale voedingstekorte nie.

Veterinarian Network Veearts Netwerk

Onder hierdie omstandighede is daar vir spesifieke funksionele eienskappe geselekteer wat nodig was vir oorlewing en aanwas. Baie eenvoudig gestel, slegs diere wat sonder hulp kon oorleef en aanteel het die volgende geslag diere uitgemaak.

Daar het dus natuurlike seleksie plaasgevind vir onder andere die volgende funksionele eienskappe:

1. Weerstand teen parasiete en inheemse siektes - veral ten opsigte van bosluise en bosluisoordraagbare siektes wat die beperkende faktor is vir beesproduksie in Suidelike Afrika.

2. Gemak van kalwing as gevolg van die funksionele bouvorm van die pelvis en vermoë om die grootte van die fetus (ongebore kalf) te beheer.

3. Beter vermoë om onder beperkende voedings-omstandighede te oorleef en/of die vermoë om liggaamskondisie vinnig te herstel na seisoenale voedingstekorte.

4. Vroeë ontwikkeling van puberteit wat aanleiding gee tot eerste kalwing op 'n jong ouderdom en dus 'n korter tussen-generasie interval.

5. Aanpassing by sub-tropiese omgewingsomstandighede en langslewendtyd wat hoofsaaklik afhanklik is van die dier se tande wat langer hou as die meeste ander rasse.

BOSLUISWEERSTAND EN WEERSTAND TEEN BOSLUISOORDRAAGBARE SIEKTES.

Bosluisoordraagbare siektes is steeds die grootste oorsaak van vrektes onder beeste in Suid-Afrika.

In kuddes waar geboer word met diere wat nie inheems is nie word daar tans baie gebruik gemaak van antibiotika en ander middels om die totale kudde te behandel wanneer uitbrake van die bosluisoordraagbare siektes voorkom. Bosluisoordraagbare siektes sluit hartwater, rooiwater en bosluisgalsiekte (anaplasmose) in.

Die Nguni's as inheemse ras beskik oor inherente weerstand teen die siektes. Dit beteken nie dat so 'n dier altyd automaties reeds oor immuniteit teen die siekte beskik nie. Dit beteken wel dat die diere oor die vermoeë beskik om 'n totale beskermende en selfs lewenslange immuniteit teen die siektes te ontwikkel indien hulle daaraan blootgestel word.

Om met 'n volwasse koei-trop te boer wat verworwe immuniteit het teen die bosluisoordraagbare siektes wat in die streek voorkom, is 'n plesier. Die teenoorgestelde is ook waar - en dit is dat dit 'n nagmerrie is om met hoogs vatbare koeie te boer. So 'n boer sit die heeltyd op 'n mespunt, want 'n uitbreek van die siektes kan enige tyd tydens die reënseisoen voorkom en baie vrektes veroorsaak voordat behandeling nog kon begin.

Daarmee saam is die ontwikkeling van bosluisweerstand teen dipstowwe ook een van die grootste probleme waarmee beesboere in Suid-Afrika worstel.

Inderwaarheid ontwikkel bosluisweerstand nie, maar dis slegs 'n proses waardeur vatbare bosluise uitgeskakel word deur gereelde (weeklikse) behandeling, of nog erger die gebruik van langwerkende, inspuitbare middels teen bosluise. Al bosluise wat dan oorbly is die bosluis-bevolking wat nie vatbaar was vir die dipmiddels nie. Gereelde bosluis-behandeling is dus ook maar net 'n seleksieproses wat die bosluise bevoordeel wat die huidige behandeling kan oorleef en dus daarna kan aanteel om die volgende generasie van bosluise te vorm.

Omdat die **Nguni-ras** vir honderde jare moes oorleef sonder die beskikbaarheid van dipstowwe, **het die ras ook die inherente vermoë ontwikkel om self 'n immuunreaksie teen die bosluise te loods.** Dit beteken dat hulle minder bosluise dra en/of dat bosluiswyfies nie volledig volsuip nie en dus baie minder eiers (nageslag) kan produseer. Die een bosluis waarteen daar wel nie betekenisvolle weerstand teen is nie, is die bruinoorbosluis wat in sekere gebiede 'n probleem is. Die bosluiswyfies suip vol binne 4-5 dae nadat hulle aangeheg het en dus kan die dier se weerstand nie 'n groot rol speel in die beperking van die bosluise nie.

GEMAK VAN KALWING

Hangkruis vir maklike geboorte.

Die beperking met vleisbeeste is dat hulle onder baie ekstensiewe omstandighede aangehou word in Suid-Afrika. Indien daar 'n goed beplande dekseisoen is, sal kalwers ook oor 'n beperkte tydperk gebore word waartydens waarneming vir kalwingsprobleme opgeskerp kan word. Inderwaarheid is daar nog baie beesboere wat nie 'n gekonsentreerde kalwingseisoen het nie en dit is noodsaaklik dat verse en koeie sonder hulp moet kan kalf.

Weereens het die Nguni-ras onder sulke omstandighede ontwikkel waar geen hulp tydens geboorte bestaan het nie. Dus, net koeie wat self kon kalf, het oorleef om 'n nageslag te produseer.

Die uitstaande kenmerk van 'n Nguni-koei is die baie opsigtelike helling van haar kruis (pelvis wat die geboortekanaal vorm). Omdat die begin van die geboortekanaal (ingang vanaf die buik) 'n ovaal tonnel is wat deur die twee pelvisbene gevorm word, vergroot die opening hoe meer afdraande die kruis se helling (punt van die heupbeen tot punt van die sitbeen) is.

Grootte van die kalf met geboorte.

Met moeilike geboortes kan die probleem gesoek word by of die koeie (grootte van die geboortekanaal) of by die fetus (ongebore kalf). Die grootte van die ongebore kalf in verhouding tot die geboortekanaal is dus net so 'n belangrike faktor.

Dit is 'n uitstaande kenmerk van die Nguni-ras dat die kalwers kleiner, maar steeds baie lewenskragtig is met geboorte. Wat nog verder in die guns van Ngini-koeie tel, is dat hulle die vermoë het om die grootte van die ongebore kalf te beperk - selfs as hulle gepaar word met 'n ander ras waarvan die kalwers normaalweg baie groter is met geboorte.

Hierdie eienskap is seker een van die belangrikste eienskappe wat van die **Nguni-koei die ideale moederlyn maak vir gebruik in die ekstensiewe vleisbeesproduserende areas van Suid-Afrika.**

VINNIGE HERSTEL VAN KONDISIE

Die enkele grootste beperking vir ekstensiewe beesboerdery is die seisoenale voedingstekorte wat oorkom moet word met byvoeding of gebergde voere soos hooi of kuilvoer.

Hierdie seisoenale aanvulling is dan ook die enkele, grootste veranderlike koste in vleisbeesboerdery wat bepalend is ten opsigte van die winsmarge wat behaal word.

Optimale natuurlike weidings-omstandighede voorsien net hoë-kwaliteit weiding (ru-proteïen van hoër as 10%) vir 3-4 maande van die jaar in ons sub-tropiese klimaat. Dan is daar ook 3-4 maande van die jaar waar die ru-proteïen baie laag is - en sover daal as onder 4% wat weiding tegnies onverteerbaar maak sonder proteïen-byvoeding.

Natuurlike seleksie het dus noodwendig plaasgevind in 'n beesbevolking wat onder hierdie omstandighede sonder byvoeding moes kon **oorleef en reproduseer.**

Die **natuurlike seleksie** het onder andere vir **twee eienskappe** geselekteer. **Eerstens** is dit die **vermoë om baie vinnig gewig (vetreserves) aan te sit** wanneer goeie weiding beskikbaar is. **Tweedens** die **vermoeë om stikstof (N) te hersirkuleer sodat dit beskikbaar is wanneer die proteïen in die gras so laag daal dat dit nie meer verteerbaar is vir die mikro-organismes in die grootpens nie.**

Vinnige herstel van kondisie

'n Baie spesifieke eienskap van **'n ekstensiewe vleisbees-moederlyn is dat die koeie nie oormatig bespierd moet wees nie. Wanneer 'n dier in 'n negatiewe voedingstatus is, verloor dit eerste die vetreserves en dan ook die spierweefsel.** Sodra voeding weer beskikbaar is, moet die spierweefsel eerstens weer aangevul word voordat daar vetneerlegging plaasvind. Hoe meer bespierd die vroulike dier is, hoe langer vat dit en hoe meer kos is nodig voordat dit eers weer vetreserves kan aansit. Vetreserves is nodig vir die dier om weer reproduktief aktief (gereelde hittesiklusse) te word.

Hersirkulasie van stikstof en fosfaat.

Een van die faktore wat wetenskaplik getoets is, is die **vermoë van Nguni-koeie om stikstof (proteïen-boustene) en fosfaat, wat nie gebruik is in die grootpens nie en dus verlore sou gaan deur die mis, op te neem en te hersirkuleer.**

Beide hierdie makro-voedingstowwe is beperkend in die natuurlike weiding vir die grootste deel van die jaar.

VROEË PUBERTEIT

Kort generasie-interval

As ons na die natuur kyk, is daar sekere diere en plante wat aangepas is by die relatiewe kort reënseisoen waaraan ons blootgestel is.

Die lewende wesens wat die vinnigste kan toeneem na 'n normale seisoenale droë seisoen of droogte, is daardie bevolkings wat bevoordeel word deur die omstandighede.

Wat beeste aanbetref, het ons 'n baie lang generasie-interval waar die meerderheid van verse eers op twee jaar (26 maande) na geboorte vir die eerste keer gedek word om eers 'n nageslag te produseer wanneer hulle amper drie jaar is.

Met Nguni-verse wat goed bestuur word, kan die generasie-interval met 'n hele jaar verkort word sodat verse reeds hulle eerste kalf lewer wanneer hulle twee jaar oud is.

Vroeë puberteit is dus ook een van die eienskappe waarvoor daar natuurlik geselekteer word, sodat 'n bevolking weer vinnig kan toeneem na ongunstige omgewingstoestande.

Die voorbehoud onder kommersiële vleisbees-produksie omstandighede is dat die verse wel so bestuur en gemonitor moet word dat hulle die minimum kritiese teelgewig behaal alvorens hulle op 14 maande vir die eerste keer gedek word.

Suiwer Nguni-koei met Angus X Nguni kalf

Suiwer Nguni-koei met Angus X Nguni kalf (13 maande oud)

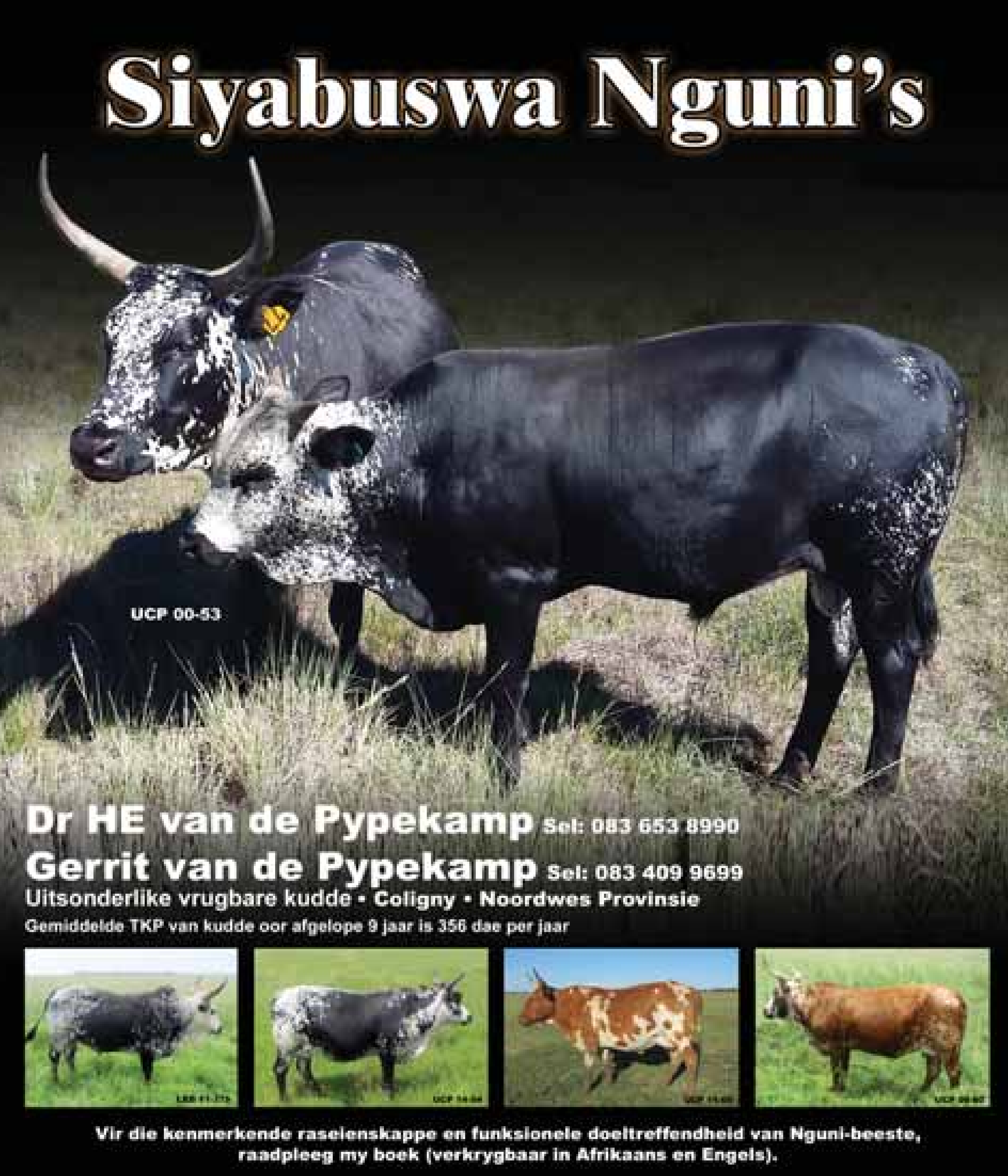
LANGSLEWENDHEID

Vervangings-persentasie

In ekstensiewe vleisbeesproduksie is dit 'n baie groot voordeel as koeie tien en meer kalwers kan produseer in hul leeftyd. Eerstens is dit ideaal wanneer daar van terminale kruisteling gebruik gemaak word, omdat die hoeveelheid koeie wat vervang moet word deur suiwer geteelde Nguni- verse minder as 15% per jaar is. So, net die beste koeie kan gebruik word vir die teling van suiwer Nguni-vervangingsverse en die res kan gebruik word vir terminale kruisteling.

Die grootmaak van vervangingsverse is, soos reeds gestel, 'n baie belangrike onkoste in enige vleisbeesboerdery. Daarom is dit 'n voordeel om met diere te boer wat **langslewend** is.

Nguni-koeie en -bulle het baie sterk tande wat onder ons sub-tropiese weidings-toestande langer hou voordat dit afslyt. Dit is laastens weereens een van die kenmerke waarvoor geselekteer was onder natuurlike seleksie-toestande.


Siyabuswa Nguni's
UCP 00-53
Dr HE van de Pypekamp Sel: 083 653 8990
Gerrit van de Pypekamp Sel: 083 409 9699
Uitsonderlike vrugbare kudde • Coligny • Noordwes Provinsie
Gemiddelde TKP van kudde oor afgelope 9 jaar is 356 dae per jaar
Vir die kenmerkende raseienskappe en funksionele doeltreffendheid van Nguni-beeste, raadpleeg my boek (verkrygbaar in Afrikaans en Engels).

Redwater & gallsick area (KZN)

SALES

KZN Nguni sale (25 March 2017)
Central sale BFN (25 October 2017)
7th Production sale (November 2017)

NANDI NGUNI

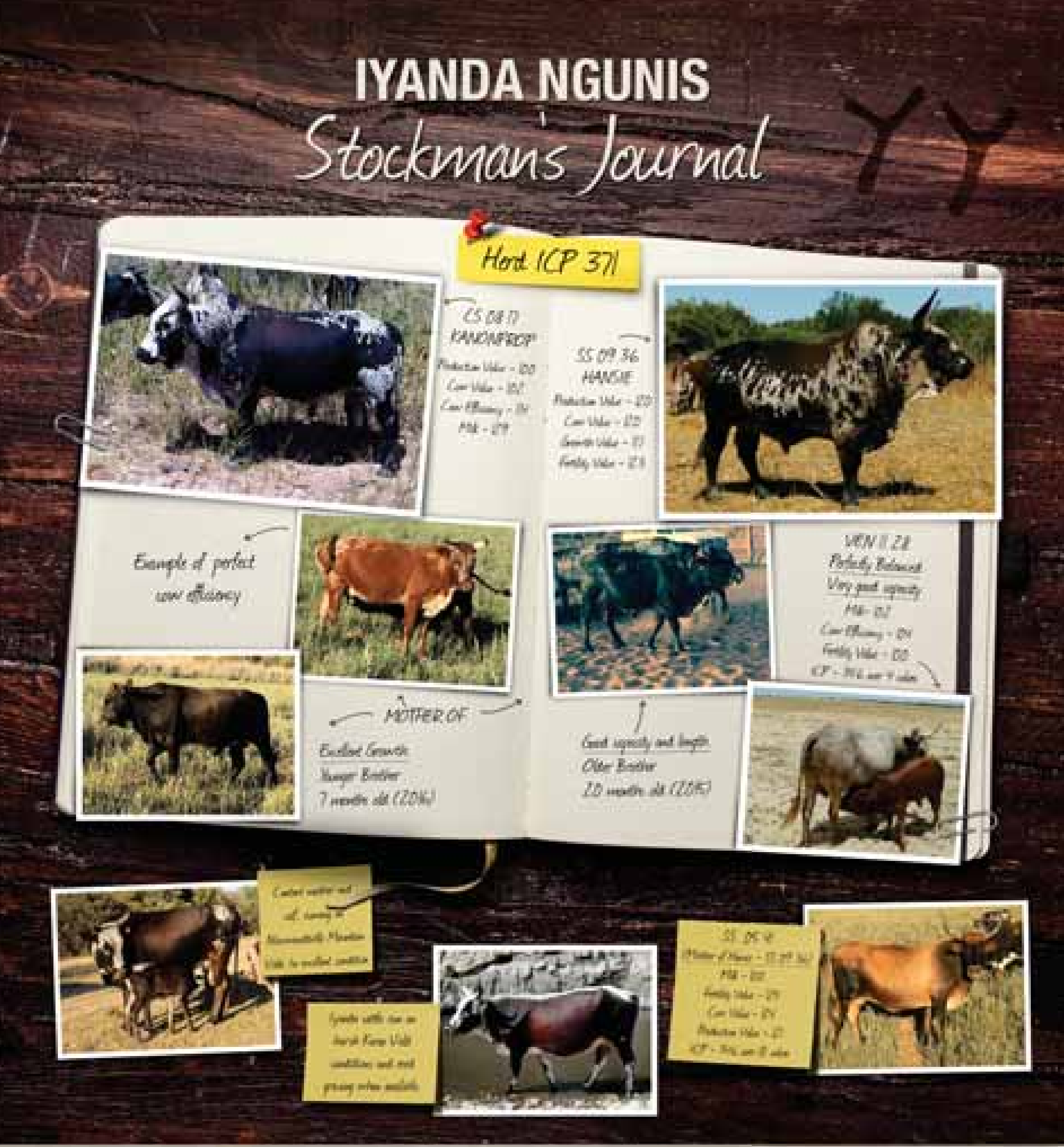
Since 1977

40 YEARS
Celebrating Breeding

Brian
C: 071 004 4199
T: 010 001 0857

Clive
C: 082 308 8568

LBC Biggs Trust
Box 88, Cedarville, 4720
lbcbiggs@lantic.net


IYANDA NGUNIS
Stockman's Journal
Herd ICP 371
SS 09 36
HANSIE
Example of perfect cow efficiency
Perfectly Balanced
Very good capacity
MOTHER OF
Younger Brother
7 months old (2016)
Good capacity and length
Older Brother
20 months old (2015)

UNIQUE but part of a bigger world

by **Japie van der Westhuizen,** SA Stud Book

'NO MAN IS AN ISLAND'

No man is an island entire of itself; every man is a piece of the continent, a part of the main;... ...And therefore, never send to know for whom the bell tolls; it tolls for thee.

(From: MEDITATION XVII, Devotions upon Emergent Occasions, John Donne)

Although the context of Donne's very famous poem should be read against the backdrop of a time when the black plague swept through Europe (and the UK) and he fell victim to its effects, his very famous poem has been quoted in the context of reminding modern society that nothing happens in isolation and is inter dependent on many other factors.

This is also very true of any organisation keeping abreast with the latest scientific developments and in touch with products and services addressing industry needs. Individuality is important, but equally important are the local industry needs and uniqueness of markets, environmental constraints, resource availability and limitations not encountered elsewhere.

The South African beef cattle breeder cannot be divorced from the global context, however. Computing developments, especially ease of use, and access to information and products can often lead to situations where users of these products and sources of information become confused about their value and impact.

It is therefore also important to know if products used in animal breeding can be trusted. South African livestock breeders recording with SA Stud Book are in a position where they know that the recording practices, data handing, calculations of data that are presented as information to them and the genetic merit predictions to be used in selection and mating, comply to international norms and standards. The International Committee for Animal Recording (ICAR) renders a service whereby its members can benchmark themselves against global standards and therefore rate their quality of service delivery and products against these standards. Stud Book comply to all these standards for its services and products to South African beef breeders. One of the key principles of quality of data is to "rectify at source". This means that data submitted from farm level needs to be scrutinized for accuracy before acceptance to the Logix database.

It is usually measured against biological and logical norms (e.g. age at mating, possibility of a specific weight, etc.) as well as rules of the Breeders' Society (such as ownership, AI status, etc.).

Although these actions offer some level of certainty, it is not a fool proof assurance. This warrants further scrutiny at different levels, namely at calculation of other values (such as calving interval) and when breeding values are predicted (e.g. deviation from mean of contemporaries). Fictitious or wrong information or data, either through negligence or deliberate, lead to non-stability in breeding value prediction as BLUP will rectify these as progeny with records show its real breeding value with time.

The information of each breeder therefore has impact on all the others! No islands in cattle breeding and selection. Just like Stud Book, each beef cattle breeder, in this case Nguni breeder, should see him- or herself as part of a bigger picture. The advent of bigger probes into the genome of livestock will also contribute more towards expanding the view and usefulness of individual animals to contribute towards their production efficiency, and therefore competitiveness of the breed. A realisation of the links among each breeders' decisions and actions are therefore crucial.


BABAZEKA
NGUNIS
Riaan van Staden
084 555 3749 • rvanstaden@nashuaisp.co.za
RVS - A brand that's tougher than the rest!

SYNERGY IN DATA RECORDING: FROM VISUAL TO SELECTION

by **Japie van der Westhuizen:** SA Stud Book and Animal Improvement Association

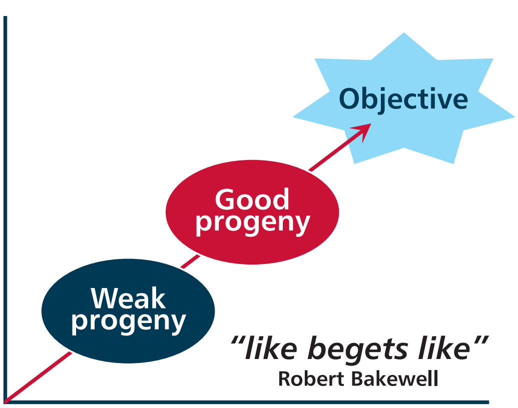
PART 1: Lessons from the past

A vogue developed for the 'agricultural conversation piece', where a farmer or landowner chose to be portrayed, not with his wife, children and dogs or horses, but with his livestock and farm employees'. (from: www.jonnyglover.com)

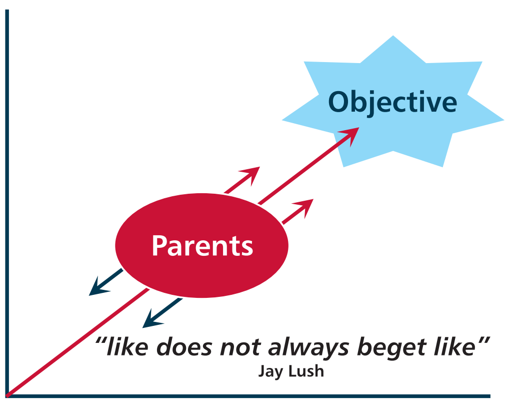
Robert Bakewell (1725 - 1795) (From http://www.bbc.co.uk/history)
With cattle, Bakewell had noticed that the Longhorn breed appeared to be the most efficient meat producers. They ate less and put on more weight than any other breed. As with the sheep, he began breeding in-and-in to enhance their characteristics and enable him to 'grow' more meat, more efficiently. By the time he had finished, his cattle were fat and meaty but, like the New Leicester sheep, the Longhorns went out of fashion when one of his apprentices, Charles Colling, created the shorthorn breed. While few cattle today are based on Bakewell's breeds, his methods have become accepted practice world-wide.

In the final chapter of one of the most popular handbooks for final year Animal Breeding students, **"Genetics for the Animal Sciences"** (Van Vleck, Pollak & Oltenacu; 1987) the authors list the four key elements needed to genetic improvement in farm animals as:

- Accurate records, not only accurate recording of pedigrees, but likewise collecting records of performance.
- Defining, as accurately as possible, the relative economic values of economic traits as **too much emphasis on selection on unimportant traits will slow down selection progress.**
- Making proper use of proven breeding and selection principles. One could be that **over emphasis on famous but distant relatives will hold back progress.**
- Use Genetic Evaluations. Here they are referring to the **combination of genetic merit prediction for individual traits of economic value weighed by their respective economic weights.**

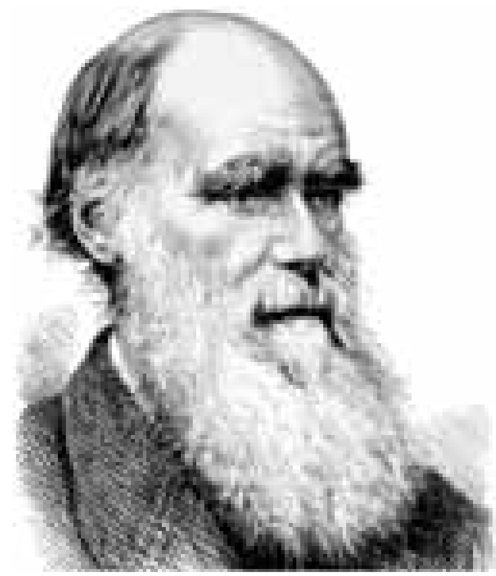


Although Robert Bakewell, regarded as the "father" of stud breeding, observed that carefully selected animals are more likely to produce progeny outperforming the progeny of mediocre parents (hence the term **"like begets like"**), the father of modern day animal breeding, Professor Jay Lush, coined the phrase: **"like does not always beget like".**



This means that selection for superior animals as parents will most likely produce superior offspring, but not in all cases, as variation in the performance of such progeny is very likely, with some even outperforming the best parent and others performing poorer than the worst parent.

It is fascinating to read about the innovation and ingenuity of Bakewell. Apart from his forward thinking and application of pasture enhancements and irrigation, his experimentation in breeding superior farm animals sets him strides ahead of anyone else of his time. Even Charles Darwin cited his work in "On the Origin of Species" as demonstration of how his methods lead to marked modification of the form and qualities of his cattle. An interesting observation of Darwin was with regards to the distinct differences between two different strains of Leicester sheep flocks that originated from Bakewell's sheep flock, but were kept apart as they belonged to and were bred by a Mr Buckley and Mr Burgess. This separation happened over a period of fifty years. Darwin remarked that the unanticipated result was that "the difference between the sheep possessed by these two gentlemen is so great that they have the appearance of being quite different varieties".



Darwin went to great lengths to describe the effects of artificial selection, referencing numerous examples of what the results of these efforts were. **He even described legislation setting minimum breed standards for horses:**

"In rude and barbarous periods of English history choice animals were often imported, and laws passed to prevent their exportation: the destruction of horses under certain size was ordered, and this may be compared to 'roguing' of plants by nurserymen".

He made a very interesting reference to South Africa where he referred to the local people "match(ing) their draught cattle by colour". He also quoted Livingstone in referring to the "Interior" African people cherishing the good qualities of their domestic breeds, people that have "not associated with Europeans". He believed these keepers of cattle show practices that support the **theories "that the breeding of domestic animals was carefully attended to in ancient times,** It would, indeed, have been a strange fact, had attention not been paid to breeding, for the inheritance of good and bad qualities is so obvious".

These references, somehow ridicule the belief of some that our present day indigenous ("Sanga") cattle is merely the result of randomised mating without the interference of man. One could even argue that the African herdsman and owners of cattle laid down their own "breed standards" by favouring some bulls as favourites to sire the next generation's progeny.

Reference to successful selection and preferential mating also goes way back to Biblical times when Jacob not only had to earn his keep, but also had to put his mind to the breeding of specific colours and patterns in small stock to earn a right to marry his cousin (Genesis 30: 31-43). After having to work without remuneration for fourteen years, tending to the flocks of his uncle Laban, but being allowed to marry his cousins, a new deal was struck. It allowed Jacob to keep the lambs and kids that are speckled and spotted from his uncle's flocks, as reward. In a cunning act his uncle had all the sheep and goats with these colour patterns removed (as well as the ones that were likely to breed these patterns, the "streaked" ones) from the flocks under Jacob's management to other flocks under the care of his sons, not allowing access to them by Jacob. This forced Jacob to breed progeny with these characteristics from the ewes and rams with solid skin and hair colours.

Jacob was not only successful in breeding a majority progeny with the desired colour patterns, but also **selected for superiority of performance,** leaving his uncle with the "weak progeny".

"41 Whenever the stronger females were in heat, Jacob would place the branches in the troughs in front of the animals so they would mate near the branches,
42 but if the animals were weak, he would not place them there. So the weak animals went to Laban and the strong ones to Jacob.
43 In this way the man grew exceedingly prosperous and came to own large flocks, and female and male servants, and camels and donkeys".

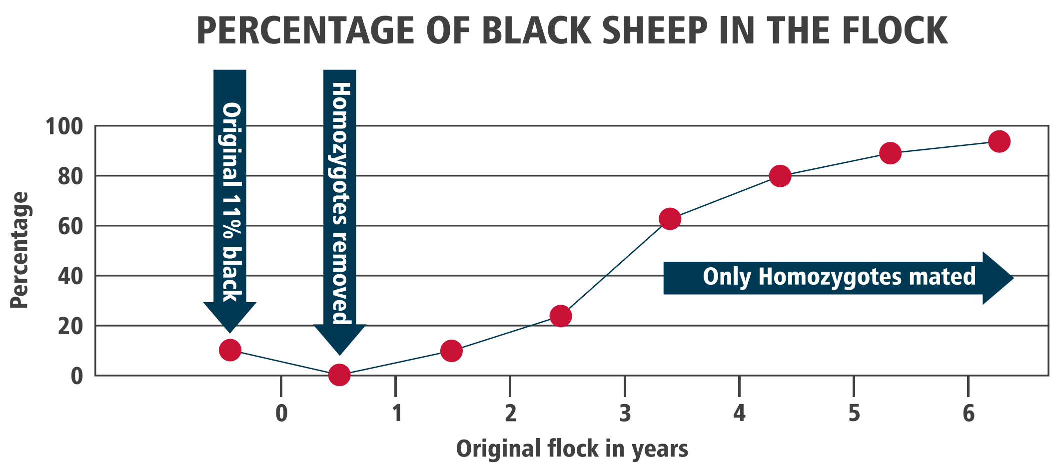
(New International Version (NIV) Holy Bible, New International Version®, NIV® Copyright ©1973, 1978, 1984, 2011 by Biblica, Inc.®)

After 14 years of experience managing the flocks, Jacob became very familiar with the coat colour inheritance in small stock.

He, furthermore, applied selection and mating principles (hand mating) to ensure superior offspring for other desirable traits. His success came within six years of mating.

Using information that colour inheritance in sheep takes place and other very likely assumptions on the frequencies of the forms of the genes influencing coat colour and patterns, stable flock size, the predominant culling of males and the business acceptances of the time (by Jacob's uncle Laban in this case), the most likely scenario would have been that 44.5% of the sheep would only carry the white (two dominant) formats of the genes, 44.5% would carry a white and black format of the colour genes but will appear white (one dominant and one recessive gene) and 11% would have been black (homozygous; two recessive genes). Even after the removal of the black (spotted) sheep, half the flock were still carries of the black (or spotted) gene.

If Jacob carefully selected the right sheep, starting with carries of the sought-after genes, the following graph depicts what would have happened (from Pearson, J.D. Science and Christian belief, Vol 13 No1; 51 – 58) due to applying the right selection plans.



From these few examples, some **lessons** can be learnt for successful breeding:

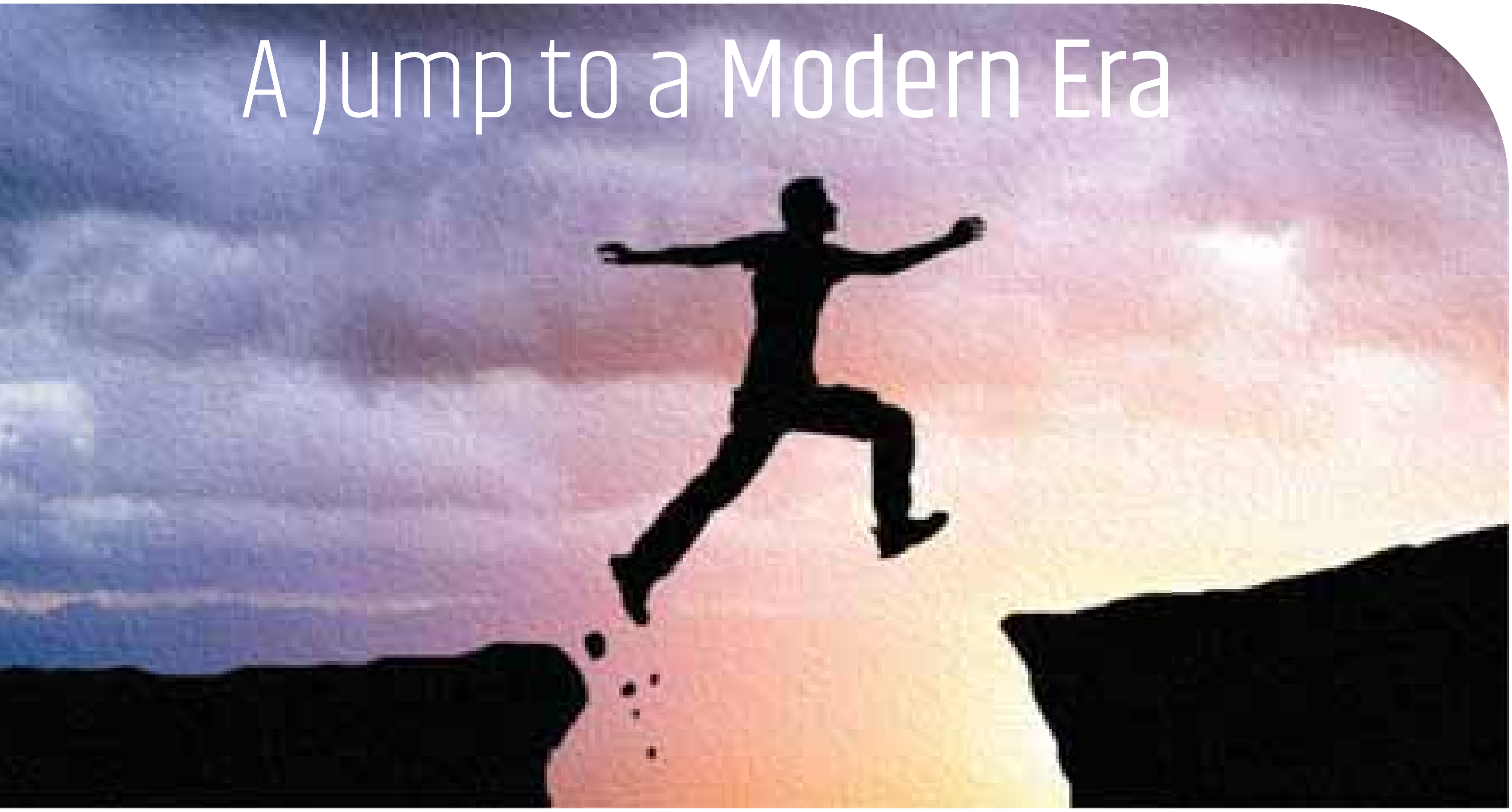
- All selection is based on the available variation in the population (usually the breed or your herd) you select from.
- The differences in appearance, measurement or observation will not necessarily be transferred to the progeny. The mode of inheritance and the proportion in differences due to the transferable genetic differences should be known.
- Selection without a proper breeding objective and measurable goals will lead to nothing.
- Proper recording is a prerequisite for successful breeding and attaining goals.
- The basic principles of inheritance, breeding and the effect of mating plans have not changed. New research results simply confirm them and allow the implementation of the latest techniques and tools to accelerate genetic progress while limiting any dangers.

Even in ancient times, **Jacob** (possibly with the assistance of Rachel, that once looked after her father's flocks) basically used the same principles to become wealthy from breeding livestock:

- He set **breeding objectives** that included multiple traits or properties (colour patterns as well as fertility, growth and ewes looking after their lambs) with differing modes of inheritance (Mendelian inheritance (non-additive genes) for coat colour and quantitative inheritance (additive genes) for the reproduction and production traits).
- He probably was **unable to keep proper records** of the linage and pedigrees of the animals considered as selection candidates, but looking after them for such a long period raises the possibility that he was **very familiar with the family structure in the flocks.**
- Performance (and reproduction) as criteria for selection were not the only consideration in his selection program. **He most probably also included functional efficiency and visual appraisal in selecting parents for the next generation,** hence the reference to him being able to breed "stronger" lambs for himself.
- **He recognised that setting of breeding objectives, measuring animals against these objectives and selecting on these rankings were important,** but the final step is the careful mating of individuals (possibly using hand matings). It is not known if he inadvertently retained genetic diversity by restricting inbreeding but it seems as if reproduction rate and survival was not at stake. ■

In the follow-up article, these principles and practices for modern day breeders will be discussed.

"All selection is based on the available variation in the population (usually the breed or your herd) you select from.



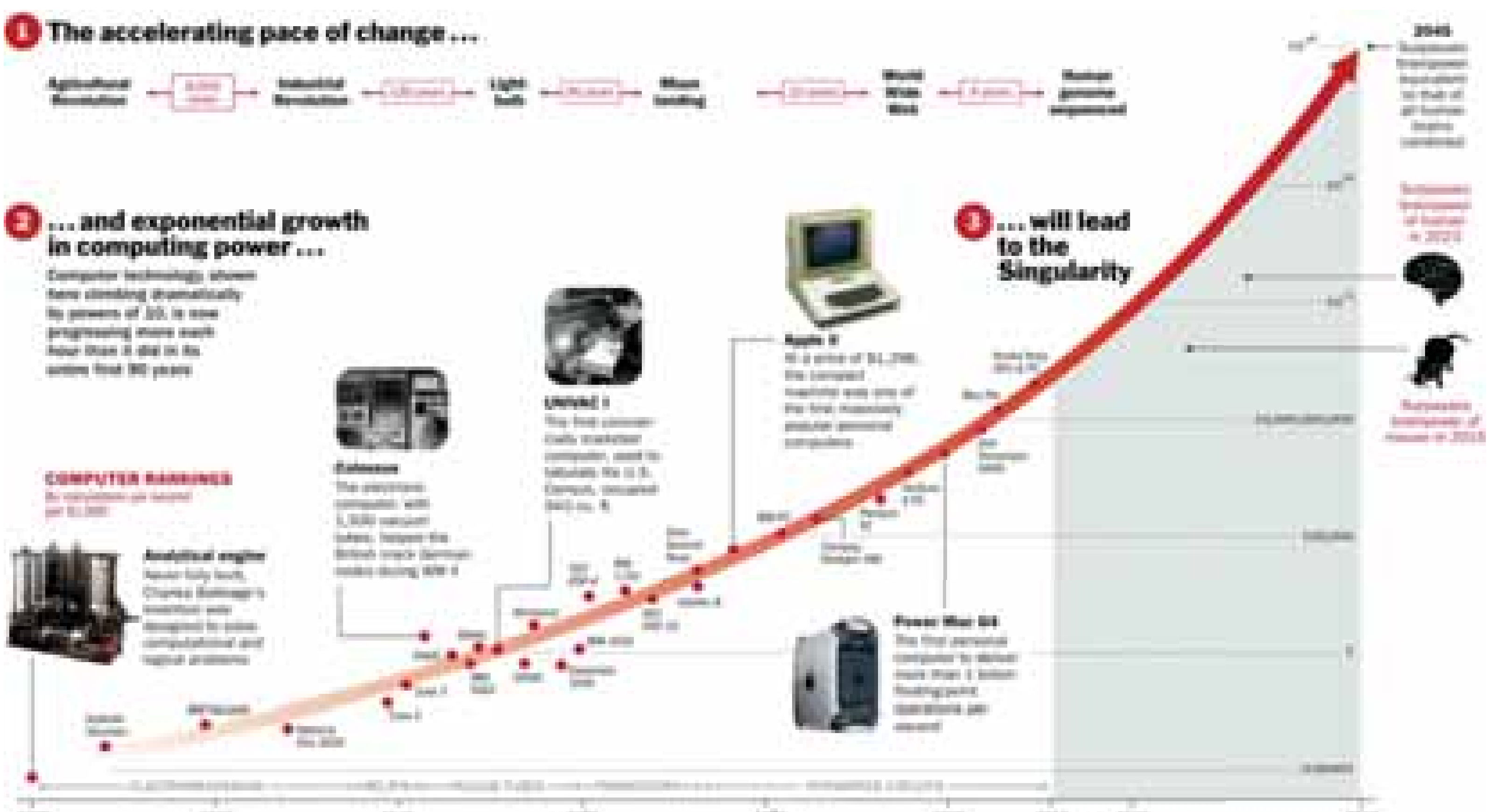
SYNERGY IN DATA RECORDING: FROM VISUAL TO SELECTION

by **Japie van der Westhuizen:** SA Stud Book and Animal Improvement Association

PART 2: Application in the present

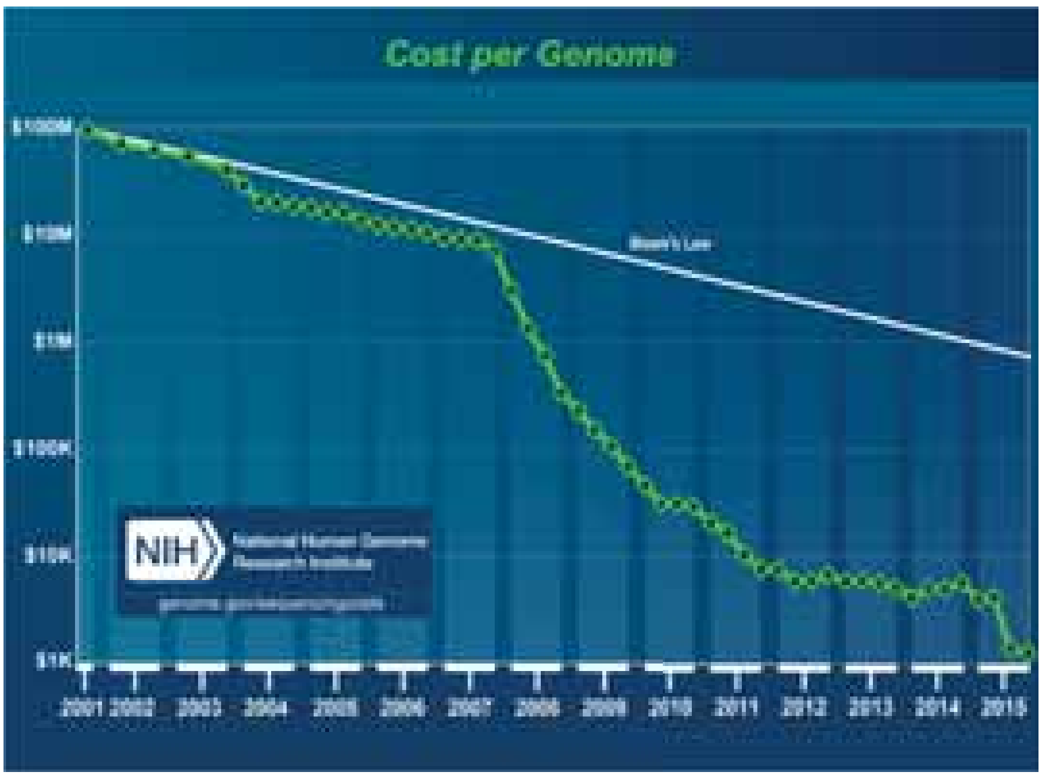
In 1965, Gordon Moore, co-founder of Intel Corporation (the computer processor micro chip manufacturer) stated “that the number of transistors per square inch on integrated circuits have doubled every two years since their invention. Since this statement was made, the debate, especially in the computer industry, has been if this pace can be maintained. Furthermore, the same principle has been claimed in other industries, namely a doubling of efficiency or speed annually. More than 50 years later, Intel still uses Moore's statement on their Web landing page!

Some would even warn against the fast pace of technological advance, including the possibility of “artificial intelligence”. The current predictions are that computing power will surpass the human brain capacity (“singularity”) by the year 2023 (and human brains on earth by 2045!). The following figure illustrates the advances in computer capabilities, keeping pace with Moore's expectations, since the early 1900s, and with the future predictions (from “2045: The Year Man Becomes Immortal”; Time 2011; content.time.com).



Animal breeding and genetics technologies are underpinned by a host of sciences and seemingly unrelated technologies. The initial curiosity in how properties, characteristics and traits are inherited was closely linked to the biological processes and physiology. As the realisation grew that, in many cases, differences in performance or expression of properties is the result of, in many cases, a multitude of genes (usually each with a relative small, so called “additive” effect) basically not detectible as single units, a different approach to predict genetic merit developed. This has led to the 'marriage' of breeding and genetics with the statistics associated with probabilities. **It is now relatively common knowledge that Professor Charles Henderson opened a new world of possibilities when he laid down the foundation of mixed model equations to predict the genetic merit of farm animals.**

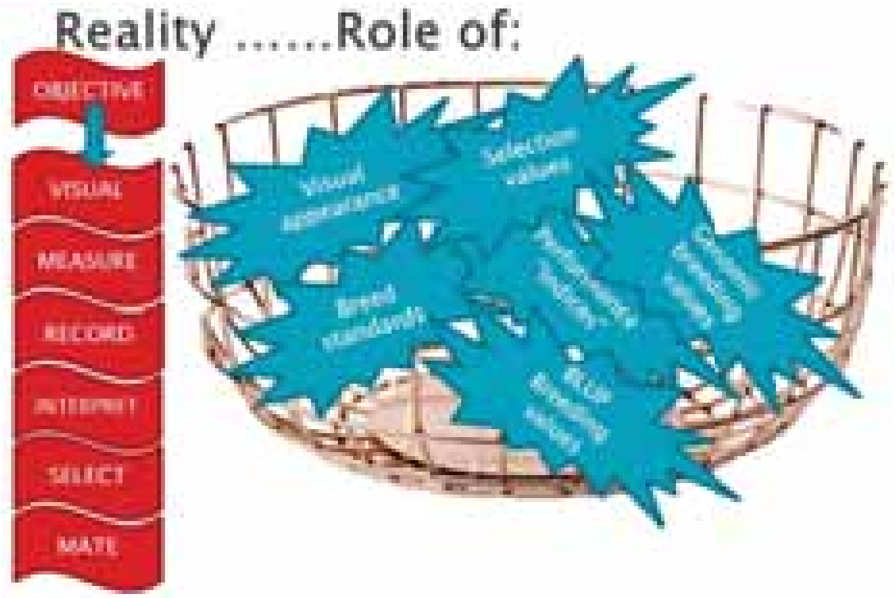
One of the major events in the unravelling the way inheritance work, was the Human Genome Project, where the genome (nucleotide base pairs) sequence of making up human DNA was determined. The project ran over a period of 13 years, involved numerous research groups from all over the globe and the costs ran over $3 billion (US Dollars). It is now possible to obtain a complete genome sequence of a person within a few days at a cost of about $1 000. Truly Moore's law was beaten by the Geneticists and the technologies they use. The next figure, presented by the National Human Genome Research Institute illustrates this.



Meanwhile, the fastest development in the animal breeding domain has been innovate means of integrating genomic information (usually in the form of partial information of the base pairs, or SNPs, on chromosomes of selection candidates) with BLUP breeding values. These developments are still based on the initial, age old theories where it is known that a magnitude of additive genes contribute to the differences in genetic merit for the traits of economic value, among these farm animals.

BACK TO REALITY...

Livestock breeders are sometimes confused with the many sources of information, methodology, institutional rules and role of common sense to apply in animal breeding.

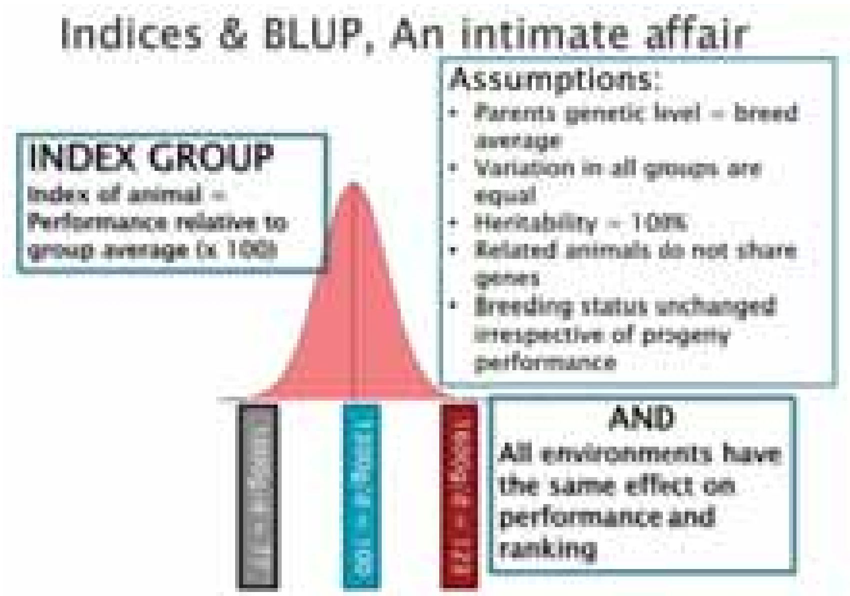


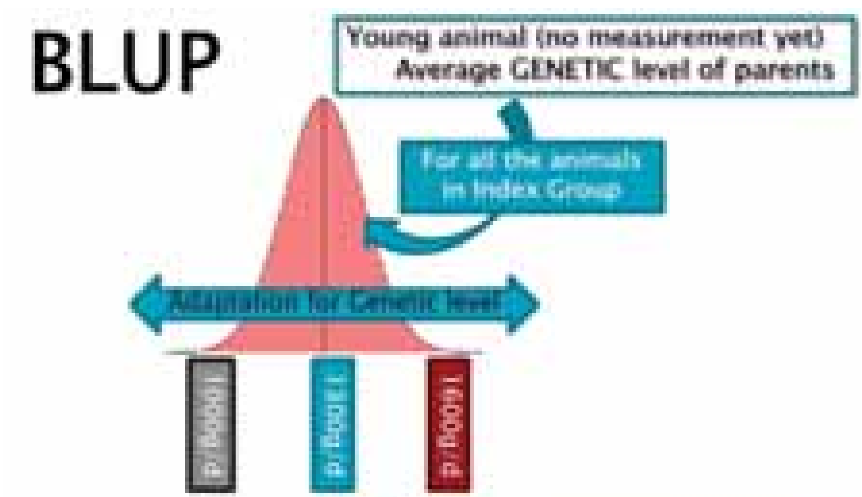
Visual appraisal or assessment still plays a very important role in livestock breeding. Not only can it act as first line (gatekeeper) in determining suitability of the right animal for the right environment or conditions, but it can also serve as source for more refined genetic assessment. **The challenge is therefore to link visual assessment to objective recording of these observations.** The dairy industry has been very successful applying these principles where functional traits are linked to linear classification and subsequent genetic merit predictions. Visual assessment also serves as the identification of elimination of unwanted genotypes. Many Breeders' Societies will also support these practices as part of their unique product identification and 'branding'. Nothing wrong with that!

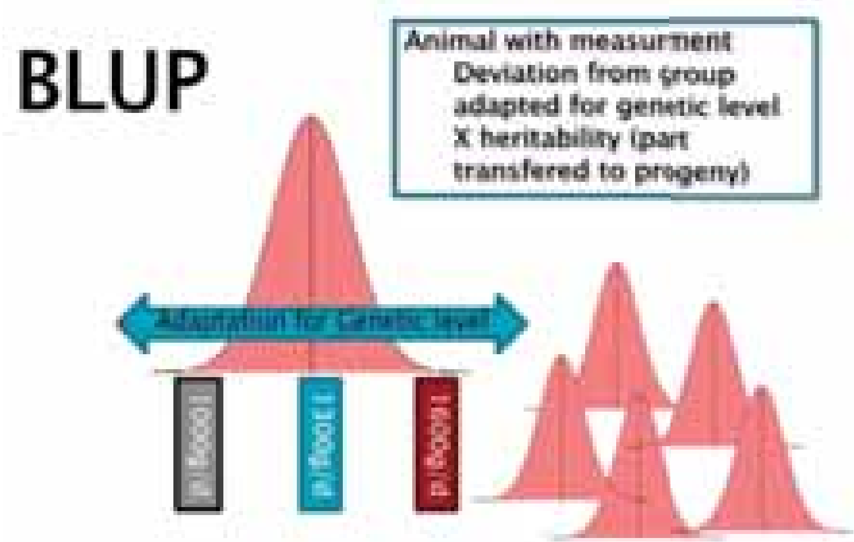
Pedigree information (with visual assessment) used to be the cornerstone of seed stock (Stud) breeding. Registers of many breeds go back for decades and many stud farmers can quote linage of their valued animals. Sometimes a very neat and structured system is also applied in the naming of animals, based on their linage. At one stage, when the recording of performance traits became popular, there were voices denouncing the recording of pedigree information. The assumption was that the differences in performance among animals within contemporary or treatment groups will suffice to identify superior animals suited as selection candidates. Luckily stud breeders did not abandon pedigree recording. **Pedigree information serves many (scientific) purposes, among others, the following:**

- Incorporation into genetic merit prediction, making use of the principle that related animals share common genes. This is one of the cornerstones of BLUP breeding value predictions.
- Optimising breeding strategies and incorporation in plans to curb excessive increases in inbreeding and the loss of genetic diversity, especially in smaller populations (breeds with fewer numbers). Modern day mating computer software programs use relationships among animals to very good effect.
- Picking up the mode of inheritance and frequency of single genes, either deleterious or those desired in a cattle population.
- Gaining other very important information and patterns, such as retention and culling rates and reasons why the progeny of certain sires are culled more frequently.

Since the nineteen seventies, proper recording of objective measurement of traits with economic importance (performance recording) became the norm for most livestock breeders and producers. Although the obvious advantages relate to the genetic improvement of herds and breeds by identifying superior individuals as selection candidates, it has additional advantages, such as using the information as a benchmark, comparing the suitability of animals in specific production systems and environments, making timely management adjustments to ensure **sustainable profitability** and building reliable databases for reference and statistics.







The principle of comparing animals for selection purposes is to make these comparisons fair. This means that the breeder needs to define the test (contemporary) group well and then compare how each animal performs relative to their contemporaries or peers. In South Africa, we call this an **"INDEX"** which is a simple calculation where an adjusted weight (usually adjusted for the age of the animal and the age of the dam) or weight gain of each animal is compared to the average of the group, usually expressed as a deviation from 100. **This system served the breeding industry well, but has some flaws:**

- It is assumed that the superiority (or inferiority) as reflected in the difference in performance from the group can be transferred directly to the progeny. **In other words, the assumption is that the heritability is 100%. This is never the case.**
- Correction applied for factors such as age and age of dam is constantly applied across contemporary groups, but in real life they should be different. This can lead to re-ranking in groups.
- **Selection of top animals in groups tells you something about performance differences within the group and nothing about possibilities of superiority on other farms, seasons and birth years.** These facts could be the most important considerations for any buyer of a bull.
- **The performance label allocated to an animal because of its performance in its group will stick to it for life, irrespective of its success as a parent (breeding animal).** It is known that this is not true as a more accurate prediction of an animal's breeding value will be the result of progeny performance (relative to the performance of progeny of other parents).
- No clear separation can be made in the case of maternally influenced traits, such as birth and weaning weights.

The successful combination of pedigree information with performance measurements and the consideration of the heritability (the performance differences that can be transferred to the progeny) and genetic correlations (how selection for one trait will genetically alter the population with regards to a different trait), lead to a much more accurate prediction of genetic merit. Basically, all the flaws of the "Indexes" are addressed by **BLUP breeding values.** There are, however, still some very important aspects that need addressing to raise the reliability of genetic merit an extra bar. Low genetic merit prediction accuracies can be expected in the following cases (where the only source of information might be a, so called 'Parent Average' based breeding value prediction:

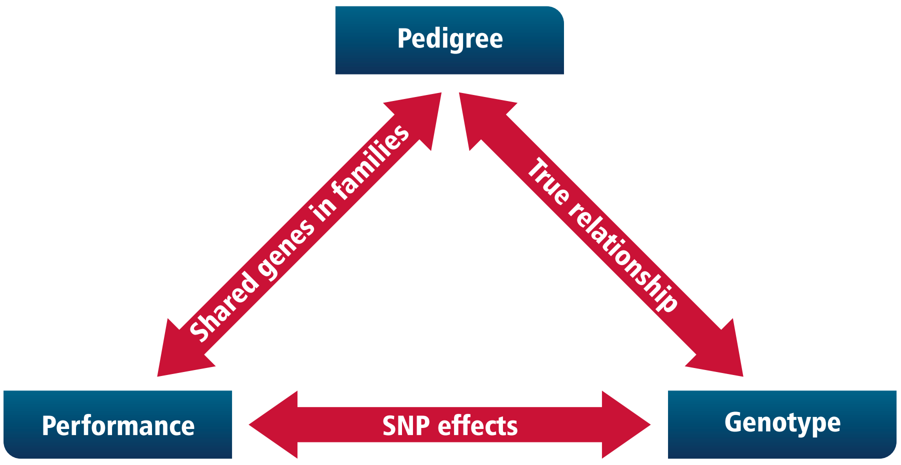
- The animal was still too young to be measured for the economically important trait. For example, if a breeder wants to select for herd life (longevity), he needs to wait until an animal is past its breeding age.
- Some traits can only be measured or recorded on one of the sexes. These are, ironically, some of the most economically important ones, such as the dam's effect on birth and weaning weights and female fertility (age at first calving and calving interval, as measurements within contemporary groups).
- Carcass characteristics can only be measures on slaughtered animals. BLUP breeding values for these properties will therefore rely on the recordings of sibs (mostly progeny groups of collateral related sibs).

Adding an additional source of information, namely **genomic information,** to pedigrees and performance records enhances the prediction accuracy to decide what animals will be of superior genetic merit. Adding this information to the BLUP breeding value predictions addresses all the shortcomings of BLUP but also goes beyond that, namely taking the true relationships of the genotyped animals into consideration.

It is known that collateral sibs (such as brothers and sister, cousins, etc.) might deviate from the expected mean relatedness. The same could be true for 'new' animals allowed in a breed, where pedigree information is not known. These GEBVs gives a better reflection of the expectation that an animal received 'good' or 'bad' parts of the chromosomes carrying the genes from its parents. The advent of **BLUP breeding values has increased the need for superior computing power and novel mathematical algorithms to resolve very complex calculations.**

Moore's Law has therefore been very helpful. **The big jump, however, is the incorporation of genomic information in the equations.** Even when using one of the less dense SNP chips, at least 7 000 records are added to each of the genotyped animals' data (it is more common to use SNP chips with 20 000 or more SNPs).

Modern day breeders therefore have access to state of the art technology, although most of the grinding happens behind the scenes. The sources of information used for predicting the value of animals as possible parents (genetic merit) is illustrated in the following figure:



Without ANY of the three building blocks, genomic EBVs are of very little value.

A LAST THOUGHT...

Embracing appropriate technology and identifying the value of different sources of information to make correct decisions, separates the exceptional breeders from the rest. The challenge is there to make use of the right tools and to put effort into recording that matters most to clients and buyers of seed stock.

"IN THE ERA OF GENOMICS, RECORDING IS KING"

(Adapted from Mike Coffey, EGENES, Edinburgh, Scotland).

Simply because the matter of selection with proper breeding objectives in mind and ways to include different traits in these objectives were not addressed in the article, does not mean it is of lesser importance. That is a topic of another day.

OM TE MEET IS OM TE WEET

deur Michiel M Scholtz[1],
Dina A Linde[1] en
Anette Theunissen[2]
[1]LNR Diereproduksie-Instituut, Irene,
[2]Vaalharts-navorsingstasie,
Jan Kempdorp, Noordkaap.

Prof. Jan Bonsma het 'n boek met die titel "Livestock Production: Man Must Measure" geskryf wat in 1983 gepubliseer is. Die beginsels wat in hierdie boek aangespreek word, is nog steeds geldig.

Man must measure.
Om te meet
is om te weet.
Amadoda makajonge
umlinganiselo.
Go lekanyetsa ke
go itse.

In hierdie artikel gaan ons probeer demonstreer waarom dit ook vir Ngunitelers belangrik is om te meet.

HOEKOM IS DIE KEUSE VAN 'N TEELBUL BELANGRIK?

Een van die belangrikste stappe in die **genetiese verbetering** van 'n kudde is die **seleksie** van die **bulle** wat in die **kudde gebruik gaan word.** Die bul het 'n groot impak op die kudde, omdat 50% van die kalwers se genetika juis deur die bul beïnvloed word.

Daar is 'n **groot verskil** tussen **genetiese verandering** en **genetiese verbetering.** Wanneer daar minimum standaarde vir produksie- en reproduksie-eienskappe gestel word, gaan die ras geneties verbeter word, maar nie noodwendig geneties verander word nie.

Ter illustrasie hiervan kan die Nguniras as voorbeeld gebruik word. Daar is minimum standaarde vir die Nguni ten opsigte van ouderdom by eerste kalwing en tussenkalf-periode. Dit het daartoe gelei dat die tussenkalf-periode van die ras oor 'n tydperk van 25 jaar 19 dae korter geword het. **Het hierdie afname in tussenkalf-periode die Nguniras verbeter, of verander?**

Indien daar minimum standaarde vir vrugbaarheid gestel word, hoekom kan daar nie ook **minimum** standaarde vir **speengewig (binne 'n kudde)** gestel word nie?

Soos hierbo genoem, is die **keuse** van 'n **teelbul** belangrik om 'n kudde geneties **te verbeter.** Gelukkig hoef die keuse van 'n teelbul nie moeilik te wees nie. As die prosedure gevolg word wat ook gevolg word om 'n werknemer aan te stel, dan is dit maklik.

think different

'n Werkgewer sal nie iemand net op grond van sy identiteitsdokument aanstel nie. As die potensiële werknemer die gepaste kwalifikasies en 'n goeie CV het, het hy 'n beter kans op 'n aanstelling. Om 'n **teelbul** te koop is basies dieselfde.

"Is u bereid om 'n bul te gebruik waarvan u geen inligting het nie? Nee. 'n Bewys van die bul se prestasie moet gegee word."

Soortgelyk sal 'n werkgewer nie iemand aanstel waarvan hy net die geboorte-sertifikaat het en geen ander inligting nie. 'n Bul se registrasiesertifikaat lewer net bewys van wanneer en waar dit gebore is (die teler) sowel as wie die bul se ouers is.

Of die bul nou vir stoetteling of vir kommersiële doeleindes gebruik gaan word, dit moet steeds geselekteer word op grond van sy prestasierekords. Kies 'n bul wat die produksie-sisteem en die plaasomgewing die beste gaan pas. Die 'posbeskrywing' vir die bul moet bekend wees. Besluit wat die spesifieke kudde benodig: vrugbaarheid, 'n beter groei-tempo, groter of kleiner koeie, verhoogde melk-produksie of verhoogde speengewig. As hierdie stap afgehandel is, kan die boer 'n kortlys opstel van die mees geskikte bulle.

'n Registrasiesertifikaat is die bul se 'identiteitsdokument'. Dit bewys dat die bul van 'n spesifieke ras afkomstig is en dat dit voldoen aan die minimum standaarde wat deur die spesifieke Rasgenootskap daargestel word. Dit bevat ook sekere stamboom-inligting en mag selfs prestasie-inligting bevat. Die prestasie-inligting is die 'kwalifikasies' van die bul. Met ander woorde; wat is die vlak van onderrig wat die potensiële werknemer het, asook sy punte. Die prestasie-inligting wys of die bul getoets is en in watter fases.

- Fase A: Voor speen
- Fase B: Na speen
- Fase C: Sentrale groeitoets
- Fase D: Op-die-plaas groeitoets

Dit gee ook die werklike prestasie van die bul. Beraamde teelwaardes (BTW) is die 'CV' van die bul en verwys na die waarde van die dier vir 'n spesifieke eienskap in 'n teelprogram.

'n Persoon se 'CV' kan verander met verloop van tyd en moet altyd opgegradeer word.

Ook 'n bul se teelwaardes kan verander met tyd soos meer inligting beskikbaar word. Die mees onlangse waardes moet altyd gebruik word.

Algemene riglyne oor hoe die teelwaardes gebruik kan word in seleksie is beskikbaar, maar word nie in hierdie artikel bespreek nie. Dit is belangrik om in ag te neem dat teeldoelwitte anders mag wees vir verskillende omstandighede en dat teelwaardes in lyn daarmee gebruik moet word. Byvoorbeeld, die toestande mag sodanig wees dat 'n koei wat 'n swaar kalf speen omdat sy baie melk het, se reserwes sodanig uitgeput word dat sy nie die volgende dekseisoen dragtig word nie. Onder sulke toestande moet daar gediskrimineer word teen hoë teelwaardes vir melk, want dit gaan vrugbaarheid nadelig beinvloed.

Die volgende stap is om **die bulle** te **identifiseer wat u teeldoelwitte kan nastreef.** Hierdie is die proses waar 'n kortlys opgestel word van die potensiële bulle deur te kyk na die inligting wat beskikbaar is op die registrasiesertifikaat, prestasie-inligting en teelwaardes.

Verkry die veilingskatalogus vooraf en bestudeer die prestasie-inligting en teelwaardes van die bulle in die katalogus. Dit is ook belangrik om na die prestasie van naby verwantes te kyk (ouderdom by eerste kalf en die tussenkalwings-periode van die moer). In die geval van 'n privaat koop moet ook vir die inligting gevra word. Identifiseer die bulle wat voldoen aan die behoeftes van u teeldoelwitte en oorweeg net daardie bulle.

Wanneer die bulle geïdentifiseer is, moet **'n visuele** ondersoek van die bulle gedoen word. Hierdie is wanneer die werkgewer (u, as boer) 'n onderhoud voer met die werknemer (gekortlyste bulle). 'n Werkgewer gaan nie 'n onderhoud voer met iemand wat nie op die kortlys verskyn nie. So, moenie na bulle kyk wat u nie gekortlys het nie. Dit mag u deurmekaar maak as u 'n bul sien waarvan u hou, maar wat nie gekortlys is nie.

Konsentreer op die volgende funksionele doeltreffendheids-eienskappe wanneer na die bul gekyk word:

1. *Manlikheid (wanbalans van testosteroon)*
2. *Skrotum*
3. *Skede*
4. *Kloue*
5. *Die romp (rump)*
6. *Die bene en kootgewrigte*
7. *Temperament*

Nou is u reg om 'n 'aanbod van aanstelling' aan die bul te maak. Onthou dat u miskien nie suksesvol gaan wees met die aankoop van u eerste keuse bul nie, maar daar mag ander opsies wees as daar meer as een bul gekortlys is.

'n Werkgewer moet nooit iemand aanstel wat nie die werk kan doen nie. Moet nooit 'n bul koop wat nie aan u vereistes voldoen nie.

PRAKTIESE VOORBEELDE UIT DIE VAALHARTS NGUNIKUDDE

Die Vaalharts Ngunikudde is gevestig deur teeldiere (verse, koeie en bulle) aan te koop op veilings wat onder beskerming van die Nguni Telersgenootskap gehou is. Al die diere het dus aan rasstandaarde voldoen. **Ongelukkig het nie al hierdie diere oor prestasie-inligting beskik toe hulle aangekoop is nie.**

Oor 'n vierjaar-periode was die gemiddelde 205-dae speengewig van Nguni-bulkalwers in die kudde 152 kg. Die speengewig van die hoogste 10% was 186 kg en die van die laagste 10% was 116 kg. Die speengwig van die laagste 5% was 97 kg. Sou die kudde hierdie koeie ingekoop het as dit bekend was dat die speengewig van hulle kalwers minder as 100 kg sal wees? **Daarom is dit belangrik dat prestasie-inligting van koeie ook beskikbaar moet wees.** Koeie soos hierdie swakste 5% hoort nie in die ras nie. Die vraag is: hoeveel sulke koeie word op veilings onder beskerming van die genootskap verkoop?

In die Angus x Nguni-program is daar 'n Angus x Nguni-bulletjie gespeen met 'n gekorrigeerde 205-dae gewig van 303 kg. Daar was besorgdheid dat die kalf verkeerd geweeg is, of dat dit 'n skryffout was. Toe die kalf egter by die voerkraal op Irene aankom het, het hy 372 kg geweeg. So, die speengewig was reg. Die koei het slegs 337 kg by die speen van haar kalf geweeg, so die kalf-koei-verhouding was 90%. Hoort so 'n Nguni-koei in die ras? Of die antwoord nou "Ja" of "Nee" is, as daar nie gemeet word nie, sal daar nie kennis gedra word van so 'n koei nie.

Daar is ook 65 jong Nguni-bulle in die voerkraal op 'n laer energie rantsoen gevoer. Die gemiddelde daaglikse toename (GDT) was 1.28 kg/dag. Die 25% (15 bulle) wat die hoogste GDT gehad het, het teen 1.59 kg/dag gegroei, wat heeltemal aanvaarbaar is vir die voerkraal. Die 25% met die swakste GDT het teen 0.98 kg/dag gegroei. 'n Voerkraal sal net eenkeer sulke diere voer en nooit weer nie. Net soos wat dit belangrik is om van die koeie met 'n swak vrugbaarheid ontslae te raak, behoort sulke bulle ook uit die ras verwyder te word, want hulle nageslag gaan selfs op die veld swak presteer. Daar was ook 'n bul wat teen 2 kg/dag gegroei het en hy behoort ook geprul te word, want hy is 'n uitskieter.

PRAKTIESE RIGLYNE

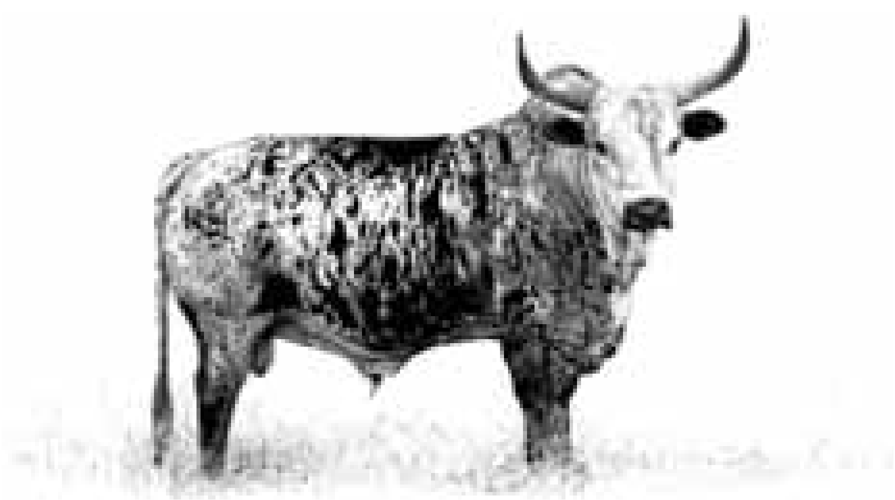
Die minimum vrugbaarheidstandaarde (skrotum-omvang, ouderdom by eerste kalwing, tussenkalf-periode) wat op die Nguni van toepassing is, is prysenswaardig en is waarskynlik die rede waarom die Nguni een van die vrugbaarste rasse in die land is. Dit is egter belangrik dat minimum (en maksimum) standaarde ook vir ander eienskappe, soos gewig en groei, toegepas word.

'n Praktiese riglyn wat as vertrekpunt gebruik kan word, sou wees:

1. *Alle verskalwers waarvan die speengewig/teelwaarde 15% swakker as die kuddegemiddeld (indeks van onder 85%) en 25% beter is as die kuddegemiddeld (indeks van groter as 125%) moet geprul word.*

2. *In die geval van bulkalwers kan die grense 10% onder kuddegemiddeld (indeks onder 90) en 25% beter as kuddegemiddeld (indeks bo 125) wees vir speengewig, 18 maande gewig en selfs op-die-plaas groeitoetse.*

Sulke standaarde sal verseker dat uitskieters uit die kudde en gevolglik die ras, verwyder word. Die langtermyn-doelwit behoort egter te wees om pasgemaakte modelle te ontwikkel vir die beraming van teelwaardes vir ras-spesifieke eienskappe, wat nie noodwendig dieselfde as vir ander rastipes mag wees nie. Suider-Afrikaanse Sanga-rasse is redelik uniek, aangesien hulle tropies aangepaste Taurus-rasse is. Dit mag 'n unieke benadering verg.

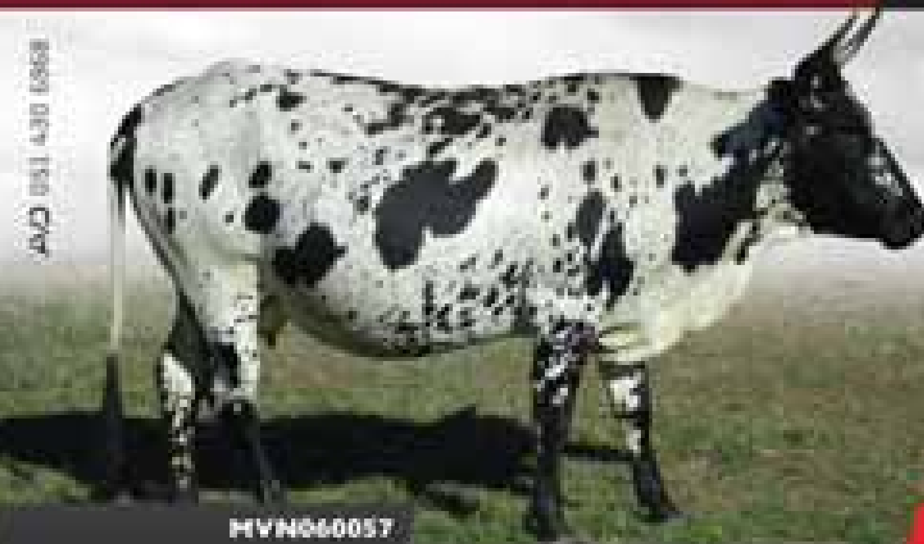


MVN040099

Calf Growth	Milk	Cow Value	Production Value
90	158	124	117

MVN050103

Calf Growth	Milk	Cow Value	Production Value
83	132	108	127



MVN060057

Calf Growth	Milk	Cow Value	Production Value
122	117	123	110

MVN060129

Calf Growth	Milk	Cow Value	Production Value
127	131	122	111

Herd with the most SA Studbook Best Producing Cow Awards in 2014 & 2015.
Second most in 2016.

FERTILITY | MATERNAL ABILITY | EFFICIENCY

Average values for females 2 years and older	Our cow herd	Breed average	Comments
Mothering ability (milk) breeding value (index)	2.5 (110)	0 (100)	Mothering ability
Calf growth breeding value (index)	4.3 (111)	0.8 (100)	Inherent calf growth
Income / large stock unit (Rand)	3173	2747	Efficiency / productivity
Age at first calving (months)	26	32	Early maturing
Intercalving period (days)	369	405	Fertility
Cow value (index)	20 (113)	5 (100)	Efficient / profitable cows
Growth value (index)	6.9 (105)	-13.9 (100)	Better feedlot performance
Production value (index)	15.9 (109)	0.3 (100)	Better overall productivity

CELEBRATING 22 YEARS of Nguni Stud Breeding

GA & MVN BRANDMERKE

GannaNgunis' mission is to concentrate on the breeding of pure animals that will have a positive effect on the fertility, mothering ability and therefore the efficiency (profitability) of breeders' and producers' herds.

DIAMANT

Sentrale

MISSION

GANNA ngunis

Michiel van Niekerk jnr | 083 234 0358
michiel@ganna.co.za | Boshof distrik

HULPMIDDEL OM NA DIE VOLGENDE GENETIESE PRODUKSIEVLAK TE BEWEEG

Dr Bobbie van der Weshuizen
SA Stamboek

In vandag se moeilike ekonomiese tye is dit van kardinale belang om diere te **selekteer** wat **geneties meerderwaardig** en so gevorderd moontlik is ten opsigte van optimale produksie- en reproduksie eienskappe binne die omgewing waarin die dier geplaas word.

Die tyd is lank al verby dat teeldiere (bulle of jong versies) bloot net met die oog geselekteer en gekoop word om 'n genetiese inpak in enige kommersiële of stoetkudde te maak. Daar is vandag addisionele inligting tot die koper se beskikking om met groot sukses 'n beter ingeligte besluit te maak wanneer teeldiere gekoop word.

Hiermee word daar nie gesê dat die oog nie belangrik is nie, inteendeel, 'n dier kan ook nie net bloot op syfers aangekoop word nie. Die dier moet goed met die oog gekritiseer word vir enige funksionele afwykings. Daar moet dus aangedring word op alle beskikbare prestasiedata, veral BLUP-teelwaardes, voordat 'n besluit gemaak kan word om 'n teeldier te koop. Indien enige iemand gedink het dat die gebruik en relevansie van BLUP-teelwaardes net vir die gebruik van die stoetteler is, word daar 'n groot aanname-fout gemaak. Die gebruik van BLUP-teelwaardes by die aankoop van teeldiere in 'n kommersiële kudde kan enorme waarde byvoeg.

Watter tipe dier sal die kudde geneties verbeter? Dit is die allerbelangrikste en beste vraag wat gevra moet word by die aankoop van teeldiere om binne die huidige bestuurspraktyk en omgewing die winsgewendheid van die boerderye te verhoog. **Hierdie vraag is slegs duidelik indien daar 'n duidelike telingsbeleid of teeldoelwit vir die kudde vasgestel is.** Formuleer eers 'n duidelike teeldoelwit vir die kudde, voordat daar bulle of verse op veilings ingekoop word.

'n Teeldoelwit word bepaal deur:

- **watter tipe genetika of diere tans op die plaas beskikbaar is,**
- **die beperkings van natuurlike hulpbronne,**
- **die tipe bemarkbare produk,**
- **kennis en ondervinding van die mark en kliënte,**
- **asook die einddoel van die kudde binne die markte- en kliënte-basis.**

Hou ook in gedagte dat die beste bul op een plaas en in een tipe boerderystelsel nie noodwendig die beste op 'n ander plaas of stelsel is nie. 'n **Teeldoelwit** hang dus daarvan af of die tipe dier op die spesifieke plaas sal floreer om winsgewend te produseer en te reproduseer.

'n Goed gedefinieerde telingsbeleid berus slegs op **ekonomies belangrike kenmerke en bestaan nooit uit slegs een kenmerk** nie. Dit sal byvoorbeeld minder wys wees vir 'n produsent om 'n teelbul aan te koop bloot net op direkte speen-meriete (m.a.w. die genetiese vermoë van die bul se kalwers om swaar by speen te weeg). 'n Eenvoudige teeldoelwit vir 'n speenkalf-stelsel gebaseer op BLUP teelwaardes sou gewees het: Hoë direkte speen-gewig (kalf-groei) teelwaarde, bo-gemiddelde (maar nie te hoë) speen-maternaal (melk), nie te hoë geboorte-teelwaarde nie (rondom die gemiddeld van die ras), asook goeie teelwaardes vir reproduksie-teelwaardes, soos ouderdom eerste kalf en interkalf-periodes (vir die doel van vervangingsverse).

Met die opstel van 'n teeldoelwit moet daar ook altyd ingedagte gehou word dat kenmerke geneties met mekaar gekoppel is. Speengewig is byvoorbeeld geneties gekoppel aan geboortegewig en 18 maande gewig. Dus, sou daar net bloot vir hoër speengewigte geselekteer word, sal daar ook 'n verhoging in geboorte en 18 maande gewigte verwag word. Hierdie genetiese korrelasie is gelukkig nie 100% nie en jy kan deur meer-kenmerk seleksie speengewigte geneties verhoog, terwyl bv. geboorte-gewigte konstant bly of verlaag kan word. Daarom is seleksie bloot net op een kenmerk, nie gewens nie.

Meer-kenmerk seleksie of die samevoeging van 'n teeldoelwit raak egter gekompliseerd, veral as daar uiteindelik die beste "all-rounder" uitgekies moet word om die genetiese vermoë van alle ekonomiese belangrike eienskappe te verbeter.

Weens tegnologiese ontwikkeling raak diereteling al hoe meer gekompliseerd. **Stamboek** is daarom voortdurend besig om sy dienste en produkte aan te pas en uit te brei om produsente **(stoet sowel as kommersieel)** te help om op 'n maklike manier tred te hou met ontwikkeling, asook om dit te kan toepas in belang van die groter veebedryf.

Een nuwe opwindende produk is die daarstel van 'n fasiliteit waardeur vleisbeesprodusente maklik toegang kan verkry tot die nuutste inligting van vleisbeeste met genetiese evaluasies deur die Logix-stelsel. Hierdie fasiliteit staan egter los van die meer omvattende Logix-Webblad wat 'n wyer reeks funksionaliteite bied.

Die nuwe diens is gratis beskikbaar vir enige kommersiële of stoetteler, konsultant of enige ander persoon met 'n belangstelling in veeverbetering. Hierdie diens help om vinnig en doelgerig teeldiere te identifiseer om die genetiese vermoë van kuddes te komplimenteer. Hierdie diens word verskaf via 'n interaktiewe Webblad, bekend as www.SABeefBulls.com. Tans is daar 25 vleisbees-rasse wat van die diens gebruik maak.

Wat die BeefBulls.com funksie so gebruikers-vriendelik en doelgerig maak, is die feit dat enige gebruiker sy eie pas-maak telingsbeleid kan vaslê en dus 'n hand-pas soektog na die gewenste genetika vir sy kudde en omgewing kan uitoefen.

Daar is basies **twee maniere** om te "soek". Die **eerste soektog** kan **geloods word om inligting te vertoon van 'n enkele dier,** indien die gebruiker **die dier se rekenaarnommer, ID of die naam van die dier ken.** Die dier se identifikasie-inligting kan bloot net ingelees word en alle genetiese inligting rakende die dier word dan vertoon, sowel as die teler van die dier as ook die huidige eienaar, sou die dier nog lewendig wees. Verder bied die nuwe fasiliteit ook volledige toegang tot al die stamboomgegewens met 'n keuse van 'n gekose eienskap waar die BLUP-teelwaarde deur die stamboom gevolg kan word. Stambome kan so ver soos tien generasies gevolg word, afhangende van die volledigheid van die stambome.

Die **tweede manier** behels 'n **groep-soektog.** Hierdie fasiliteit stel die gebruiker in staat om enige groep diere in ras-verband te soek op grond van vooraf opgestelde vereistes. Hierdie vereistes sal meestal geskoei wees op die betrokke gebruiker se doelwitte en voorkeure. Planne vir die verdere uitbreiding van SABeefBulls.com tydens 2017 sluit ook die koppeling van diere wat aangebied word op veilings en KI-bulle in. Daar word ook voorsien dat stoettelers toegang sal hê tot hulle eie kudde se diere op 'n kollektiewe basis (met ander woorde, bv. al jou vroulike diere wat voldoen aan die soektog-vereistes). Sodoende kan optimale parings uitvoer word op grond van die beperking van inteelt en om doelgerigte telingsdoelwitte te bereik soortgelyk aan die dienste wat Stamboek tans reeds vir die Suiwelbedryf bied deur middel van www.SADairyBulls.com.

SA BeefBulls.com is 'n hulpmiddel wat telers beslis kan help om na die volgende genetiese vlak met hul kudde te beweeg. ■

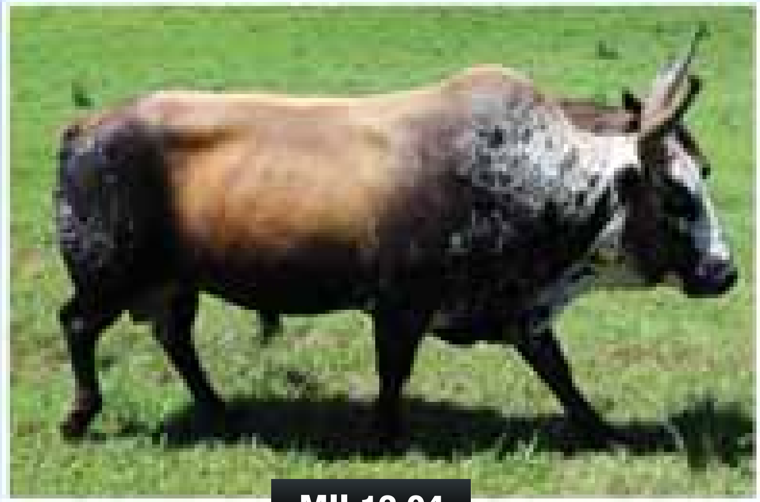
Met erkenning aan:
Red Meat / Rooivleis 8, pp 60 –63 (2017)

SABeefBulls.com
Profit through Genetics
- at your service

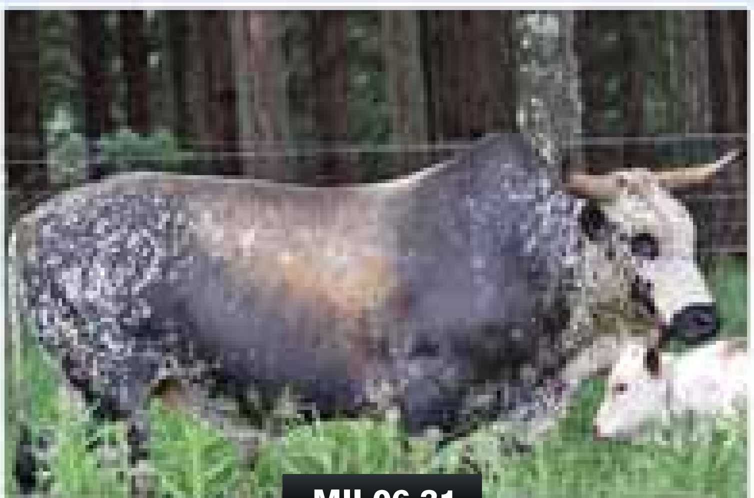
25 March Biggs Midlands Imperial Production sale at Mooi River saleyards by AAM auctioneers

18 November our 7th Midlands Imperial production sale at Mooi River by AAM Auctioneers

Our cattle are run on farms in the Natal Midlands, an area which is home to all tick borne diseases and as a result the cattle adapt well to all other areas of South Africa.

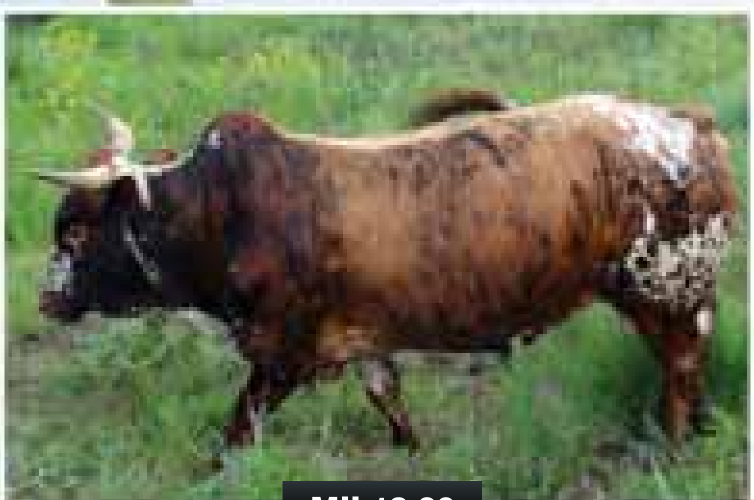


MII 12.04

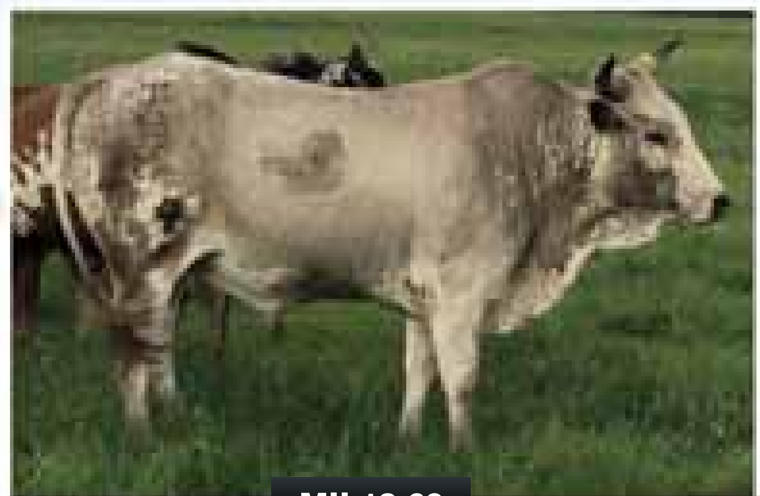


MII 06.31

MII 13.28



MII 13.20



MII 13.69

BRIAN MAGOR: 082 372 6348
bmagor@futurenet.co.za

BRETT PEATTIE: 082 777 5544
bkp@mweb.co.za

GROEITOETSE VAN JONG NGUNIBULLETJIES

deur **D.J. Bosman** Pri.Sci.Nat. (Veekunde), Kranskop, KwaZulu Natal

Die teel van voortreflike Ngunibeeste is belangrik vir die vleisbeesbedryf. Dit beteken dus nie bloot die vermeerdering van Ngunibeeste nie, maar die teel van biologies en ekonomies doeltreffende diere. Dit vereis verstandige, gebalanseerde seleksiedoelwitte en keuses.

DIE SAMELEWING LEEF MET GELOOF, MAAR ONTWIKKEL DEUR WETENSKAP

Doelgerigte seleksie en teling is afhanklik van inligting wat ingewin word deur kudde-meting en inligting uit die verskillende sektore van die bedryf. Die meriete van elke kudde- en ras-besluit is primêr afhanklik van objektief-gemete inligting. Voorkoms-evaluasie gebaseer op wetenskaplike beginsels bly 'n integrale deel van kudde- en ras-evaluasie.

Die doel van groeitoetse by jong bulletjies is om genetiese verskille tussen diere te bepaal by gestandaardiseerde toestande op die plaas of by 'n sentrum. Verskeie bykomende eienskappe geniet aandag. Die volgende eienskappe word gemeet:

- Groeivermoë (GDT) oor toetstydperk en vanaf geboorte (GDO).
- Voeromsetverhouding (VOV). Slegs intensiewe toetse by 'n sentrum.
- Kleiberverhouding simuleer doeltreffende voerverbruik by veldtoetse
- Skrotum-omvang
- Skouerhoogte en liggaamslengte
- Veldikte (aanpasbaarheidseienskap)
- Ultrasoniese bepaling van karkaseienskappe
- Voorkoms-evaluasie volgens funksionele beginsels

Dit is voordelig om die verse na speen soortgelyk aan 'n groeitoets op die veld te plaas - om 'n naspeen-groeivermoë te bepaal.

Indien die versies net voor 'n winterperiode gespeen word, kan hulle oorwinter word met die toets wat gedurende die somermaande plaasvind. Dit sal die verse identifiseer wat die beste aangepas is en presteer onder die gegewe plaastoestande.

Ten einde genetiese verskille by die bul- en versgroepe te bepaal, is dit nodig om die bul- of versgroepe dieselfde te behandel tot aan die einde van die toets. BLUP-berekenings sal verdere omgewingseffekte soos moeder-ouderdom, datum gebore, ens. verwyder.

Dit is vandag ondenkbaar dat 'n stoetteler nie die produksie-potensiaal van sy diere meet en die syfers gebruik om sy teeldoelwit te bereik nie.

TEELBEGINSELS

As groeitoetse onderneem word, is dit belangrik om kennis te dra van sekere beginsels.

1. Variasie

By elke kalweroes is variasie teenwoordig vir al die **ekonomies belangrike eienskappe.** Geen twee diere het presies dieselfde genetiese samestelling nie. Hierdie variasie kan sinvol ontgin word met **prestasietoetsing,** sodat dit hersaamgestel kan word in 'n rigting wat die teler verkies en wat vir die ras en bedryf voordelig sal wees.

Die wyse waarop die bepaalde variasie gebruik word, is deur seleksie. Die Genootskap doen die eerste vlak seleksie met keurings. Die teler sal daarna diere verwyder wat nie sy doelwit bevredig nie. Dan volg beplande parings. Dit beteken dat koeie volgens die teeldoelwit gepaar word. Elke paring geskied dus doelgerig. Dit is die proses wat vir elke teler 'n stimulerende uitdaging behoort te wees. Voorkoms speel met beplande parings 'n belangrike rol.

'n Verdere belangrike voordeel van prestasiemetings is dat vordering oor jare gekwantifiseer kan word. Met voorkoms-evaluasie gaan dit verlore.

Die variasie vir enkele eienskappe by die Nguni verskyn in **Tabel 1.**

TABEL 1: Variasie wat vir groei-eienskappe teenwoordig is

GROEP	GDT (g)	VOV	HOOGTE (mm)	LENGTE (mm)
Beste 1%	1541	5.06	1121	1298
Swakste 1%	1105	6.87	1090	1300
% Verskil	40%	36%	3%	0%

GDT = Gemiddelde daaglikse toename, VOV = Voeromsetverhouding.

Twee belangrike beginsels vind toepassing uit Tabel 1. **Variasie kan slegs deur objektiewe meting bepaal word** en prestasie-toetsyfers dien slegs as seleksiehulpmiddel vir die teler. Dit is selde dat die beste presteerders as kuddebulle geselekteer word. Ander eienskappe soos reproduksie, voorkoms, raamgrootte en die omgewing, asook die teeldoelwit van die teler speel 'n belangrike rol in die seleksieproses. Variasie word ontgin, prestasies is beskikbaar en 'n gebalanseerde seleksie-besluit volg.

2. Erfbaarhede

Alle ekonomies belangrike eienskappe is in 'n mindere of meerdere mate oorerflik. **Seleksie sal dus vordering bewerkstellig met die hoër erfbare eienskappe wat vinniger sal verander.** Enkele erfbaarhede is die volgende:

- Groei (GDT) intensief bepaal:55%
- Groei (GDT) ekstensief bepaal:10-30%
- Raam-metings:45%
- Geboorte-gewig:40%
- Skrotum-omvang:45%

Indien 'n eienskap 40% oorerflik is, beteken dit dat die meting 40% die gevolg van die genotipe is en 60% die omgewing. Indien bulletjies in 'n toets 'n swak groei toon van onder 400g per dag word groei-verskille nie geneties doeltreffend evalueer nie en sal die erfbaarheid selfs laer as 10% wees. Verskille in groei tussen bulle in so 'n geval is bloot deur die omgewing beïnvloed en het dus geen genetiese waarde nie.

3. Korrelasies

Korrelasies tussen eienskappe is positief, of kan negatief wees. Die groei-eienskappe het 'n positiewe korrelasie met mekaar. Swaar kalwers by geboorte sal dus meestal groter en swaarder beeste by volwassenheid wees. Uitsonderings kom wel voor.

Naspeengroei (GDT) het 'n voordelige negatiewe korrelasie met voeromset-verhouding (VOV) van -0.70.
Dit is interessant dat die korrelasie tussen VOV en liggaamslengte -0.50 is.
Navorsing toon dat die spoed waarmee kos deur die spysverteringskanaal beweeg bepaal VOV.

Langer beeste het 'n langer spysverteringskanaal wat waarskynlik VOV bevoordeel. Die korrelasies tussen geboortegewig en verskeie ander groeimaatstawwe is vir 'n ras bepaal en word in **Tabel 2 gegee.**

Dit is duidelik uit Tabel 2 dat al die groei-eienskappe positief met mekaar gekorreleer is. Interessant is dat geboortegewig nie so hoog met die liggaamsmates en GDT gekorreleer is nie. Dit is voordelig. Volwasse gewig het 'n hoër korrelasie van 0.30 en 0.32 met hoogte en liggaamslengte, maar dit is ver van volledig, naamlik 1.0.

Dit is moontlik om die vorm van die groeikurwe te wysig deur slegs drie eienskappe in aanmerking te neem, naamlik geboortegewig, groei (GDT) en skouerhoogte. Groeivermoë (GDT) beïnvloed die helling van die groeikurwe gedurende die selfversnellende fase.

4. Balans

'n Belangrike beginsel met teling is dat balans tussen die verskillende eienskappe nagestreef word.

Die eienskappe melk, groei (GDT) reproduksie (skrotum-omvang) en hoogte behoort in 'n gesonde balans met mekaar te verkeer. Indien die melkproduksie-teelwaarde te hoog is, sal GDT (g) neig om laer te wees en sal die dier minder bespiering toon. Die eienskappe behoort ook in balans met die betrokke omgewing te wees.

GROEI EN ONTWIKKELING

Groei en ontwikkeling is verweef en is twee van die belangrikste biologiese prosesse wat in die dier plaasvind.

Hammond, 'n navorser van Brittanje, definieer groei en ontwikkeling soos volg:

- Die dier neem toe in gewig – **dit is groei.**
- Die dier verander in bouvorm en tipe en die verskillende liggaamsfunksies kom in werking – **dit is ontwikkeling.** Ontwikkeling is verandering wat plaasvind wat betref die bouvorm (liggaamsmate) en liggaam-samestelling (spier-, been- en vet-verhouding) van die dier.

• GROEI - 'n BELANGRIKE EIENSKAP

Groeivermoë is 'n belangrike eienskap wat plaasvind vanaf bevrugting tot aan die einde van die dier se lewe.
Die groei van bulletjies na speen kan volgens die teler se keuse intensief, semi-intensief of ekstensief bepaal word.
Die groeivermoë (GDT) van die Nguni, Afrikaner en nasionale gemiddeld by intensiewe groeitoetse, sedert 1999 met 'n 84 dae toetsperiode verskyn in **Tabel 3.**

TABEL 2: Korrelasie tussen groei eienskappe

EIENSKAP	18mnd gewig	Volwasse gewig	GDT	HOOGTE	LENGTE
Geboorte gewig	0.45	0.40	0.18	0.08	0.08
Volwasse gewig	0.67	-	-	0.30	0.32

TABEL3 : Naspeengroei van die Nguni, Afrikaner en Nasionaal (alle rasse)

RAS	N	Einde gewig (kg)	GDT (g)	VOV	SO (cm)	HOOGTE (mm)	LENGTE (mm)	Verhouding*
Nguni	95	326	1267	6.72	309	1133	1298	1:15
Afrikaner	399	361	1351	6.34	327	1197	1320	1:10
Nasionaal	18638	438	1721	5.94	335	1193	1377	1:15

SO = skrotum-omvang * Verhouding tussen hoogte en lengte maat. Verhouding van 1:20 is meer voordelig.

“ I WAS SELDOM ABLE TO SEE AN OPPORTUNITY UNTIL IT HAD CEASED TO BE ONE

Die Afrikaner is soortgelyk met die Nguni 'n Sanga-ras. Die gegewens in Tabel 3 vir die drie groeperings is soos wat verwag word. Die Nguni is die kleiner bees volgens die hoogte maat: 64mm korter as die Afrikaner. Verblydend is die voordelige hoogte : lengte verhouding van die Nguni wat 1:15 (15% langer as hoog) soortgelyk aan nasionaal, wat alle rasse insluit.
Prof. Jan Bonsma het by Mara-proefplaas Afrikanerbulletjies aan'n individuele groeitoets blootgestel en slegs kwaliteit hooi gevoer.

Die VOV-verskille het gewissel van 5.6kg hooi per kg toename tot 12.1kg hooi. Betekenisvolle variasie is teenwoordig selfs met'n volledige ruvoer-rantsoen. Dit is ekonomies belangrik om diere te identifiseer wat weiding doeltreffend benut. Hulle is altyd in goeie kondisie en sal elke jaar kalf.

- **ULTRASONIESE KARKAS-MATES**

In Suid Afrika is die bepaling van karkas-eienskappe op die lewendige dier'n relatief nuwe verwikkeling. Karkas-eienskappe word na'n groeitoets bepaal deur opgeleide personeel. Metings behels die oppervlakte van die oogspier (longisimus dorsi), vetdikte oor die 13de rib'n hand breedte van die toplyn van die bees en vetdikte oor die hoër deel van die kruis. In Tabel 4 word dieselfde drie rasgroeperings se gegewens gegee.

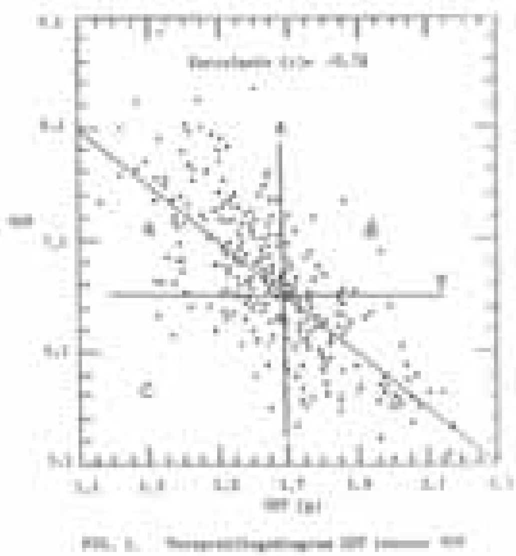
TABEL 4: Ultrasoniese karkasmates

RAS	N	Gewig (kg)	Ribvet (mm)	Kruisvet (mm)	Oogspier oppervlakte (cm^2)	Marmering (punt)
Nguni	41	329	2.9	4.0	56	2.4
Afrikaner	16	351	2.8	4.1	65	2.0
Nasionaal	6285	438	3.0	4.5	68	2.4

Dit is duidelik dat aan die einde van die groeitoetse die vetdiktes van die drie rasgroepe basies dieselfde is. Die marmering punt uit 5 is voortreflik. Met hierdie mates is dit moontlik om bulletjies te selekteer met goeie marmering, indien so 'n eienskap in die toekoms belangriker word en tot voordeel van vleiskwaliteit blyk te wees, is meting daarvan vandag reeds 'n vereiste.

- **VOORDELE VAN GROEITOETSE**

Indien die resultate van die eienskappe wat met groeitoetse bepaal word beskikbaar is, kan 'n teler sy kudde in 'n interessante en **ekonomies doeltreffende rigting teel.**



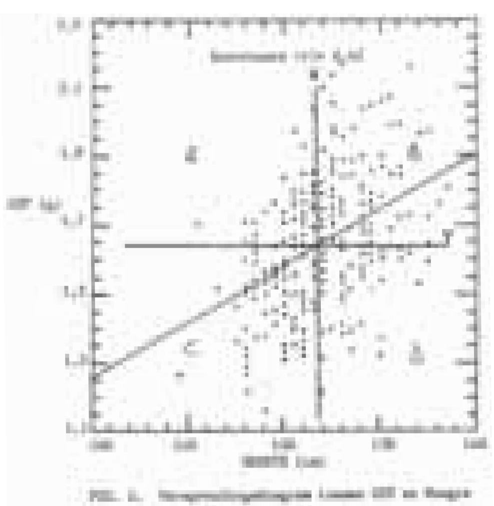
In Figuur 1 word die verspreidings-diagram vir elk van die 236 bulletjies van 'n Britse ras wat getoets is, gegee. Die beginsel wat hieruit voortvloei is belangrik.

In Figuur 1 verteenwoordig groep A die bulletjies wat swakker as gemiddeld gegroei het en 'n swakker VOV as die gemiddeld gehad het. In hierdie geval is hulle 46.8% van die 237 bulletjies. Groep B is die groep wat goed groei met swakker VOV. Hulle is 10.3%.

Groep C is die swakker groeiers, maar met 'n bogemiddelde VOV. Hulle verteen-woordig 12.7%. Groep D is die beste groeiers met die beste VOV.

Hulle verteenwoordig 30.4% van die getoetste groep bulle. Die variasie wat voorkom is duidelik. Dit is slegs deur objektiewe meting wat hierdie inligting beskikbaar gestel word. Die korrekte keuse is vir die teler veel makliker.

Dit word soms beweer dat die bulle wat beter groei die groter, later ryp diere is. In Figuur 2 word die verspreidingsdiagram van groei (GDT) teenoor hoogte mate aangedui.



Blok A verteenwoordig bulletjies wat nie hoog op die been is nie met uitstekende GDT (17.7%). In Blok B is die groter raam bulletjies met uitstekende groei. Hulle is dus groter diere (29.0%). In Blok D word die groter raam bulletjies gevind met 'n onder gemiddelde groei syfer (20.4%). In Blok C is die ondergemiddelde bulletjies vir beide groeivermoë en skouerhoogte (32.8%).

Weereens gee die variasie vir hierdie twee eienskappe belangrike inligting. Dit is duidelik dat genetika gebruik kan word om groot diere te teel met 'n stadige groeitempo of kleiner diere met 'n uitstekende groeitempo of groot diere met uitstekende groei of kleiner diere met 'n ondergemiddelde groeitempo. Die beginsel is dat die bestaande variasie slegs ontgin moet word.

Hondetelers het daarin geslaag om groot rasse soos die Great Dane te teel, asook klein rasse soos miniatuur Toy Pincher wat in 'n mens se sak pas. Teling is 'n baie sterk instrument om 'n kudde in enige rigting te teel as die variasie ontgin word, beskikbaar is en volgens 'n teeldoelwit aangewend word.

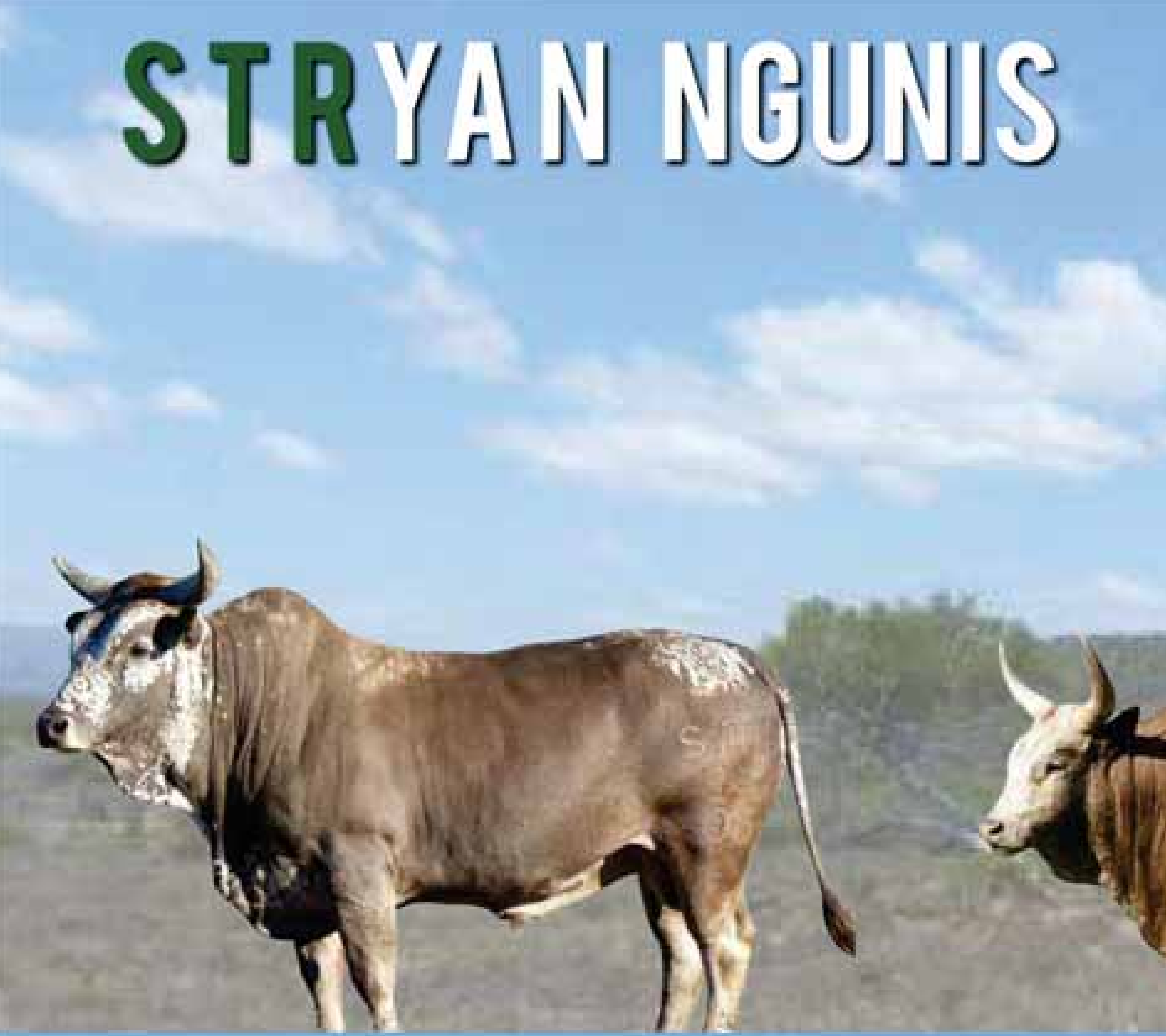
OPSOMMING

Die ou gesegde: "om te meet, is om te weet" is baie waar. As ons weet, kan uitstekende besluite in die seleksieproses geneem word. Ons lewe is te kort om nie daarvan gebruik te maak nie.

Die meting van groeivermoë en bykomende eienskappe van stoetbeeste hou geen gevaar in nie indien die beginsels wat bespreek is, toepassing vind.

DIT IS NODIG DAT 'n TELER ELKE JAAR 'N DOELWIT VIR DIE KUDDE SAAMSTEL EN DIT TOT UITVOER BRING.

Die diere met die hoogste groei-syfers is nie altyd die beste opsie nie. Balans tussen eienskappe en die omgewing is die stabiliserende invloed. ■


STRYAN NGUNIS

SELECTING FOR CALF:COW RATIO

SENSIBLE OR NOT?

by **Japie van der Westhuizen:**
SA Stud Book and
Animal Improvement Association

Since the calf to cow weight ratio is dependent on weights of two different animals it is essential to look deeper into the factors influencing them.

It has gone as far as some people using differences in these ratios among breeds and herds within breeds to compare differences in efficiency of cow herds. A critical first step should be to proof the objectivity or even defining the trait, prior to linking it to higher (or lower) efficiency. It therefore warrants considering the trait definition first. In general, the trait is described by means of a percentage or proportion of the calf weight (at weaning) in relation to that of the dam (recorded at the same time).

UNDERSTANDING THE DYNAMICS OF COW AND CALF WEIGHT CHANGES DURING THE SUCKLING PHASE.

Since the calf to cow weight ratio is dependent on weights of two different animals it is essential to look deeper into the factors influencing them.

It is well known that the weight of the suckling calf is mainly influenced by:

- the birth weight (especially at a very young age),
- the effect of the dam's maternal environment, mainly due to quantity and quality of her milk, and
- the own ability of the calf to grow. These factors are furthermore obviously influenced by environmental factors that might impact on any of them.

Environment can furthermore be defined as the total environment, namely physical, farm, season, camp, treatment, feeding regime and others. Although the expectancy is that the calf will follow a typical growth curve as part of its response to the nutrition it receives from the dam and from other sources, **the dam's weight change during suckling is the added dynamic in assessing the ratio of calf to dam weight.**

The expected cow weight changes can be linked to the **days in milk after the birth of the calf.** Initially there will be a weight loss as the expectant feed intake will not make up for the energy drainage due to milk production. After peak milk production (60 – 120 days in milk) the expectancy will be that the dam will start picking up weight (obviously given the environmental constraints). These expected weight changes in the cow and calf have serious implications for the way that "Cow Efficiency" is defined.

BODY WEIGHT, WHAT IS IT TELLING US ABOUT EFFICIENCIES AND CAN WE SIMPLY DIVIDE BY THE ACTUAL BODY WEIGHT WHEN COMPARING DAMS?

It is well established that body weight is a major indicator of the maintenance requirement of an animal. It is, however, not as simple as is sometimes being perceived. Not only is the relationship between body weight and maintenance requirement **not a one-to-one relationship** (the maintenance requirements of a 700 Kg animal is not twice that of a 350Kg animal) but the state and function of the animal will also influence the real maintenance needs (eg. a lactating or animal gaining weight will have a different maintenance requirement compared to the requirements of others). **Maintenance is also sometimes defined differently and individual animals also differ (within species or breed) in terms of these needs.** In essence, the intake of feed (especially the energy intake) determines the level that the animal will be comfortable with to maintain basic body functions (basal metabolism), being able to adapt to the environmental conditions (extra need to maintain core body temperature, walk to feed and water, deal with parasites, etc.) and being able to take in above maintenance to perform in such a manner to be profitable (needs for reproduction, milk production and growth or increase in body fat).

What is this telling us?

Although live **body weight** is the prime indicator for maintenance requirements and therefore points to the basic feed intake needed to be productive, **other factors** also need to be considered. Furthermore, the accepted role that body weight should play should be linked to a descriptor of maintenance requirements such as comparing animals based on their “metabolic weights”, rather than actual weights.

“The dam's weight change during suckling is the added dynamic in assessing the ratio of calf to dam weight.

The most accepted norm for this is body weight raised to the power of 0.75. In the mentioned example the metabolic weights of the 700 Kg and 350Kg cows will be (7000.75 and 3500.75) 136Kg and 81Kg, respectively. **Given that a cow needs a certain amount of energy daily, based on her metabolic weight and that has to be maintained over the total period while suckling her calf, the perceived maintenance needs and the needs based on metabolic weight therefore differs tremendously.** Figure 1 shows the relative comparison of the energy intake needs of a beef cow, weighing 480Kg and suckling her calf for 205 days, firstly based on the wrongly perceived idea that body weight is the indicator versus the more correct metabolic weight indicator.

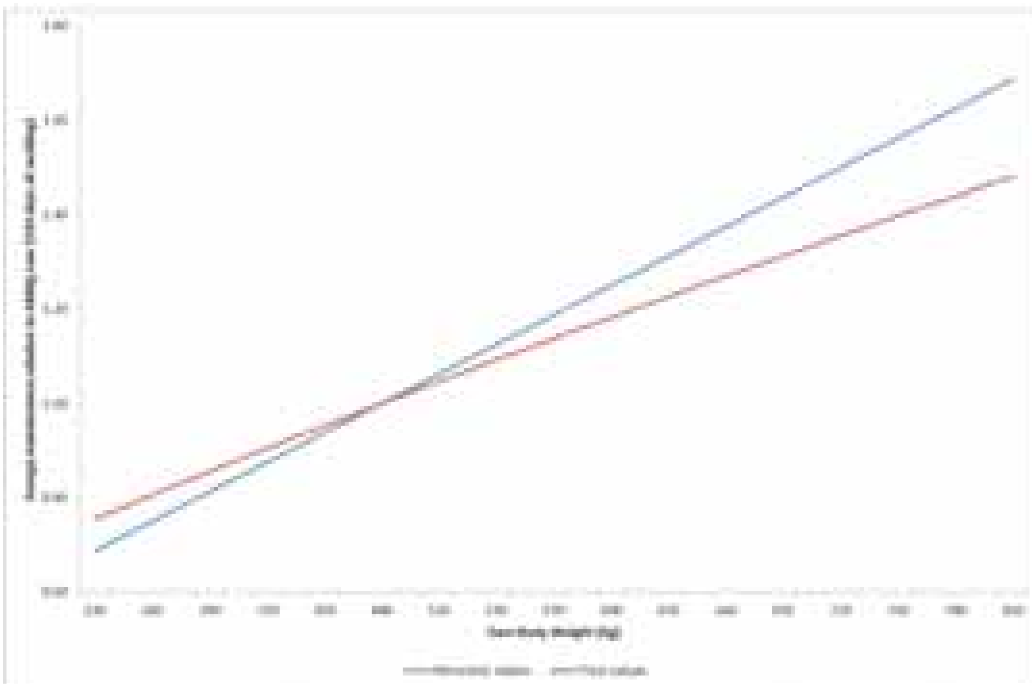


Figure 1. Energy intake needed for maintenance of a 480 Kg beef cow while suckling a calf for 205 days. Comparing two methods of calculation. Relative values.

The **big message** of Figure 1 is that all energy requirements of cows heavier than the (example) 480Kg cow are over-estimated by the assumptions based on actual body weight. All lighter cows are under-estimated, using true body weight.

The implications of these wrong assumptions are that light dams are unfairly favoured in the simple way of comparing cows for 'cow efficiency' based on 205 days weight of calves divided by their dam's true weight.

COW WEIGHT CHANGES DURING THE SUCKLING PHASE AND THE IMPACT ON COW EFFICIENCY ASSUMPTIONS. WHAT IS REALISTIC?

It is also well known that cows will lose weight during early lactation. This is mainly due to the known lactation curve causing dams to be in a negative energy status as they are unable to take in enough energy to make up for the loss due to milk production. This is even worse in drier years (or where rainy season started late) and for young females that have not yet reached maturity.

Generally, the weight of dams at weaning of their calves are used as indicators of 'cow efficiency'. The assumption is therefore that these dams will be in the same body condition state when compared for their efficiencies. Although the age of the calf is considered in the calculation, the days in milk (and its effect on the dam's weight) will not be considered. If it if furthermore given that it could be normal practice to weigh weaners between 150 and 270 days of age (according to the Logix Beef guidelines), the young calves get credit for growth to 205 days whilst the older ones will be discriminated against, when calculation 'cow efficiency' of their dams.

"The implications of these wrong assumptions are that light dams are unfairly favoured in the simple way of comparing cows for 'cow efficiency' based on 205 days weight of calves divided by their dam's true weight.

Figure 2 is an attempt to show three different scenarios, namely a calf weighed at 150 (Scenario 1), 205 (Scenario 2) and 270 (Scenario 3) days of age (same calf, same dam) and where these calculations were used in the dam's efficiency measurements based on the corrected calf weights and her own body weight.

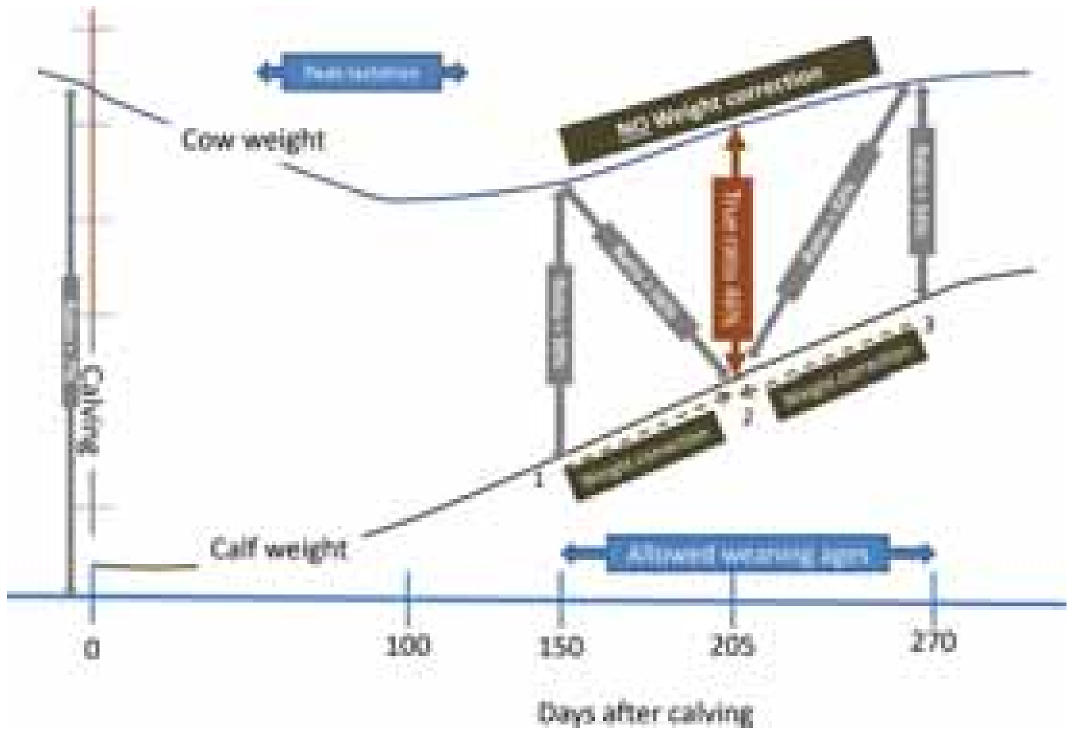


Figure 2. Changes in body weight of a typical dam, her suckling calf and the resultant ratios obtained when calculating the perceived 'cow efficiency' at different ages of the calf.

Figure 2 depicts the expected change in body weight of the dam from about 500Kg to a low of 450Kg at her peak milk production (losing a few body condition score points) and then gradually recovering. The calf weight approximately 7% of its dam at birth and exactly 46% at 205 days of age (as is depicted in Scenario 2). If, for some reason, the calf's weight at 150 days (Scenario 1) was used in the calculation, the resultant calculated ratio would have been 56%. The other side of the coin is the discrimination against a dam where her calf was weaned at 270 days of age (Scenario 3), resulting in a ratio of only 42%. Allowance for the changes in the body weight of the dam and calf weights at the given ages, would have resulted in ratios of 30%, 46% and 54%, respectively.

These examples show the futility of considering the calf to cow body weight ratios as dam efficiencies where calves were weighed at different ages and changes in cow weights during lactation nor body condition were not accounted for.

Even in the cases where the dam's metabolic body weight (body weight 0.75) is considered, these ratios also change, merely because of the age of the calf at recording. Figure 2, depicts the same three scenarios but where the metabolic weight of the dam is used in the calculation.

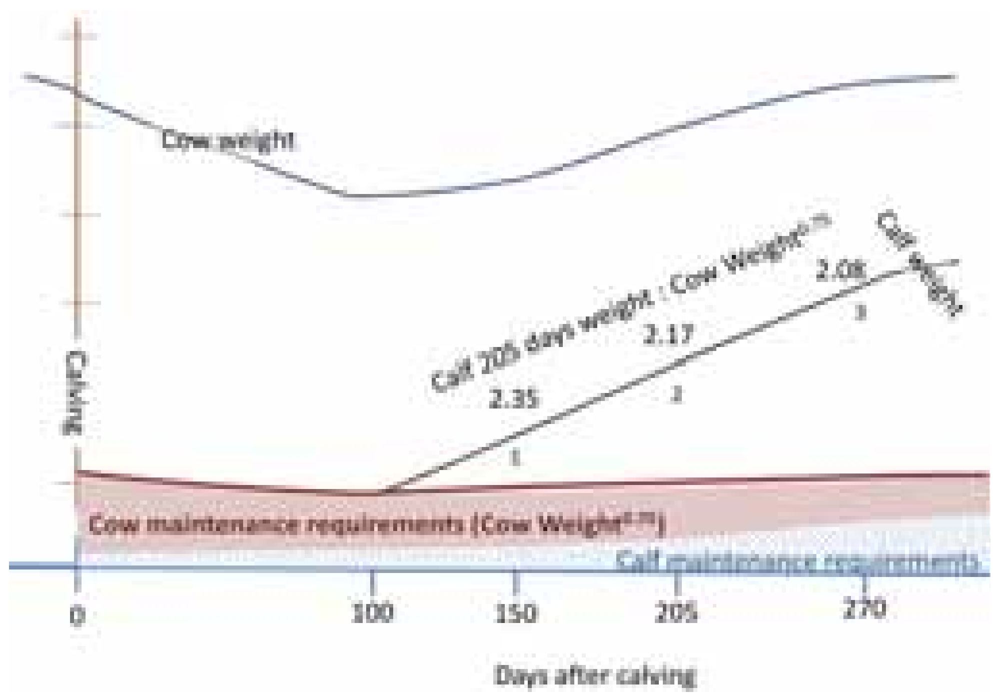


Figure 3. Changes in the maintenance requirements of the dam, her calf and the ratios of calf weight on dam metabolic weight recorded at 150, 205 and 270 days of age of the calf, respectively.

ARE OLDER DAMS LESS EFFICIENT? AGE OF THE DAM, A FURTHER COMPLICATION.

One of the severe limitations of using straight forward **phenotypic** (recording on animals) measurements is the (perceived) assumption that they reflect the differences in genetic merit amongst animals.

This is not true as it is well established that variations in measurements among animals are also mainly caused by their responses on the effect the environmental differences. Even if animals differ genetically, these genetic differences are of little value if they do not reflect performance differences in their offspring. For these reasons methodology was developed to predict the genetic merit of individual animals based on their phenotypic recordings relative to their contemporaries (other animals that are subjected to exactly the same environmental factors, such as birth place, year and season of birth, treatment, etc.), the part of the differences that can be ascribed to genetic merit that can be transferred to offspring (also defined as the heritability of such a trait) and comparing the phenotypic recordings of sibs of all animals in terms of their respective contemporaries. **These** BLUP **breeding values therefore assist in comparing all animals on equal footing.**

To return to the **pitfalls** of using phenotypic measurements in comparing cows for 'cow efficiency'. The **cow** weight **changes** as well as her **milk production** during each parity are depicted in **Figure 4.**

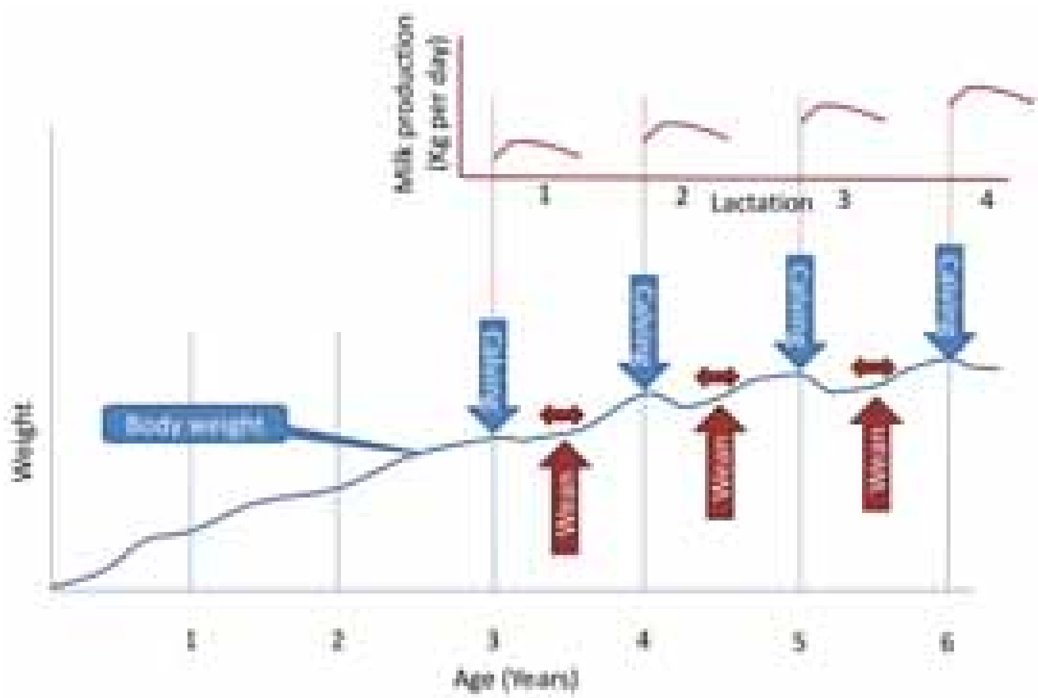


Figure 4. Changes in body weight and milk production of a beef cow during the first four parities.

Based on **Figure 4, Figure 5** gives an example where the same cow is compared for 'cow efficiency' over the first three parities. Given that she calved the first time between two and three years of age, it is well known that she will only reach mature weight at the age of five to six years. The expectancy will be that her body weight (at a given body condition) will still increase as she becomes older. It is also known that generally calf weaning weights will also increase as a dam's milk production increases towards maturity. **The three scenarios in Figures 4 and 5 depict the cases where the same cow weans calves during her first three parities and all weights were recorded when these calves were 205 days of age.**

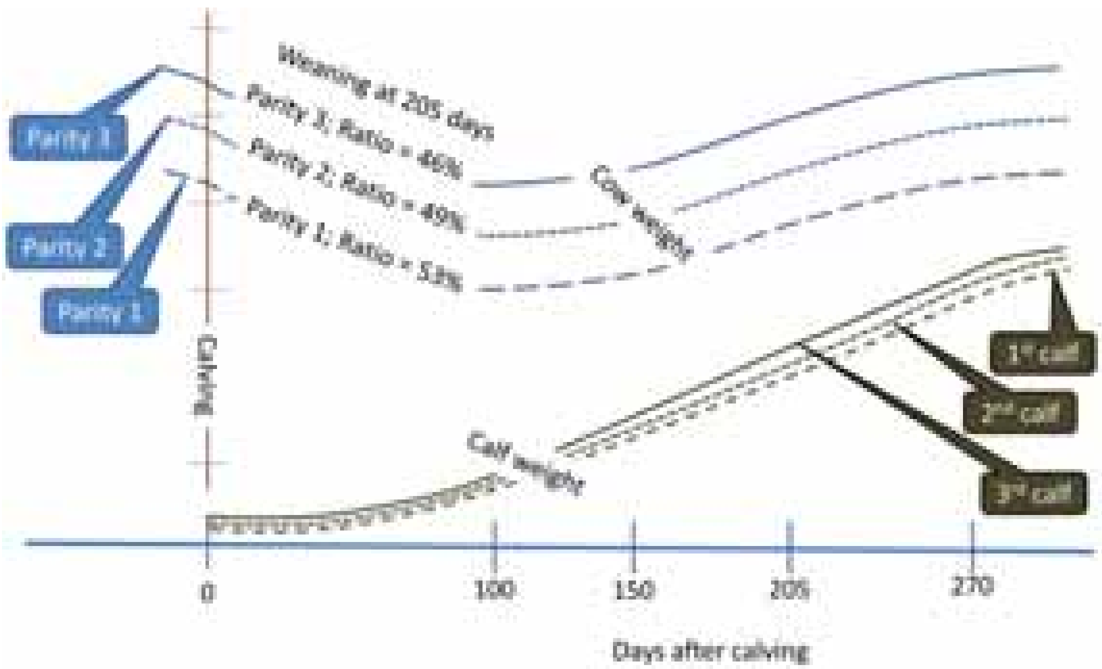


Figure 5. Calf:Cow weight ratios at 205 days calf age in the first three parities of the same cow.

As can be seen from **Figure 5,** differences in ratios are likely due to changes in the expected body weights of dams and their calves due to the age of these dams at calving.

Due to these differences, phenotypic ratios of 205 days of age calf to cow body weight are of little value when comparing the differences in 'efficiencies' among dams.

SOME MORE COMPLICATIONS

Although some of the major complications of using the calf to dam's body weight in the calculation of cow efficiencies were described, even **more factors contribute towards wrong assumptions when a simple division of two weights are used.**

These include:

- **Sex of the calf.** Bull calves are heavier at weaning (and birth) than females. Differences can not be linked to efficiency of the dam.
- **During the first 100 days or so,** the calf is basically a monogastric that gradually changes into a ruminant. Young calves therefore rely purely on their dam's milk whereas older ones must rely on their intake of other feed (mostly grass). Irrespective therefore of the age effect at weight recording, as described earlier, this furthermore complicates efficiency comparisons among cows. Figure 6 depicts the effects of the dam and the calf's own growth ability on the calf's weight. Even after the calf is weaned, **the dam's contribution can be seen as a 'carry over effect'.**

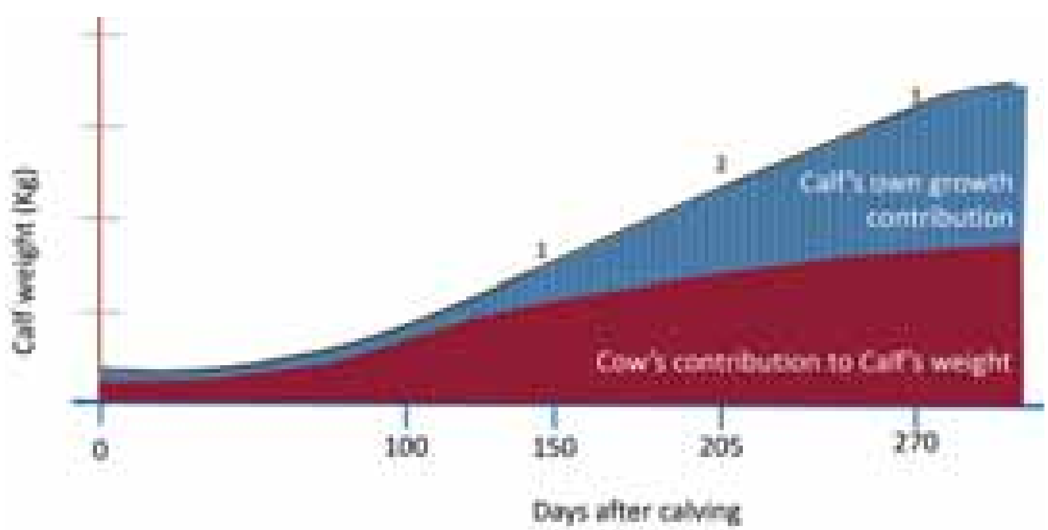


Figure 6. The contribution of the dam and the calf's own ability on the calf's weight change during suckling.

- **Ratio values are complicated.** The 'cow efficiency' definitions usually work with the division of one value by another. Generally, the 'winner' in terms of the biggest contribution towards differences among animals (their ranking), will be the factor with the biggest variation. This is illustrated in Figure 7.

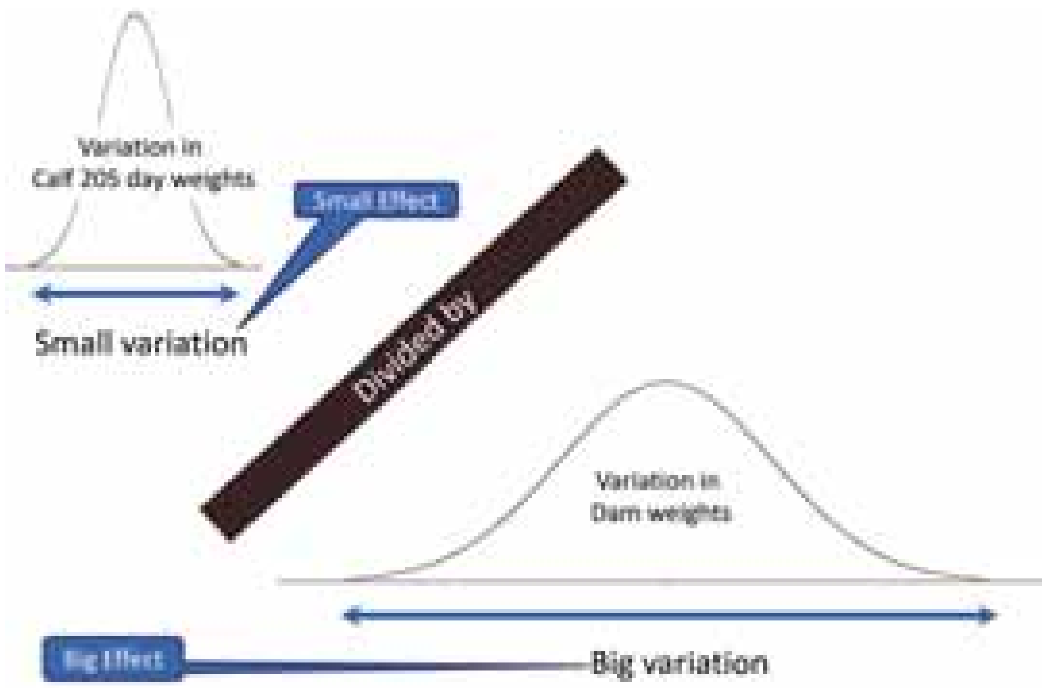


Figure 7. The impact of dividing with cow weight in differing body weight variations in 205 days calf weights and cow weights.

This implies that 'cow' efficiency values will, in the biggest majority of cases, simply favour dams with lower body weights. Given the earlier descriptions, this is not always true.

- Real efficiencies are driven by reproduction efficiency. **Basically, the biggest loss in terms of maintenance will be barren cows.** They are still consuming feed to maintain themselves without producing any products. Simple differences in calf to cow weight ratios can not make up for these losses.

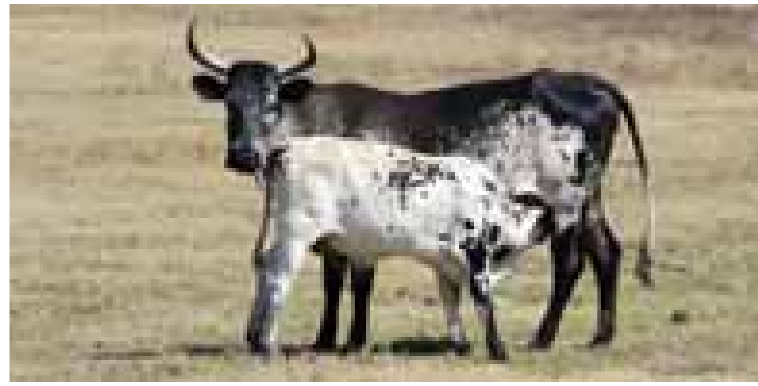
COMBINED SELECTION INDICES, THE BETTER SOLUTION.

Although outside the scope of this article, the combination of traits contributing towards profit and loss in beef production included in a selection index is a much better solution to distinguish between the efficiency levels of different cows. The logix Beef COW VALUE is such an index. It uses BLUP breeding values of beef cattle in combination with the relative economic value of the included traits to predict the genetic merit of cows and bulls to produce efficient offspring. Values are basically expressed in Kg or Rand per Hectare.

Given the pitfalls of using simple ratios in determining 'cow efficiency', the use of the defined property should be discouraged. There are more **appropriate** and more accurate (and therefore safer) measures to be used for this purpose. ■


NTSIKIZI
CRESMAN
HW 96 16
NUJOMA
WJ 04 76
SAVIMBI
H 97 365
FEZILE
PH 02 09
MBOMVANI
PH 08 87
MABALA
TOL 02 72
VUYANI
PH 04 37
They have served us well
and their legacy lives on...
PAT & MARGIE HOBBS - 082 7737298
patmarg@telkomsa.net








> Die veld se kwaliteit bepaal tot watter mate die dier genoeg kan inneem om in sy energiebehoefte te voldoen.

DIE MEISSN

HOE INTERPRETEER ONS DIT?

Die koppeling aan my naam is enersyds 'n verleentheid, want die tabelle se ontstaan was natuurlik 'n spanpoging van verskeie navorsers. Andersyds wek dit onwillekeurig die indruk van iets magies! Dit is nie, want dit is eintlik betreklik eenvoudig as 'n mens die beginsel daaragter snap.

Nietemin, as 'n mens in aanmerking neem dat dit reeds in 1982 beslag gekry het, dan is daar al 'n nuwe geslag boere wat nie daarmee groot geword het nie. Dus dink ek dit is miskien belangrik om 'n bietjie geskiedenis in te bring voordat ek die toepassing bespreek. Kom ons verwys liewer daarna as die Grootvee-eenheid (GVE)-tabelle.

Voor die tagtiger jare was daar 'n eenheid wat as die GVE gedefinieer is om benaderde wei-kapasiteit en veelading te beskryf. Dit was egter nie werklik wetenskaplik gefundeer nie. Mense het op aanvoeling gesê die ekwivalent in skape was 6, of 4 volstruise ensovoorts. Dit kon nie geregverdig word nie, want dit sou nie in die hof slaag as daar dispute ontstaan nie.

'n Voorbeeld is grondaankope waar die prys gebaseer is op die aantal GVE per hektaar as maatstaf van die tipe veld en weidingskapasiteit. Derhalwe het die destydse Departement van Landbou toe 'n versoek gerig dat ons 'n stelsel in plek moet sit wat wetenskaplik verdedigbaar is. Dit moes ook sover moontlik die ware toedrag van sake weerspieël.

Die uitgangspunt was die verwantskap tussen wat 'n dier benodig en wat die veld of weiding kan bied om daardie behoefte te bevredig. Anders gestel, hoeveel kan die dier inneem van die veld ten einde in sy behoefte te voldoen. Die dier se behoefte is primêr eintlik sy energiebehoefte, want die ander elemente volg outomaties van die inname of word aangevul in lekke, byvoedings ensovoorts.

NERTABELLE

Die veld se kwaliteit bepaal tot watter mate die dier genoeg kan inneem om in sy energiebehoefte te voldoen. Hoe hoër, hoe beter en dit meet ons in die verteerbaarheid van die veld of weiding. Die energiebehoefte van die dier word beskryf in metaboliseerbare (benutbare) energie. Dit is die twee elemente in die vergelyking wat ons benodig: metaboliseerbare energiebehoefte van die dier en die verteerbaarheid (kwaliteit) van die veld of weiding.

Dit is egter ook so dat 'n dier nie net een energiebehoefte het nie, byvoorbeeld 'n kalf wat stadig groei het 'n laer energiebehoefte as een wat vinnig groei. 'n Koei wat 'n kalf soog se energiebehoefte is weer baie meer as een wat nie soog nie.

'n Grootraam bees vereis veel meer as 'n kleinraam bees, ensovoorts. Hierdie is verskille wat in aanmerking geneem moet word en dit vorm die basis van die tabelle. Nadat dit bereken is, het ons dan 'n reeks metaboliseerbare energie (ME) waardes wat die behoeftes beskryf.

Daar is egter besef dat dit vreemde begrippe vir boere is om te visualiseer, want hulle was gewoond aan die ou GVE. Daarom het ons besluit om te hou by die begrip, maar dit net te definieer op hierdie meer verantwoordbare wyse. Dus het ons die GVE gedefinieer as 'n 450kg os wat 500g per dag groei op 'n veld met 'n verteerbaarheid van 55%. Dié os se ME behoefte is 75 megajoules (MJ) per dag.

So, eintlik druk ons alle ander spesies of kategorië soos groei of laktasie uit in verhouding tot 75MJ, maar ons beskryf dit net in die GVE-formaat. Daarmee kan jy dan verskillende spesies en kategorië uitdruk in verhouding tot die sodanig gedefinieerde GVE.

Wanneer dit egter by veelading of drakrag en weidingskapasiteit kom, moet besef word dat die veld sekere beperkings plaas op die energiebehoefte van die dier. Die kwaliteit van die veld sal bepaal hoeveel die dier kan inneem en daarom is verteerbaarheid van die veld ook in die definisie ingebring. 'n Verdere beperking is die materiaal op die veld - diere vreet selektief en sommige plante vreet hulle nie. Dit moet ook in ag geneem word. So, ek kan nie sommer 'n direkte omskakeling van die GVE (wat in beesterme uitgedruk is) na skape doen nie, want beeste en skape verskil ook in seleksiepatrone.

Met hierdie beginsels in ag geneem is weikapasiteite van distrikte in GVE-terme toentertyd deur die Departement van Landbou bepaal om as basis vir grondverkope, subsidies en die veeverminderingskema te dien. Eintlik het die aanname van 'n distriksbasis tekortkominge, want plase binne distrikte verskil ten opsigte van veldkondisie en –samestelling. Dit was egter prakties 'n onbegonne taak om elke plaas te beskou. Vir hierdie funksies en verantwoordelikheid is daar 'n voorligtingsbeampte aan distrikte toegesê wat dit op die vlak kon bestuur.

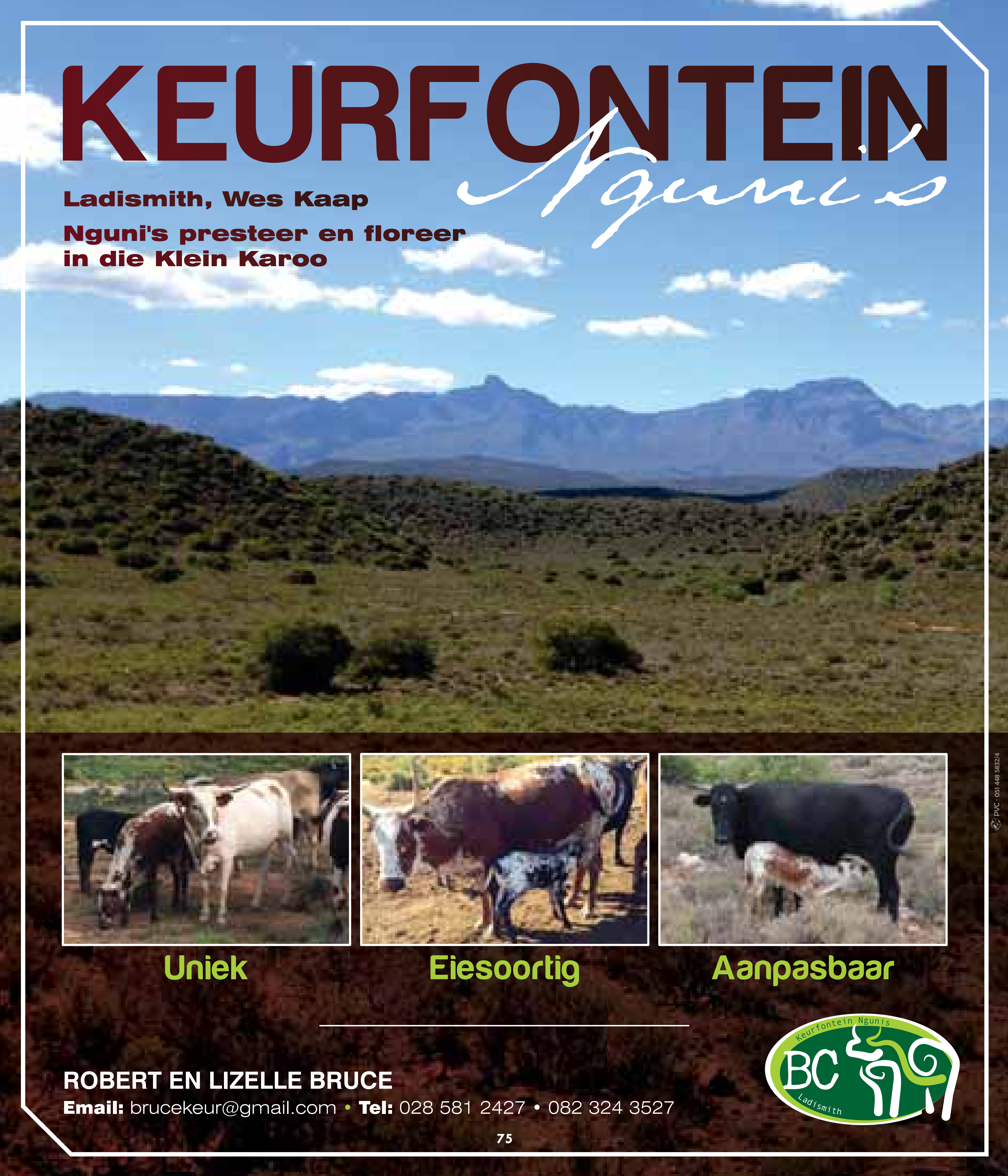
Vandag egter het hierdie bestuur grootliks verdwyn, maar boere binne distrikte is nog bewus van hul aanvaarde weikapasiteit. **Om egter werklik jou hulpbron te beskerm en optimaal te gebruik, is dit belangrik dat jy die ras waarmee jy boer in groot-, medium- of kleinraam indeel, die kudde se gewig bepaal en vergelyk met hierdie kategorië, asook jou produksiestelsel (speenkalf- of osstelsel) in ag neem.** Met weidingkundige hulp kan jou veldtoestand en –samestelling gereeld gemonitor word. Indien so, sal die GVE-tabelle vir jou handig en verantwoordbaar te pas kom!

Table 1: LSU equivalents for grazing beef cattle
Tabel 1: GVE-ekwivalente vir weidende vleisbeeste

Class / *Klas*	Mass / *Massa (kg)*	ME MJ/d	LSU *GVE*	Approximate number / LSU *Benaderde getal / GVE*
	Small mature size / Kleinraam			
Bull / *Bul*	600	102,15	1,36	0,73
Cow, non-lactating [3 years] / *Koei, droog [3 jaar]*	400	75,57	1,01	0,99
Cow, non-lactating [mature] / *Koei, droog [volwasse]*	500	82,22	1,10	0,93
Cow, in calf [3 years] / *Koei, dragtig [3 yaar]*	400	75,57	1,01	0,99
Cow, in calf [mature] / *Koei, dragtig [volwasse]*	500	82,22	1,10	0,91
Cow, with calf [3 years] / *Koei, met kalf [3 jaar]*	400	91,35	1,22	0,82
Cow, with calf [mature] / *Koei, met kalf [volwasse]*	500	106,30	1,42	0,71
Weaner calf / *Speenkalf*	180	33,22	0,44	2,36
Steer [18 months] / *Os [18 maande]*	300	56,47	0,75	1,33
Steer [mature] / *Os [volwasse]*	490	82,22	1,10	0,91

Class / *Klas*	Mass / *Massa (kg)*	ME MJ/d	LSU *GVE*	Approximate number / LSU *Benaderde getal / GVE*
	Medium mature size / Mediumraam			
Bull / *Bul*	600	103,81	1,38	0,72
Cow, non-lactating [3 years] / *Koei, droog [3 jaar]*	450	84,71	1,13	0,89
Cow, non-lactating [mature] / *Koei, droog [volwasse]*	525	90,52	1,21	0,83
Cow, in calf [3 years] / *Koei, dragtig [3 yaar]*	450	84,71	1,13	0,89
Cow, in calf [mature] / *Koei, dragtig [volwasse]*	525	90,52	1,21	0,83
Cow, with calf [3 years] / *Koei, met kalf [3 jaar]*	450	104,64	1,40	0,72
Cow, with calf [mature] / *Koei, met kalf [volwasse]*	525	116,27	1,55	0,65
Weaner calf / *Speenkalf*	200	39,86	0,53	1,88
Steer [18 months] / *Os [18 maande]*	350	67,27	0,90	1,11
Steer [mature] / *Os [volwasse]*	550	91,35	1,22	0,82

Class / *Klas*	Mass / *Massa (kg)*	ME MJ/d	LSU *GVE*	Approximate number / LSU *Benaderde getal / GVE*
	Large mature size / Grootraam			
Bull / *Bul*	650	120,08	1,63	0,61
Cow, non-lactating [3 years] / *Koei, droog [3 jaar]*	500	95,50	1,27	0,79
Cow, non-lactating [mature] / *Koei, droog [volwasse]*	550	98,83	1,32	0,76
Cow, in calf [3 years] / *Koei, dragtig [3 yaar]*	500	95,50	1,27	0,79
Cow, in calf [mature] / *Koei, dragtig [volwasse]*	550	98,83	1,32	0,76
Cow, with calf [3 years] / *Koei, met kalf [3 jaar]*	500	124,57	1,66	0,60
Cow, with calf [mature] / *Koei, met kalf [volwasse]*	575	136,20	1,82	0,55
Weaner calf / *Speenkalf*	225	48,17	0,64	1,56
Steer [18 months] / *Os [18 maande]*	400	81,39	1,06	0,92
Steer [mature] / *Os [volwasse]*	585	99,66	1,33	0,75


KEURFONTEIN
Nguni's
Ladismith, Wes Kaap
Nguni's presteer en floreer in die Klein Karoo
Uniek
Eiesoortig
Aanpasbaar
ROBERT EN LIZELLE BRUCE
Email: brucekeur@gmail.com • Tel: 028 581 2427 • 082 324 3527
Keurfontein Ngunis
BC
Ladismith
PVC · 051 448 5832/4

A NEW PERSPECTIVE ON THE ORIGIN OF NGUNI CATTLE

by M.M. Scholtz[1,2], L. Pienaar[1,2] & F.W.C. Neser[2]
[1]ARC-Animal Production Institute, Private Bag X2, Irene 0062, SOUTH AFRICA;
[2]Department of Animal, Wildlife and Grassland Sciences, University of the Free State, P.O Box 339, Bloemfontein 9300, SOUTH AFRICA

"STUDENT: DR. EINSTEIN, AREN'T THESE THE SAME QUESTIONS AS LAST YEAR'S FINAL EXAM

Earlier studies postulated that modern domesticated cattle are descendants from a common wild ancestor, known as the auroch (*Bos taurus primigenius*), which is now extinct (Epstein, 1971). However, research based on mitochondrial DNA (DNA that is passed down from maternal lineage), suggested that hump-less taurine (*Bos taurus*) and humped zebu cattle (*Bos indicus*) originated from two independent domestication events from *Bos primigenius* and *Bos namadicus*, respectively (McKay *et al.,* 2008; Kantaten *et al.,* 2009; Decker *et al.,* 2014). However, other research established a third theory, or a third domestication event (Payne, 1970; Grigson, 1991).

The current African cattle originated from three different sources. Firstly, the domestication from Asia along the Nile Valley and onwards through Egypt.

The second domestication event emanated through the "horn" of Africa or from the East Coast towards and through Madagascar.

The third theory stated that a domestication event took place within the African continent. Therefore, the centre of origin of the primitive Sanga cattle was most likely, East Africa (Figure 1).

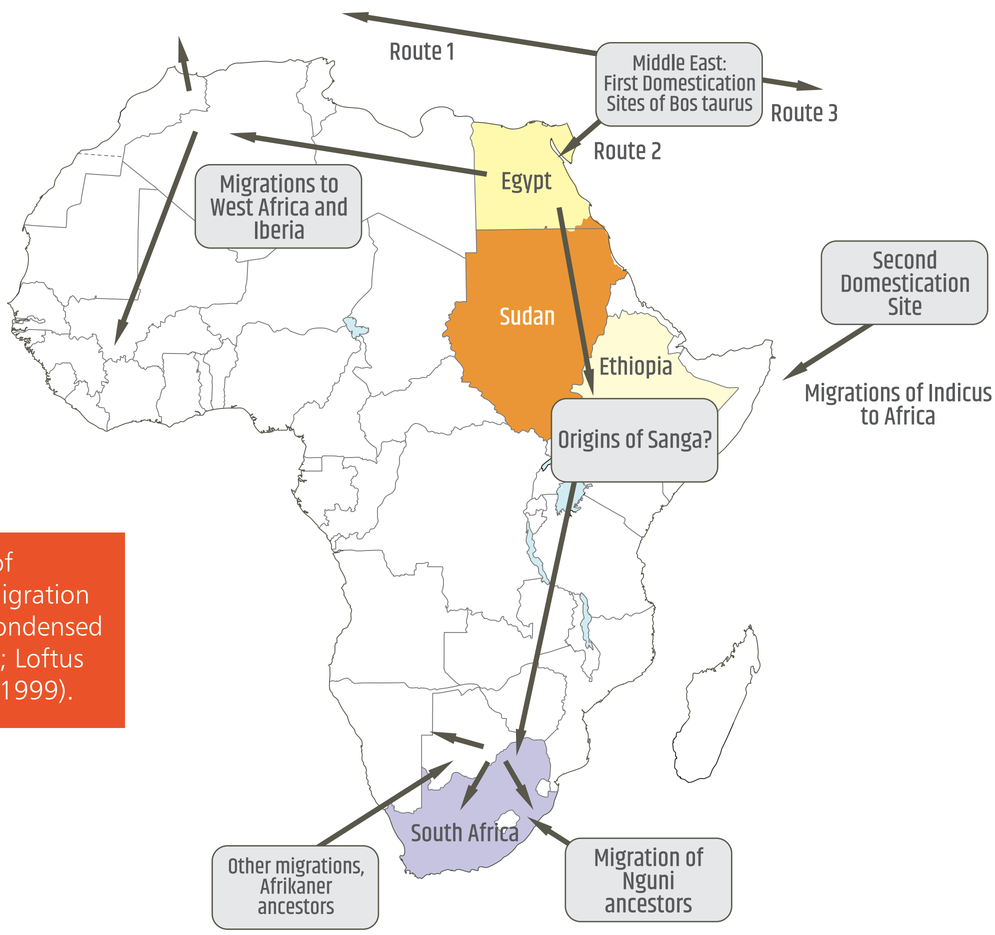


Figure 1: Schematic representation of postulated domestication sites and migration routes of bovines through Africa, a condensed excerpt of current data (Brown, 1959; Loftus *et al.,* 1994; Bradley & Cunningham, 1999).

EINSTEIN: YES, BUT THIS YEAR THE ANSWERS ARE DIFFERENT

Ancient people migrated through Africa from Egypt and as they traded along the east coast of Africa from India, new strains of cattle were developed (Curson, 1936). Today, African cattle can be classified into three major groups: African *B. taurus, B. indicus* and Sanga types (African hump-less *Bos taurus* x humped *Bos indicus*) (Rege, 1999). African taurine cattle are widely distributed throughout west and central Africa and are divided into longhorn (*B. taurus longifrons*) and shorthorn (*B. taurus brachyceros*).

Indicine cattle are mainly found in the eastern and dry parts of West Africa, while the Sanga breeds are mainly found in eastern and southern Africa.

Studies on the Y chromosome and DNA studies suggest that zebu introgression on the African continent was primarily through males (Bradley *et al.,* 1994; Hanotte *et al.,* 2002; Porto-Neto *et al.,* 2013).

It is also important to note that all African cattle carry taurine mitochondrial DNA, indicating that there are no pure zebu cattle (*B. indicus*) on the African continent (Mwai *et al.,* 2015).

The Sanga group of cattle possess a cervico-thoracic hump (Figure 2) which is likely derived from admixture between the thoracic-humped Zebu (Figure 3) and hump-less *African B. taurus* cattle (Epstein, 1971; Hanotte *et al.,* 2002).

Figure 2: Sanga cattle such as the Nguni with a cervico-thoracic hump

Figure 3: Indicine cattle such as the Brahman with a fatty thoracic hump (Brahman Cattle Breeders' Society)

An important observation is that Sanga cattle from southern Africa, south of the trypanosomiasis belt (Figure 4), share the metacentric Y-chromosome in common with that of *B. taurus*, whereas Sanga cattle, currently found north of the trypanosomiasis belt, share the acrocentric Y-chromosome in common with the Zebu (*B. indicus*) types (Meyer, 1984). The Zebu is susceptible to trypanosomiasis (Murry *et al.,* 1982) distributed by the tsetse fly and it postulated that the zebu-like genotypes were eliminated from the population as the cattle migrated south.

“KNOWLEDGE IS HAVING THE RIGHT ANSWER INTELLIGENCE IS ASKING THE RIGHT QUESTION

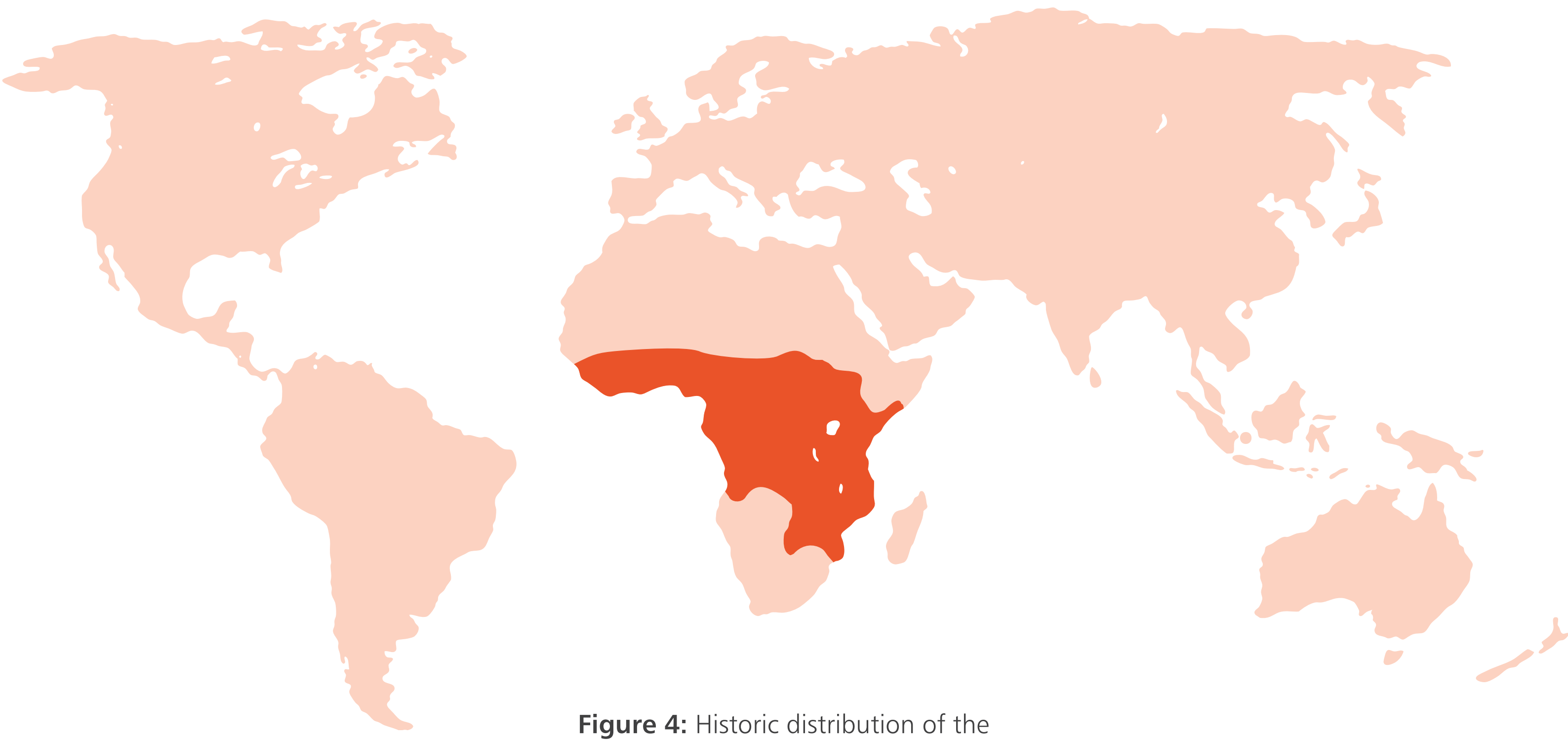


Figure 4: Historic distribution of the tsetse fly in Africa (FAO, 1999)

A recent study by Makina *et al.* (2016) confirmed that there is very little evidence of *B. indicus* in the modern day Nguni and that the little influence that does exist can be ascribed to recent introgression of *B. indicus* into the Nguni, that occurred in the communal areas before the breed was "formalized".The modern day southern African Sanga cattle can be described as taurine tropical adapted genotypes, which make them unique.

REFERENCES

BRADLEY, D G, MACHUGH, D E, LOFTUS, R T, SOW, R S, HOSTE, C H & CUNNINGHAM, E P, 1994. Animal Genetics, 25: 7-12.

BRADLEY, D G, & CUNNINGHAM, P, 1999. Genetic aspects of domestication, common breeds and their origins. In: The Genetics of Cattle.

BROWN, D L, 1959. Empire Journal of Experimental Agriculture, 27: 277-290.

CURSON, H H, & THORNTON, R W, 1936. Onderstepoort Journal of Veterinary Science and Animal Industry, 7: 613.

DECKER, J E, MCKAY, S D, ROLF, M M, et al., 2014. PLoS Genetics, 10:e1004254.

EPSTEIN, H, 1971. The Origin of the Domestic Animals of Africa. 1st Volume.

FAO, 1999. http://ergodd.zoo.ox.ac.uk/livatl2/tsetse.htm.

GRIGSON, C, 1991. The African Archaeological Review, 9: 119-144.

HANOTTE, O, BRADLEY, D G, OCHIENG, J W, VERJEE, Y, HILL, E W & REGE, E O, 2002. Science, 296: 336-339.

KANTANEN, J, EDWARDS, C J, BRADLEY, D G, et al., 2009. Heredity, 103: 404–415.

LOFTUS, R T, MACHUGH, D E, BRADLEY, D G, SHARP, P M & CUNNINGHAM, P, 1994. Proceedings of the National Academy of Sciences of the United States of America, 91: 2757-2761.

MAKINA, S O, WHITACRE, L K, DECKER, J E, TAYLOR, J F, MACNEIL, M D, SCHOLTZ, M M, VAN MARLE-KÖSTER, E, MUCHADEYI, F C, MAKGAHLELA, M L & MAIWASHE, A, 2016. Insight into the genetic composition of South African Sanga cattle using SNP data from cattle breeds worldwide Genetic selection and Evolution, 48:88

MCKAY, S D, SCHNABEL, R D, MURDOCH, B M, et al., 2008. BMC Genetics, 9: 37.

MEYER, E H H, 1984. Proceedings of the 2nd World Congress on Sheep and Beef Cattle Breeding.

MURRAY, M, MORRISON, W I & WHITELAW, D D, 1982. Host Susceptibility to African Trypanosomiasis: Trypanotolerance. In: Advances in Parasitology, volume 21.

MWAI, O, HANOTTE, O, KWON, Y-J & CHO, S, 2015. Asian-Australasian Journal of animal Science, 28: 911-921.

PAYNE, W J A, 1970. Cattle production in the tropics, 1st volume.

PORTE-NETO, L R, LEE, S H, SONSTEGARD, T S, VAN TASSELL, C P, LEE H K, GIBSON & J P GONDRO, C, 2013. Animal Genetics, 45: 180-190.

REGE, J E O, 1999. Animal Genetics Resources Information, 25: 1-25


LEEUWDOORNPAN
EW 14-54
Growth 124 • Milk 93 • Cow Value 117
Age First Calf 25 months
EW 13-38
Growth 122 • Milk 92 • Cow Value 112
Age First Calf 27 months
EW 14-09
Growth 124 • Milk 95 • Cow Value 119
Age First Calf 25 months
EW 13-28
Growth 125 • Milk 99 • Cow Value 121
Age First Calf 25 months
EW 13-52
Growth 127 • Milk 112 • Cow Value 130
Age First Calf 26 months

MATING SYSTEMS
DIFFERENT APPROACHES TO SUPERIOR PERFORMANCE

Yvette Steyn, SA Stud Book

There are various mating systems used, each with different objectives, advantages and disadvantages and some sparking great controversy and debate.

For any breeding system to truly be successful, complete pedigrees and performance recording are essential.

Some breeders mate randomly or select only on phenotype, which leads to slower improvement but requires less effort. Certain systems, such as rotational crossbreeding, require more camps, intensive management and substantially more labour. **But for any breeding system to truly be successful, complete pedigrees and performance recording are essential.** There is no valid excuse for any stud breeder not to keep these records. The mating systems discussed will be random mating, outbreeding, inbreeding, line breeding, line-crossing and crossbreeding.

RANDOM MATING

Random mating is, as described by the name, where there is no selection of animals that will become parents of the next generation and no planned matings for these animals. Unfortunately this is often applied, although mostly by commercial breeders. In this case males would be allowed to roam freely between all the females, leaving them to choose their own mates, regardless of relatedness or genetic progress that might or might not be obtained.

OUTBREEDING

Outbreeding is the mating of animals that are not closely related – technically less related than the average relationship in the breed or population, but generally accepted as animals that are unrelated within the last 4-6 generations. This of often the advised system and will prevent a decrease in performance due to inbreeding depression.

Animals must be selected on their performance, with most efficient practice being selection on breeding values, to best suit the breeding objective of the breeder, while mating takes place by taking pedigree information into account to avoid inbreeding.

INBREEDING

Inbreeding, by definition, is the mating of animals that are more closely related than the average relationship within the breed or population. It is one of the most controversial topics in breeding with some strongly opposed to it, some accepting it to a degree and some passionately advocating for it. Some are shunned and harshly criticised for applying it and some mocked for rejecting it. It is debatable and there is no denying that if used correctly and carefully it can deliver good results. Most breeds (apart from composite breeds) were developed in this way. However, its effect is not always understood by breeders. It is not uncommon for some breeders (most notably breeders of pets and game) to claim that mating brother and sister is unacceptable, but mating parents to their offspring is fine – the relationship between parent and offspring is 50% and on average between full-sibs also 50%, however, it might happen that a brother and sister inherit completely different components from both parents, giving them a relatedness of less than 50%, or that they inherit the same genetic components from both parents, giving them a relatedness much higher than 50%.

After personally examining some registration certificates of dogs and communicating with breeders, it is clear that it is often not understood and not avoided. While many livestock breeders are more aware of this problem and its consequences, a large proportion of breeders don't take care to avoid or control it and many apply it strongly. The main dangers of inbreeding are the expression of deleterious genes and inbreeding depression. The expression of deleterious genes is sometimes a reason why some apply inbreeding. It is important to note that inbreeding does not create genetic mutations, but simply allows the expression of genes that are usually masked by other genes. By uncovering these genes one can eliminate them, but in the process it is possible that various other traits have been negatively affected by inbreeding depression.

Inbreeding depression is the depression/decrease in traits such as fertility and survivability due to inbreeding. It can happen systematically and initially go undetected. It can even be observed at an inbreeding coefficient (the probability that both copies of a gene came from the same ancestor) as low as 6.25% (typically occurring in matings where there is a common grandfather). With this in mind it is very surprising that some breeders applying line breeding (a form of inbreeding) proudly announce to anyone willing to listen that their stud ram has an inbreeding coefficient of 25%!

There are two main reasons for applying inbreeding: to increase uniformity and to create the opportunity for heterosis (hybrid vigour) when two inbred lines are crossed. Animals in an inbred herd will be more uniform and, genetically, inbreeding is the way to achieve this. **But is overall genetic uniformity always good? A genetically uniform population is more vulnerable to environmental effects and less adaptable to change (therefore often less resistant to disease).** Inbreeding is not the only way to create phenotypically uniform herds for specific traits. **It can be better or just as effective to consistently select for specific traits instead of a relationship to a certain ancestor.**

By using this method, a herd can be phenotypically uniform while still maintaining genetic variation for other (often less observable) traits, such as fertility and disease resistance. An example to illustrate uniformity outside familial lines is to use people, since that is a common reference we all share.

People in a family may share common interests, some talents and body features, but they often differ too. Simply belonging to a family does not guarantee similarities (and often similarities are environmental, not genetic). When comparing people within a rugby team or a class for computer programming, it is clear that the individuals within those groups are more similar, not because of a family relationship, but purely out of a similar talent or interest.

LINE BREEDING AND LINE CROSSING

Line breeding is a mild form of inbreeding and is designed to increase the relationship of a herd or strain to a highly acclaimed ancestor or group of ancestors to retain superior performance **without leading to high levels of inbreeding.** The general guideline is not to mate animals more closely related than half-sibs, however many breeders ignore this guideline. There is a common saying that it is called line breeding when it works, and inbreeding if it doesn't.

> It is better to have a productive purebred herd with superior genetics than a crossbreeding program based on inferior animals.

It can be very successful in producing lines of superior performance in desirable traits, but when it fails it can be a disaster! A study in Montana, USA, established 11 Hereford lines by line breeding, of which only 2 survived (the others eliminated themselves through undesirable genes that were uncovered). Of these 2, one had average performance and the other was superior and made a major contribution to the breed. Establishing lines, particularly good lines, is time consuming and large herds are needed to allow strict, accurate selection and extensive culling.

The other advantage of line breeding, as mentioned above, is to get heterosis when lines are crossed. Line crossing is like crossbreeding but within breed instead of between breeds. The resulting offspring have qualities of both lines and will perform better than the average of their parents. The effect is greater when the difference between lines is greater.

The chicken industry has been very successful in producing lines, both to promote certain characteristics, such as egg colour, age at puberty and hatchability, and to apply line-crossing to have more fertile hens (from a line dedicated to fertility) to hatch chicks that grow faster (from a sire line dedicated to growth and carcass traits). Chickens have the advantages of a short generation interval, the ability to produce many offspring within a short time and a lower financial value per animal, which makes culling easier.

CROSSBREEDING

Crossbreeding is the mating of animals from different breeds. There are 2 main reasons for crossbreeding: **heterosis** and **complementarity. Heterosis** is defined **as the increase in performance of the offspring over the average of the parents** and is due to an increase in heterozygosity (different forms of the same gene in a population opposed to homozygosity as a result of inbreeding).

The effect of heterosis is greater on traits that are lowly heritable, such as fertility, survivability and maternal traits, than on traits that are highly heritable (with no effect for carcass traits). The effect is also cumulative, in other words crossing a crossbred with another breed can deliver even better results. There are three different types of heterosis, namely individual (offspring) heterosis, maternal heterosis (crossbred dam) and paternal heterosis (crossbred sires). The latter has received very little attention, but should not be completely ignored. Studies have shown an improvement in semen quality, libido and mating ability in crossbred males. **Maternal heterosis** increases the ability of a dam to conceive and raise heavier calves (through increased milk production). **Individual heterosis** is the effect on the offspring – heavier weights, faster growth, better fertility… It is important to note that heterosis refers to performance better than the average of the parents and therefore the selection of breeds and individual animals for mating is extremely important. **It is better to have a productive purebred herd with superior genetics than a crossbreeding program based on inferior animals.** There are various systems of crossbreeding, including terminal crossbreeding, rotational crossbreeding, grading up and composites.

Terminal crossbreeding: **All crossbred offspring are sold and none kept as replacements. This system takes advantage of individual heterosis.** However, the problem of replacements arises. Replacements will either have to be bought or a separate purebred system must exist on the farm.

Rotational crossbreeding: **The resulting crossbreds are kept and mated to a sire from another breed.** This takes advantage of maternal heterosis, which will further increase the performance of the offspring. The cycle can continue by alternating between the sires, or even include more breeds. The cumulative effect of heterosis can therefore be utilised.

This system requires intense management, many camps and large herds.
A combination of rotational and terminal systems can also be used, where the best cross-breds are kept as replacements and the rest mated to a terminal sire to produce offspring for slaughter.

Grading up: **This is the repeated crossing of a female and her female progeny to sires of a single breed.** The ultimate goal is to create a herd/population that is indistinguishable from the breed of the sire.

Composites: **A composite breed was established from two or more breeds, but is seen and managed as a pure breed. This is done to retain some heterosis and utilise breed complementarity.** Complementarity is when breeds are crossed with the purpose of complementing the weakness in one breed with the strength of another and to take advantage of different strengths overall.

One occasionally hears that breeds were combined to obtain only the best qualities of both breeds, which is not a valid statement. All qualities will combine, not only the best. Breeds used to produce composites must be selected carefully as to create a final product that is highly adaptable to its environment, performs well and meets market specifications. The development of composites require very large populations (500-750 females and 25 or more sires per generation), the correct choice of breeds, time to make the initial crosses over a few generations, a lot of money and patience.

It is **important** to realise that **heterosis can only be retained** if there is **no inbreeding** within the composite breed. It has been said that composites will never take over because selection within breed will lead to inbreeding and consequently decrease heterosis, **herds must be large to minimise or avoid inbreeding, maximum heterosis is never obtained,** breeders take pride in pure breeds, and purebreds will be needed to produce more base animals. However, composites have been very well received in South Africa and perform well. About 59% of stud cattle herds in South Africa are composites, of which the Bonsmara is most popular.

CONCLUSION

There is no single mating system that will work best for everyone and each has its own advantages and disadvantages. Careful consideration should go into choosing a system and it is essential that a breeder understands his/her choice and whether it will aid in the ultimate goal. Some systems require more labour and intensive management. The importance of pedigree records to be more successful cannot be emphasised enough. One cannot plan to use line breeding and claim not to breed closely related animals when there are no pedigree records. **After all, how can you know where you're going if you don't know where you are?** ■

Gelykfontein

since 1884

Breeding Ngunis' Since 1983 for Hardiness, Adaptability & Productivity!

Sentrale Nguni Klub

PVC · 051 448 5832/4

WHATEVER YOU NEED, WE OFFER YOU 34 YEARS OF NGUNI GENES

J.C. van der Walt
Cell: 082 926 0577
E-mail: jcv888@telkomsa.net

Schalk van der Walt
Tel: 051-654 0150 · Cell: 082 927 1806
E-mail: gelykfontein@telkomsa.net
gelykfontein@nokwi.co.za
PO Box 38, Venterstad, 9798, South Africa

www.gelykfontein.co.za

THE ROLE OF DNA ANALYSIS IN THE BREEDING OF ANIMALS

by **Michel Labuschagné** (PhD).

Everybody is talking about DNA in the fields of animal breeding. We were given the opportunity to write a piece on DNA associated techniques as used in the animal breeding industry.

GENETICS IS ABOUT HOW INFORMATION IS STORED AND TRANSMITTED BETWEEN GENERATIONS

When asked to write something about DNA parentage and genomics, the key is to keep it simple and easy to read. Being a farmer's son myself, I know that concepts need to be explained and fancy words do not add value if they are meaningless – all the fancy words can be found in numerous articles when you Google the concepts of DNA parentage and genomics.

I am grateful for the opportunity to approach the DNA-based services from a different perspective. Well good news, DNA at its core is really simple, based on 4 nucleotides, represented by A, T, C and G. This is where the simplicity ends, because one can only imagine the combinations and modifications necessary for these 4 nucleotides to serve as the blueprint for our life and life as we know and experience it every day. In an attempt to oversimplify the role of DNA parentage and genomics, it will be compared to the construction industry that most of us are familiar with (See Figure 1 A).

Imagine you are a developer and your next development needs to be the grandest one yet. You visit Nguni Architects where you listen to proposals and you are really interested in combining 2 proposals from 2 team members (one male and the other female, as luck would have it) to give you that grand design that would be the best yet. The plan on paper needs to become a reality and you are off to different building contractors. You have a choice of good (most expensive), average (market related) and bad (least expensive) contractors – all working from the same blueprint. The process and outcomes are illustrated in Figure 1A.

Figure 1 B - No more imagining, you are a Nguni breeder and you select (based on your experience and information at hand) a specific bull and cow combination to generate your best offspring yet. Genomic analysis of the DNA from the calf (the calf's genetic blueprint) reveals that the combination of genetics from the sire and the dam was indeed excellent.

Figure 1A

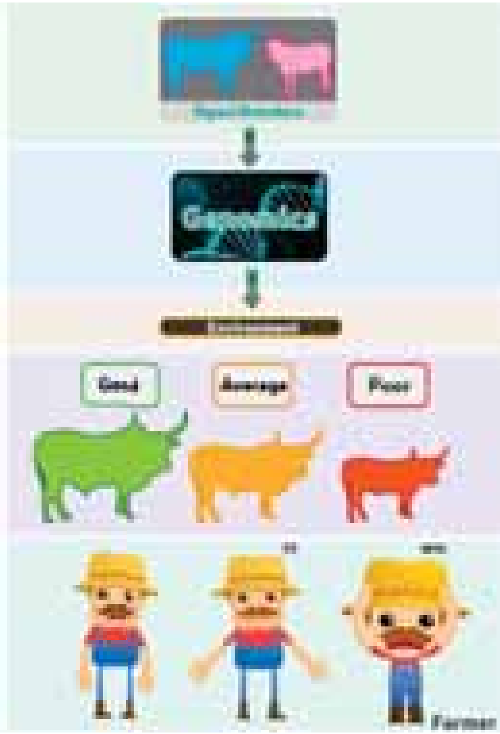


Figure 1B

On paper you now have a calf with genetic potential exceeding all previous records. This genetic potential needs to become a reality and you are off raising the animal in the hopes of unlocking this genetic potential. You have a choice of good (most expensive), average (market related) and bad (least expensive) environmental conditions – all working from the same genetic blueprint. The process and outcomes are illustrated in Figure 1 B. Below are a few questions (Q) and answers (A) to provide more information

Q: What role does DNA parentage play in modern animal breeding practices?

A: DNA parentage in cattle is based on specific regions that were proven to be inherited from the sire and the dam in such a way that you can detect the regions in the offspring. The industry standard looks at 12 of these regions. This allows, with high accuracy, confirmation of the pedigree of the offspring, ensuring that the breeding occurred as planned.

It is important to know that the most accurate results are obtained when both parents and the offspring are genotyped on DNA level. Genotyping all dams and the herd sire has a financial impact, so very often only the sires are tested against the offspring. This is the reason why Clinomics includes the 12 industry standard markers as well as 6 additional markers to increase the accuracy of the results.

It is also important to remember that more markers are better, since all parentage results list sires/dams that qualify as the parent(s) of the offspring and more markers will significantly reduce the inclusion of parent(s) qualifying by chance.

Q: What role does genomics play in modern animal breeding practices?

A: Genomics are, among other things, used to determine the genetic potential of an animal. These are based on association studies between genetic markers and well-recorded traits.

The majority of these traits are significantly influenced by the environment. This once again emphasizes the importance of thorough and accurate recording of information (animal traits and the environment). Without accurate records, no accurate associations can be made and the small differences on DNA level between animals remain just that: small differences on DNA level between animals.

Q: What is the difference in DNA parentage and genomics as a service?

A: There are 2 mainstream approaches towards DNA parentage at the moment, microsatellites and SNPs. At Clinomics we make use of microsatellites for DNA parentage where we look at 18 markers (including the 12 recommended by the International Society of Animal genetics – ISAG) for routine parentage in cattle. ISAG also has a SNP panel (comprising of 100 SNPs as the core panel) for routine parentage. Both the microsatellites and SNP approaches are affordable and allow for comparable highly accurate DNA parentage results.

There is currently only one major player in the animal genomics market. Illumina, individually and through its partnerships, offers different genomic profiling chips ranging from a low density chip (looking at approx. 8 000 SNPs) to the high density chip (looking at approx. 777 000 SNPs at a time) for genomic analysis.

Cost associated with these chips is significantly more than the parentage analysis, but it yields significantly more information. The SNP chips have been validated for a whole range of different breeds and have been well studied.

Q: What role does the environment play on the realization of genetic potential?

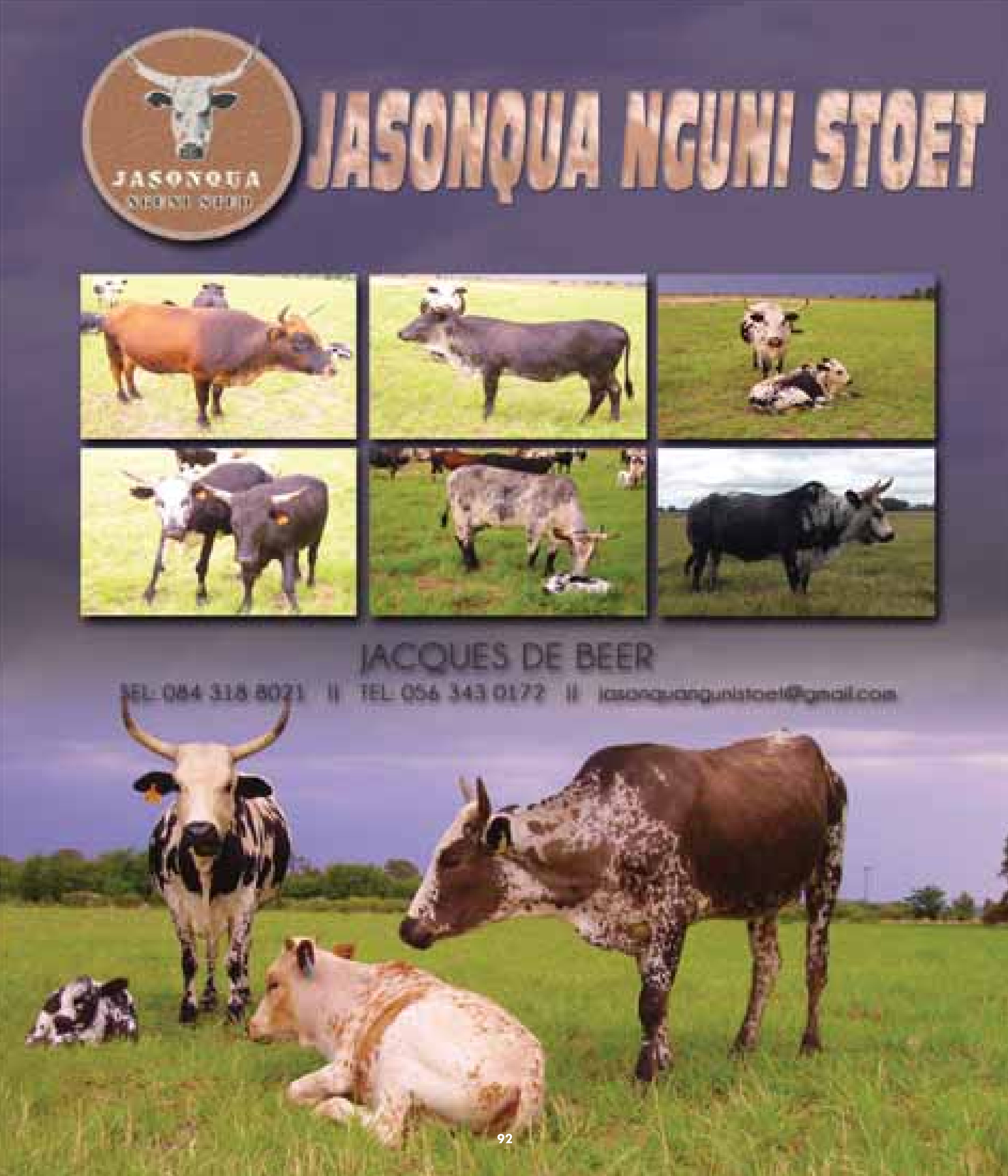
A: Environmental impact on unlocking the genetic potential of offspring is well documented and described in literature. A simple example commonly used: An animal may have a genetic tendency toward a certain weight. But the animal's actual weight is influenced by environmental factors such as food availability and consumption. Environmental effects can also occur much earlier than expected.

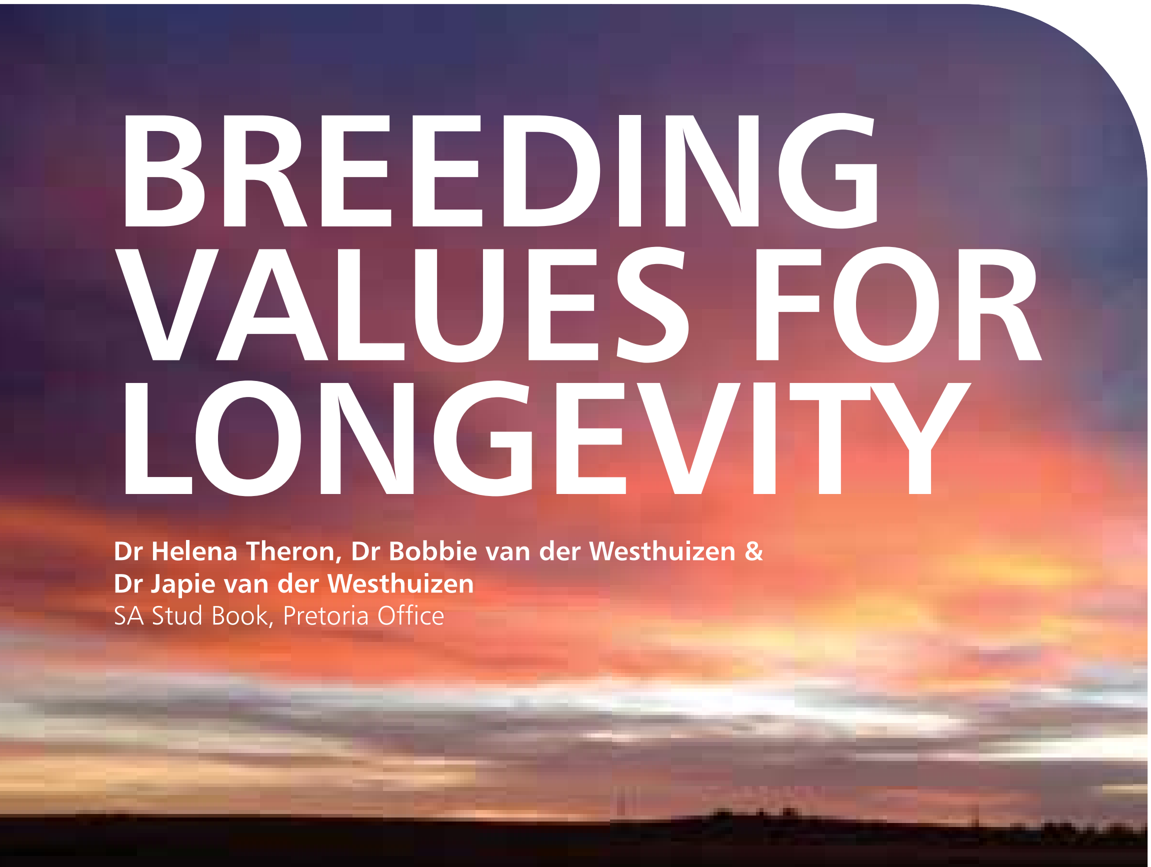
A study on white tail deer was published indicating the maternal effect on offspring.

One of the conclusions was that the growth of offspring born from white tail females that were subjected to sub-optimally environmental conditions, remained stunned even though all the offspring were given access to the same quantity and quality of feed. The stunned growth was only reversed during the second generation after giving the pregnant females access to optimal environmental conditions.

We, at Clinomics, believe in solving problems and creating trust. Trust in accurate and reliable results not only exists between Clinomics and the breeder, but that very same trust is instilled between breeder and buyer giving the buyer peace of mind in knowing that the animal bought does in fact have the pedigree as sold. ■

For more info e-mail us at **info@clinomics.co.za** or visit our website at **www.clinomics.co.za.**


JASONQUA
JASONQUA NGUNI STOET
JACQUES DE BEER
TEL: 084 318 8021 || TEL: 056 343 0172 || jasonquangunistoet@gmail.com



BREEDING VALUES FOR LONGEVITY

Dr Helena Theron, Dr Bobbie van der Westhuizen & Dr Japie van der Westhuizen
SA Stud Book, Pretoria Office

THE IMPORTANCE OF LONGEVITY

Longevity of cows has an economic impact on a herd. Mature cows which have produced many calves are without a doubt more profitable than cows that only produce one or two calves and then have to be culled. It is expensive to raise a heifer, and if she only produces one calf before being culled, she will most likely not be profitable. Longevity is also one of the major contributing factors towards genetic progress when selection pressure is applied in livestock. A lack of fitness (survival and fertility) necessitates lower selection pressure among the animals eligible as selection candidates as more replacements are needed to fill the void caused by the non-survivors.

Longevity has a genetic component, which is in fact a composition of many underlying traits, of which the ability to adapt to the environment and fertility are probably the main factors. The genotypes that are most adapted to the environment can usually be identified as animals that remain in relative good condition throughout their lives and reproduce regularly. These are cows that remain in the herd for many years and produce many calves. Adapted cows that calve every year are the ideal type of cow, especially if her daughters also remain in the herds.

The question is why do cows leave the herd? Sometimes a cow culls herself – she doesn't show heat, doesn't become pregnant, becomes ill, or dies. She may also be culled due to structural defects, for example leg and hoof problems or scrotal abnormalities in bulls. This is known as involuntary culling. Voluntary culling happens when the breeder decides to cull the cow - usually for poor production, or for example, if she weaned a poor calf. She may also simply be the poorest cow in the herd, but if she is genetically acceptable, she could be sold off to another breeder.

There is therefore a huge difference in profitability between these two types of animals. If a large proportion of animals in the herd cull themselves, the breeder has no option but to keep the poor producers as well, which has a long term effect on the productivity of the herd and the reaching of selection goals.

Longevity therefore measures the composite ability of animals to remain in the herd. It reflects the ability of a cow to reproduce and wean calves while remaining sound and resistant to diseases for as long as possible. In bulls it reflects the ability to breed daughters that have a long herd life (longevity). On request by the Nguni council, S.A. Stud Book has now developed Phenotypic measures of longevity.

PHENOTYPIC MEASURES OF LONGEVITY

Data of cancelled Nguni cows on the Logix database where used to ascertain phenotypic measures of longevity in Nguni cows, for example maximum number of calves born and erosion of cows over time. Only data of cancelled cows were used, as they have calved for the maximum number of times and only cows born before 2007 were included, as they could already have at least 8 calves. The data choice for this particular study ensured the avoidance of possible biased conclusions as it allows equal chances for survival of the animals included.

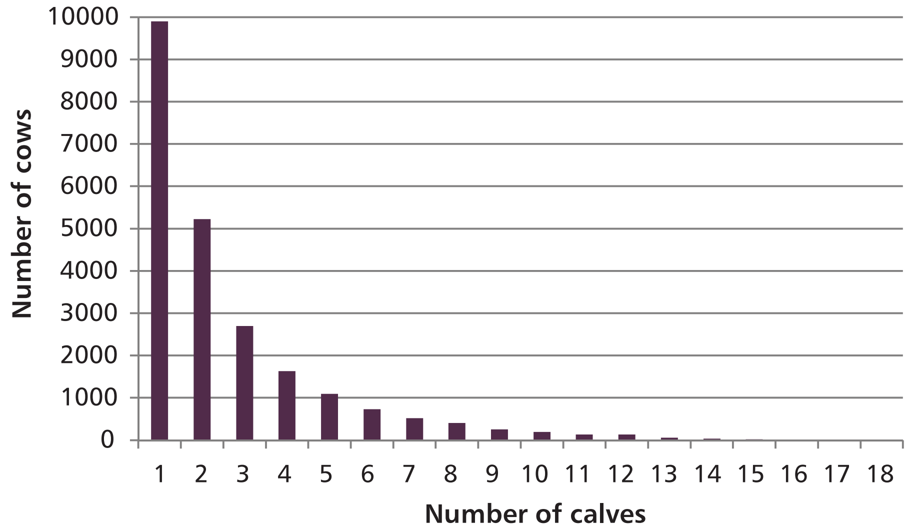


Figure 1: Erosion of fertility records: only around 50% of cows that calve for the first time, calve for the second time of which 50% calve for the third time. After that, around 60-70% of cows calve again each year, up to a maximum of 18 calves.

The distribution of number of calves born among current live Nguni cows are also shown in figure 2. Of the currently active Nguni cows, 35% have one calf on record, 21% have 2 calves and only 19% have more than 4 calves. This shows that many cows are lost after producing only one calf. If a greater proportion of cows can be moved from the group that are culled after producing one calf, to the group that produce a calf each year, longevity and profitability will increase. Although this is typical of what happens in most breeds, it shows that there may be some room for improvement in the longevity of Nguni cows.

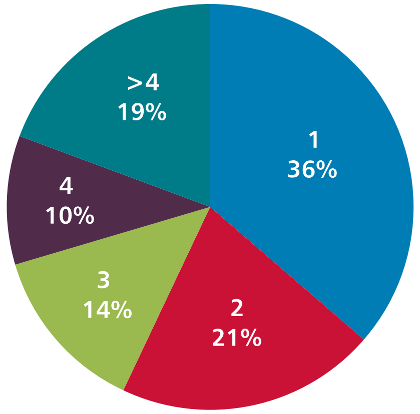


Figure 2: The distribution of the number of calves of live Nguni cows currently on the Logix database

ESTIMATION OF BREEDING VALUES FOR LONGEVITY

Breeding values for longevity needs to take into account when an animal is cancelled and therefore leaves the breeding herd. It also has to take into account other influencing factors, for example the sex of the animal and the herd or contemporary group to which it belongs.

A large *multi-trait model,* which tracks the activity of all animals born in their specific contemporary groups each year for a period of 10 years, are used for the estimation of breeding values for longevity (also known as herd life). This contemporary group stays intact for a period of 10 years. Animals are classified as 2 when alive and present, or 1 when cancelled. All animals in the breed are classified as alive in their birth contemporary groups. Should an animal be present at weaning, 18 months, 2 years and every year in between up to 10 years, it is classified as alive for each period (which constitute a trait).

Should the animal be cancelled at any stage, it is classified as cancelled from that period onwards up to 10 years. If the status of an animal is unknown, it is classified with a value of zero. **Measurements are taken for both males and females, but both sexes are not placed in the same contemporary groups, as selection pressure is much higher on bulls than on cows.**

Other factors that are taken into account are a sire by herd interaction and the fact that it is repeated measures on the same animal. The herd in which the animal remains for each measurement is also considered, as retention in herds may differ. While some herds may be building numbers, others may remain stable. An animal may be sold to a herd which wants to increase herd size for example, in which case a higher proportion of animals would be retained in this specific herd. This herd effect is also therefore taken into account and breeding values are corrected for it.

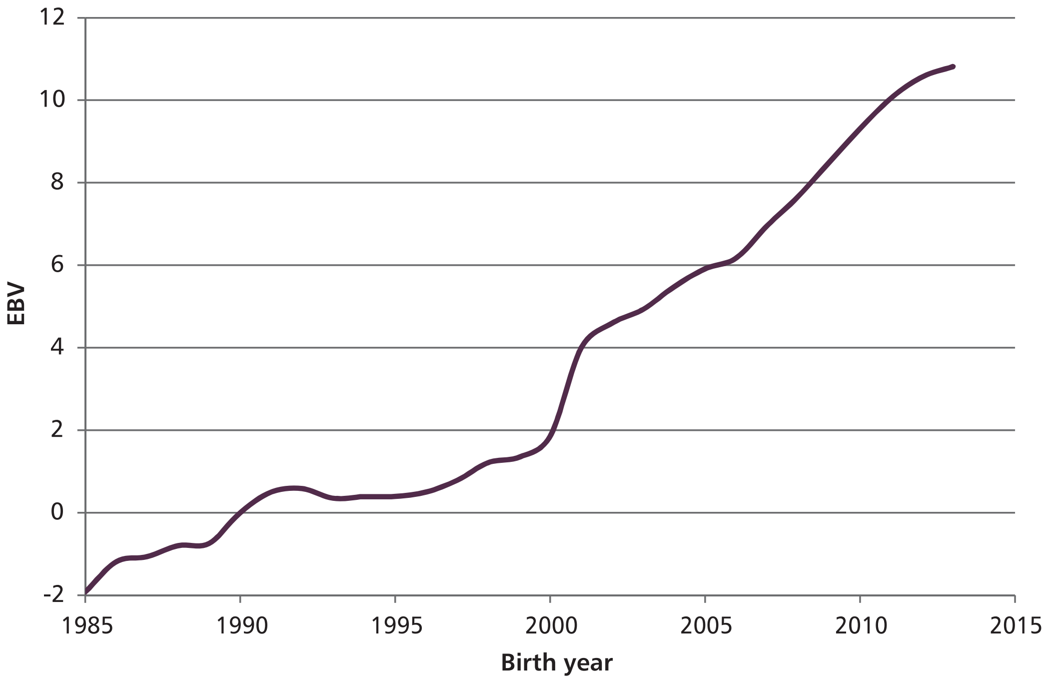


Figure 3: Genetic trend for longevity in Nguni cattle show genetic improvement.

> Longevity has a genetic component, which is in fact a composition of many underlying traits, of which the ability to adapt to the environment and fertility are probably the main factors.

Breeding values are then estimated in a multi-trait model and an average Breeding Value for Longevity, also known as Herd Life, is released. The heritability for the separate traits (chances of an animal to still be alive at a specific age) range between 9% and 23% and all genetic correlations between individual longevity periods are high positive.

From Figure 3 **it can be seen that the genetic trend for longevity in the Nguni is positive and that Nguni breeders have genetically improved longevity over time. Nguni breeders have directly or indirectly selected for longevity** – these are cows that tend to be well adapted to the environment and calve regularly. If this type of cow is used for the breeding of sires, longevity will be further enhanced and genetically ingrained in the Nguni.

Longevity breeding values take pedigree information and the performance of family members into account as well. Should a heifer come from a genetically strong cow family where cows tend to become old with many calves becoming parents themselves, this will show in her longevity breeding values.

An old cow that have been very successful herself and due to a superior environment, weaned many calves, but no or only a few calves tended to be retained in the breed. Her calves' performance will negatively affect her longevity breeding values. An example will be a cow that have been in a very good environment her whole life – even though it was easy for her to calve every year, and she was never exposed to diseases or other adverse conditions, and she therefore became old herself. If her calves tended to be culled at an early age, her longevity breeding value will be penalized.

LONGEVITY IS ALSO INCLUDED IN THE COW VALUE

The effect of longevity, which is an important characteristic of a 'perfect' cow, has been missing from the Cow Value. Sometimes older cows or 'grande dames' with many calves and a short ICP would have poor fertility breeding values due to small contemporary groups when they were young or some other reason, while not having many female family members to add information regarding fertility.

These cows will now find redemption in the adding of the longevity breeding value as part of the fertility sub value, which will influence the Cow Value.

SELECTION FOR LONGEVITY

Selection for the composite longevity trait is possible in the Nguni, as is shown by the strong positive genetic trend. The goal would be to select both cows and bulls that are genetically programmed to be able to adapt to their environment, and nonetheless produce a calf each and every year. Longevity breeding values can be used to select animals that conform to these characteristics, and at least identify animals that don't. This will result in the increase of profitability for the beef cattle producer. ■

Gariep Nguni's

"Nature is smarter than all of us"



Matroos Sons



Freddie Besselaar Tel: 072 782 0057 www.gariepngunis.co.za

RUMENFLORA EN DIE INVLOED DAARVAN OP AANPASBAARHEID

deur **Heinz Meissner**

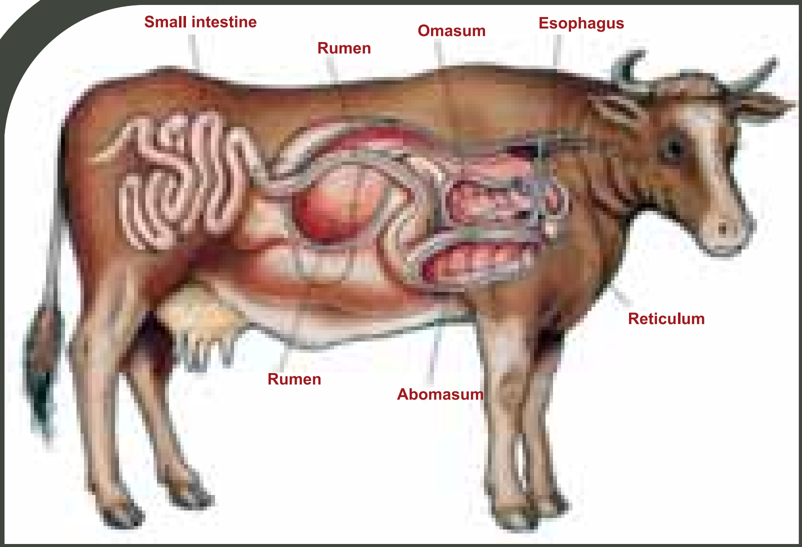
Die woord "aanpasbaarheid" by herkouers – kom ons gebruik vleisbeeste as voorbeeld – verwys gewoonlik na 'n verwantskap met die omgewing, alhoewel daar natuurlik ook ander soorte aanpasbaarhede is.

Vir vleisbeeste word gewoonlik na aanpasbaarheid verwys as tot watter mate hulle by 'n bepaalde omgewing kan inskakel. 'n Aangepaste vleisbees is dan een wat suksesvol ingeskakel het en gemaklik is met sy omgewing, ongeag die normale seisoenale- en droë of natsiklusse, hitte of koue, veldtoestand en parasietladings. Die klem hier is op "normale" en nie buitengewone of uiterstes nie; dit val buite hierdie raamwerk.

By wild word dikwels die woord "habitat" gebruik wat eintlik ook maar beteken "aangepas by die omgewing", maar ander kriteria word ook in ag neem. Die mate van aanpassing kan 'n mens by vleisbeeste meet as kondisie, produksie vanaf die veld, reproduksie, weerstand, temperatuur en binne perke, vermoë om deur groot omgewingskommelings te kom.

Vanuit hierdie beskrywing is dit duidelik dat voeding van die aangepaste vleisbees 'n sentrale rol speel, want voeding beïnvloed of bepaal kondisie, produksie, reproduksie en immuniteit. **As herkouer staan die rumenflora van die vleisbees dus sentraal in sy aanpasbaarheid.**

Dikwels word die aanname egter verkeerdelik gemaak dat die rumenflora slegs bepaal word deur die voer wat die dier inneem en dat dit niks met die dier te doen het nie. **Anders gestel, dit word aanvaar dat die flora in 'n vat lê waar dit kan fermenter.** Die uitkoms word dan bepaal deur die samestelling van die voer en hoe die florasamestelling aangepas is by die voer wat die vat binnekom.



AS HERKOUER STAAN DIE RUMENFLORA VAN DIE VLEISBEES DUS SENTRAAL IN SY AANPASBAARHEID.

Dit is nie so eenvoudig nie. Daar is ook 'n bepaalde verband tussen die rumenflora en die gasheerdier.

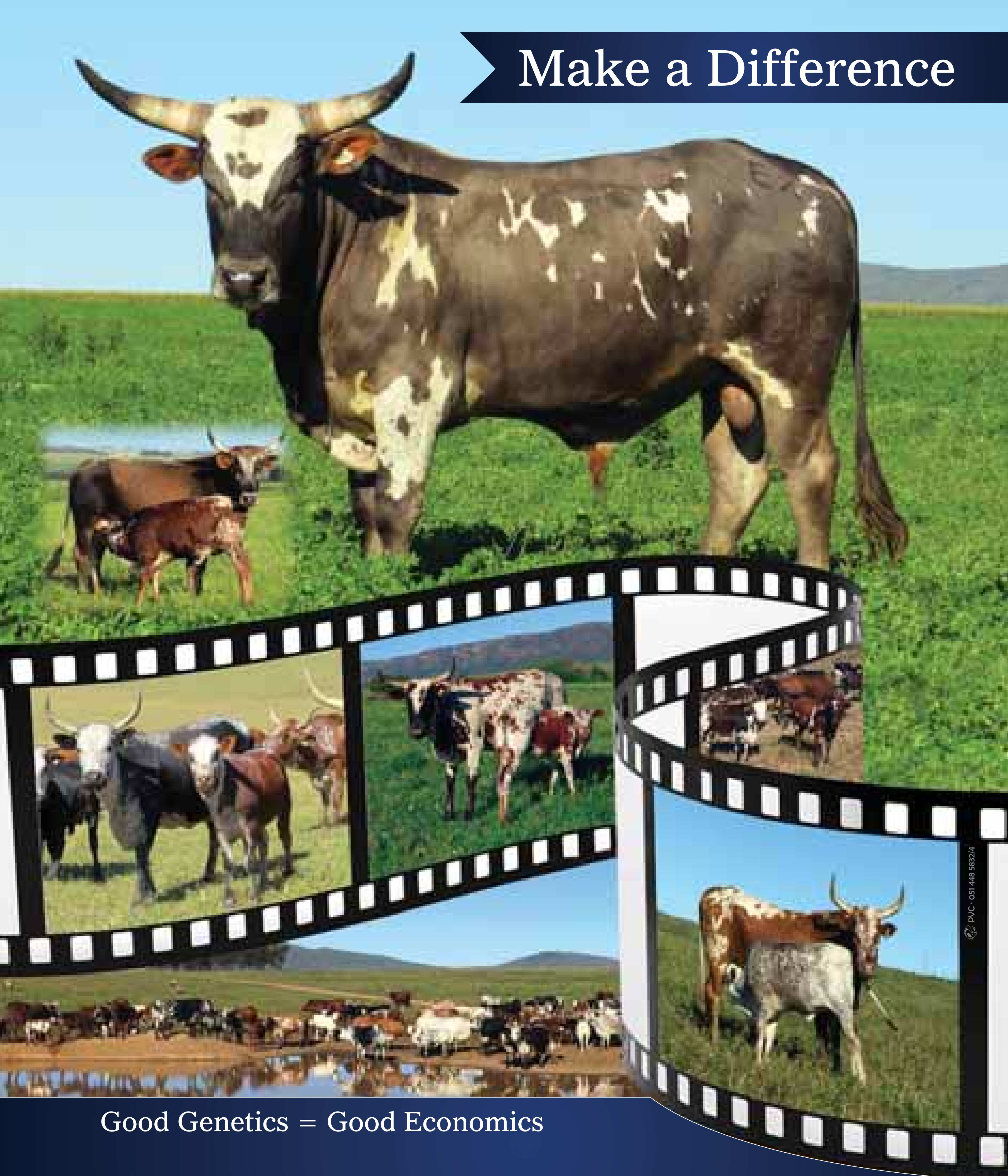
‘n Voorbeeld hiervan is dat stikstof, fosfaat en ander voedingstowwe moet terugsirkuleer vanaf die dier se lewer, been en ander organe na die rumen vir suksesvolle fermentasie. Die sukses hiervan hang af van die dier se persoonlike metabolisme. 'n Ander voorbeeld is dat die absorpsie en afvloei van halfverteerde voer na die dunderm (waar dit verder verteer en die endprodukte geabsorbeer word) tot 'n sekere mate deur die dier self bepaal word.

Interessant is dat daar betreklik groot verskille hierin tussen diere is. Om dit te illustreer: ons het 'n klompie jare terug gewonder wat maak dat sekere skape meer wol produseer as ander. Skape wat oor jare vir hoë wolproduksie geselekteer is, is geneem en hulle is vergelyk met ander skape wat vir lae wolproduksie geselekteer is by dieselfde vlak van voerinname. Terwyl verskille ook op die metaboliese vlak gelê het, was 'n belangrike rede dat hulle verskil het in die uitvloeitempo vanaf die rumen en die absorpsie van voedingstowwe uit die dunderm. Dus, ten spyte daarvan dat die hoë wolproduseerders dieselfde voer gevreet het as die lae wolproduseerders, het hulle meer voedingstowwe gekry.

Nou is die vraag, hoe word die rumenflora beïnvloed deur hierdie individuele verskille tussen diere? Alhoewel daar baie soorte mikro-organismes teenwoordig is, is die meeste betrokke by of veselvertering (vanaf ruvoer soos veld) of stysel- en suikervertering (vanaf lekke of byvoedings). Vesel bestaan uit kettings sellulose, hemisellulose en lignien wat saamgebind is. Van die organismes wat die vertering doen, heg vas aan die kettings en hulle doen die aanvanklike afbreek van die kettings.
Dan neem ander oor en omdat die stukkies van die kettings nou los is, vloei dit vrylik in die watermedium van die rumen (die rumen bevat 60 tot 70% water).

Dit beteken hierdie organismes is nie vasgeheg nie, maar doen hul werk in die watermedium. Die in- en uitvloei van die water is dinamies en as hierdie organismes nie vinnig groei en vermeerder nie, kan hulle “uitgewas” word en in uiterste gevalle selfs verdwyn uit die rumen. Indien 'n dier nou goed aangepas is by die voer (byvoorbeeld veld) wat hy vreet en hy is een van daardie individue waar fermentasie optimaal plaasvind in die rumen, dan beteken dit onder andere dat hierdie organismes 'n vermeerderingstempo ontwikkel het wat maak dat hulle minder uitwas.

Die laaste wyse waarom sekere diere (vleisbeeste) uit 'n voedingsoogpunt beter aangepas is by hul omgewing (en hier raak dit aan die begrip “habitat”), is dat hulle geleer het om vanuit die bestaande veldsamestelling 'n dieet te selekteer wat 'n hoër voedingswaarde het as wat ander sou selekteer. Die waarde daarvan is veral wanneer veldtoestand verswak. Omdat hulle dan 'n hoër kwaliteit selekteer, sal hul rumenflora ook effens verskil - tot voordeel van die eindprodukte (voedingstowwe) wat in die fermentasie- en verteringsprosesse ontwikkel.
Vleisbeeste verskil voorts ook ten opsigte van hul onderhoudsbehoefte wat 'n verdere verklaring is vir beter of swakker aanpasbaarheid, maar dit is 'n eienskap van die dier self wat buite hierdie onderwerp val.


Make a Difference
Good Genetics = Good Economics
PVC · 051 448 5832/4

DIE NGUNI EN SUIDER-AFRIKAANSE PRODUKSI

deur **D.J. Bosman, Pri. Sci. Nat.** (Veekunde) Kranskop, KwaZulu-Natal

Die Nguni speel sedert sy stigting in 1983 as formele ontwikkelende ras 'n belangrike rol in die Suider-Afrikaanse vleisbeesbedryf. Prestasietoets-inligting is reeds vanaf 1967 aangeteken - aan die begin waarskynlik by die verskillende Staatskuddes. Die Nguni Genootskap is tans die beesras by SA stamboek geregistreer met die derde grootste getal lede en aangetekende diere. Die Nguni word as 'n Sanga (*Bos taurus africanus*) geklassifiseer. Ander Suider-Afrikaanse suiwer Sanga rasse sluit in die Afrikaner, Pedi, Shangaan, Tswana (Botswana) en Tuli, Nkone, Shonas (Zimbabwe).

"DIFFERENT ISN'T ALWAYS BETTER - BUT BETTER IS ALWAYS DIFFERENT

ESTELSELS

Gedurende 2015 was 33 vleisbeesrasse aangeteken in Suid-Afrika met die komposiete of saamgestelde rasse wat 38% van die rasse verteenwoordig.
Die Nguni is een van die mees aangepaste rasse onder ekstensiewe toestande waar temperature 40°C kan bereik, dit vogtig is met weidings wat skraps is en etlike parasiete 'n lastige probleem is, veral in Swaziland en KwaZulu-Natal. Dit is 'n ras met 'n gemaklike temperament en 'n hoë reproduksietempo.

Die toekoms van die Nguni lê in sy vermoë om 'n positiewe bydrae in die vleisbeesbedryf te lewer.

Dit impliseer dat telers kennis moet dra van die Suider-Afrikaanse produksiestelsels. Nguni-telers moet die bedryf verstaan en planne saamstel om in die bedryf 'n gepaste bydrae te lewer.

RASSAMESTELLING VAN DIE VLEISBEESBEDRYF

Die bedryf verander met tyd. Dit is voordelig om die rassamestelling in Suid-Afrika te verstaan en tendense oor tyd waar te neem.

Die rastipes in Tabel 1 is soos volg saamgestel:

Indicus rasse: Brahman, Boran

Sanga rasse: Afrikaner, Ankole, Nguni, Tuli

Komposiete rasse: Afrigus, Afrisim, Beefmaster, Bonsmara, Braford, Brangus, Charbray, Drakensberger, Hugenoot, Pinzyl, Santa Gertruidis, Senepol, Simbra

Britse rasse: Angus, Dexter, Hereford, Red Poll, Shorthorn, Sussex

Maervleis rasse: Braunvieh, Charolais, Chianina, Gelbvieh, Limousin, Pinzgauer, Romagnola, Simmentaler, South Devon

Tabel 1: Rassamestelling volgens persentasie kuddes

RAS TIPE	GETAL RASSE		PERSENTASIE KUDDES				
	1980	2015	1980	1990	2000	2010	2015
Nguni	**1**	**1**	**7**	**5**	**3**	**3**	**3**
Indicus	1	2	7	5	7	6	6
Sanga	1	4	14	14	10	12	12
Komposiet	3	13	20	27	31	40	38
Brits	4	6	27	23	21	17	18
Maervleis	5	9	33	32	31	26	26
TOTAAL	15	34	4084	4007	2929	3307	3230

Bron: Stamboek, LNR, Breedplan, Jaarverslae

In 1980 was daar ses Nguni-kuddes in die prestasietoetsskema, waarskynlik Staatskuddes. Die getal het gegroei tot 289 lede met Nguni-kuddes in 2015. Tans in 2017 verskyn daar 250 telers op die ledelys. Dit is 'n betekenisvolle aantal kuddes. In Tabel 1 verskyn Nguni getalle ook by die Sanga- groepering.

Dit is verder duidelik dat die aangepaste Indicus-, Sanga- en Komposiete rasse toegeneem het van 41% in 1980 na 56% in 2015. Indien aardverwarming 'n langtermyn werklikheid en nie 'n politieke speelbal is nie, sal hierdie groep rasse 'n groter wordende deel van die bedryf vorm.

Die rassamestelling volgens persentasie geregistreerde koeie word in Tabel 2 gegee. Die Nguni word as ras gelys en word ook bygetel by die Sanga-rastipe.

Tabel 2: Ras-samestelling volgens persentasie geregistreerde vroulike diere

	PERSENTASIE VROULIKE DIERE					
RASTIPE	1980	1990	2000	2010	2015	Kudde grootte
Nguni	1	2	4	11	8	125
Indicus	16	17	13	14	18	88
Sanga	15	9	9	14	12	132
Komposiete	35	51	52	53	56	192
Brits	14	8	9	7	8	85
Maervleis	19	15	17	12	12	83
TOTAAL	177424	278249	248674	276169	421617	131

Bron: Breedplan, LNR, Stamboek Jaarverslae

In Tabel 2 verskyn die Nguni ook by die Sanga groepering. Die kudde-grootte van die Nguni volgens geregistreerde vroulike diere in 2010 was 79 koeie per kudde. In 2015 was die getal kuddes 289, met 'n gemiddelde kudde-grootte van 125 koeie.

Die komposiete of saamgestelde groep rasse toon vanaf 2010 die mees betekenisvolle groei met 'n totaal van 80 628 (35%) vroulike diere na 'n totaal van 227 565 (56%) in 2015.

Gedurende 1980 was die Britse en maervleis groepering 33% van die Stoetbedryf. Gedurende 2015 was 20% van die Stoetbedryf verteenwoordigend van hierdie twee groepe. Die Stoetbedryf verskuif dus stelselmatig na die meer veld-aangepaste rasse wat steeds in die verskillende produksiestelsels 'n bydrae lewer. Indien die uitvoermark van gehalte vleissnitte 'n groter werklikheid word, sal dit die rassamestelling verder beïnvloed.

PRODUKSIESTELSELS

Die produksiestelsels in Afrika en die meeste ekstensiewe oorsese lande berus hoofsaaklik op osproduksie vanaf natuurlike of aangeplante weidings.

In die suidelike halfrond met 300 miljoen vleisbeeste is dit slegs Australië en Suid-Afrika wat 'n stewige voerkraal-produksiestelsel het. Brasilië het 'n voerkraal-bedryf wat stadig uitbrei, maar meeste beeste word vanaf hulle aangeplante weidings bemark. Die vleiskwaliteit is egter nie vergelykbaar met dié van Argentinië nie.

Die Suid-Afrikaanse vleisbeesbedryf het twee belangrike stelsels wat mekaar komplimenteer. Dit is die speenkalfproduksiestelsel wat hoofsaaklik bulletjies met speenouderdom aan die voerkrale voorsien. Hierdie stelsel het die voordeel van 'n vinniger omset en meer koeie wat op die veld aangehou kan word.

Dit het 'n betekenisvolle invloed sedert die sestiger jare op die rassamestelling gehad, omdat sekere rasse na speenouderdom beter presteer in 'n voerkraal-omgewing.

DIE SPEENKALFPRODUKSIESTELSEL (SKP)

Die koms van die voerkraalbedryf in die 1960's het die SKP 'n prominente plek in die kommersiële bedryf gegee. Hierdie teelkuddes gedy onder ekstensiewe weiveld-toestande.

Aanpasbaarheid speel dus 'n belangrike rol soos die verskuiwing van rastipes in Tabel 1 en 2 aandui, met die klem veral op reproduksie, melkproduksie, groeivermoë en temperament.

Die meeste koeie in kommersiële kuddes is kruisgeteel met 'n gemiddelde gewig van 475kg by speen-ouderdom en 'n medium raamgrootte, met 'n voordelige groei-tempo, voerkraal-aanpasbaarheid en voeromset-vermoë wat die voerkraalbedryf vereis.

KAN DIE NGUNI IN SO 'N STELSEL PAS?

Die Nguni-koei weeg nader aan 400kg met voordelige aanpasbaarheids-eienskappe, 'n voordelige reproduksie-tempo en goeie moeder-eienskappe wat dus as moederlyn doeltreffend in hierdie stelsels kan inpas. Die laer volwasse gewig beteken die koeie het minder kos nodig en dus 'n laer onderhoudsbehoefte, kalfgemaklikheid (selfs van groter ras bulle) en meer koeie kan per oppervlakte aangehou word.

Die Nguni kan dus 'n belangrike rol speel as moederlyn in terminale kruisteling, waar al die nageslag met speenouderdom verkoop of self afgerond word.

Bulle van 'n ras met bespiering en groeikrag kan as terminaalbul gebruik word. Terminaal beteken al sy bul- en vers-nageslag word verkoop en afgerond. Met meerbul-parings kan Nguni-bulle deel van die teelkudde uitmaak om Nguni-vervangingsverse te teel.

Die bedryf sal hierdie stelsel aanneem as dit toegepas en die produksie en ekonomiese voordele daarvan gedokumenteer en gedemonstreer word. **Kommersiële Nguni-telers wat diere weeg en ekonomiese syfers beskikbaar stel, sal vir die genootskap en die bemarking van die ras baie beteken.**

Die LNR-proewe by Groblersdal het getoon dat Charolais kruiskalwers slegs 34kg by geboorte geweeg het – die Nguni-koei het die vermoë om geboortegewig te beperk – en 232kg by speenouderdom, teenoor die Nguni se 193kg (20% voordeel). Voerkraalgroei was 1652g vir die kruiskalwers teenoor 1121g vir die Nguni (47.4% voordeel) en voeromsetverhouding van 6.36 teenoor 7.45 (17% voordeel). Hier is kwaliteit vleis bykomend beskikbaar sodat die voerkrale sulke kalwers sal opraap vir die uitvoermark.

VOERKRAAL-PRODUKSIESTELSEL

Suid-Afrika beskik oor 'n stewige voerkraal-produksiestelsel. Daar is 60 kommersiële voerkrale wat 'n kapasiteit van 420 000 diere en 'n jaarlikse deurvloei van 1.5miljoen diere het, met 'n omset van R10.7 biljoen. (Dave Ford, 2010). Die intensiewe afronding van beeste lewer beslis die grootste vermenigvuldiging van vleisproduksie binne 'n kort tydperk per sitting van sowat 110 dae. Volgens verslae kom sowat 80% van hoë gehalte vleis uit voerkrale. Voerkrale bespoedig die omset van diere deur speenkalwers van die plase weg te neem en binne 'n kort tydperk af te rond.

Beesgetalle het die afgelope 25 jaar op sowat 13 miljoen te staan gekom met die bevolking wat gegroei het van sowat 35 miljoen na die huidige sowat 55 miljoen. Dit beteken dat die produksie van beesvleis geïntensiveer moet word om aan 'n groeiende aanvraag te voldoen. Wild het tans 'n groter aanspraak op die natuurlike weiding as beeste. Gedurende 1960 was 600 000 wilde diere in Suid Afrika teenwoordig. Die getalle het toegeneem na sowat 20 miljoen wat heelwat meer as die 13 miljoen beeste is. Sal wild weer plek maak vir die produksie van vleis vanaf die veld? Dit is te betwyfel. Die bemarking van wildsvleis behalwe biltong en droë wors is nie sigbaar nie.

Die Nguni pas nie in by 'n intensiewe afrondings-produksiestelsel vanaf speenouderdom nie. Moontlik sal die Nguni as 'long weaners' beter presteer, omdat die raam ontwikkel het en meer plek beskikbaar is om vleis aan te pak.

Sekere kommersiële voerkrale het slagfasiliteite beskikbaar en begin toenemend die gesogte snitte van die karkas uitvoer om die voordeel van die wisselkoers-verskille gebruik te maak. Dit is slegs sekere rasse en kruise met goeie kwaliteit vleis wat voorkeur in so 'n stelsel vind. Die Nguni met die korrekte ras-kruise sal goeie kwaliteit vleis produseer en sal in so 'n stelsel aanvaarding vind.

"DON'T WAIT FOR OPPORTUNITY, CREATE IT

Indien die Nguni en sy kommersiële telers 'n eie voerkraal kan oprig met innames wanneer dit gepas is, asook 'n korrekte rantsoen en goeie bemarkingskanaal, kan 'n stewige vastrap-plek in die produksieketting gevind word.

VELD-PRODUKSIESTELSEL

Beesvleis vanaf die veld geproduseer is in 'n mate vir menslike gebruik 'n gesonder opsie. Sulke vleis het gesonder omega 3- en 6-vetsure. Die werklike voordeel is dat die vleis smaakliker is. In Argentinië word jong beeste, wat meestal Angus en Hereford of hulle kruisings is, direk van die veld bemark. Die vleis is sag en sappig met 'n heerlike vleis-smaak. 'n Mens wil elke dag sulke vleis eet. Dit is die geheim van smaakvolle vleis. **Dit is met sulke vleis wat die hart van die verbruiker gewen word. Die Nguni het smaaklike, kwaliteit vleis. Dit is 'n opsie wat Nguni-telers kan ondersoek.**

In sekere dele van *Brasilië* word speenkalwers vanaf aangeplante weidings onder 'n spilpunt afgerond en bemark. Hulle sal 300 speenkalwers op 100 ha met 'n spilpunt en lekke elke 90 – 120 dae afrond. In 'n relatief waterskaars land soos Suid-Afrika is so 'n opsie dalk nie moontlik nie.

In *Namibië* word beeste vanaf die veld vir die uitvoermark afgerond op 27 – 36 maande ouderdom en deur MEATCO geslag en bemark. Sowat 150 000 hoofsaaklik kruisgeteelde osse word jaarliks bemark. Plase wes van die Windhoek-Otjiwarongo teerpad word gebruik om beeste op die veld af te rond. Dit is 'n laer reënval-area met goeie gehalte soetveld. Oos van hierdie padgrens word kuddes aangehou vir die produksie van speenkalwers. Die beste snitte word na Europa uitgevoer. Soveel as 50% van die vleis word na Suid-Afrika uitgevoer. Woolworths maak gebruik hiervan om goeie gehalte vleis, vanaf die veld geproduseer, te verkoop.

Dit sal goeie beleid vir Nguni-telers wees om bulletjies op die veld of op 'n hoë ruvoer-rantsoen aan 'n groeitoets te onderwerp en die swakker groeiers en presteerders te slag.

Voeg ultrasoniese skandering by om die onderhuidse vet, marmering en oogspier oppervlakte te bepaal. Dit sal genotipes identifiseer wat goed groei op goeie ruvoer-rantsoene of veld en wat 'n beter spier-tot-been verhouding het. Variasie is teenwoordig. **Ontgin dit en gebruik die verskil om die ras op 'n ander vlak te plaas sonder om die gesogte eienskappe van die Nguni te benadeel.**

OPSOMMING

Suid-Afrika het nie die beesgetalle om genoeg beesvleis vir 'n groeiende bevolking te produseer nie. Wildboerdery beset vandag 'n groot deel van die natuurlike weidings (85% in Limpopo-provinsie byvoorbeeld) sodat die produksie van beesvleis 'n meer intensiewe benadering moet volg met sinvolle kruisteelstelsels om meer vleis te produseer. Verskillende bykomende produksiestelsels moet dus ondersoek word sodat meer koeie op die veld aangehou kan word met veral die bulletjies wat met verskillende, gepaste produksiestelsels afgerond kan word. Ondersoek die moontlikheid om 'n rolspeler in die **beesvleis-wêreldmark** te wees ten einde die wisselkoers-voordeel te benut met die uitvoer van gesogte Nguni-snitte.


Onderberg Nguni Stoet
RADLEY
LANDGOED
Henning Radley
082 388 3642
(013) 790 0466
henning@radleylg.co.za

MANYENYEZA
NGUNIS
Inkanku
Intulo Elufipha
Inkonekazi Elufipha
Traditional
Breed
Umhlakuva and Inkanku
BOSTON-KZN
THE DUNGAY TRUST, P.O. BOX 644 UMZINTO
Barry Cole (Owner) 082 600 5628, Email: 1dungay1@scottburgh.co.za
Felicity Smith (Manager) 072 620 4438, Email: fillypip@yahoo.co.uk
We are situated at the base of the NHLOSANI Mountain range Boston/ Dargle area in the Midlands KZN

DIE KARKAS- EN VLEISKWALITEITE VAN DIE NGUNI

PE Strydom, Navorsingspanbestuurder: Vleiskunde, LNR Diereproduksie-Instituut, Privaatsak X2, Irene, 0062, E-pos: pstrydom@arc.agric.za

OPSOMMING

Vandag word landbou - en meer spesifiek die vee-bedryf - uitgedaag om meer voedsel met minder hulpbronne aan 'n groeiende wêreldbevolking te verskaf, sonder om kwaliteit in te boet. Die Nguni is alombekend vir hoë vrugbaarheid, kort interkalf-periodes, gemak van kalwing, koei-doeltreffendheid (kg kalf per kg koei), aanpasbaarheid by of beter benutting van swak weiding en bosluisweerstandbiedendheid.

In die primêre deel van die waardeketting presteer die Nguni dus uitstekend met betrekking tot genoemde uitdagings. Suid-Afrikaanse beesvleis-produksie leun egter swaar op afronding van diere in die voerkraal. Die ekonomiese struktuur van hierdie bedryf dikteer dat laat-volwasse rasse wat groot karkasse by mark-klaarheid kan produseer, meer populêr is as vroeg-volwasse rasse soos die Nguni.

Ons bespreking dui egter daarop dat die laer karkasmassa van die Nguni voordele kan inhou met betrekking tot vleiskwaliteit en die omskakeling van spier na vleis. Dis omdat sulke karkasse meer effektief afkoel. Verder kan dit met vertroue genoem word dat indien die regte stappe in plek is voor, tydens en na slagting (soos met enige vleisproduksie-stelsel), **die Nguni se vleiskwaliteit uitstekend vergelyk met enige Europese of Britse beesras.**

INLEIDING

Doeltreffendheid in die landbou is toenemend onder druk om verskeie redes. Aan die een kant is die eksponensiële groei in die wêreldbevolking na 'n geraamde 8.9 biljoen teen 2050. Tesame daarmee is daar 'n groeiende vraag na veral dier-proteïen in die opkomende middelklas. Vleisproduksie het alreeds verdriedubbel in die afgelope 50 jaar, terwyl die verwagte vraag in ontwikkelende lande teen 2030 met 32% en in ontwikkelde lande met 14% sal toeneem.

In teenstelling hiermee word landbou - en veral diereproduksie - uitgesonder as die sondebok ten opsigte van die toename in skadelike gasse in die atmosfeer (die sogenaamde kweekhuisgasse of KHG, ook vertaal as die koolstofvoetspoor). Beesvleis dra by tot 41% van die dieresektor se 7.1 Gigaton KHG per jaar. Navorsing in die landbou en veral die dieresektor fokus dus daarop om deur verbeterde genetika, voeding, dieregesondheid en reproduksie die KHG te verminder.

Om die situasie verder te kompliseer word toenemend gevra wat die verbruiker wil hê. Ten opsigte van vleis staan produkveiligheid en eetgenot bo aan die lys.

Die meeste skakels in die vleisbees-waardeketting fokus op produksie-doeltreffendheid en opbrengs, maar minder op kwaliteit. Vyf-en-sewentig persent van Suid-Afrikaanse beesvleis (1.3 miljoen karkasse) word deur voerkrale geproduseer, terwyl 'n groot persentasie van diere wat van die veld afkomstig is, pruldiere is (C-klas).

KARKASMASSA EN KWALITEIT

Daar bestaan oor jare 'n wêreldwye tendens waar na diere of produksiestelsels gemik word wat swaarder karkasse produseer. Suid-Afrika is geen uitsondering nie en statistiek toon dat die gemiddelde karkasgewig van voerkraaldiere met 60 kg (210 – 270) gestyg het sedert 1993. Dis as gevolg van verbeterde voerformulerings, groeibevorderaars en genetiese vordering en/of raskeuses. **Terwyl groot karkasse voordele ten opsigte van produksie- en prosesseringsdoeltreffendheid inhou, word toenemend probleme ondervind met vleiskwaliteit by sulke groot karkasse as gevolg van verkoelingsprobleme.**

Vleis se hitte-geleidingsvermoë is soortgelyk aan dié van hout, wat baie laag is. Dit is uiters noodsaaklik dat die verkoelingsprofiel (tempo waarteen temperatuur daal) van 'n karkas in pas is met die tempo van omskakeling van spier (karkas direk nadoods), ook genoem rigor mortis. Hierdie proses gaan gepaard met die omskakeling van spier-energie (glikogeen) na melksuur as gevolg van die afwesigheid van suurstof en neem tussen 8 en 14 ure, afhangende van ander prosesse soos elektriese stimulering. Die proses begin derhalwe as spier en eindig met vleis. **Indien die omskakeling-proses nie gepaard gaan met beheerde temperatuur-verandering nie en verkoeling vind te stadig plaas, word spierproteïene beskadig, wat verlies aan kwaliteit meebring. Sigbare tekens hiervan is oormatige drup-verlies (vleissappe in verpakking) en droë vleis; swak kleurontwikkeling (bleek vleis); en taai vleis (onvolledige veroudering). Die kombinasie van vleis se swak hitte-geleiding en groter wordende karkasse veroorsaak dat verkoelingsisteme se kapasiteit om vleis vinnig genoeg af te koel, beperk is. Swak vleiskwaliteit is dus die voorland indien aanpassings nie gemaak word nie.**

Oormatige drupverlies as gevolg van ongunstige toestande met die omskakeling van spier na vleis.

Waar pas die Nguni-bees by hierdie uitdagings in? Die Nguni is 'n vroeg-volwasse ras en derhalwe is die kanse vir uitermatige groot markklaar-karkasse onwaarskynlik. Dit op sig self hou dus voordele in en ander aanpassings hoef nie gemaak te word om kwaliteit te handhaaf nie. Met groter wordende karkasse moet gekyk word na meer riskante prosessering, soos warm-ontbening van karkasse (ontbening binne ure na slagting) sodat individuele snitte verkoel kan word. Hierdie prosesse hou risiko's van vertaaiing, verkleuring en probleme met higiëne en raklewe in.

Nadat die klaarblyklike nadele van te swaar karkasse uitgewys is, moet dit ook net benadruk word dat daar perke aan die ander kant van die skaal ook is. **Die handel beskou karkasse ligter as 180 kg as minder doeltreffend om te prosesseer en sulke karkasse mag ook probleme veroorsaak met porsiegoottte van veral die braaisnitte soos lendeskyf en fillet. Verder beskou voerkrale baie ligte speenkalwers as diere wat moeilik aanpas en nie gewenste winste voortbring nie. Laastens kan ligte karkasse ook die risiko van vertaaiing staan as gevolg van te vinnige verkoeling en gevolglike koelkrimping.** 'n Goeie balans is dus die wagwoord.

VLEISKWALITEIT

Daar word dikwels aanvaar dat vleiskwaliteit, veral sagtheid, slegs deur ras of genetika bepaal word. In werklikheid dra ras egter relatief min by tot vleiskwaliteit. Dit is in werklikheid slegs een belangrike skakel in die ketting van opeenvolgende prosesse of faktore wat kwaliteit beïnvloed. Faktore soos ouderdom, groeistimulante, voorslag-spanning, slagprosesse (soos verkoeling en elektriese stimulering) en veroudering dra dikwels proporsioneel meer by tot kwaliteit as genetika.

Indien genoemde faktore egter goed gekontroleer word, sal rasverskille sowel as binne-rasverskille tog 'n rol speel by finale eet-kwaliteit.

Deeglike navorsing oor jare het getoon dat daar ten opsigte van vleissagtheid hoofsaaklik tussen *Bos indicus* en *Bos taurus* tipes onderskei kan word. Die vleis van *Bos indicus*-rasse (Brahman en kruise) is normaalweg taaier in verhouding tot die hoeveelheid Brahman in die kruising (indien daar na kruise verwys word). **Inheemse rasse, soos die Nguni, was dikwels in die verlede verkeerdelik as *Bos indicus* beskou,** meestal omdat hierdie rasse ook prominete skowwe en tipiese bouvorms vertoon. Genetiese merkers dui egter duidelike verskille in die genetiese samestelling van inheemse Suider-Afrikaanse beesrasse aan. Hierdie studies verklaar dat genoemde rasse nader aan *Bos taurus* as aan *Bos indicus* verwant is en daarom die wetenskaplike naam *Bos taurus aficanus* gekry het.

Die studie van Strydom *et al.* (2001) het getoon dat die lendesnit van Nguni-, Afrikaner-, Bonsmara-, Pinzgauer- en Braunvieh-bulle sagter was as dié van die *Bos indicus* verwante ras, die Santa Gertrudis

Tabel 1: Warner Bratzler-skeurkrag (WBSF) en histologiese spier-eienskappe van die lendespier (*m. longissimus thoracis*) van drie inheemse Suid-Afrikaanse en drie uitheemse vleisbeesrasse (Strydom *et al.*, 2000)

	Bonsmara	Afrikaner	Nguni	Santa Gertrudis	Braunvieh	Pinzgauer
WBSF (N/25mm ϕ)	92	96	91	116	93	102
MFI 7 dae *post-mortem*[a]	108	129	136	111	96	
Witspier-veseldeursnee (μm^2)	5690	6241	5130	9401	8578	
Witspiervesel-verhouding[b] (%)	40	35	36	44	36	

[a] *Myofibril-fragmentasie indeks*
[b] *Verhouding relatief tot totale vesels: wit, intermedier en rooi* %

Vleissagtheid kan gemeet word d.m.v. 'n proe-paneel (opgeleide paneel of verbruikers) of 'n meganiese meetinstrument soos die **Warner Bratzler-skeurtoestel.** Hierdie toestel simuleer die byt-aksie van die verbruiker en meet die weerstand in kg of Newton (N) waarteen die lem deur 'n gaar vleismonster van standaard afmetings skeur.

Hierdie mates is internasionaal vasgestel en silindriese monsters met 12.5 of 25 mm deursnee word gebruik. Laer waardes sal sagter vleis voorstel en hoër waardes taaier vleis.

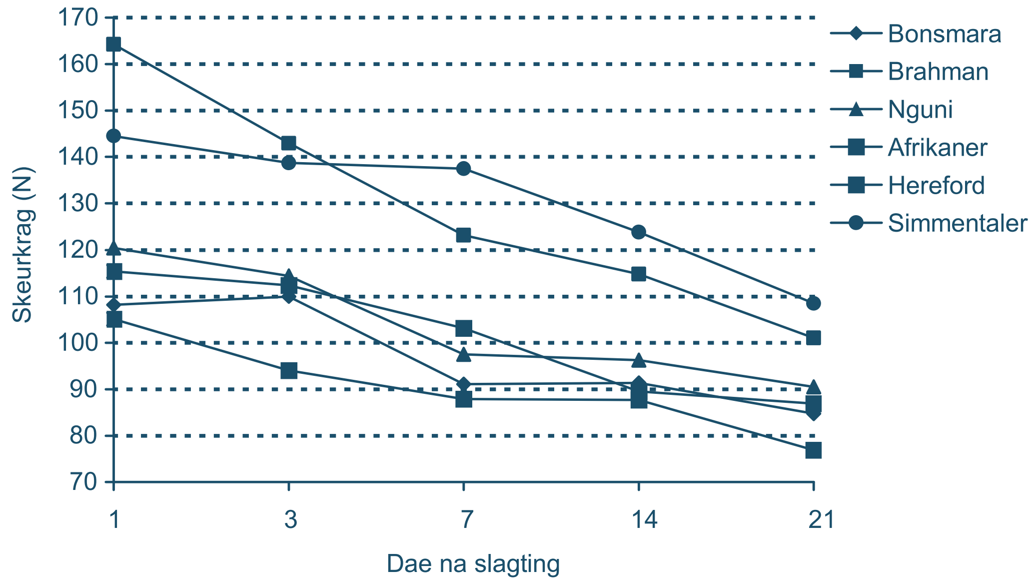
Hoewel daar geen direkte verband tussen hierdie metings en die aanvaarbaarheid van sagtheid deur die algemene Suid-Afrikaanse verbruiker bestaan nie, het toetse in die VSA getoon dat waardes van 3.9 kg (vir 25 mm monsters) aanvaarbaar sal wees vir restaurant verbruikers terwyl 4.6 kg vir die alledaagse verbruiker ("good every day") aanvaarbaar sal wees. Die studie van Strydom et al. (2008) het getoon dat Nguni en ander inheemse rasse se lendesnit sagter was as dié van Brahman, ongeag hoe lank die vleis verouder was - 2 of 21 dae.

Tabel 2: Warner Bratzler-skeurkrag (WBSF; 25 mm deursnee) en geselekteerde biochemiese eienskappe van die lendespier (m. *longissimus*) van verskillende Suider Afrikaanse inheemse beesrasse en die Brahman (Strydom *et al.*, 2008).

	Bonsmara	Brahman	Drakensberger	Nguni	Tuli
WBSF dag 2 na slagting (kg)	5.2	6.5	5.2	6.1	5.5
WBSF dag 21 na slagting (kg)	3.5	4.5	3.4	4.1	3.8
Kalpastatien: μ-Kalpaien verhouding[1]	4.6	7.7	5.3	5.2	6.0
Hitte-onstabiele kollageen (%)	21	20	23	223	23

[1] laer verhoudings dui op hoër vermoë om te verouder/versag

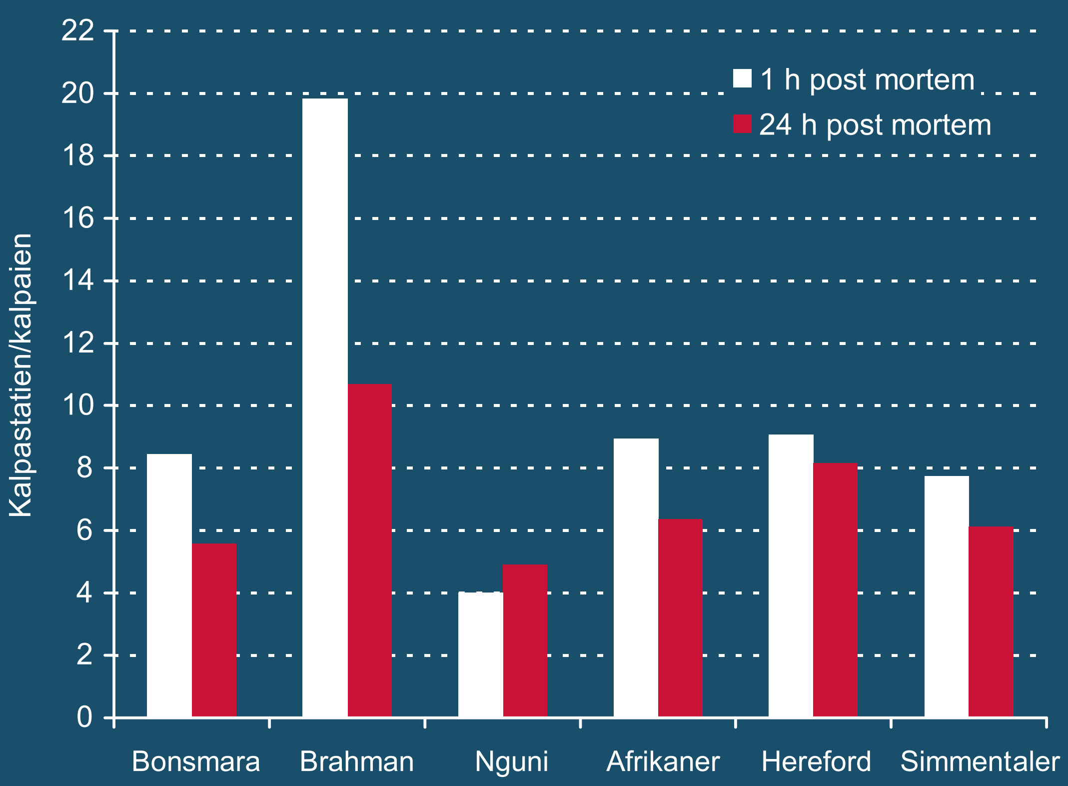
'n Soortgelyke studie het ook gevind dat lendesnitte van inheemse rasse soos Nguni, Afrikaner en Bonsmara net so sag was en teen dieselfde tempo verouder het as Hereford, terwyl lendesnitte van Brahman en Simmentaler diere aanvanklik taaier was en taaier gebly het, selfs na 21 dae veroudering (Frylinck en Heinze, 2003)



Figuur 1. Invloed van verouderingsperiode (rypmaking) op Warner Bratzler-skeurkrag van lendesnit (*m. Longissimus*) van Suid-Afrikaanse inheemse en uitheemse vleisbeesrasse (Frylinck & Heinze, 2003).

In al drie genoemdes studies is gevind dat die verouderingsvermoë van die Nguni vleis, asook ander rasse met soortgelyke metings, beter was as die van die rasse met *indicus* invloed.

Die proses van vleisversagting: Vleissagtheid wat nadoods tydens veroudering verbeter is hoofsaaklik te danke aan die aksies van **inherente vleisensieme,** genaamd **kalpaïene. Hierdie ensieme breek die struktuur van die vleis langsamerhand af totdat maksimum sagtheid tussen 21 tot 28 dae verkry word.** Daar is ook 'n sogenaamde teen-ensiem of 'n blokker wat die aksie van kalpaïen teenwerk, genaamd kalpastatien. Dit blyk dat die aktiwiteit van kalpastatien in indicus-tipe rasse hoër is as in *taurus*-rasse, soos aangedui deur die hoër verhoudings van kalpastatien teenoor kalpaien in Tabel 2 en Fig 2 vir twee van die studies.



Figuur 2. Kalpastatien/kalpaïen verhouding van die lendesnit (*m. Longissimus*) van Bonsmara-, Nguni- en Hereford-osse op 1 en 24 uur na slagting (Frylinck & Heinze, 2003).

In die 2001 studie is MFI gebruik om die hoeveelheid degradering van die spiervesel (dus veroudering) aan te dui. Hoër MFI (miofibrilêre fragmentasie indeks) dui aan dat meer van die spier afgebreek is deur ensieme (korter veselfragmente vorm). In ooreenstemming met die sagter vleis van al die rasse, met uitsondering die Santa Gertrudis (*indicus* tipe), is hoër MFI waardes ook gevind.

Verder is ook gevind dat **Nguni minder witspiervesels en ook kleiner vesels vertoon het in vergelyking met die Santa Gertrudis.** Spier (uiteindelik vleis) bestaan uit verskillende verhoudings spiervesel-tipes, naamlik wit, intermediêr en rooi vesels. Vorige navorsing het getoon dat groter vesels en meer wit vesels gepaard gaan met taaier vleis.

'n Derde faktor wat ook tot vleissagtheid kan bydra is die aard en hoeveelheid van bindweefsel (kollageen) in die spier. Bindweefsel is die raamwerk wat die spier intakt hou en hoe meer bindweefsel in die spier is, hoe taaier sal die snit wees (vergelyk fillet en skenkel). Die aard van die bindweefsel beïnvloed ook vleissagtheid. Ouer diere en diere van sekere rasse se bindweefsel is meer hitte-stabiel en derhalwe is langer blootstelling aan hitte tydens gaarmaak nodig om die vleissagtheid te verbeter. Volgens die resultate van die 2008 studie, was die kollageen oplosbaarheid van die Brahman laer as die van die Nguni en ander rasse. Hierdie eienskap het dus ook bygedra tot taaier vleis van die Brahman.

Tabel 3: Kleur-komponente van lendespier (*m. longissimus*) van Brahman, Simmental en Nguni-kruise (Strydom & Frylinck, 2005).

	Brahman	Nguni	Simmentaler
Kleur[a]:			
*L – lig/donker	39	37	38
Chroma	18	16	18

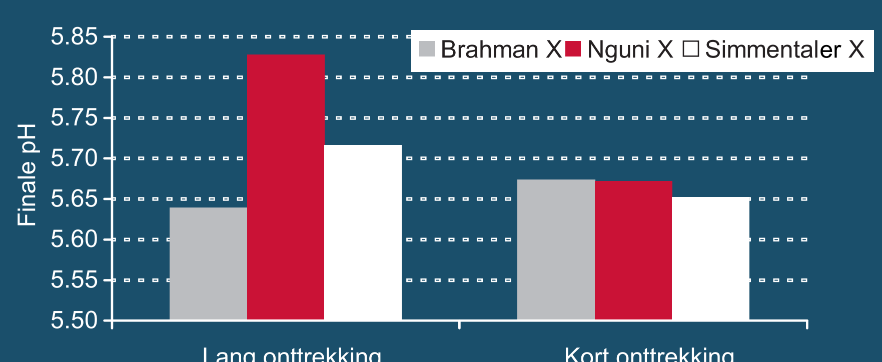
[a] Kleur: *L lig/donker-indeks, waar 0 swart sal wees en 100 wit sal wees; Chroma dui die tipiese rooi kleur van vleis aan, waar >20 tipiese kersie-rooi sal aantoon terwyl waardes onder 20 dowwer en toenemend grys kleur aandui.

Die effek van ander faktore soos voeding, ouderdom, spanning voor slagting en slagprosedure is voorheen genoem. Dit moet ook beklemtoon word dat hierdie faktore interaktief kan inwerk op finale produk-kwaliteit. Hoewel daar geen navorsingsresultate is waarin Nguni betrokke was nie, moet die **belangrikheid van bv. elektriese stimulering in die abattoir beklemtoon word.** Elektriese stimulering behels die geleiding van 'n elektriese stroom van 'n spesifieke aard deur die karkas nadat die karkas uitgebloei is. Hierdie proses versnel die omskakeling van spier na vleis (normaalweg ongeveer oor 24 uur) en kan die tempo van veroudering verhoog.

Moderne verkoelingstegnologie in abattoirs kan vleisvertaaiing veroorsaak indien karkasse relatief lig (klein) en/of maer is. **Indien die omskakeling van spier na vleis by te lae temperature plaasvind, verkort (vertaai die spier) onomkeerbaar. Kleiner karkasse van Nguni's is dus meer vatbaar vir sulke toestande. Omdat elektriese stimulering die omskakeling van spier na vleis versnel, sal dit vertaaiing voorkom en derhalwe is korrekte elektriese stimulering by die slagting van Nguni-beeste van uiterste belang.**

Spanning voor slagting, soos byvoorbeeld veroorsaak deur lang tye van voer-onttrekking mag ook 'n effek op vleiskwaliteit hê. Langer periodes van voeronttrekking veroorsaak oormatige dreinering van spier-energie wat die omskakeling van spier na vleis beïnvloed. Die manier waarop diere op sulke spanning reageer kan deur spier pH (suurheidsgraad van spier) bepaal word.

Die studie van Strydom en Frylinck (2005) het gevind dat die pH van Nguni-diere hoër was as dié van Simmentaler en Brahman indien die diere 24 uur voor slagting van voer onttrek was, in vergelyking met 'n 3 uur periode van voeronttrekking



Figuur 3: Interaksie tussen ras en voerontrekkingsperiode op finale spier pH

Die hoë pH het aanleiding gegee tot donkerder vleis, soos gemeet deur middel van 'n kleurmeet-instrument. Die L* waarde in Tabel 3 dui die lig-donker kontras aan wat die verbruiker sal raaksien en laer waardes dui donkerder vleis aan.

Tabel 4: Warner Bratzler-skeurkrag (WBSF; 12.5 mm deursnee) en geselekteerde biochemiese eienskappe van die lendespier (*m. longissimus*) van Charolais en Charolais x Nguni-bulle

	Charolais	Charolais x Nguni
WBSF dag 2 na slagting (kg)	5.1	5.3
WBSF dag 21 na slagting (kg)	3.0	2.9
Hitte-onstabiele kollageen (%)	37	20
Kalpastatien: μ-Kalpaïen verhouding	3.2	2.0
Vleis-kleur:		
*L – lig/donker	41.2	39.9
Chroma	17.1	17.2

Kleur: *L lig/donker-indeks, waar 0 swart sal wees en 100 wit sal wees; Chroma dui die tipiese rooi kleur van vleis aan, waar >20 tipiese kersie-rooi sal aantoon terwyl waardes onder 20 dowwer en toenemend grys kleur aandui.

DIT IS DUS BAIE BELANGRIK DAT DIE HANTERING VAN NGUNI (EN ENIGE ANDER DIER) VÓÓR SLAGTING AANDAG GENIET.

Die chroma-waardes dui die tipiese kleur van vleis aan en hoër waardes sal aandui dat die vleis nader aan die tipiese kersierooi kleur van vleis op die rak is (>20). **Volgens die resultate was die vleis van Nguni dus donkerder en minder helder rooi.** Dit mag die verbruiker se voorkeur by die winkelrak beïnvloed, aangesien verbruikers meestal teenoor atipiese kleur diskrimineer. **Dit is dus baie belangrik dat die hantering van Nguni (en enige ander dier) vóór slagting aandag geniet.** Hierdie hantering sluit voeronttrekking in, soos aangedui, maar ook die vervoer (afstande, vragkapasiteit, manier van bestuur) en hantering van diere voor slagting. **Weersomstandighede, temperament, tipe voer en die gebruik van groei-bevorderaars kan ook 'n invloed op spanning uitoefen en mees belangrik is die feit dat al hierdie faktore interaktief op die toestand van die dier vóór slagting kan inwerk.**

Swak kleurontwikkeling ("two-toning") as gevolg van ongunstige toestande met die omskakeling van spier na vleis.

Kruisteling met laat-volwasse vleisrasbulle en vroeg-volwasse vleisraskoeie word allerweë beskou as 'n metode om koeikudde-doeltreffendheid te verhoog. Koeikudde-doeltreffendheid, gemeet as die verhouding van speenkalfgewig tot koeigewig, is 57.2 wanneer Charolais-bulle met Nguni-koeie gekruis word. Dit vergelyk gunstig met die 49.3 vir die suiwer Nguni, terwyl die nasionale gemiddelde 43.8 is. In 2013 het die LNR die Charolais x Nguni-kruiskalf in 'n voerkraal-produksiestelsel getoets. (Tabel 4) Die vleissagtheid van die kruiskalf het goed vergelyk met dié van die suiwer Charolais-bul, ten spyte daarvan dat die die kruiskalf minder hitte-onstabiele kollageen gehad het en ook meer kalpastatien: kalpaiën gehad het. Hierdie twee metings is egter nie eksakte metings van sagtheid nie. Ten opsigte van kleur was die kleur/donker verhouding en die chroma (soos voorheen verduidelik) ongeveer dieselfde vir die twee groepe en dui op goeie kleurontwikkeling.

Die belangrike punt om hier in ag te neem is dat suiwer Charolais-koeie waarskynlik nie dieselfde moeder-eienskappe as die Nguni-koei in die meeste van Suid-Afrika se klimaatstreke sal handhaaf nie en nie dieselfde koei-doeltreffendheid sal behaal nie.

BRONNELYS

Frylinck, L., & Heinze, P.H. (2003). Evaluation of meat tenderness of indigenous 589 South African and other beef breeds. In Consistency of quality. Proceedings of the 590 11th international meat symposium, 29–30 January 2003, Centurion, South Africa 591 (pp. 3–13).
Strydom PE, Naudé RT, Scholtz, MM, Van Wyk JB (2000) Characterisation of indigenous cattle breeds in relation to meat quality traits. Meat Science, 55, 79-88.

Strydom, P. E., Frylinck, L, Van der Westhuizen, J. & Burrow H. M. (2008) Growth performance, feed efficiency and carcass and meat quality of tropically adapted breed types from different farming systems in South Africa. Australian Journal of Experimental Agriculture, In Press.

Strydom, P. E. & Frylinck, L. (2005) The effect of genotype, duration of feed withdrawal and electrical stimulation on meat quality. In Proceedings of the 51st International Congress of Meat Science and Technology (pp. 1745-1750), 7-12 August, Baltimore, Maryland, USA.

Dlamini
Agri Holdings

Registered Nguni Stud
Louis Trichardt


George LEB8-506

Hartwater,
Rooiwater en
Galsiekteveld


Hans UCP8-37

Mongezi India
Johannes Joubert
Ruandie Willemse
083 604 9922
012 665 4056
cattle@dlaminiagri.co.za

BenguFarm™
now with sister modules for
Sheep, Goats, Pigs and Game

BenguFarm™ BEEF

ADVANCED BEEF CATTLE MANAGEMENT SOFTWARE

Comprehensive herd management programme - covers from mating to marketing

- Equally suitable for both commercial and stud herds
- MS Windows 10 compatible
- Afrikaans, English, Spanish and Portuguese language options
- Install on more than one computer at no additional costs
- Use for more than one herd at no additional costs
- World wide support and training
- User friendly menu, shortcuts and step-by-step Help functions
- Performance data processing according to the SA Stud Book's Beef Scheme
- Support SA Stud Book, ARC, BreedPlan, NSBA's protocol and formats
- Extensive data verification functions
- Easy electronic data sending of all animal registration and performance test data
- Logix Direct functions – easy sending and importing of Logix data
- Import weights from electronic scales
- 50+ standard and user-defined reports
- Stock registers for animals, semen, embryos, vaccines, medicines, etc.
- Backup and restore functions, incl. backup reminders
- Continuous user-driven development
- Easy updating via the internet
- Free BeefCattleTrader module to advertise animals on the internet
- Comprehensive user-defined management calendar and diary
- Sheep, Goats, Game, Pigs and Genetics modules also available – same look and feel

Now with Logix Direct communication with SA Stud Book

Endorsed by 19 SA Breeders' Societies

Afrikaner, Angus, Bonsmara, Boran, Beefmaster, Braunvieh, Charolais, Drakensberger, Gelbvieh, Hereford, Hugenoot, Nguni, Pinzgauer, Red Poll, Santa Gertrudis, Senepol, South Devon, Sussex, Tuli

Widely used

BenguFarm™ is used by hundreds of commercial and stud beef cattle farmers in 14 countries on 4 continents.

"My pa het my altyd gewaarsku teen die 'boekwerk' van stoetboerdery. **Met BenguFarm™ BEEF is hierdie frustrerende 'boekwerk' agter omskep in 'n magtige bestuursprogram.** Ek is seker dat as ek my pa kon wys hoe maklik kuddebestuur nou is, hy sou saamstem dat die **BenguFarm™ BEEF** sagteware seker die handigste stuk gereedskap op enige beesplaas is - stoet en kommersieel!"

Mnr Gerrit van Zyl, Hanzyl Bonsmaras, Dewetsdorp

BenguFarm™ BEEF is a module of

BenguFarm™
ADVANCED LIVESTOCK MANAGEMENT SOFTWARE
BEEF · GAME · SHEEP · GOATS · PIGS · GENETICS

www.**bengufarm**.co.za

Contact Leslie Bergh: Tel **+27 82 801 2026** Email **leslie.bergh@vodamail.co.za**

MAGARAMOMBE NGUNIS

Auvinus & Antoinette Martens
082 958 4293 ◆ 013 262 2685
amartens@vodamail.co.za

"It is my wish that we should promote Nguni cows as they have efficient adaptive traits rendering them suitable for the utilisation of natural veld. They are highly fertile that will give a consistent high annual calving percentage with virtually no calving difficulties. With a good milk supply and cow productivity confirms that in terms of weaner output per unit mass of cow the Nguni has no peer on natural veld. This to me is extremely important in economic terms."

Auvinus Martens

Die ongekende goeie reën en opvolg-buie, wat oor groot weivelddele voorgekom het die afgelope tweede helfte van die groeiseisoen, gaan verseker grootskaalse veldbrande die komende winter veroorsaak.

ONBEPLANDE VELDBRANDE 'n GEGEWE

– wat nou gemaak in halfdroë gebiede?

Prof Hennie Snyman
Departement Vee-,
Wild- en Weidingkunde
Universiteit van die Vrystaat
&
Dr Mias van der Westhuizen
Vrystaat Provinsiale Departement van
Landbou en Landelike Ontwikkeling,
Glen

Net soos droogtes is onbeplande brande waarmee veeboere in halfdroë gebiede moet oorleef, ook 'n gegewe in Suid-Afrika. Baie veeboere sal onbeplande veldbrande (veral na die knellende droogte) moeilik oorleef. Van die graspolle het gedeeltelik of selfs totaal afgesterf weens die rampdroogte. Die polle moet gevolglik selfs sonder enige brand die komende groeiseisoen kans gegun word om volkome te herstel. Dis noodsaaklik ten einde die normale weidingskapasiteit van die veld te kan genereer.

Veeboere moet dus daarop ingestel wees om vroegtydig voorsorgmaatreëls in plek te probeer kry vir onbeplande veldbrande. Hierdie probleem raak onverklaarbaar jaarliks net al hoe groter. Veeboere sit gewoonlik met hulle hande in hulle hare omdat hierdie onbepande wegholbrande grootskaalse weidingsverliese, ingewikkelde voervloeibepannings en finansiële probleme veroorsaak. Spyt kom altyd te laat – sorg dus dat jy voorbereid is op sulke gebeure (voor en/of na die tyd).

TREF VROEGTYDIG VOORSORG TEEN VELDBRANDE

Die bekende spreekwoord **"voorsorg is altyd beter as nasorg"** is ook van toepassing op weiveldbestuur. Dit is nie net die aanskaf van die nodige vuurbestrydingsapparaat wat belangrik is nie, maar ook die vroegtydige maak van brandpaaie ten einde produksie-verliese te voorkom. Die inskakeling by jou plaaslike brandvereniging is natuurlik ook baie belangrik ten opsigte van voorskrifte vir die maak van brandbane. Hierdie voorskrifte kan verskil tussen brandverenigings en is aan spesifieke omgewings gekoppel. Samewerking met bure is baie belangrik in die voorkoming, sowel as die bestryding van veldbrande.

Daar bestaan verskeie benaderings rondom die maak van brandpaaie, waarvan die brand van padskouers seker die ideaalste is. Dit is veral die brand van die skouers van binne- en grondpaaie wat die effektiefste is. Die ploeg of 'disk' van stroke rondom die plaas word ook algemeen toegepas.

Daar bestaan ook ander metodes, soos die gebruik van vier sinkplate wat in 'n vierkant aan mekaar vasgebout word. Die gras daarbinne word aan die brand gesteek en na uitbrand word hierdie "sinkplaat-hok" net aangeskuif ten einde 'n volle strook te brand. Hierdie tegniek staan bekend as die "Botha fire-box", want dis deur Andries Botha in die Adelaide-distrik ontwikkel.

Die spuit van stroke melasse of ander dierstimulante (sodat diere die stroke sal "skoonvreet") werk oor die algemeen nie so goed nie en word tans nie veel toegepas nie. Die nuutste is om met behulp van vuuraansteker-kapsules, wat in die nag vanuit 'n helikopter gegooi word, stroke te brand – "open ended firebreaks". Die regte doupunt word as maatstaf gebruik om te verhoed dat die vuur onnodig versprei. Geweldige groot stroke kan per nag so suksesvol gebrand word.

Dit is ongelukkig so dat sommige onbeplande veldvure gepaard gaan met stormsterkwinde wat selfs oor die teerpad kan spring. In sulke omstandighede sal voorbrande net gedeeltelik tot hulp kan wees.

Voorsorg moet natuurlik getref word dat die klimaatstoestande net reg sal wees wanneer brandpaaie aangepak word om wegholvure te vermy. Die saamspan van groepe boere om so iets uit te voer is altyd beter as om dit individueel aan te pak.

SOET- EN SUURVELD VERSKIL

Die vuurbestandheid van soet- en suurveld moet nie met mekaar verwar word nie. In die suurveld, waar reënval nie die beperkende faktor is wat plantproduksie bepaal of beïnvloed nie, word 'n meer kompakte of digter grasbedekking met kleiner en korter graspolle (hoër basale bedekking en digtheid) aangetref. Daarteenoor groei die yler, enkelstandige graspolle (laer basale bedekking en digtheid) in die droër dele. Dit is die element Kalsium (Ca) in die grond wat grootliks vir planthoogte verantwoordelik is en tot 'n groot mate, weens die hoër reënval in die suurvelddele, vanuit die grond geloog is. Hierdie groter, enkelstandige en hoër graspolle in droër weivelddele genereer 'n meer intense en warmer (gekonsentreerde) vuur per graspol, wat lei tot grootskaalse afsterwing van lote en groeipunte van polle.

Hierteenoor is die brandskade aan grasse in suurvelddele nie so intens per graspol nie en brande vorm gevolglik soms deel van bestuurspraktyke om ontslae te raak van onsmaaklike plantmateriaal. Hierdeur word die weiveld se kwaliteit weer opgradeer, teenoor die soetvelddele waar weiveld effektief benut kan word sonder om dit te brand. Rooigras staan dan ook dikwels in die hoër reënvaldele bekend as 'n vuurklimaks, wat deur brand bevoordeel word.

"Voorsorg is altyd beter as nasorg

Opsommend kan gesê word dat hoe kleiner 'n graspol, hoe minder negatief is die impak van die vuur daarop. Die groter graspolle is gevolglik hoogs kwesbaar vir afsterwing weens brand.

'n Ander aspek wat nie uit die oog verloor moet word nie, is dat die indringerplant *Seriphium plumosum*, geweldig toeneem na 'n brand in die suurder dele (Dewetsdorp en Zastron). Dié plant is ook in die volksmond bekend as slangbos, vaalbos of bankrotbos. Hierdie onbenutbare bossie het die laaste aantal jare ongekend toegeneem. Navorsing het

duidelik getoon dat brande saad-ontkieming van *S. plumosum* geweldig stimuleer. Dit sal gevolglik meebring dat chemiese beheermiddels, wat baie duur is, na die brand gebruik sal moet word om die indringerbos te beheer. Sou die beheer nie vroegtydig toegepas word nie, staar ernsige grasproduksieverliese die boere in die gesig. Dit lei natuurlik tot laer weidingkapasiteite.

IMPAK VAN BRAND OP BEIDE PLANT EN GROND

Brandnavorsing is gelukkig in die halfdroë grasveldgebiede (reënval 530 tot 650 mm) uitgevoer op die Rooigrasveld van die sentrale Vrystaat (Bloemfontein en Glen), asook die *Themeda/Cymbopogon*-veldtipe (Dewetsdorp) en Koperdraad-suurgrasveld van die suidoos Vrystaat (Zastron) oor die laaste tien jaar. Die inligting kan handig as riglyne dien vir veldherstel na so 'n brand. In hierdie navorsing is gepoog om alle plant- en grondkundige aspekte betreffende die impak wat 'n vuur, hetsy beplande of ongeluksvure, op die weiplant te kwantifiseer (Tabel 1). Hierdie waarnemings is verder deurgetrek na die onttrekkingsperiode wat gebrande veld in hierdie halfdroë dele moet ontvang ten einde weer volhoubaar te kan produseer.

Die pynlike gevoel wat die veeboer tydens 'n veldbrand beetpak, behoort ook ondervind te word wanneer hy/sy gebrande veld te gou bewei. Ekologies gesproke is dit sekerlik dié verkeerdste ding om in die ariede en semi-ariede gebiede van Suid-Afrika te doen. Dit verskuif jou weiveldprobleme net verder aan, of mag dit selfs vererger. Die veeboer in hierdie droër gebiede moet besef dat die weiplant ernstig benadeel is deur die vuur, wat 'n drastiese ontblaringsmetode is. Daarom regverdig dit goeie behandeling na die brand.

PLANTBEDEKKING

Daar is duidelik uitgewys dat 'n geweldige afname (soveel as 40%) in basale bedekking een jaar na 'n brand voorkom (Tabel 1). Selfs na twee seisoene van onttrekking van beweiding was die basale bedekking nog steeds 16 tot 18% laer as ongebrande veld in sekere dele. Die belangrikste rede vir hierdie laer basale bedekking is dat dele van die graspol (lote/groeipunt) totaal dood gebrand is deur die vuur. Dit is gewoonlik die kern van die graspol wat die grootste brandskade ondervind, waar die vuur die meeste intens is.

Die laer bedekking na 'n brand verlaag nie net die plantproduksie nie, maar bring ook mee dat waterafloop toeneem. Die hele waterbalans in die grond word nadelig beinvloed. Die grondoppervlakte is ook meer blootgestel aan die aanslae van die natuur en gevolglik verhoog gronderosie. Verder is die temperatuur en verdamping vanaf gebrande veld hoog. Effektiewe reënvalbenutting kan alleenlik optimaal geskied met 'n goeie plantbedekking.

Dit is die groot graspolle wat gewoonlik die meeste brandskade in terme van polafsterwing ondergaan. Ongelukkig is hierdie groot polle ook gewoonlik die klimaks-grasspesies, soos rooigras (*Themeda triandra*), vingergras (*Digitaria eriantha*) en terpentyngras (*Cymbopogon pospischilii*). Die grasse speel 'n belangrike rol in die dier se voeding en beïnvloed ook die veldtoestand positief.

In die Dewetsdorp-distrik was bulgras (*Pennisetum sphacelatum*) en blougras of rooivleigras (*Andropogon appendiculatus*) die grasse met die grootste polafsterwing weens brand getoon het. Onderskeidelik 53 en 49% van die polle het tussen 75 en 100% brandskade getoon het. Ook opvallend was dat pioniergrasse (minder gewenste grasspesies) soos elsgras (*Micochloa caffra*), steekgras (*Aristida congesta*) en kruipwortelsaadgras (*Tragus koelerioides*) slegs ingekom het na die brand.

Dit skets nie 'n goeie prentjie van die veld se spesie-samestelling nie (Tabel 1). Hierdie minder gewenste grasse verlaag die veldtoestand en weidingskapasiteit aansienlik.

IMPAK OP DIE GROND

Die afname in bedekking weens die brand werk ook 'n toename in grondtemperatuur en grondkompaksie in die hand. Dit gee weer aanleiding tot 'n afname in grondwater-inhoud (hoër afloop) en minder organiese materiaal in die grond. Die grondtemperatuur het byvoorbeeld die eerste jaar na die brand met 9°C toegeneem, die grondwater-inhoud was 31% laer en grondkompaksie 100% hoër in vergelyking met dié van ongebrande veld. Die gebrande veld was ook meer vatbaar vir droogtes, omdat plante baie vinniger verwelk het. Baie van hierdie negatiewe grondkundige invloede was twee jaar na die brand nog nie opgehef nie.

PLANTPRODUKSIE

Die gemiddelde droëmaterial-produksie vir die gebrande veld in die Dewetsdorp-distrik (560 mm reënval) was 940 kg/ha en die van die ongebrande veld 1 764 kg/ha, 'n jaar na die brand. Die gebrande veld het gevolglik 47% minder geproduseer na 'n volle groeiseisoen se rus. Dieselfde tendens het voorgekom waar slegs die helfte van die plantproduksie die eerste jaar na die brand genereer is op suurder veld van Zastron (650 mm reënval) en soeter grasveld te Bloemfontein (530 mm reënval) (Tabel 1).

Dit neem in al die gebiede wat ondersoek is, twee volle groeiseisoene vir gebrande veld om in te haal by nie-gebrande veld, wat plantproduksie aanbetref. Hierdie produksies is aan die einde van elke groeiseisoen bepaal waar geen beweiding plaasgevind het nie en normale reënval-toestande geheers het.

VELDTOESTAND EN WEIDINGSKAPASITEIT

Die toestand (gesondheid) van die veld is veral die eerste jaar na die brand geweldig negatief deur die brand beïnvloed (Tabel 1). Twee groeiseisoene na die brand was die weidingskapasiteit nog steeds laer as dié van nie-gebrande veld.

Opvallend was dat rooigras (*Themeda triandra*) van die gevoeligste smaaklike grasse vir brand was. Dit is juis hierdie grasspesie wat die dominante gras van die gebiede uitmaak, asook die waardevolste in terme van diereproduksie. Rooi- en terpentyngras (*Cymbopogon pospischilii*) het in gebrande veld met onderskeidelik 43 en 50% afgeneem. Ook opvallend was dat pioniergrasse (minder gewenste grasspesies) soos elsgras (*Micochloa caffra*), kruipwortelsaadgras (*Tragus koelerioides*) en eenjarige kruide ingekom het weens die brand. Die subklimaksgras, kleinvinger (*Digitaria argyrograpta*), vermeerder ook na 'n brand ten koste van rooigras. Hierdie tendens skep nie 'n goeie prentjie van die veld se spesie-samestelling nie. Hierdie veranderings verlaag die veldtoestand en weidingskapasiteit aansienlik.

Op die proefplaas Glen (net buite Bloemfontein) was die verlies in veldtoestand vier maande na brand so hoog as 40%, terwyl die veld geweldig gevoelig was vir beweiding. Weereens is dit hoofsaaklik rooigraspolle wat afgesterf het en hoofsaaklik deur kleinvingergras (*Digitaria argyrograpta*) en eenjarige kruide vervang is.

Aan die einde van die groeiseisoen was die weidingskapasiteit van veld, wat voor die brand in 'n goeie toestand was, nog steeds 22% laer as voor die brand. Veld wat voor die brand in 'n uitstekende bewaringstoestand was se verlies in weidingskapasiteit was aan die einde van die groeiseisoen slegs 7%. Die toestand waarin veld verkeer, asook die bestuur daarvan voor en na brande, is van die grootste faktore wat dus 'n rol speel by die herstelproses.

Na brande is veld besonder gevoelig vir ontblaring en daar moet teen verkeerde benuttingspraktyke gewaak word.

Veld wat voor brande 'n seisoensrus ontvang het, sal vinniger herstel as veld wat onderbenut was. Gevolglik sit die boer met swakker veld, laer weidingskapasiteit en minder diere wat aangehou kan word. Hierdie aspek beklemtoon 'n voldoende rus of ontrekkingsperiode (ten minste twee volle groeiseisoene) vir gebrande veld om ekologies ten volle te herstel.

Tabel 1: Impak van brand in soeter halfdroë weivelddele

Veldtipe, distrik, eienaar (persone betrokke) (reënval)	Impak op plantsamestelling,- bedekking en produktiwiteit	Bestuurs - benadering
Rooigrasveld van die sentrale Vrystaat, Proefpaas, Universiteit van die Vrystaat, **Bloemfontein** (Prof Hennie Snyman) (**530 mm** reënval)	37% afname in plantbedekking eerste jaar na brand, steeds 16% laer twee jaar na brand. Rooi - en terpentyngras gevoeligste vir brand (groot polle), onderskeidelik met 30 en 49% afgeneem in bedekking weens brand, eerste seisoen. Steek- en wortelsaadgras weens brand ingekom. Vinger- en terpentyngras toon meeste polafsterwing weens brand. Veldtoestand met 13% afgeneem weens brand. Groeiseisoen na die brand was plantproduksie steeds 43% laer weens brand en steeds 10% laer twee jaar na brand.	Benodig ten minste twee volle groeiseisoene se totale onttrekking van diere ten einde ekologies volkome te herstel (dormante winterperiode ingesluit).
Rooigrasveld van die sentrale Vrystaat, **Glen** Landbou-instutuut (Dr Mias van der Westhuizen en mnr Piet Goosen) (**550mm** reënval)	40% verlaging in veldtoestand 4 maande na brand. 22% laer weidingskapasiteit aan die einde van groeiseisoen. Rooigraspolle sterf af en word hoofsaaklik deur kleinvingergras en eenjarige kruide of opslag vervang.	
Themeda/ Cymbopogon veldtipe, **Dewetsdorp**, mnr Wilfred Brown (prof Hennie Snyman) (**565 mm** reënval)	38% afname in plantdigtheid weens brand, eerste seisoen na brand. Kerne van rooi- en terpentyngraspolle steeds dood 'n jaar na brand, hierdie twee spesies met onderskeidelik 43% en 50% afgeneem weens brand. Jaar na brand veldtoestand 58% vir gebrande veld, teenoor 80% vir nie-gebrande veld (weidingkapasiteit 30% laer weens brand). Jaar na brand grasproduksie steeds 47% laer weens brand.	Afhangende van opvolg reënval na brand natuurlik - wat onttrekking nog verder kan verleng.
Koperdraad-suurgrasveld Suidoos-Vrystaat, **Zastron**, wyle mnr Dirk Snyman (Prof Hennie Snyman) (**650 mm** reënval)	40% laer basale bedekking weens brand eerste seisoen na brand, twee jaar na brand steeds 18% laer. Groot rooi en terpentyngraspolle meeste polafsterwing weens brand. Twee jaar na brand plantdigtheid van terpentyn - en rooigras onderskeidelik steeds 62 en 33% laer weens brand. Vier maande na brand veldtoestand 68% vir gebrande veld, teenoor 86% nie - gebrande veld (weidingkapasiteit 24% laer weens brand). Jaar na brand grasproduksie steeds 44% laer weens bran d en steeds 5% laer twee seisoene na brand.	

Gebrande veld is gewoonlik eerste om tekens van verwelking te toon, juis weens swakker wortel-ontwikkeling en laer plantbedekking.

ONTTREKKINGSPERIODE VAN BEWEIDING NA BRAND

Vanuit 'n ekologiese grondslag gesien (wat beide die plant en grond insluit), moet weiveld in die halfdroë grasveldgebiede ten minste vir twee groeiseisoene (dormante winterperiode ingesluit) van beweiding onttrek word ten einde volhoubare produksie te verseker. Hierdie onttrekking is gegrond op totale herstel van die veld vanuit 'n ekologiese oogpunt. Die grootskaalse polafsterwings, die swakker veldtoestand en weidingskapasitet, asook die betekenisvolle laer plantproduksie, is soos reeds bespreek die maatstawwe verreken vir hierdie twee groeiseisoen-onttrekkingsperiode. Indien die reënval van die opvolg-seisoene na die brand laag en wisselvallig is, sal langer as twee jaar onttrekking geld.

Die vinniger herstel van die grasse en dus korter onttrekking wat vir die natter suurvelddele van KwaZulu Natal, Limpopo en Mpumalanga geld, moet nie verwar word met die halfdroë gebiede se plantegroei wat meer brand-sensitief is en 'n lang rus verg nie. In hierdie suurvelddele is reënval nie die beperkende omgewingsfaktor wat plantproduksie bepaal of beïnvloed nie. Daarom is daar 'n veel korter onttrekkingsperiode van diere vanaf die veld na 'n brand. In die suurvelddele word veld meesal van beweiding onttrek na 'n brand vir selfs minder as 'n groeiseisoen.

Daar bestaan selfs bestuurstelsels in hierdie suurveld waar kampe vir 'n seisoen gerus word en die volgende jaar gebrand word. Sodra voldoende beweibare materiaal beskikbaar is, word diere in 'n kamp ingejaag. Hierdie praktyk moet glad nie in halfdroë gebiede toegepas word nie. Soos reeds genoem het suurvelddele 'n kwaliteitsprobleem wat met periodieke brand reggestel kan word, terwyl die halfdroë grasvelddele 'n kwantiteits-probleem het en die veld wel effektief benut kan word sonder om dit te brand.

Daar is bevind dat indien gebrande veld in die rooigrasveld van die sentrale Vrystaat reeds in die voorjaar bewei sou word, die produksie die daaropvolgende groeiseisoen se Oktober tot April met soveel as gemiddeld 48% verlaag kan word. 'n Vollegroei-seisoensrus na die brand, opgevolg deur Oktober-beweiding het steeds 'n produksieverlies van 23% getoon. Hoe vroeër na die brand die veld weer bewei sou word, hoe groter die nadelige oordrageffek in terme van verlaagde voerproduksie.

'n Ander aspek wat ook vermelding verdien, is die impak van brand op die plante se wortels. Intensiewe wortelnavorsing het getoon dat brand grootskaalse wortelafsterwings veroorsaak. 'n Jaar na brand was die wortelmassa tot 'n diepte van 100 mm, 59% laer as by ongebrande veld. Die grasplant is 'n gebalanseerde eenheid wat beide bo- en ondergrondse plantdele insluit. 'n Graspol bestaan uit 'n versameling van lote, elk met sy eie groeipunt en wortels.

Sou 'n loot gevolglik weens brand afsterf, gaan dit ook gepaard met afsterwing van daardie loot se wortels. Die twee groeiseisoene se rus of onttrekking wat die semi-ariede weivelddele behoort te ontvang na die brand, sal gevolglik ook voorsiening maak vir wortelherstel. Gebrande veld is gewoonlik eerste om tekens van verwelking te toon, juis weens swakker wortel-ontwikkeling en laer plantbedekking.

Alhoewel brand normaalweg saadontkieming stimuleer, is die oorlewing van hierdie saailinge baie laag, veral in velde wat in 'n goeie tot uitstekende toestand verkeer. Daar kan dus nie daarop aanspraak gemaak word dat die brand goed was in terme van saad-ontkieming van die grasse nie – slegs 'n tydelike voordeel word daardeur behaal, wat vinnig weer opgehef word deur kompetisie en hoë temperature.

Iemand sou wel kon redeneer dat, indien die brand opgevolg word deur bogemiddelde reënval-jare, die lengte van die onttrekkingsperiode verkort kan word. So 'n stelling is nie waar nie, aangesien dit nie totale reënval is wat belangrik is nie, maar die seisoensverspreiding daarvan. So byvoorbeeld kan bogemiddelde reënval voorkom, maar alles in 'n bondel. Dis dan van minder waarde vir die plante.

Dit is die effektiwiteit van die reënval wat die bepalend faktor vir veldherstel is. Grasse kan nie die reënval effektief benut indien die verspreidingspatroon daarvan nie goed is nie.

In 'n geval van hoë totale reënval, maar swak verspreiding, word aanbeveel dat die volle onttrekkingsperiode, soos aanbeveel, gevolg word. Ook belangrik is dat ten spyte van goeie reënval wat mag voorkom, die lae plantbedekking weens die brand ook verantwoordelik is vir grootskaalse waterverlies (verdamping vanaf grond-oppervlak) wat nie deur plante benut kon word nie.

Die minstens twee-volle-groeiseisoene-rus wat vir halfdroë weivelddele na 'n brand aanbeveel word, is dus gegrond op die toelating van alle fisiologiese en fenologiese aspekte van die plant, asook die grondkundige komponente binne die weidings-ekosisteem om te herstel. Elke ekologiese komponent is noodsaaklik vir die volhoubaarheid en volle funksionering van die weidings-ekosisteem in hierdie droër gebiede.

GEAFFEKTEERDE AREAS

Die gebrande oppervlak is die oppervlak wat werklik gebrand het. Wanneer slegs 'n gedeelte van 'n kamp gebrand het, staan die totale kamp bekend as die geaffekteerde area.

Indien 'n gedeelte van 'n kamp afgebrand het, moet die hele kamp (geaffekteerde area) van diere onttrek word, anders gaan die diere grootliks op die gebrande deel konsentreer en dit oorbenut, wat tot ernstige veld-agteruitgang kan lei. Wat die groottes van die gebrande area binne 'n kamp moet wees vir totale onttrekking is debatteerbaar. Geaffekteerde kampe wat in die herfs, winter of vroeë lente gebrand het, kan natuurlik bewei word voordat die gebrande dele begin uitloop.

Sommige navorsers huldig die mening dat indien minder as 10% van 'n kamp gebrand het, die hele kamp wel bewei kan word en daardie deel dus opgeoffer word vir oorbeweiding. Groter as 10% moet die hele kamp rus of, indien moontlik, moet net die gebrande deel afgespan word en weerhou word van beweiding. Laasgenoemde situasie is nie altyd prakties moontlik nie en ook nie ekonomies geregverdig vir die boer nie. Die koste daaraan verbonde mag dalk ook veel hoër wees as slegs die onttrekking van die hele kamp. Later moet hierdie tydelike heinings ook weer verwyder word met veel koste daaraan verbonde. Elektriese heinings word wel vir hierdie doel suksesvol aangewend.

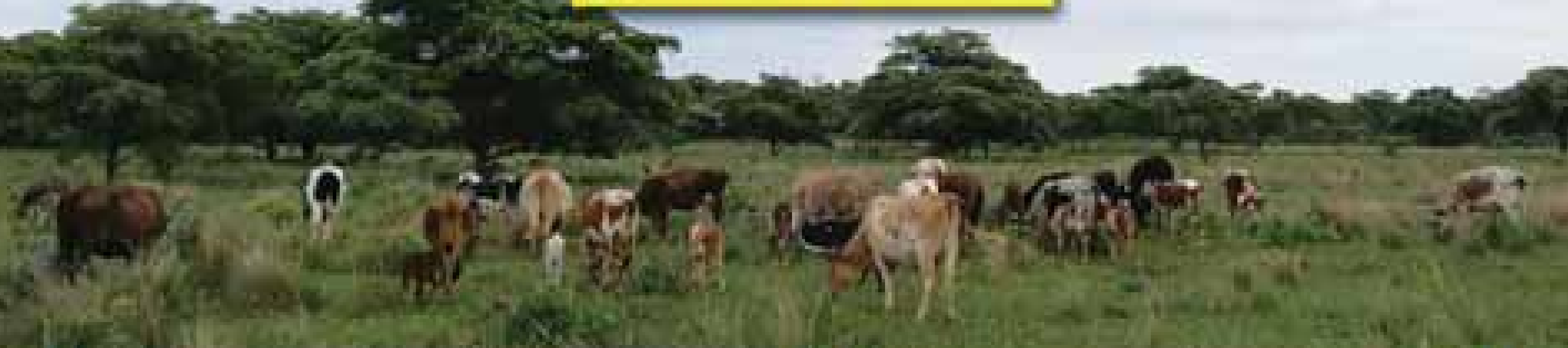
PRAKTIESE RIGLYNE

In die praktyk is dit egter nie altyd moontlik om gebrande veld vir twee seisoenne van beweiding te onttrek nie. Indien slegs 'n klein gedeelte van die plaas gebrand het, kan bogenoemde riglyne gevolg word. Hierdie riglyne moet beskou word vanuit 'n ekologiese oogpunt en indien dit gevolg word, sal plante die vinnigste herstel om dus volhoubaar te produseer. Hoe groter die gebrande gedeeltes op 'n plaas, hoe moeiliker raak dit om veld prakties vir twee seisoenne van beweiding te onttrek. Die boer moet dus sy veld so bestuur om die minimun skade oor die langtermyn vir hierdie halfdroë grasvelddele te beperk. **Boere kan as volg te werk gaan:**

- Herbereken weidingskapasiteit, verminder vee en beplan vir voeraankope of huurgrond. Verkoop prulle, hamels, osse en tollies en hou net jou produktiewe, kern aanteel-kudde. Lammers, kalwers en ou diere kan in 'n voerkraal afgerond en bemark word. Die persentasie jong vervangingsdiere kan ook tot die minumum beperk word.
- Geaffekteerde kampe, waarvan slegs gedeeltes gebrand het, kan direk na die brand bewei word om sodoende nie gebrande gedeeltes te benut. Hierdie benutting is van korte duur en sodra gebrande veld begin uitloop, moet die diere verwyder word.
- Na bogenoemde benutting moet gebrande veld glad nie in die lente-maande benut word nie. Diere moet ook nie op hierdie veld gevoer word nie en eerder in krale gevoer word.
- Die vroegste wat weiveld weer liggies benut kan word, is die eerste winter (dormante periode). Na hierdie benutting moet dit weer die volgende groeiseisoen onttrek word en kan dit eers weer in jaar 2 tydens die herfs en winter-maande benut word (indien voldoende herstel en afhangende van reënval).
- Indien slegs 'n gedeelte van 'n plaas afgebrand het, kan die ongebrande kampe eerder tydelik bietjie strawwer bewei word (later moet weer voldoende rus ingebou word), as wat enigsins oorweeg word om gebrande veld te gou te bewei.
- Die toepassing van 'n effektiewe weidingstelsel met voldoende rus moet verder gevolg word om sodoende die veld volkome te laat herstel.

Daggakraal Nguni

014 763 2858 **MARKEN** 083 230 2019



SORG VIR JOU WEIPLANTE

(bo- en ondergronds) en hy sorg finansieel weer vir jou

Prof Hennie Snyman, Departement Vee-, Wild- en Weidingkunde, Universiteit van die Vrystaat & **Dr Mias van der Westhuizen,** Vrystaat Provinsiale Departement van Landbou en Landelike Ontwikkeling, Glen

Stygende insetkostes, swak ekonomiese toestande asook droogtes, bring mee dat veeboere sukkel om kop bo water te hou. Weiding-navorsing dui onteenseglik daarop dat die winsgewend-heid van veeproduksie oor die langtermyn aansienlik kan verbeter deur die toepassing van die regte bestuurspraktyke wat op veldverbetering gefokus is. **Weiveld is en bly die goedkoopste voerbron vir die dier en daarom moet dit ten alle koste beskerm, bewaar en volhoubaar benut word.**

Ongeveer 65% van Suid-Afrika se weiveld ontvang minder as 500 mm reënval per jaar, waar 'n droogte meer die reël as uitsondering is. In hierdie gebiede, waar reënval die beperkende omgewingsfaktor is wat plantproduksie bepaal of beinvloed, moet dit nie net deur die regte weiplante benut word nie. Die effektiwiteit daarvan moet ook reg bestuur word. Die enigste oplossing om hierdie lae en wisselvallige reënval, waaronder groot dele van ons land die afgelope tyd gebuk gegaan het te bestuur, is deur die implimentering van 'n volhoubare veldbestuursbenadering ten einde droogte-risiko's te beperk.

In die verlede was weiveldbestuurs-beginsels grootliks gegrond op slegs die bogrondse komponente van die weiplant, terwyl die ondergrond nie die nodige aandag geniet het nie. **Die weiplant se wortelstelsel behoort in die toekoms meer as indikator van volhoubare weiveld-benutting gebruik te word.** Die regte intensiteit en frekwensie van ontblaring van weiveld is 'n aspek wat oor baie jare aandag geniet, maar nog steeds 'n debat uitlok. Dit is nie net die interaksie tussen hierdie twee aksies wat verreken moet word nie. Die veldtipe en dus die reënval wat 'n gebied ontvang, bepaal ook hoe die weiveldbestuursbenadering daar gaan uitsien.

Veral na die ernstige onlangse droogte moet boere hul nie laat flous deur die groen gras wat veral na die goeie reëns van Januarie en Februarie weelderig begin groei het nie. Dit is die "ondergrondse boerdery" in terme van wortelgroei wat die volhoubaarheid van die weiding-ekosisteem en ook sy vermoë om opvolg-stres soos opvolg-droogtes, beweiding en selfs veldbrande te kan weerstaan.

Impak van ontblaring versus droogte op wortelgroei

Rooigras (*Themeda triandra*) maak 'n baie belangrike bydrae tot diereproduksie in Suid-Afrika en daarom is 'n intensiewe studie rondom die impak van ontblaring en waterstremming (droogte) op hierdie gras uitgevoer. Die grasse wat in potte in die glashuis gevestig is, is op hoogtes van onderskeidelik 25 en 50 mm oor 'n 8 weke periode teen twee frekwensies ontblaar (weekliks en elke tweede week).

Die 25 en 50 mm hoogte van ontblaring is die laagste vreethoogte van onderskeidelik skape (lae stratum beweiers) en beeste (diep stratum beweiers). Prakties gesproke vreet skape en beeste grasse wel korter indien beskikbare plantmaterial beperkend raak. Die ander aspek wat ingedagte gehou moet word, is dat skape en beeste ook nie grasse sonder meer met die eerste benutting tot 'n spesifieke hoogte sal ontblaar nie, aangesien dit ook 'n funksie van die grasse se beskikbare blaar-oppervlakte (hoogte) is. Diere is ook verder geneig om slegs dele van polle te benut en nie die hele plant nie. Polle wat wel totaal kort benut word en stadiger hergroei, mag dalk juis die geleetheid skep dat ander rooigraspolle ook benut word.

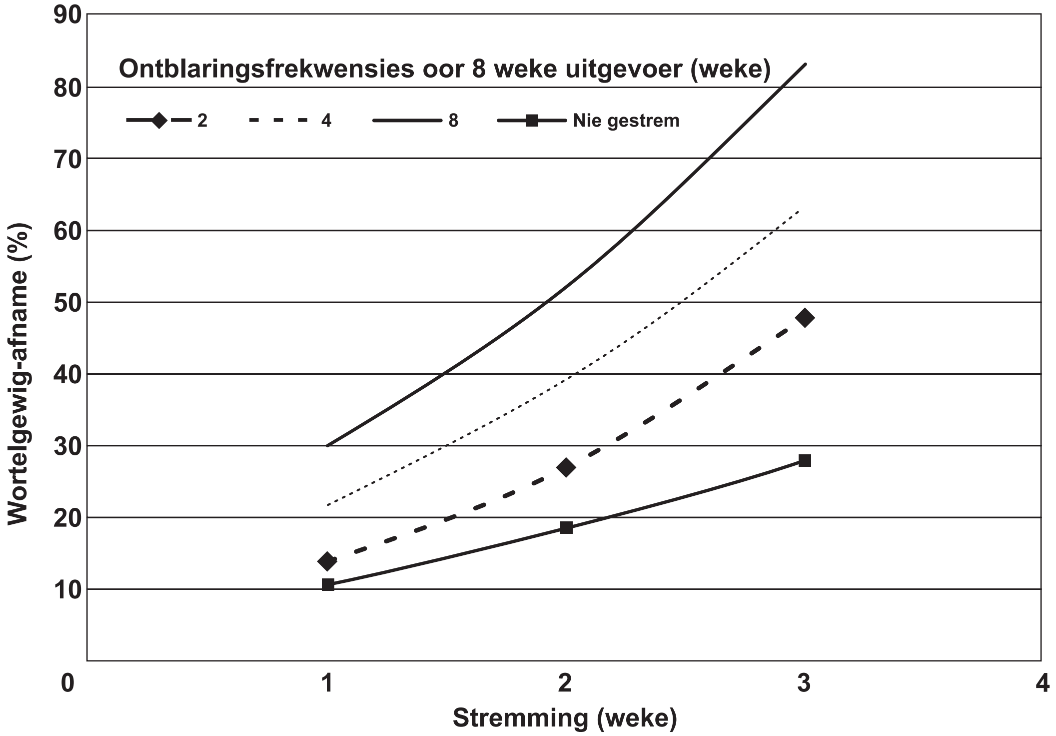
Dit moet ook in gedagte gehou word dat daar nie slegs enkele rooigrasplante in 'n kamp voorkom nie, terwyl die situasie met hierdie studie dit simuleer asof rooigras dominant is. Onder sekere omstandighede kan beeste wel net so selektief vreet en plante ook baie kort ontblaar, soortgelyk aan die van skape. Natuurlik bestaan daar ook vele ander benuttingswyses wat weidende diere in die praktyk toepas wat ongelukkig nie in die glashuisproef nageboots kon word nie.

Na 2, 4 en 8 weke van toepassing van hierdie onderskeie frekwensies van ontblaring, is die grasse aan water-stremmings onderwerp wat ingesluit het 1, 2 en 3 weke van water-onttrekkings.

Die 3 weke is 'n nabootsing van die langste periode van geen reënval binne die groeiseisoen, soos gemiddeld oor 'n aantal jare vir die sentrale grasveldgebied (dominante rooigrasveld) aangeteken is. Die grasse is daarna uitgewas ten einde die wortelgewig vas te stel.

Hierdie behandelings simboliseer dat 'n kamp nadat dit oor 'n sekere periode (2, 4 en 8 weke) bewei was (onderskeidelik weekliks en elke tweede week ontblaar), daar 'n droogte-periode van onderskeidelik 1, 2 en 3 weke voorgekom het. 'n Droogte-periode is, soos reeds genoem, 'n normale verskynsel in die droër weivelddele van ons land. Daarom is dit belangrik dat die interaksie van 'n droogte en beweiding se impak op produktiwiteit gesamentlik beskou moet word. Die wortelgewig-afname (%) van 'n behandeling waar sekere grasse geen waterstremming oor 'n 4 weke periode ontvang het nie en onderskeidelik elke week of elke tweede week ontblaar is, is ook uitgevoer en dien as kontrole behandeling.

Alhoewel die 25 mm hoogte van ontblaring 'n effens laer wortelgewig getoon het vir al die behandelings-kombinasies, word slegs die 50 mm hoogte bespreek en grafies voorgestel, aangesien dit meer van toepassing vir benutting met bees is. Die wortelgewig-afname (%) van rooigras wat op 50 mm hoogte ontblaar is en na onderskeidelik 2, 4 en 8 weke van elke twee weke van ontblaring aan onderskeidelik 1, 2 en 3 weke van stremming onderhewig was, word in Figuur 1 en Foto 2 aangetoon.



FIGUUR 1: Wortelgewig-afname (%) van Themeda triandra elke tweede week op 50 mm hoogte ontblaar, waarna dit aan onderskeidelik 2, 4 en 8 weke van ontblarings-frekwensies aan verskillende intensiteite van waterstremmings onderwerp is (onderskeidelik 1, 2 en 3 weke). Ontblaring teen 50 mm hoogte elke tweede week, sonder enige waterstremming oor 'n 8 weke periode uitgevoer, word ook voorgestel.


2

Aangesien die weeklikse ontblaring, alhoewel laer (Foto 3), maar feitlik dieselfde tendens van wortelgewig-afname getoon het, word slegs die elke tweede week van ontblaring grafies voorgestel. Soos verwag het die langste waterstremmingsperiode die grootste impak op wortelafsterwing getoon (Foto 4 en Figuur 1), ongeag die ontblarings-frekwensie toegepas. Hoe langer die periode wat die plante ontblaar was, hoe groter die impak wat 'n droogte op wortelafsterwing het.


3


4

Volgens navorsing wat in die veld uitgevoer is, is die kanse goed dat binne 'n normale vierkampstelsel met weiperiodes van 30 dae per kamp en normale weidingsdruk, herontblaring van dieselfde graspol ongeveer elke 14 dae kan plaasvind. Indien bogenoemde beginsel van 30 dae weiperiode van toepassing gemaak word op Figuur 1, sal elke tweede week van ontblaring oor vier weke toegepas, vir die 1, 2 en 3 weke van waterstremming 'n afname van wortelgewig van onderskeidelik 22, 40 en 63% in die hand werk. Ten einde die impak van slegs waterstremming op wortelgewig-afname te kwantifiseer, moet binne 'n stremmingsweek die waardes van die stremmingsplante afgetrek word van dieselfde week se wortelgewig.

Indien slegs die impak van waterstremming/droogte vir bogenoemde situasie verreken word, is die wortelgewig-afname vir 1, 2 en 3 weke van waterstremming onderskeidelik 11, 21 en 35%, teenoor geen waterstremming plus ontblaring van onderskeidelik 11, 19 en 28%. **Die impak van waterstremming op wortelgewig-afname is dus groter as dié van slegs ontblaring en neem drasties toe met 'n verlenging in waterstremmings-periode.** Die wortelgewig-afname van die nie-gestremde plante soos op Figuur 1 waargeneem, kan toegeskryf word aan die volgehoue ontblaring se impak. Praktiese waarde vir die Nguni boer 'n Kort weiperiode in 'n kamp, indien genoeg kampe per trop beskikbaar is, blyk 'n veilige opsie vir die minste wortel-afsterwing.

'n Goed ontwikkelde en verspreide wortelstelsel is baie belangrik vir die volhoubare produksie van die smaaklike weiplant sodat dit sterk kan kompeteer vir water en voedingstowwe. Hoe korter die weiperiode hoe beter vir die produktiwiteit van die weiplant, maar dan word weer meer kampe benodig in so 'n bestuurs-benadering. Die ekonomiese regverdiging en ekologiese voordele vir baie klein kampe moet verreken word.

Genoeg en voldoende rus bly egter die sleutel tot volhoubaarheud. Met korter weiperiodes is die rustydperk ook natuurlik korter indien kampe beperkend is. Vir 'n vierkampstelsel as voorbeeld, met 'n weitydperk van 'n maand en rusperiode van 3 maande gaan dit baie meer nadelig vir die plante wees as waar die weitydperk varieer van 2 tot 3 maande en rus van 6 tot 9 maande.

Voldoende rus na beweiding saam met die weiperiode is en bly die belangrikste faktor vir volhou-baarheid. Indien die weitydperk dus lank is, moet dit opgevolg word deur 'n lang rusperiode. Die positiewe uitkoms van langer weitydperke is dat diere wel dele van kampe wat hulle normaalweg vermy, beter benut. Hier word nie verwys na oorbenutting nie, maar dat die weidingskapasiteit van die kamp nog steeds dieselfde is as wat veldtoestand dikteer.

Kort weiperiodes het die praktiese probleem dat die veebelading redelik hoog moet wees om die kamp vining en effektief skoon te vreet. Dit beteken verder dat die troppe redelik groot moet wees, of dat die kampe relatief klein moet wees. Daar kan, is en sal nog lank redeneer word rondom hierdie aspekte van veebelading (tropgroottes), aantal kampe en hulle groottes – almal het maar hul praktiese probleme waarmee tussen wetenskaplikes gestoei word. **Hierdie benaderings moet net nie ten koste van lank genoeg rusperiodes geskied nie (rustydperk mag te kort raak).**

'n Verdere voorbeeld van beweiding, kampgrootte en veldverbetering is 'n plaas van 800 ha in die sentrale grasveld met 4 kampe van 200 ha elk en 1 trop. In so 'n geval sal gesukkel word om veld-verbetering te bewerkstellig, aangesien dele van kampe onderbenut sal word en dele weer oorbenut, onafhanklik van die wei- en rusperiodes.

Sou dit onderverdeel word in 8 kampe van 100 ha elk en met twee troppe bewei word, lyk die prentjie klaar bietjie beter.

'n Goed ontwikkelde en verspreide wortelstelsel is baie belangrik vir die volhoubare produksie van die smaaklike weiplant sodat dit sterk kan kompeteer vir water en voedingstowwe.

Deur byvoorbeeld 2 maande of langer se benutting per kamp en langer rustydperke kan die veld verbeter.

In laasgenoemde geval (8 kampe) sal 1 trop nog beter veldbenutting verseker, met ook korter weiperiodes wat toegepas kan word, maar dit hang natuurlik ook van die boer se kuddebestuur, veldtipe en terreinsituasies af. Nog meer kampe per trop, hoe beter, maar die kampe moet ook nie te klein wees nie, anders het dit moontlik nie meer 'n ekologiese voordeel nie. **Samevattend kan gestel word dat die slegste scenario lang weitydperke is met te kort rusperiodes.**

Droogte (waterstremming) het 'n groter impak op wortelafsterwing as alleenlik ontblaring en daarom moet die twee aspekte altyd saam beskou word. In groot dele van ons weiveldgebiede is 'n droogte meer die reël as die uitsondering en daarom moet hierdie krisisse baie goed bestuur word.

Die resultate met hierdie studie verkry, het duidelik uitgewys watter geweldige negatiewe impak ontblaring saam met 'n droogte vir wortelgroei inhou.

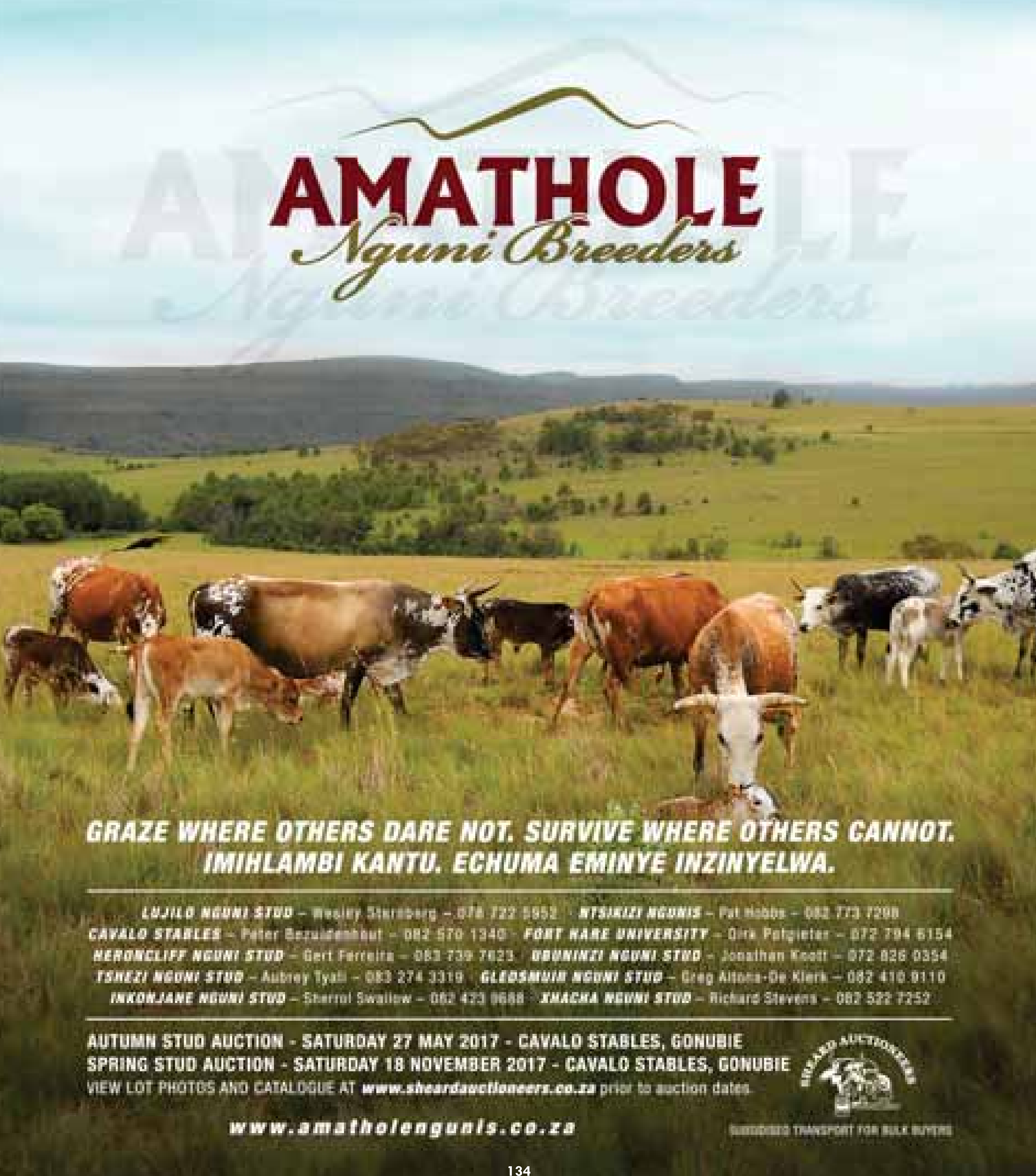
Die tydperk direk nadat die droogte gebreek is, bly egter ook belangrik. Dit is juis gedurende hierdie periode wat die grasse gerus moet word ten einde die wortelgroei en gevolglik die groeikrag van die weiplant so vining moontlik weer op te bou. Dit moet egter in gedagte gehou word dat tydens droogtes die hergroei baie stadig gaan wees. Die polle kan dus nie so gereeld benut word nie, soos wel in hierdie studie toegepas. **'n Swak verspreide wortelstelsel maak die plant meer droogte sensitief en gevolglik gee dit aanleiding tot 'n nie-volhoubare weiding-ekosisteem.**

OPSOMMING

Maak seker dat jou veld in 'n goeie toestand is. Veldtoestand bepaal die risiko's van die boerdery. Hierdie risiko's sluit nie net voertekorte in nie, maar dit bepaal ook die finansiële risiko's van die boerdery.

Een van die grootste uitdagings vir ekstensiewe veeboere is om met die geweldige variasie van seisoenale reënval, steeds volhoubaar te kan produseer. Hoe makliker en vinniger by hierdie uiterstes aangepas word, hoe meer volhoubaar en suksesvol sal die boerdery wees. Die enigste weerstand teen droogtes sluit in die toepassing van 'n weiveldbestuurstelsel wat die risiko's van droogtes kan verlaag en kan absorbeer, die handhawing van 'n goeie en gesonde veldtoestand- bo en onder die grond, asook veeladings wat altyd ooreenstem met die potensiaal van die weiveld.

"THERE IS A WAY THAT NATURE SPEAKS, THAT LAND SPEAKS. MOST OF THE TIME WE ARE SIMPLY NOT PATIENT ENOUGH, QUIET ENOUGH, TO PAY ATTENTION TO THE STORY


AMATHOLE
Nguni Breeders
GRAZE WHERE OTHERS DARE NOT. SURVIVE WHERE OTHERS CANNOT.
IMIHLAMBI KANTU. ECHUMA EMINYE INZINYELWA.
LUJILO NGUNI STUD – Wesley Sternberg – 078 722 5952
NTSIKIZI NGUNIS – Pat Hobbs – 082 773 7298
CAVALO STABLES – Peter Bezuidenhout – 082 570 1340
FORT HARE UNIVERSITY – Dirk Potgieter – 072 794 6154
HERONCLIFF NGUNI STUD – Gert Ferreira – 083 739 7623
UBUNINZI NGUNI STUD – Jonathan Knott – 072 826 0354
TSHEZI NGUNI STUD – Aubrey Tyali – 083 274 3319
GLEDSMUIR NGUNI STUD – Greg Altona-De Klerk – 082 410 9110
INKONJANE NGUNI STUD – Sherrol Swallow – 082 423 9688
XHACHA NGUNI STUD – Richard Stevens – 082 522 7252
AUTUMN STUD AUCTION - SATURDAY 27 MAY 2017 - CAVALO STABLES, GONUBIE
SPRING STUD AUCTION - SATURDAY 18 NOVEMBER 2017 - CAVALO STABLES, GONUBIE
VIEW LOT PHOTOS AND CATALOGUE AT www.sheardauctioneers.co.za prior to auction dates.
SHEARD AUCTIONEERS
SUBSIDISED TRANSPORT FOR BULK BUYERS
www.amatholengunis.co.za

BETEKENIS VAN ICAR LIDMAATSKAP

deur Dr Pierre van Rooyen

ICAR
CERTIFICATE OF QUALITY
Exp. 04/2019

Die geykte gesegde: "Om te meet, is om te weet" is so deel van die vooruitstrewende veeboer soos diesel in jou bakkie se tenk.

Indien hierdie metings, die verwerking daarvan en die oordeelkundige interpretasie en gebruik van die resultate, nie geloofwaardig is nie, kan die gevolge van die gebruik daarvan netso skadelik wees as om glad nie te meet nie. Dit is om hierdie rede dat Stamboek saam met 117 ander diere-aantekening organisasies van 59 lande, lid is van ICAR (International Committee for Animal Recording).

ICAR se Raad en Voorsitters van verskeie tersaaklike werksgroepe bestaan uit van die mees gerekende Veekundiges en Genetici van oor die hele wêreld. Hierdie persone, saam met afgevaardigdes van al die lede, kom een maal per jaar bymekaar om te konfereer oor die voorleggings en voorstelle wat deur die jaar van die verskillende werksgroepe ontvang word. Hieruit word die ICAR-riglyne vir diere-aantekening, voortdurend opgedateer en in lyn gehou met die nuutste, dog prakties toepasbare, wetenskaplike bevindinge.

Een van ICAR se dienste is 'n kwaliteits-evaluering waaraan lede vrywillig kan deelneem. Dit behels 'n ter plaatse oudit van 'n lid-organisasie se rekenaarstelsels, aantekeningmetodes, data-verifikasie standaarde, verslae en terugvoer aan deelnemers. Hierdie streng oudit word deur internasionale kundiges gedoen en indien 'n organisasie slaag, ontvang dit die "ICAR Sertifikaat vir Kwaliteit".
Vir hierdie **kwaliteitskontrole** diens word 'n organisasie elke 5de jaar ter plaatse geouditeer en een keer tussen twee sulke oudits, ge-evalueer op grond van antwoorde op 'n lywige stel vrae met toepaslike motiverings.

SA Stamboek het in 2016 weereens 'n oudit geslaag en die "Sertifikaat vir Kwaliteit" vir al sy dienste ontvang. Hierdie sertifikaat is geldig tot 2019.

SA Stamboek is trots daarop om een van net 33 van die 117 ICAR lede wêreldwyd te wees wat 'n houer van hierdie sertifikaat is. Vir Stamboek se Bestuur is dit betekenisvol om te weet dat die dienste wat ons lewer, deur onafhanklike evaluering bevestig is dat dit aan internasionale standaarde voldoen.

Nog belangriker is egter die feit dat Stamboek se kliënte verseker is van geloofwaardige inligting as hulpmiddel tot die genetiese verbetering van die produksie-potensiaal van hul diere.

NGUNI WINS AGAIN

Yolanda Venter won the first place for the Best Poster at the 34th South African Society of Agricultural Technologists. The title of the poster was: The inheritance of coat colour genes in Nguni cattle. The congress was held at Upington from 6 to 8 September 2016.

SA STUDBOOK / FARMER'S WEEKLY AWARD

Mr Nico Harris as Mentor of the Year 2016 for his involvement in the development of emerging farmers in the developing sector.

The inheritance of coat colour genes in Nguni cattle

Yolanda Venter[1*] & HE Theron[2]
[1*] Nguni Cattle Breeders' Society, PO Box 506, Bloemfontein, 9300,
T: 051 448 7303, F: 051 448 7304, E: yolanda@ngunicattle.info

[2] South African Stud Book and Animal Improvement Association,
118 Henry Street, Westdene, Bloemfontein, 9300
T: 051 410 0900

INTRODUCTION

Nguni cattle have diverse colour patterns and each animal has its own unique pattern. Breeders are crossbreeding Nguni cattle with solid colour breeds and are interested in the colour inheritance patterns. The Nguni cow is an excellent dam for crossbreeding and is well-known in South-Africa especially for their low production cost. Nguni cows have the ability to easily calve from large framed breeds and these offspring have a high growth rate in feedlots.

AIM

The aim is to give guidelines to breeders for breeding solid colour calves (only red and black inheritance are considered).

MATERIAL AND METHODS

Cattle receive colour genes from each parent. Red and black are two variants of the same gene. Black hair colour is represented as A and red hair colour as a. Both genes are represented by the same letter, because they are different variants of the same gene.

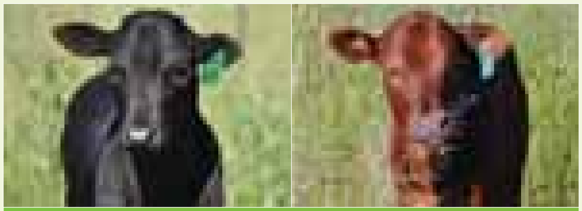
If two pure black animals are mated with each other, all the offspring will be black.

Red (aa) x Red (aa) = all Red (aa)

Black (AA) x Black (AA) = all Black (AA)

If a black and a red animal are mated with each other, all the progeny will be black if the black animal is AA. If the black animal is a carrier, half of the progeny is likely to be red. This can also serve to test to see if the black animal is a carrier.

Black (AA) x Red (aa) = all Black (Aa)



Black (Aa) x Red (aa) = Black (Aa):Red (aa)

If a pure black animal is mated with a carrier, all the progeny will be black, and although half of them will carry the red gene, it will not be visible in the progeny.

Black (AA) x Black (Aa) = all Black (Aa)

If two carriers are mated, there is a 25% chance for a red calf while half of the animals will also be carriers. These animals look completely different from their parents.

Black (Aa) x Black (Aa) =
¼ Black (AA):½ Black(Aa):¼ Red (aa)

RESULTS

The black colour gene is dominant over the red colour and that means that animals with a black and red gene (Aa) will appear black. An animal can only be red if the genes he received from his parents are both red genes (aa). Black animals are genetically AA or Aa, while red animals can only be aa.

If a black nguni is crossed with a red coloured breed like Angus or Sussex, all the calves will be black or half will be black and half will be red. This will depend on whether the Nguni carries the red gene or not. The white spotted patterns of the Nguni will usually not show in the calves, depending on which spotted gene the animal carries.

DISCUSSION

The colour of the calf that is born will depend on which genes the parents carry. The dominant gene determines the colour. The white colour patterns ('spotted' genes) also present in Nguni cattle are caused by genes on other *loci.*

Black colour is dominant over red colour and the solid colour gene is dominant over most spotted genes.

Sussex X Nguni Cross calves

RASIONAAL VAN ELITE-TOEKENNINGS

Dr. Pierre van Rooyen

SA Stamboek se kerndoelwit is die bemagtiging van stoettelers om hul kuddes se genetiese produksievermoë te verbeter.

Dit kan slegs optimaal bereik word deur geloofwaardige aantekening van geboorte- en ouerskap-data, geïntegreer met gemete produksiedata as hulpmiddel tot die visuele seleksie van funksionele doeltreffendheid en rasstandaarde.

Dit is verder belangrik om te beklemtoon dat die blote aantekening van geboorte- en stamboom-inligting en die meting van produksie-eienskappe, geen verskil aan die genetiese produksiepotensiaal van die diere sal maak nie. Tensy verwerkte data, verkry uit hierdie aantekening van data, vir seleksie in 'n doelgerigte seleksieprogram gebruik word, sal die moeite en koste van data-aantekening geen sinvolle doel dien nie. In teenstelling hiermee is daar talle betekenisvolle bewyse van die werklike ekonomiese verbetering van die produksie-vermoë van kuddes wat deur die gebruik van verwerkte aantekening-data verkry word.

Die basis van hierdie betekenisvolle seleksie is 'n teelbeleid wat deur deeglike beplanning deur 'n Telersgenootskap saamgestel word en as riglyn deur minimum standaarde aan telers voorgehou word vir die seleksie van hul meerderwaardige diere in hul kuddes.

Deur met die onderskeie Elite-toekennings aan diere en telers erkenning te gee vir uitmuntende produksie-prestasies, moedig SA Stamboek telers aan om meer doelgerig te selekteer en te teel - tot voordeel van die ras se genetiese waarde. ■

Telers wat Elite kudde toekennings gekry het by SA Stamboek

GOUD KUDDE TOEKENNING

- Dohne ADI - Christo Nowers
- Glen Ross Boerdery - James Faber
- Xhacha Nguni Stud - Richard Stevens

SILWER KUDDE TOEKENNING

- Frain Nguni Stud - Frik Geyser
- Northfield Ngunis - Pierre Bester
- Magaramombe Ngunis - Auvinus Martens
- Ganna Nguni Stoetery - Michiel Van Niekerk

BRONS KUDDE TOEKENNING

- JWE Willemse - Elmien Willemse
- KJ Botha - Karel Botha
- Exsteen Nguni & Sanga - Hannes Eksteen
- Bhetjane Nguni Trust - DF Fyfer
- Qhina Ngunis - Glen Knott & JSB Clark
- RJ Yendal

NGUNI SALES 2017

15 MAART 2017
Gerhard Hamman Nguni's – 2de Produksie Veiling.
BKB Ermelo, Molie 083 229 2500
G Hamman 082 7874 076 of
gerhard@hammanngunis.co.za

28 MAART 2017
Blue Chip Nguni's. Plaas Vaalkop, Mokopane – Algehele uitverkoping
Lukie Steenkamp 083 407 5682
Afslaers: Vleissentraal,
Gert Coetzee – 082 414 5177

26 APRIL 2017
Bhetjane Production Sale – Internet sale, DF Fyfer 083 385 2085

6 MAY 2017
(NOT UNDER AUSPICES)
Genetics for Africa Nguni Internet Sale
A Bothma 082 452 3865

11 MAY 2017
Umsenge Nguni Breeders Group Sale – Grahamstown
Vernon Sparks 083 277 0762
Auctioneers: Hobson & Co, Grahamstown

20 MAY 2017
Northfield Nguni Production Internet Sale – Farm Palmietloop, Naboomspruit
Pierre Bester 082 893 0349

27 MAY 2017
Amathole Nguni Breeders Group Sale, Cavalo Stables, Gonubie
P Bezuidenhout 082 570 1340
Auctioneers: Sheard Auctioneers

21 SEPTEMBER 2017
Elite Lente Veiling – Bloemfontein
Arno du Plessis 082 564 0823
Archie du Plessis 082 460 4818

25 SEPTEMBER 2017
Internet Sale, C Stoch & Associates, 9th Production Sale – Malmesbury
C Stoch 072 2955 208

28 SEPTEMBER 2017
Umsenge Nguni Breeders Group Sale – Grahamstown
Vernon Sparks 083 277 0762
Auctioneers: Hobson & Co, Grahamstown

25 OKTOBER 2017
Sentrale Nguni Klub Veiling – Bloemfontein
Jacques Steenkamp 082 925 3932
ECO Auctioneers

2 NOVEMBER 2017
(NOT UNDER AUSPICES)
Diamant Nguni Breeders Group – Kimberley
Freddie Besselaar 072 782 0057

4 NOVEMBER 2017
Northern Nguni Club Sale – Bela Bela

9 NOVEMBER 2017
Nasionale Nguni veiling - Bloemfontein

18 NOVEMBER 2017
Amathole Nguni Breeders Group Internet Sale
P Bezuidenhout 082 570 1340
Auctioneers: Sheard Auctioneers

25 NOVEMBER 2017
Toverveld Nguni Internet Sale - De Dam and Middelwater, Colesberg
DP van Zyl 082 738 2357
Auctioneers: Gert Coetsee

2 DESEMBER 2017
(NOT UNDER AUSPICES)
Bloedlyn Nguni Internet Veiling
Andre Bothma 082 452 3865

NGUNI
The breed from the past for the future

The Highveld Nguni Club is a dynamic organisation representing breeders on the Gauteng, Mpumalanga, Free State and North West Highveld. It exists to support members and interested parties with information, marketing, training and research. All non-members and commercial breeders are welcome to contact us and partake in the club activities.

CLUB COMMITTEE:

Kevin Rogers (Chairman)	082 336 7827
Mike Greyling	082 336 8215
Jeremy Holdt	082 864 1011
Paul van Jaarsveld	083 646 6601

Hoëveld Nguni Klub

Die Hoëveld Nguni Klub bedien die hoëveld gebied van die Vrystaat, Gauteng, Mpumalanga en Noordwes.

Photos: N. Sparks

Sentrale Nguni Klub

KONTAK

VOORSITTER
DF Fyfer 083 385 2085

VEILINGS KOÖRDINEERDER
Jacques Steenkamp 082 925 3932

Danie van Zyl 082 738 2357
Dawie Kotzé 073 626 6873
Elmien Willemse 083 264 2773

www.facebook.com/nguniklub

Vir meer as **20 jaar** die toonaangewende veiling **in die land.**

NGUNI

The breed from the past for the future

stay informed . bly ingelig

www.ngunicattle.info

All articles in this journal will be available on the website in Afrikaans or English.

Alle artikels in hierdie joernaal sal op die webwerf beskikbaar wees in Afrikaans of Engels.

AUSTRALIA

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Roux, Dr GH	Roux, Dr GH	Australia	GENR	(0961) 740 668 533	(0961) 428 406 684	cardwellfp@westnet.com.au	Cardwell

EASTERN CAPE

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
Bulela Wildlife Pty (Ltd)	Cotton, Mark	Grahamstown	BUL		083 789 0028	mark@bulelawildlife.co.za	Alexandria
Cavalo Stables	Bezuidenhout,	Beacon Bay	CVL	(043) 732 1242	082 570 1340	peterbez@absamail.co.za	East Londen
Clifford & Helen Jones Trust	Jones, Cliff	Grahamstown North	CLW	(046) 603 8824	082 886 9109	c.jones@ru.ac.za	Grahamstown
Dohne ADI *	Nowers, Christo	Stutterheim	DI	(043) 683 5449	082 659 0392	Christo.Nowers@drdar.gov.za	Stutterheim
Elizabeth Knott Trust *	Knott, JK	Port Alfred	UN		072 826 0354	kt.ubuninzi@gmail.com	Bathurst
Fort Hare University *	Skillian, Paul	Alice	FHU	(040) 602 2238	082 200 3464 Paul	pskillian@ufh.ac.za	Alice
Goosen, GD (Jnr)	Goosen, GD (Jnr)	Cathcart	GGG	(045) 843 2111	082 738 0314	isadalenguni@gmail.com	Cathcart
Grootfontein Opleiding Trust *	King, Brian	Middelburg (EC)	SPU	(049) 802 6610	083 554 4648	BryanK@daff.gov.za	Middelburg
Hensberg, GM	Hensberg, Gary	Colleen Glen	DGH	(041) 372 2302	083 655 8103	gary@guidos.co.za	Port Elizabeth
Heroncliff Nguni Stud	Ferreira, GR	Patensie	HC	(042) 283 0640	073 190 3767	gertonmtb@yahoo.com	Patensie
Hobbs, PM *	Hobbs, PM	Komga	PH	(043) 738 5290	082 773 7298	patmarg@telkomsa.net	Komga
Inkonjane Nguni Stud	Swallow, Sherro	Gonubie	SHE	(043) 740 3723	082 423 9688	sherrol.swallow@gmail.com	Cathcart
Jazer Cattle cc *	lAlberts, DC	Steynsburg	DCA	(048) 887 0003	082 889 6046	dcalberts@nokwi.co.za	Steynsburg
Katbosch Trust	Pieterse, Marnice	Graaff Reinet	DH	(041) 581 2950	072 233 0820	marnice@ngunicattle.com	Nieu Bethesda
Keurkloof Enterprises *	Clotz, Karsten	Beacon Bay	CKL	(043) 7485465	082 522 0600	karstenc@mweb.co.za	Uitenhage
Kirsten, S	Kirsten, S	Graaff-Reinet	SK	(049) 891 7004	082 376 3270	stefvredelust@gmail.com	Graaff-Reinet
Kragga Kamma Trust *	Dawson, Neil	Port Elizabeth	DS	(041) 379 5699	072 238 4425 Neil	one.neildawson@gmail.com	Port Elizabeth
Kriegerskraal Ngunis	Lombard, Herold	Somerset-Oos,	KK	(042) 247 2187	082 549 7116	xyz@jabama.co.za	Bedford
Kroese, M	Kroese, Marcel	Grahamstown	MKS		082 557 6879	mkroese03@gmail.com	Grahamstown
Kroon, MV	Kroon, MV	Willowmore	MVK	(044) 923 1801	072 120 2611	finchleyfarm@baviaans.co.za	Willowmore
Kudukloof Farm	Van Zyl, Cronje	Port Elizabeth	CVZ		082 651 5583	vanzyl.inc@vodamail.co.za	Port Elizabeth
Kunhardt Brothers Trust *	Kunhardt, Noel	East Londen	N	(043) 851 1111	082 773 7298	patmarg@telkomsa.net	East Londen
Leopard Ridge Conservancy cc	Cunningham, Dale	Grahamstown	LRC	(046) 622 8038	083 655 5597	dale@huntec.co.za	Alexandra
Melkhoutkraal Boerderye	Hamman, AJ	Kareedouw	SNS	(042) 288 0154	082 576 7516	admin@nguniland.co.za	Kareedouw
New Heights 1206 CC	Watermeyer, KC	Graaff-Reinet	KW	(049) 841 1452	072 867 0838	kevin@ngunicattle.com	Graaff-Reinet
Nigrini Nguni Stoet	Nadia, Nigrini	Port Elizabeth	NNS		061 340 8172	nadian@canonec.co.za	Port Elizabeth
NECF - North East Cape Forest	Davidson, Brenda	Ugie	NEC	(045) 931 1731	083 320 8767	necfcattle@telkomsa.net	Ugie
Peet Steenkamp Familie Trust	Steenkamp, JA	Humansdorp	LP	(042) 295 2734	082 925 3932	njalasafaris@xsinet.co.za	Humansdorp
Qhina Ngunis *	Knott GG & JSB Clark	Fort Beaufort	Q	(046) 645 2914	083 236 6573	qhinangunis@procomp.co.za	Fort Beaufort
Regopkloof Trust	Marais, Charl	Adelaide	JBM	(046) 684 0767	060 5299530	regopkloof@gmail.com	Adelaide
SA Development Trust Corp	Willem G Fourie	Kidd's Beach	FFY	(043) 781 1694	072 612 7601	willem@ncerafarms.co.za	East Londen
Sandsonia Nguni	Van der Watt, CM	Humansdorp	SSN	(087) 700 8243	082 885 3188	cornvdwatt@hotmail.co.za	Humansdorp
Slade, JR	Slade, JR	Steynsburg	LIZ	(023) 626 2361	048 887 0018	slades@worldonline.co.za	Robertson
Slagboom Nguni's	Whittle, TP	Addo	WT	(042) 233 0578	084 803 7738	slagboom@mweb.co.za	Addo
Sny Trade (Pty) Ltd	Schenk, John	Elliot	IZ	(045) 931 2101	083 225 5378	leesf@vodamail.co.za	Elliot
Sparks, RP & Son	Sparks, RP & Son	Fort Beaufort	RV	(046) 645 1514	083 277 0762	bushkloof@albanynet.co.za	Fort Beaufort
Lujilo Ngunis	Sternberg, WW	Stutterheim	W	(081) 517 1670	078 722 5952	wescolsternberg@gmail.com	Stutterheim
Strydom, PJ	Strydom, PJ	Grahamstad Noord	STR	(046) 636 8906	082 575 7122	strydompierre10@gmail.com	Grahamstown
Sunrise Nguni's	Seeger	Bolo Reserve	TL	(043) 683 1604	072 868 9788	seeger@rancetimber.co.za	Stutterheim
Tyali, AZ *	Tyali, Zolani	Morgan's Bay	TN	072 795 0983	083 274 3319	aztyali@gmail.com	Komga
Van der Walt, SW	Van der Walt, SW	Venterstad	SW	(051) 654 0150	082 927 1806	gelykfontein@telkomsa.net	Venterstad
Vestrix 14(Pty) *	Altona - de Klerk, Greg	Pretoria	K	(082) 410 9110	082 410 9110	greg@adek.co.za	Hillandale Farm
Xhacha Nguni Stud *	Stevens, Richard	Walmer - PE	XA	(041) 581 1603	082 522 7252	hirax@telkomsa.net	Port Elizabeth
Yendal, RJ *	Yendal, RJ	Grahamstown	RY	(046) 622 8398	072 151 0519	leroyendall@albanynet.co.za	Grahamstown
Zuurberg Nguni Boerdery	Barkhuizen, Simon	Addo	ZU		083 650 3427	znb@vodamail.co.za	Addo

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording

FREESTATE

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Argentum Business Trust	André & Charmaine Nel	Brandfort	NEL	(051) 821 2123	082 551 2433	accjnel@mweb.co.za	Brandfort
Bakkiespomp Boerdery	Martin Slabbert	Bothaville	OU	073 920 9789	071 025 9792	bakkiespomp@mweb.co.za	Bothaville
Botha, AH	Botha, AH	Modderrivier	AH	(053) 204 0012	083 708 4625	adriaan.botha@mediclinic.co.za	Kimberley
Britz, MJ	Britz, MJ	Clarens	MEB	(058) 256 1096		tollyelrine@gmail.co.za	Clarens
CJC Nel Boerdery Trust	Nel, Andre	Brandfort	CJ	(051) 821 2123	082 551 2433	accjnel@mweb.co.za	Brandfort
Dadewethu *	Oosthuizen, Thinus	Steynsrus	OS		082 937 5402	dina_oosthuizen@yahoo.com	Steynsrus
Deysel, B.C	Deysel, B.C	Harrismith	ABC		082 466 9101	ben@highwaygroup.co.za	The Hillside Manor
Dome Land Ngunis	Lindeque, Daan	Potchefstroom	DLN		082 322 2198	dlngunis@gmail.com	Vredefort
Du Plessis, WA	Du Plessis, Archie	Jagersfontein	DPN	(051) 732 1220	082 460 4818	archieduplessis@vodamail.co.za	Jagersfontein
Du Toit Nguni's	Du Toit, JJ	Soutpan	DT	(051) 831 1050	073 816 3201	hannesdt28@gmail.com	Soutpan
Eminence Stud	Maree CR / Rugen Trust	Brandhof	CCC	(051) 447 4055	082 777 1365	annamarie@metricgroup.net	Dewetsdorp
Erasmus, AJ	Erasmus, AJ	Wesselsbron	JSA	(057) 899 1080	083 262 2743	ajerasmus.blesbokfontein@gmail.com	Wesselsbron
FS IDC Nguni cattle dev. Trust	De Waal, HO (Prof)	Bloemfontein	IDF	(051) 401 2210	083 645 8958	dewaalho@ufs.ac.za	Bloemfontein
Ganna Nguni Stoetery *	Van Niekerk, Michiel	Langenhovenpark	GA		083 234 0358	michiel@ganna.co.za	Petrusburg
H Koekemoer Boerdery	Koekemoer, Hanre	Danhof	HK	(051) 436 3201	079 508 5383	hanre@telkomsa.net	Edenburg
Imbila Trust	Fraser, Pauline	Heilbron	INS	(033) 263 1951	072 149 8669	pauline11@vodamail.co.za	Mooi rivier
Jacques de Beer	De Beer, Jacque	Viljoenskroon	JQA	(056) 343 0172	084 318 8021	jasonquangunistoet@gmail.com	Viljoenskroon
Jonker, LJ	Jonker, LJ	Kestell	LJ	(058) 303 1388	082 784 9368	ljonker@hantam.co.za	Kestell
Knoetze, B (Adv)	Knoetze, B (Adv)	Bloemfontein	US	(051) 430 3567	082 445 9445	barnardk@vodamail.co.za	Bloemfontein
Kwa Maxhuse Trust	Mnguni, Simon	Stofberg	KT	(018) 382 2005	072 467 9638		Groblersdal
Lourens, AE	Lourens, Adriaan	Bloemhof	AL	(058) 871 3700	082 739 2296	adriaan.lourens1@gmail.com	Bloemhof
Meiring, Dr JA & SP	Meiring, Dr JA & SP	Petrus Steyn	PNS	(051) 523 3659	082 824 9995	meiringa@yebo.co.za	Petrus Steyn
Mostert, JAB	Mostert, JAB	Bainsvlei	IM	(051) 430 3567	082 575 4110	brabant@iburst.co.za	Bainsvlei
Motloung, SE (Adv)	Motloung, SE	Bloemfontein	SEM		082 829 6479	sehapi@intekom.co.za	Bethlehem
Northern Cape IDC Nguni Dev Trust	De Waal, HO (Prof) (70)	Bloemfontein	IDC	(051) 401 2210	083 645 8958	dewaalho@ufs.ac.za	Bloemfontein
NCBS	Venter, Yolanda	Bloemfontein	NGI	(051) 448 7302		yolanda@ngunicattle.info	Bloemfontein
Nel, HL	Nel, HL	Germiston	SL	(011) 828 4425	082 574 7533	hlnel@polka.co.za	Heilbron
Schmitt, MA	Schmitt, Michelle	Paul Roux	VEN		079 539 3607	vemvane@gmail.com	Paul Roux
Msello Geoffrey Maema	Maema, Sello	Bloemfontein	SGM		073 157 9202		Bloemfontein
Smith, JC	Smith, Jaco	Dewetsdorp	AI	(051) 541 1101	082 413 2677	jipskip@vodamail.co.za	Dewetsdorp
Sparks Nguni's	Sparks, CDH	Harrismith	NS	(058) 672 1070	083 701 0029	sparks@mniarchitects.co.za	Harrismith
Thandanani Nguni Stoetery	De Swardt, AJ	Paul Roux	JDS		082 570 7966	thanda@global.co.za	Paul Roux
Tucker, L	Tucker, Linda	Clarens	WBG	(058) 256 1096	082 490 9186	lintucker@global.co.za	Clarens
Twenty 60 think future	Vermooten, Adrian	Rosebank	TX		076 538 2530	adrian@flytwenty60.com	Senekal
Willemse, JWE *	Willemse, Elmien	Langenhovenpark	EW	(051) 446 1232	083 264 2773	elmienwillemse@icloud.com	Petrusburg
Zanzebo	Beneke, Christa	Bloemfontein	POP	(051) 430 3581	083 267 0278	rdolphboshoff@airbroadband.co.za	Bloemfontein

GAUTENG

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
A & E Rautenbach Trust	Rautenbach, A	Glenstantia	ESN	(012) 347 0627	082 822 8313	andre@dlr.za.com	Mooiplaats
All Out Ngunis	Lensley, JHF	Pretoria	JLG	(012) 354 1524	083 287 3081	allout@wirelessza.co.za	
Anjana Stoetery	Roets, Pierre	Strubenvale	PJR	(011) 362 2570	083 274 2657	pjroets@mweb.co.za	Devon
Aries Familie Trust	Martin, A	Gezina	ZNS	(012) 335 5211	083 679 0601	martin1@icon.co.za	Thabazimbi
Bavaria Boerdery BK *	Ungerer, C.Z	Moreletapark	TU	(012) 349 1938	083 679 2102	cungerer@mweb.co.za	Vrede
Blindefontein Voerkraal cc *	Terblanchè, AN	Birchleigh	NC	(011) 974 6585	011 974 6585	annatjie@prepquip.com	Polokwane
Brouard, BJ	Brouard, Brenton	Paulshof	LIN	(011) 807 1956	082 455 4478	bjbrouard@vodamail.co.za	Reitz
Calicom Trading (Pty) Ltd	Van Nieuwenhuizen, Pierre	Silverton	PVN	(012) 846 3300	082 445 9709	pierre@cosmowelding.co.za	Roedtan
Dlamini Agri Holdings	Ruandie Willemse	Highveld	MN	(012) 665 4056	083 604 9922	rwillemse@dlaminiagri.co.za	Tweeput Koppies

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording

GAUTENG

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
Frian Nguni Stoet *	Geyser, Frik	Groblersdal	FHG	(013) 262 3388		geysers@ctecg.co.za	Groblersdal
Gertenbach, AL	Gertenbach, Andries	Heidelberg	GG	(016) 342 3400	083 627 8185	ggnguni@yahoo.com	Heidelberg
Hall, JW	Hall, John	Rynfield	HKJ		082 854 6907	pbttrading@mweb.co.za	Cullinan
Halls Hill Farms	Hill, D	Doornpoort	GNG	(017) 811 8781	083 701 5459	dhhill@ymail.com	Doornpoort
Hefer Familie Trust	Hefer, C	Kocksvlei	HEF	(011) 698 1740	082 352 5445		Nylstroom
Holdt & Botha Holdings	Holdt, Jeremy	Walkerville	HBH		082 864 1011	Jeremy.lightweights@gmail.com	Walkerville
Kwamakatini Nguni's	Luus, Dirkie	Carletonville	KM	00267 752 08401	082 898 0083	dirkieluus@gmail.com	Plot 105 Rhodes, AH
Izulu Nguni	Botha, Bertine	Pretoria	HT	(082) 650 4027	082 650 4028	Izulu.nguni@gmail.com	Pietersburg
Joewal	Stegmann, Johan	Johannesburg	JOE	(011) 486 4439	082 459 2486	johan.stegmann@siemens.com	Klersdorp
Juvare Ngunis	Erasmus, Lourens	Pretoria	JUV	(012) 335 4067	072 307 7306	lourens.erasmus@yahoo.com	Naboomspruit
Kransvley Nguni's	Fanie Naude	Randparkrif	KVN	(011) 792 6442	082 499 1500	info@kransvleynguni.co.za	Modimole
NDM Boerdery	Morris, Dean	Highveld	NM	(012) 665 1411	082 889 1655	centurionspar@wol.co.za	Potgietersrus
Oribi nguni trust	Armstrong, NV (Dr)	Edenvale	NVA	(011) 454 3133	082 573 7065	armi@netactive.co.za	Howick
Pro-active	Snowball, Dean	Meyersdal	DMS	(011) 869 5484	083 797 5484	crowndirect@wol.co.za	Meyerton
Rossouw, HA	Rossouw, HA	Gezina	MR	(012) 331 0684	082 416 0535	ha.rossouw@mweb.co.za	Belfast
S & C Family Trust *	Watkins, Steven	Bryanston	SCMG	(011) 021 4170	082 8815293	Steve@Weaversworld.co.za	Midrand
Steyl, JCA (Dr)	Steyl, Johan	Pretoria	JCA	(012) 529 8161	082 398 4823	johan.steyl@up.ac.za	Callinun
Thaba Ngunis	Green, ED Prof	Pretoria	ETF	(012) 521 4430	082 453 0728 Freda	thaba.ngunis@gmail.com	Naboomspruit
Vaalrivier Nguni Stoet	Van Waveren, Piet	Vanderbijlpark	YPW	(016) 986 1842	084 589 2832		Parys
Van As, SB *	Van As, SB	Pretoria	SV	(012) 993 4338	082 558 6749	stianvanas@absamail.co.za	Pretoria
Van de Pypekamp, HE (Dr)	Van de Pypekamp, HE (Dr)	Montanapark	UCP	(012) 548 0309	083 653 8990	htpyp@mweb.co.za	Coligny
Van der Merwe/Oosthuizen Nguni *	Oosthuizen, AP	Wilgeheuwel	KMO	(011) 445 4369	084 677 0317	arno.oosthuizen@murrob.com	Klersdorp
Venpro	Venter, Chris	Tierpoort	CAV	(012) 811 2321	083 556 0417	sandri.venter@gmail.com	Tierpoort

KWAZULUNATAL

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Amajuba Nguni Stud	Mohammed, F	Newcastle	ANS	(034) 312 2722	082 551 0888	faiznew@telkomsa.net	Newcastle
Babazeka Ngunis *	Van Staden, Riaan	Empangeni	RVS		084 555 0749	rvanstaden@nashuaisp.co.za	Empangeni
Baynes TJS	Baynes, Timothy	Hilton	MNS		082 559 7723	tim@n-k-baynes.co.za	Howick
Calverley, GJ	Calverley, Gavon	Dalton	MEN		082 409 1825	mbutu@lantic.net	Melmoth
De Lange Boerdery	De Lange, JS	Newcastle	JS	(034) 351 1634		werney@newcastle.co.za	Newcastle
Devonshire Nguni	Pett, SCJ	Kwa Pett	DEV	(035) 476 6762	082 413 4457	charm@devonshires.co.za	Eshowe
Dungay Trust	Cole, Barry	Umzinto	BBC		082 600 5628	1dungay1@scottburgh.co.za	Boston
Erasmus & Pieterse CC *	Erasmus, Larry	Empangeni	DNS		082 898 1414	lerasmus@securitygroup.co.za	Empangeni
LBC Biggs Trust	Biggs, LW	Cedarville	T	(039) 757 5537	082 308 8568 Clive	lbcbiggstrust@telkomsa.net	Cedarville
Markgayle CC	Essey, Mark	Hillcrest	MGE	(087) 351 5109	082 376 2782	mark@debt-in.co.za	Howick
Midlands Imperial	Magor, Brian	Pietermaritzbrug	MII	(033) 342 9282	082 372 6348	bmagor@futurenet.co.za	Nottingham Road
Mkhize, MM	G van de Pypekamp	Wonderboom	ZMK	(033) 390 3730	082 415 6446	tusokuhle@gmail.com	Pietermaritzburg
Mosala, NG	Mosala, Nomalanga	Greytown	NOM	(033) 417 8910	083 325 7839	tsatsi@hahisa.com	Greytown
Roberts, MG & EMP	Roberts, Elize	Pietermaritzburg	GT	(033) 347 1388	082 896 4629	advocatesgr10@pmblaw.co.za	Harrismith
Siyabuswa Trust	Van de Pypekamp, Gerrit	Wonderboom	PYP	(031) 903 8434	083 409 9699	gerrit@trinutri.co.za	Pietermaritzburg
Strauss, PF	Strauss, PF	Dundee	PFS	(078) 771 2723	073 746 2671	strauss.eersteling@gmail.com	Dundee
The Mbatha Family Trust	Mbatha, Assah	Westville	QNA	(033) 251 0997	082 332 1600	mbathah@mweb.co.za	Pietermaritzburg
Tillietudlem Farm CC	Wilkinson, CGB	Howick	TCW	(033) 234 9045/6	072 358 6829	tillietudlem@mweb.co.za	Howick
Vriendschap Boerdery	Harris, Nico	Melmoth	NH		082 773 4545	nico.w.harris@gmail.com	Melmoth
Willow Grange CC	Magor, Brian & Fergus	Pietermaritzburg	BFM	(033) 342 6487	082 372 6348	bmagor@futurenet.co.za	Howick
Z.G. Zulu His Majesty King	Xulu, PPM	Ulundi	ZK	(035) 870 3950	083 628 6389	xulup@uld.kzntl.gov.za	Nongoma
Hohls Farming	Hohls, Colin	Eshowe	HFC	(035) 940 0005	082 923 3735	colin@hohls.co.za	Eshowe
Mt. Gilboa Nguni's	Niemand, A	Durban North	NIE	(031) 206 2299	082 5723775	andre.niemand@onelogix.com	Mooirivier

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording

LIMPOPO

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
Assert Livestock (Pty) Ltd	T.S Nefolovhodwe	Bendor Park	ANN	(072) 405 0535	072 405 0535	surprise@assertgoco.co.za	Bendor Park
Bahati Asset Management	Heurser, Minunette	Lephalale	LCK	071 689 6276	071 689 6276	relax@bushmanshide.com	Lephalale
Ball Nguni	Ball, Joanne & Kenneth	Louis Trichardt	TT	(015) 518 4081	082 855 8140 Ken	shiawela@gmail.com	Louis Trichardt
Blue Chip Nguni	Steenkamp, LP	Mokopane	LPS	(015) 491 8541	083 407 5682	bluechip@absamail.co.za	Vaalkop Kr325
Botha, Dr KJ *	Botha, Karel (Dr)	Ellisras	KJB	(014) 763 2858	083 230 2019	admin@kjbotha.co.za	Potgietersrus
Bothma Ngunis *	Bothma, A	Louis Trichardt	BN	(015) 516 5191	082 452 3865	andrebothma04@gmail.com	Louis Trichardt
Dekker Nguni's *	Dekker, B	Louis Trichardt	DN	(015) 516 0136	082 929 2358	dekkerboerdery@gmail.com	Louis Trichardt
HZH Trust Ngunis *	Holtzhausen, Gideon	Mookgopong	HZH	(021) 402 0279	082 781 5331	p.holtzhausen@lantic.net	Polokwane
Jacobs, JH *	Jacobs, JH	Groblersdal	JAC	(013) 262 5053	073 181 1541	jan@janjacobs.co.za	Groblersdal
Jannasch, OT (Dr) *	Jannasch, OT (Dr)	Pietersburg	JO	(015) 295 3735		oswald.jannasch@telkomsa.net	Pietersburg
Kirsten Ngunis *	Kirsten, A	Nylstroom	XK	(014) 717 4367	082 780 5160	kirsten@pcwireless.co.za	Nylstroom
Kudusdrift Ngunis	Toerien, Christiaan	Florida	KDN	(011) 982 1002	083 395 4925	ctoerien@swgc.co.za	Vaalwater
Magagamatala Ngunis	Mafalo, Ephraim	Lebowakgomo	ERM	(015) 633 6265	082 374 8163	magagamatalanguni@gmail.com	Polokwane
Malebitsi Farming CC	Moloto, RT	Polokwane	RTM	(015) 263 6698	082 338 6423	molotort@telkomsa.net	Modimole
Matjuda, EL	Matjuda, EL	Bandolierkop	EL	(012) 672 9075	082 460 5426	matjudal@gmail.com	Louis Trichardt
Northfield Ngunis *	Bester, P (Dr)	Mookgophong	NRF	(014) 736 5504	082 893 0349	northfield@vodamail.co.za	Naboomspruit
Olivier L	Olivier, L	Swartwater	ILO	087 802 1296	082 328 2346 Lyon	lyon@lantic.net	Swartwater
Opperbes Boerdery	Van der Merwe, Emmarenthia	Roedtan	OBN	087 150 0758	073 237 9953	adri@opperbesboerdery.co.za	Roedtan
Pienaar, JL	Pienaar, JL	Roedtan	ROND	(015) 667 0160	083 263 4044	janlopienaar@gmail.com	Roedtan
Pistorius Boerdery	Pistorius, SJ	Dendron	SJP	(015) 501 0029	083 459 6776	joandendron@mweb.co.za	Louis Trichardt
Ramaloko, TT	Ramoloko, Thomas	Senwabarwana	TR	(015) 505 0241	082 560 9402	thomas.ramaloko447@gmail.com	Steilpoort
Ralaz Farming CC	Du Plessis, JA	Tzaneen	VC	(015) 307 7469	083 630 3179	riaan@tzaneng.co.za	Muldersplant 499LT
Reed, DS (Dr) & Son PTY LTD *	Reed, Doug	Modjadjiskloof	LEB	(015) 309 9356	082 452 3715	afrigold@mweb.co.za	Mooketsi
Richter, GJ	Richter, GJ	Mokopane	GJR	(015) 491 4882	082 389 6631	thabaphwaswa@gmail.com	Mokopane
Sandfields & Forests	Frank, Brian & Susan	Sandton	SF		083 254 0080	sfrank@glynmarais.co.za	Mookgophong
Stegmann, MC	Stegmann, MC	Louis Trichardt	MCS	(087) 234 9147	083 441 0930	marli@mafred.co.za	Louis Trichardt
Tlolane, LF	Tlolane, Frans	Lebowakgomo	TLF	076 761 8688	076 761 8688	ftlolane@gmail.com	Mokopane
Umbono Ngunis	Koekemoer, PJ / Blignaut C	Southdale	IPK	(011) 680 2390	082 992 0177	pj.k@iafrica.com	Burgersdorp
Wild Dreams Nguni	De Beer, Johan	Brits	WD	084 477 9870	082 413 7898	trunett.de.beer@gmail.com	Lephalale

MPUMALANGA

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Bongitole Nguni's	Wilson, Z	Lydenburg	ZW	(013) 235 3536	083 232 2344	di@thecowshed.co.za	Lydenburg
Breytenbach, JHR	Breytenbach, JHR	Modimolle	GHB		084 761 6215	altab@xpressgt.co.za	Marble Hall
De Lange, ID	De Lange, ID	Delmas	IL	(013) 665 3215	082 920 8004	idelange@global.co.za	Delmas
Dr. N.T Coetzee	Coetzee, Nico	Dullstroom	NI	(013) 254 0876	072 6135665	ntcoetzee@vodamail.co.za	Dullstroom
Filter, MC	Filter, MC	Piet Retief	ISI	(034) 995 0174	082 825 2837	mcfilter@gmail.com	Piet Retief
Greyling, MD	Greyling, MD	Ermelo	GMD	(017) 811 4836	082 336 8215	gmdngunis@vodamail.co.za	Ermelo
Hamman GF	Hamman, Gerhard	Amersfoort	H	(017) 753 1446	082 787 4076	gerhard@hammanngunis.co.za	Amersfoort
Irene Animal Production Institute	Maiwashe, Norman	Groblersdal	IDI	(012) 672 9028	082 561 6771	erick@arc.agric.za	Groblersdal
Johan van Dyk Familietrust	Van Dyk, Karin	Groblersdal	JVD	(013) 262 4061	083 967 6141	cindy@tmnissan.co.za	Groblersdal
Klipfontein Plaas	Raath, Fourie	Lydenburg	JJF		082 775 6376	fourie@mauchsberg.co.za	Lydenburg
MacDonald, RJ	MacDonald, RJ	Lydenburg	MAC	(013) 235 3937	083 655 6638		Lydenburg
Martens, AE *	Martens, AE	Groblersdal	AVM	(013) 262 2685	082 958 4293	amartens@vodamail.co.za	Groblersdal
Moolman, CJ	Moolman, CJ	River Crescent	CJM		082 324 6287		Witbank
Radley Landgoed (Pty) Ltd *	Radley, HJ	Malelane	RL	(013) 790 0466	082 388 3642	henning@radleylg.co.za	Malelane
Rond om Bont Ngunis	Van Jaarsveld, Paul	Rietvallei Rant	ROB		082 800 8776	agriprojects@mweb.co.za	Kimberley
Strydom Landgoed	Strydom, V	Skukuza	IB	(013) 735 6153	082 887 8058	vanessa.strydom@sanparks.org	Hectorspruit
Van As, EW	Van As, Eugene	Schagen	VA	(011) 447 5226	082 881 0592	gm@poplacreek.co.za	Nelspruit

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording

MPUMALANGA

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
Botha Boerdery	Botha, Wynand	Lepalale	DMI		083 586 1366	eleen@wbothagroup.co.za	Lephalale
Werné Nguni Stoet	Schoeman, Johan	Leslie	WH	(012) 350 2188	082 926 9065	schoemanJH@telkom.co.za	Leslie
Xaba, N	Xaba, Nyoni	Ermelo	MXN	(017) 819 2076	082 486 6370	gxaba@mpg.gov.za	Waterval Boven

NORTHWEST

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Ouma se plaas Nguni's	Robinson, EC	Lichtenburg	OSP	(018) 6326290/2	082 3717334	erobinson@go2uti.com	Swartruggens
Van Tonder Broers	Van Tonder, D.J	Brits	VTB		082 8502813	dirk@blastmanagement.co.za	Brits / Swartruggens
Bhetjane Nguni Trust *	Fyfer, D.F	Vryburg	FF	(053) 050 0206	083 385 2085	admin@bhetjane.com	Vryburg
Deon Smit Familie Trust	Smit, D	Potchefstroom	DLS	(018) 294 7159	082 555 0839	ensco@mweb.co.za	Potchefstroom
Eastwick Nguni Stud	Lötter, Timothy	Skeerpoort	EF	(012) 422 0500	083 287 9301	timothy.lotter@etlin.co.za	Skeerpoort
Kleyn, DD	Kleyn, DD	Ventersdorp	DD	(018) 011 0220	082 575 1237	ddkleyn@truenw.co.za	Ventersdorp
Lietha Van Wyk	Lietha Van Wyk	Bothaville	Y		082 370 1730	lietha@dittov.co.za	Leeudoringstad
Livestock Centre NWDA *	Masiga, MA	Potchefstroom	PLS	(018) 299 6585	072 827 5981	mmasiga@nwpg.gov.za	Potchefstroom
Shabalala *	Keeny, RG	Rustenburg	MFF	(014) 545 0011	082 454 8476	rayliz@mweb.co.za	Rustenburg
Snyman, E.J	Snyman, E.J	Brits	EM		082 325 9669	ej.m.snyman@gmail.com	Brits
Van der Walt, JW	Van der Walt, Johan	Helderkruin	JVW	(011) 954 1438	082 601 9598	johanwvd@absamail.co.za	Groot Marico

NORTHERNCAPE

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	EMAIL	WAAR BEESTE LOOP
Jacobs, JA	Jacobs, JA	Petrusville	JAJ	(023) 316 2256	082 804 0368	l.j@telkomsa.net	Strydenburg
Natural Nguni's	Roelofse, Jaco	Kimberley	NG	(076) 8116206	082 558 8406	roelofse@vodamail.co.za	Helderwater
AAA Trust	Nel, DDW	Augrabies	FDM	(054) 451 7261	082 493 4203	admin@aaatrust.co.za	Augrabies
Bell, JJG	Bell, Greame	Colesberg	LZ	(051) 753 1344	084 766 6666	graeme_bell@ymail.com	Colesberg
Besselaar, FJ	Besselaar, FJ	Hopetown	FB	(053) 204 0057	072 782 0057	gariepnguni@gmail.com	Hopetown
Blaauw, PJL *	Blaauw, PJL	Kakamas	PB	(054) 431 0007	082 788 7665	pblaauw@absamail.co.za	Kakamas
Bontvoet Ngunis *	Niemann, Boela	Marchand	NN	(054) 441 0099	082 496 7105	boelaniemann@googlemail.com	Kakamas
Diedericks, AG (Dr)	Diedericks, AG (Dr)	Hopetown	O	(053) 203 0212	082 332 6909	adriaangdiedericks@gmail.com	Hopetown
Du Toit, PS	Du Toit, PS	Hadisonpark	PT	(053) 832 6044	083 261 6435	kim-kempharmacy@cybertrade.co.za	Kimberley
Ferreira, AT	Ferreira, AT	Hanover	AT	(053) 642 vra 2411	082 944 9180	uilfontein@gmail.com	Hanover
Glen Ross Boerdery *	Faber, James	Kimberley	GRB		083 292 2556	jamesfaber@mtnloaded.co.za	Ulco
Noord Kaap Dept Landbou *	Theunissen, Annete	Jan Kempdorp	LNC	(053) 456 5808	071 857 5585	atheunissen@ncpg.gov.za	Jan Kempdorp
Oufontein Farming	Duthie, AR	Richmond N/C	OF	(053) 6912 vra 2304	084 491 1113	andy.duthie@gmail.com	Richmond
Rhus Lancea Nguni Boerdery BK *	Lubbe, FJ	Douglas	JF	(053) 298 1892	083 261 3231	lubbefj@lubbelubbe.co.za	Douglas
Rous Brothers *	Rous, T	Colesberg	HW		083 299 8850	jrrous@mweb.co.za	Colesberg
Theron, CA	Theron, CA	De Aar	CA	(053) 631 0341	082 573 3880	charltheron@mjvn.co.za	De Aar
Van Zyl, DP *	Van Zyl, Danie	Colesberg	TV	(051) 004 0001	082 738 2357	toverveld@eject.co.za	Colesberg
Vorster, AE	Vorster, Albert	Modderrivier	VOR	(053) 581 7040	083 644 1234	albert-erna@mweb.co.za	Herbert
Wenfeb Investments Pty Ltd	Van Eeden, AF (Dr)	Phillipstown	VE	(053) 652 na 2313	083 455 2737	uilfontein@gmail.com	Philipstown
Wium, HAJ	Wium, HAJ	Colesberg	E	(051) 753 1448	073 187 4342	wiumgame@gmail.com	Colesberg
WJ Conveyances (Pty) Ltd	Werkman, Berend	Potchefstroom	LI	(018) 294 3395	083 251 5038	wjeng@mweb.co.za	Potchefstroom

SWAZILAND

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Highpoint (Pty) Ltd	Persson, BE	Swaziland	HI	(00268) 2401 1266	(00268) 7618 2815	perssonjean@realnet.co.sz	Siphofaneni
Reilly, EA (Liz)	Reilly, EA (Liz)	Swaziland	M	(00268) 7602 1275	076 105 0177	realafrica@biggameparks.org	Swaziland
Reilly, Mr & Mrs TE	Reilly, Mick	Swaziland	S	(00268) 2528 3944/3	(00268) 7604 0308	conservationhq@biggameparks.org	Mbabane

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording

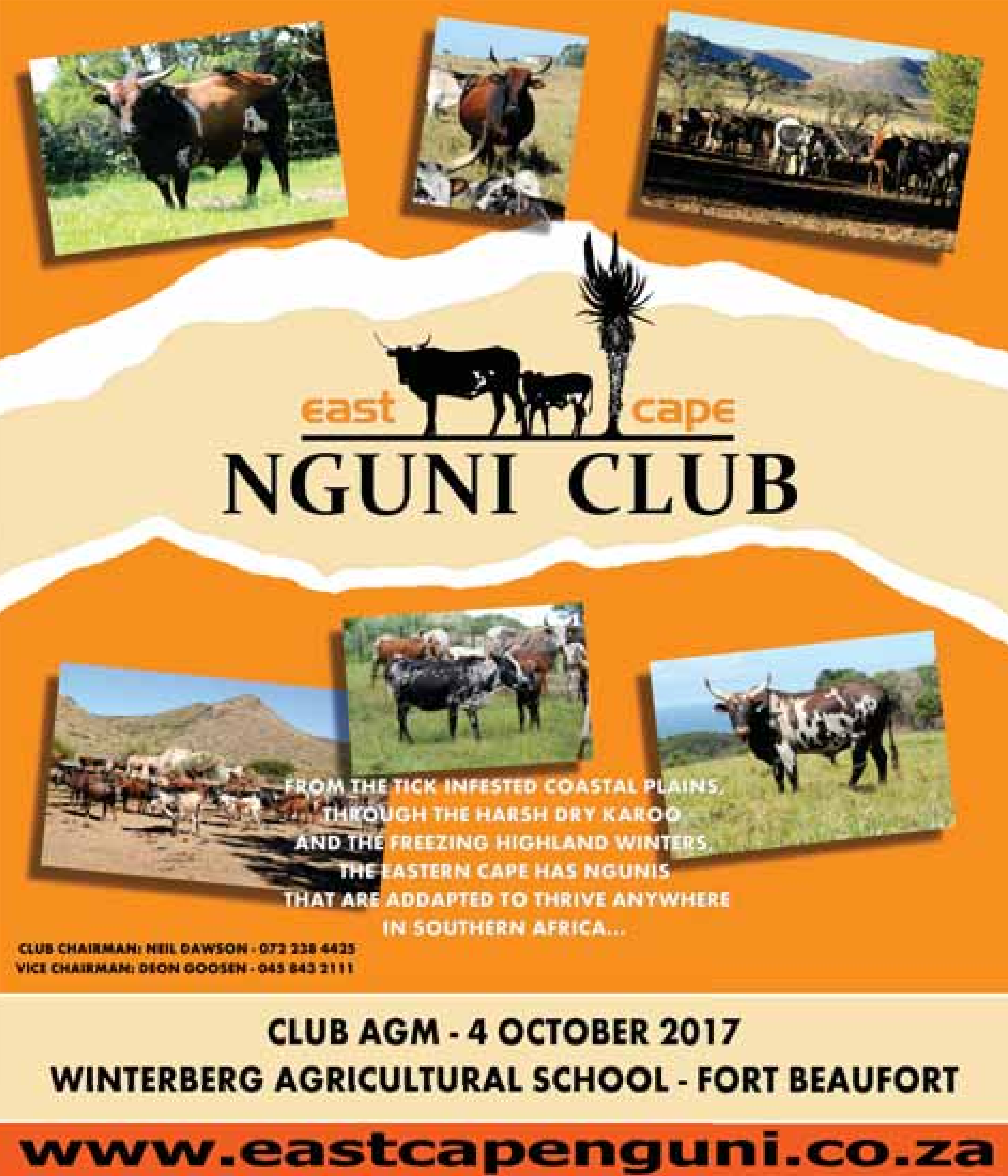
WESTERNCAPE

NAAM	KONTAK PERSOON	DORP	KKM	TEL	SEL	E-POS	WAAR BEESTE LOOP
Mauermann Familie Trust	Reinhard, Mauermann	Laingsburg	MAU	(071) 657 3355	082 584 2187	mauer@global.co.za	Laingsburg
Umsuka *	Marais, Andre	Paarl	AMF		082 877 9231	andremarais59@gmail.com	Klapmuts
Andre Lund Boerdery BK	Lund, GW	Beaufort Wes	OO	(023) 414 3326	082 785 6308	glund@beaufortwest.net	Beaufort Wes
Annissio Development Trust	Streuderst, Johan	Hartenbos	ADT		082 456 0070	jdstreud@mweb.co.za	Ladismith
Bobbejaanskloof Nguni's	Nieuwoudt, HC	Plettenberg Bay	BKF	(044) 535 0016	083 502 6995	bodrift@telkomsa.net	Plettenberg Bay
Bruce, RCF	Bruce, Robert	Ladismith	BC	(028) 581 2427	082 324 3527	brucekeur@gmail.com	Ladismith
Buchuberg Exploration & Farming (Pty) Ltd	Cornelissen, AJ	Kotzesrus	BX	(021) 856 3133	082 658 1300	ancornelis@telkomsa.net	Bitterfontein
Exsteen Nguni's & Sanga's *	Eksteen, H	Piketberg	EX	(022) 913 1946	082 946 2157	exteen@telkomsa.net	Piketberg
Femore Investments	Duckitt, WJ	Darling	WAY	(022) 492 2873	072 512 3672	michael@waylands.co.za	Darling
Greylands Ngunis BK	Jonker, H	Oudtshoorn	HJN	(044) 203 3200	082 652 7416	hein.jonker@opsa.co.za	Oudtshoorn
Iyanda Ngunis	Van Niekerk, Gerhard	Riviersonderend	YY	(028) 261 1589	082 908 4299	cholin@telkomsa.net	Ladismith
Living Spring Trust	Post, Eric	Tulbach	LST	(023) 230 1042	082 329 4395	eric.post@paarlonline.co.za	Tulbach
Makatini Nguni	Visagie, Hannes	Velddrif	MK	(022) 952 1693	082 807 2672	hannesvi@iafrica.com	Velddrif
Nelspoort Nguni's	Oersen, Hennie	Nelspoort	VOT	(023) 416 1611	074 220 2998	klipkraal@telkomsa.net	Beaufort Wes
Orffer Ngunis	Orffer, Christiaan	Riebeeck Wes	ON	(022) 433 2617	083 226 0766	jjorffer@me.com	Riebeeck Wes
Paardenkloof Estate	Moosa, VM	Botrivier	SP	(028) 284 9824	083 309 6409	mvmoosa@paardenkloof.co.za	Bot Rivier
Reuvers, AB	Reuvers, Arno	Grabouw	ABR	(021) 848 9488	083 658 2213	champagne@heideland.co.za	Grayton
Saronsberg Cellar	Van Huyssteen, Nick	Tulbagh	SG	(023) 230 0707	082 773 5110	info@saronsberg.com	Tulbagh
Stewart, MJ	Stewart, MJ	Durbanville	JM	(021) 976 7450	083 391 5405	mikestew@iafrica.com	Durbanville
Stoch, C *	Stoch, Cedric	Malmesbury	CS	(022) 486 5822	072 295 5208	cstoch@isales.co.za	Malmesbury
TJ Nguni	Louw, Callie	Riebeek Kasteel	TJG		079 884 2309	callie@porseleinberg.com	Tulbach
Van Wyk, PB	Van Wyk, PB	De Rust	VWO	(023) 541 1574	082 358 9151	vanwykoorlogskloof@gmail.com	Klaarstroom
Vergelegen Wines Pty Ltd	Wright, Gerald	Somerset West	VER	(021) 847 1334	083 469 3359	naidool@vergelegen.co.za	Somerset West
Visagie, JAJ	Visagie, Hannes	Velddrif	SS	(022) 952 1693	082 807 2672	hannesvi@iafrica.com	Dwarskersbos
Waaikraal Boerdery	Du Preez, J	Oudtshoorn	WL	(044) 251 6333	073 462 0814	akomutoe@wispernet.co.za	Oudtshoorn
Walsh, MPM	Walsh, Pius	Tulbagh	PW		083 657 2888	daraheen@gmail.com	Tulbach
Willem Scholtz Trust	Scholtz, Willem	N1 - Stad	CFN	(021) 945 3679	082 550 7986	willem@scholtznet.co.za	Ficksburg

JORDAN

NAME	CONTACT PERSON	TOWN	HDM	TEL	CELL	E-MAIL	CATTLE LOCATION
Degernier, PS	Degernier, Phillipe	Jordan	PSD	+ 258 823 943661	071 476 3790	philippe.serge.degernier@gmail.com	Maputo

* Telers wat aan prestasie aantekeninge deelneem / Breeders participating in performance recording


east cape
NGUNI CLUB
FROM THE TICK INFESTED COASTAL PLAINS,
THROUGH THE HARSH DRY KAROO
AND THE FREEZING HIGHLAND WINTERS,
THE EASTERN CAPE HAS NGUNIS
THAT ARE ADDAPTED TO THRIVE ANYWHERE
IN SOUTHERN AFRICA...
CLUB CHAIRMAN: NEIL DAWSON - 072 338 4435
VICE CHAIRMAN: DEON GOOSEN - 045 843 2111
CLUB AGM - 4 OCTOBER 2017
WINTERBERG AGRICULTURAL SCHOOL - FORT BEAUFORT
www.eastcapenguni.co.za

T12 178

FF11 270

DH11 16

RV06 11

MVN10 29

FF9 187

UMSENGE NGUNII

LEOPARD RIDGE NGUNIS