Annual Beef Bulletin
Jaarlikse Vleisbees Bulletin

2023

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Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

National Beef Recording and Improvement Scheme
Nasionale Vleisbeesaantekening en -verbeteringskema

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Editor's note

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"Without data and information you're just someone with an opinion"

Cattle farming often involves long-term investments and strategies that are based on both historical and current agricultural data. The latter is a vital tool when farmers have to make informed decisions about their herd size, breeding programs and the market they serve, to name but a few. Farmers also need to constantly innovate to stay relevant, which requires information and the application of technologies aimed at assisting them to access their market value chain. Our country's food value chain is also getting more industrialized and primary production more and more commercialized in large-scale production systems that is putting more pressure on the profit margins of especially smaller farmers.

The role of our beef industry in perspective

In view of the competitive nature of beef cattle farming, there is simply no room for subjective and unfounded opinions when making decisions that will affect the success of a farming enterprise. Accurate and relevant information is thus a key component of a farmer's tools on a daily basis. A typical example that highlights the importance of data and information is the fact that performance recording data and information relating to the genetic potential of our herds are often lacking or deficient. This in itself is a stumbling block when it comes to sustainable and profitable beef production and is of particular importance in view of the fact that our beef industry is an important contributor to national food security. We should never forget that we have more than 60 million mouths to feed in our country! It is also a fact that a large percentage of South Africans are already struggling to afford a basic healthy food basket, a challenge that needs to be prioritised. This challenge is emphasised by the fact that the average cost of the Household Food Basket was R5 023,95 in April 2023.

The critical role that the beef industry fulfils in our agricultural economy and food security is well reflected by its major contribution to the agricultural GDP. Our farmers produced more than 10 million tonnes of beef over the past decade and our industry is also considered to be internationally competitive, which indicates that there are many opportunities knocking on our doors. Our strong trait is we have a quality product that is in demand in large parts of the world. In 2022, despite the impact of disease outbreaks and trade regulations instituted, beef to the value of more than R2.48 billion was exported. The growing income levels and continued urbanization and changing lifestyles and the diets of our emerging middle

class have also resulted in increased meat consumption over the past decade, which also opens up opportunities to grow and expand our beef industry. The demand for beef is also expected to increase significantly over the next decade, and we need to ensure we have the necessary resources and genetics to satisfy the demand.

Diversifying our market

We often hear the terms "price takers" and "price makers". Having the necessary information about what the demands are from niche markets (e.g. grass fed beef), can enable farmers to add value to their products and even develop branded products which gives them more control over the price for their product. Applying information about the market value chain can also assist in diversification of a beef cattle farmer's business. It can for instance assist the farmer to go beyond just trading in live animals and create opportunities to produce value-added products such as processed meats, leather hides and by-products. All this of course again stresses the importance of having access to information of the market in question.

Relevance of South African breeders' societies in the era of climate change

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agriculture, land reform
& rural development
Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

The role of breeders' societies

The South African animal agriculture landscape is diverse and consists of a wide variety of high producing animals adapted to modern production systems and adapted indigenous breeds that are in the hands of communities mostly found in the rural space. Most of these breeds of animals are managed by breeders' societies that have always been an integral part of the South African animal agriculture. Their existence is an indication of a resource that may help in shaping the animal agriculture industry, in the context of climate change, the ever-increasing human population, poverty and malnutrition. A specific breeders' society's mission is specified in its constitution, which is created jointly by its members and is subject to change as needed. Breeders' societies oversee advancing two extremely significant resources: the breeds they represent and the individuals who are associated with those breeds due to their shared passion and interest. They play a significant role in promoting and preserving various animal breeds to improve the national herd for the interest of the country and its people for a sustained animal production. They determine breeding policies, rules, minimum standards for animal recording, marketing strategy, training needs, pricing structures, financial policy and perform inspections and selections. Breeders' societies offer a service function, which they are responsible to listen to the needs of each segment in the animal production chain and then offer appropriate genetic inputs, which are backed by dependable performance information. There are 91 breeders' societies and 14 registering authorities declared in terms of sections 2 and 11 of the Animal Improvement Act, 1998 (Act 62 of 1998). All declared breeds are approved following scientific principles in accordance with relevant national and international laws. Genetic impact studies are also conducted for development of new breeds and for new imported breeds to determine their performance under South African diverse conditions

The role of Animal Improvement Act on breeders' societies

Department of Agriculture, Land Reform, and Rural Development is the custodian of the Act and the Registrar of Animal Improvement has been appointed in terms of section 3 of the Act to oversee performance of breeders' societies and registration authorities, ensuring they adhere to legislative prescripts in terms of the Act. An animal

breeders' society is defined in terms of the Act as the group of people that promote the breeding, the recording or registration, the genetic improvement and the use of a kind of animal or an animal of a specified breed of such kind of animal; that determines and applies breed standards; who at its sole discretion recommends the recording or registration of an animal or a specified breed of a kind of animal, bred in or imported into the Republic; and who is registered in terms of the Act. The Act requires breeders' societies to obtain a registration certificate from a registered registering authority, enabling them to maintain comprehensive database of animals and their pedigree. Furthermore, section 11 (2) permits societies to be registered as registering authorities if no other registration has been granted in respect of a registering authority which is concerned with the same animal or breed of animal.

The role of breeders' societies in mitigating the impacts of climate change

Livestock production is unique in the sense that it does not only contributes to climate change through the release of greenhouse gases but also greatly suffers from weather patterns that affect grazing availability and water supplies. Despite the diverse membership and resources, breeders' societies are united in tackling climate change's impact on livestock production. Therefore, breeders' societies are developing climate change mitigation strategies, one of which is to shift towards feed-converting breeds that have climate-adaptive traits. This strategy enhances the resilience of livestock production systems to climate change impacts, with breeders' societies prioritizing research and development to enhance breeding techniques and genetics, thereby producing more resilient animals. By breeding animals with climate-adaptive traits such as heat tolerance, disease resistance, and efficient nutrient utilization, societies aim to reduce the negative impacts of climate change on livestock production.
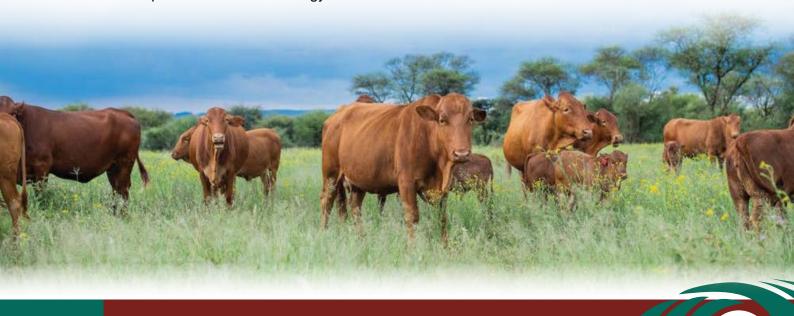
Recommendations to breeders' societies in mitigating the impacts of climate change

There is a need for breeders' societies to enhance strategies for mitigating the impact of climate change on livestock by implementing sustainable breeding strategies and promoting genetic diversity. This can involve providing resources and training on adapting innovative breeding practices to changing conditions. Furthermore, collaborating with researchers to develop innovative solutions like heat-tolerant breeds or improved management techniques can also help livestock adapt to changing environmental conditions. Therefore, addressing these challenges, breeders' societies can promote responsible and sustainable breeding practices for both animals and the environment.

For more information on registration of breeders' societies, please contact the following offices:

Registrar of Animal Improvement: 012 319 7595
Animal Production Regulatory Services offices: 012 319 7424 / 7434 / 7486 / 7576

The ARC National Beef Performers Virtual Awards 2023

Zelda King,
Frans Jordaan & Dr Ben Greyling
ARC-Animal Production, Irene
Zelda@arc.agric.za

The recognition of outstanding achievements of our farmers is one of the primary goals of the ARC's National Beef Recording and Improvement Scheme. This is in line with its primary mandate to facilitate the adoption and implementation of technologies, that are aimed at enhancing the production efficiency of our national herd. This will enable farmers to reduce production costs in a sustainable manner and increase their contribution to national food security, as well as contributing towards the socio-economic well-being of our people. The Scheme has been collaborating for many decades with stakeholders of industry and research institutions to address their demands and to ensure we adapt to a changing industry.

One of the ultimate indicators of whether the Scheme is successful includes the growth and development of our farmers and the impact they are making. The Scheme annually hosts its national awards to recognise and award the exceptional advances that farmers have made, making use of performance recording and related technologies that include the entire spectrum of the production industry. The Scheme thus puts a high premium on collaboration with farmers across all sectors, government and other stakeholders in agriculture in order to strengthen our collective effort to enhance production and access to our country's beef value chains.

On 23 November 2023, PlaasMedia broadcasted The ARC National Beef Performers Awards

https://bit.ly/ARCBeefPerformers2023

Congratulations to all our winners!
Thank you for your support and keep performance testing part of the growing success of your herd.

2023 ARC National Best Elite Cow Award

This award category only takes into consideration the actual performance data of participating cows. Participating cows should exhibit exceptional reproduction figures and other economically important traits such as maternal ability and pre-weaning growth rate (weaning weight). This award category is also contested, as in the past, among cows across all breeds and only one cow per breed will be crowned as the top female of each participating breed. Our valued partner, Farmers Weekly, have been the sole sponsor of this award category for 45 years in a row, which in itself is indeed praiseworthy.

Both registered and commercial cows are eligible to participate and specific qualification criteria include age at first calving; the average inter-calving period; days since the last calving; the completeness of records for weaning weights; performance records (BLUP breeding values) for birth direct, wean direct and wean maternal; and the number of calves with reliable weaning weights.

For commercial cows where no BLUP breeding values are available, the criteria evaluated include, in addition to criteria already mentioned, the weaning index of the cow's calves individually as well as for all calves weaned. Additional criteria used to identify the best performing cow per breed include breeding values for birth and weaning; average efficiency index (if available); approval ratio (percentage of her progeny approved for registration by the relevant breeders' society); reproduction index and the percentage of performance tested calves.

Table 1 lists the 19 ARC National Best Elite Cows with their respective performance figures, while Table 2 lists the owners of these cows.

Table 1: 2023 ARC National Best Elite Cow Award sponsored by Farmer's Weekly

Breed	Cow Id	Age (years)	Number calves	Age 1st calving (months)	Avg ICP[1] (days)	Avg weaning index[2]	Birth weight EBV (kg)[3]	Weaning weight EBV (kg)[4]	
							Dir[5]	Dir[6]	Mat[7]
Afrisim	JVR 11 0076	12	8	35	398	135	1.28	8.2	9.3
Bonsmara	JHK 14 0139	9	7	29	333	107	1.62	18.8	13.3
Boran	TZ 13 0158	10	8	23	359	106	0.09	3.4	4.0
Braford	M 13 0095	10	7	36	367	-	0.90	13.0	5.0
Braunvieh	HB 13 0025	10	7	34	375	105	0.18	6.8	6.4
Charolais	EL 13 0019	10	9	21	353	104	0.66	14.5	3.6
Dexter	JL 12 0017	11	8	21	366	-	0.72	2.2	1.4
Limousin	DK 05 0108	18	15	23	372	-	1.80	14.0	1.0
Nguni	EX 13 0001	10	9	26	358	111	0.84	8.7	5.3
Pinzgauer	M 11 0002	12	9	36	368	110	0.93	6.1	9.7
PinZ²yl	PZ 13 0253	10	7	34	369	115	1.52	14.4	7.0
Romagnola	DT 10 0120	13	11	23	366	101	1.93	9.2	3.4
SA Angus (Red)	KCM 11 0041	12	9	35	375	107	2.12	28.1	9.2
Santa Gertrudis	VV 13 0138	10	8	30	339	109	1.39	12.6	8.2

Simbra	ARC 11 522C	12	9	35	369	-	0.80	20.0	7.0
Simmentaler	BBS 14 0013	9	8	24	350	-	1.00	19.0	7.0
South Devon	JM 13 1679	10	7	34	368	106	-0.26	12.6	4.2
Sussex	SWM 11 0001	12	10	29	353	103	0.35	15.2	11.9
Tuli	E 13 0009	10	8	30	339	105	1.50	10.3	5.4

1 Avg ICP - Average Inter-calving period

2 Avg weaning index - Average Weaning Weight Index on calves

3 Birth weight EBV - Estimated Breeding Value for Birth Weight

4 Weaning weight EBV - Estimated Breeding Value for Weaning Weight

5 Dir - Estimated Breeding Value for Birth Weight Direct

6 Dir - Estimated Breeding Value for Weaning Weight Direct

7 Mat - Estimated Breeding Value for Weaning Weight Maternal

Table 2: The owners of the 2023 ARC National Best Elite Cow Award

Breed	Cow Id	Owner	Town	E-mail	Cell no
Afrisim	JVR 11 0076	Hentie Jansen van Rensburg	Noordbrug, North West	obgynae@icon.co.za	082 825 2168
Bonsmara	JHK 14 0139	Tokkie Cronje	Kroonstad, Free State	efcronje63@gmail.com	076 031 5196
Boran	TZ 13 0158	Theo van Zyl	Ladybrand, Free State	theovanzyl@vodamail.co.za	082 466 2467
Braford	M 13 0095	Jan Meaker	Warden. Free State	jmeaker@internet-sa.co.za	079 883 9760
Braunvieh	HB 13 0025	Daleen Roos	Vrede, Free State	daleen22bester@gmail.com bestershans@gmail.com	083 469 1258
Charolais	EL 13 0019	Danie Steenkamp	Klerksdorp, North West	steenkamp.danie@gmail.com	083 258 8816
Dexter	JL 12 0017	Willie du Plessis	Riversdal, Western Cape	willie.dplessis@gmail.com	082 457 1779
Limousin	DK 05 0108	John & Tracey Devonport	Balfour, Mpumalanga	amladevlan@gmail.com	083 454 3095
Nguni	EX 13 0001	Hannes Eksteen	Piketberg, Western Cape	exteen@telkomsa.net	082 946 2157
Pinzgauer	M 11 0002	Fanie Potgieter (Bertie van Zyl Edms Bpk (ZZ2)	Modjadjiskloof, Limpopo	grootboom@zz2.co.za	082 336 7199
PinZ^{2}yl	PZ 13 0253	Fanie Potgieter (Bertie van Zyl Edms Bpk (ZZ2)	Modjadjiskloof, Limpopo	grootboom@zz2.co.za	082 336 7199
Romagnola	DT 10 0120	Dail van Rensburg	Delareyville, North West	dail@cluesnet.co.za	082 809 8841
SA Angus (Red)	KCM 11 0041	Kevin & Carl Miles	Dordrecht, Eastern Cape	carl.miles@hotmail.com	083 995 7087
Santa Gertrudis	VV 13 0138	Tina de Jager	Vryburg, North West	tina@bushveld.info	082 774 4777
Simbra	ARC 11 522C	Karl-Heinz & Sigi Heimstadt	Gobabis, Namibia	exito@iway.na	00264812435496
Simmentaler	BBS 14 0013	Calla & Jaco Botha	Rawsonville, Western Cape	holland@compnet.co.za	082 895 5371
South Devon	JM 13 1679	John & James Miller	Cathcart, Eastern Cape	johnno@hazeldean.co.za	083 659 8269
Sussex	SWM 11 0001	Shaun Trollip	Britstown, Northern Cape	rosedaletrust@gmail.com	087 550 1168
Tuli	E 13 0009	Dave Mullins	Grahamstown, Eastern Cape	mullins@isat.co.za	082 299 7953

2023 ARC National Best Elite Cow Award

Afrisim

Hentie Jansen van Rensburg

JVR 11 0076

Bonsmara

JPR Minnaar

JHK 14 0139

Boran

Theo van Zyl

TZ 13 0158

Braford

Jan Meaker

M 13 0095

Braunvieh

Dr Daleen Roos; Hans Bester; Dr Hanri Bester-Cloete

HB 13 0025

Charolais

Danie Steenkamp

EI 13 0019

Dexter

Willie du Plessis

JL 12 0017

Limousin

John and Tracey Devonport
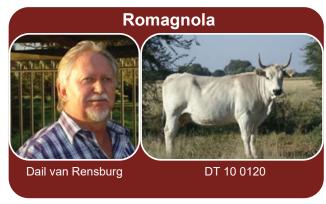
DK 05 0108

Nguni

Hannes Eksteen — EX 13 0001

Pinzgauer

Fanie Potgieter — M 11 0002

PinZ²yl

Fanie Potgieter — PZ 13 0253

Romagnola

Dail van Rensburg — DT 10 0120

SA Angus (Red)

Kevin & Carl Miles — KCM 11 0041

Santa Gertrudis

Tina de Jager — SVV 13 0138

Simbra

Kalla Heimstädt — ARC 11 522C

Simmentaler

Jaco Botha — BBS 14 0013
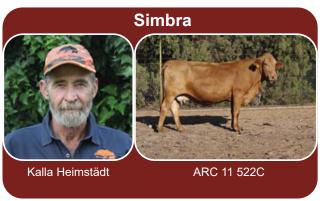
2023 ARC National Best Elite Cow Award (Cont.)

South Devon

James & John Miller   JM 13 1679

Sussex

Shaun Trollip   SWM 11 0001

Tuli

Dave Mullins   E 13 0009

2023 ARC National Platinum Bull Award

Besides having exceptional performance figures, bulls can only qualify for this award if they were bred from an Elite cow, therefore the saying that it is the "best from the best" award category. More than one bull per breed can be eligible for this award, although as a rule very few bulls qualify due to the stringent adjudication criteria. Eligible bulls must have received a Gold Merit certificate when they completed a Phase C test of the ARC and its dam had to receive her Elite cow status during the year in which the bull received his Gold Merit award. Eligible bulls also had to complete their Phase C tests between 1 January 2022 and 31 December 2022. GMP-Leader Products SA, one of the ARC's valued partners, has been sponsoring this award category for thirteen years in a row now, a category that has been contested for 28 years already.

The 7 Platinum bulls are listed in Table 3 and the owners in Table 4.

Table 3: 2023 ARC National Platinum Bull Award sponsored by GMP-Leader Products SA

BULL					DAM						Weaning weight EBV		
Breed	Bull Id	ADG Index	FCR Index	Adj. Scrotum circum. (mm)	Dam Id	Age (years)	Calvings	AFC (months)	Avg ICP (days)	Birth weight EBV (kg)			
											Dir	(kg)	Mat
Bonsmara	AJF 21 0564	124	114	320	AJF 13 0263	10	8	26	362	1.16	24.5	4.3
	NFS 21 0322	101	104	370	VV 10 0357	13	10	30	368	0.49	16.9	5.1
	NFS 22 0205	112	107	320	NFS 13 0014	10	7	29	404	1.50	17.5	10.5
	NFS 22 0247	101	102	345	NFS 11 0135	12	9	30	392	-0.17	15.9	8.8
Limousin	YF 21 0901	104	107	299	SO 07 0047	16	12	36	401	-0.60	10.0	4.0
Nguni	EX 21 0216	119	120	332	AZ 11 0001	12	11	24	355	-0.45	-1.9	2.2
Sussex	CC 21 0083	101	115	350	CC 13 0031	10	7	34	382	1.69	26.0	15.3

Table 4: The owners of the 2023 ARC National Platinum Bull Award
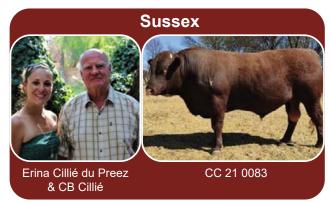
Breed	Cow Id	Owner	Town	E-mail	Cell no
Bonsmara	AJF 21 0564	Kiewiet & Nelius Ferreira	Harrismith, Free State	neliusferreira@yahoo.com	082 316 3108
	NFS 21 0322	Nick Serfontein	Edenville, Free State	pieter@sernick.co.za	082 384 0020
	NFS 22 0205				
	NFS 22 0247				
Limousin	YF 21 0901	Johan Fourie	Modimolle, Limpopo	johan.allphase@gmail.com	082 093 7650
Nguni	EX 21 0216	Doppies Nel	Augrabies, Northern Cape	admin@aaatrust.co.za	082 493 4203
Sussex	CC 21 0083	C.B. Cillié	Bloemfontein, Free State	ccillie@bfn.co.za	083 388 0830

2023 ARC National Platinum Bull Award

Bonsmara

Kiewiet Ferreira

Nelius Ferreira

AJF 21 0564

Bonsmara

Nick Serfontein

NFS 21 0322

NFS 22 0205

NFS 22 0247

Limousin

Johan Fourie

YF 21 0901

Nguni

Doppies Nel

EX 21 0216

Sussex

Erina Cillié du Preez
& CB Cillié

CC 21 0083
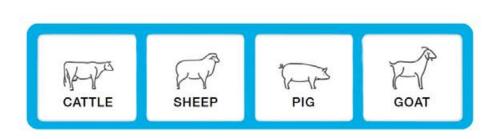
2023 ARC National KyD Province of the Year Award

The objective of this award is to recognise the province with the highest number of participating farmers in the scheme (KyD). These farmers must be registered on INTERGIS and must have loaded data on the database between April of the year preceding the award and March of the year of the award. The three provinces with the highest number of participating farmers will receive the accolades Platinum, Gold and Silver respectively. This award was only introduced in 2016.

This year's finalists for the KyD province of the year was:

KwaZulu-Natal • Mpumalanga • Northern Cape

The ARC National KyD Province of the Year Award for 2023 was awarded to

Kwa-Zulu Natal
(Platinum award)

Gold was awarded to:
Mpumalanga

Silver to:
Northern Cape

2023 ARC National Kaonafatso ya Dikgomo of the Year Award

PLAAS MEDIA | Home of: STOCKFARM

Background & History

This is another flagship award of the ARC that acknowledges emerging beef farmers that are members of the Kaonafatso ya Dikgomo (KyD) Scheme of the ARC and that have excelled when it comes to how they manage and improve their herds and enterprises making use of record keeping, amongst others. This award category commemorates its 21th anniversary this year. Finalists, aiming to become fully-fledged commercial farmers, from each of our country's provinces are identified and they ultimately contest for the title of National Winner. The Kaonafatso ya Dikgomo Scheme focuses on assisting emerging cattle farmers to apply beef recording and improvement technology to facilitate accurate selection for economically important traits and increased productivity and profitability of their herds. Emerging farmers serviced and developed through the KyD Scheme are also registered on the INTERGIS (national database) and to date more than 8000 emerging farmers are members of KyD.

Purpose:

To acknowledge members of the Kaonafatso ya Dikgomo Scheme who perform well on specific criteria related to recording, management and performance of their herds.

• To encourage emerging cattle farmers to improve their standard of living through higher returns from animal production and job creation;
• To promote participation in the Kaonafatso ya Dikgomo Scheme;
• To promote sound breeding and management principles in the beef industry; and
• To demonstrate the benefit of performance testing, practically by identifying outstanding herds.

The 8 provincial winners for 2023 are listed in Table 5.

Eastern Cape
Lubabalo Ngcwembe

Free State
Puseletso Tsoeu

Gauteng
Bumbi Mahlangu

KwaZulu-Natal
James Luvuno

Limpopo
Rudzani Sadiki

Phakade Khanyile
Mpumalanga

North West
Waetsho Makgale

Northern Cape
Maria Kantwan

Table 5: 2023 ARC National Kaonafatso ya Dikgomo of the Year Award: Provincial Winners sponsored by Plaas Media/Stockfarm

Province	Farmer	Breed	Herd size	Calving rate	Contact name	Farm name	Town	Contact nr
Eastern Cape	Lubabalo Ngcwembe	Nguni, Brahman	82	75	Lubabalo Ngcwembe	Ikhwezi Lokusa	Bisho	062 480 3046
Free State	Lebohang Tebello Creatins Trading (Pty) Ltd	Bonsmara Cross	96	85	Puseletso Tsoeu	Uitvlugt	Boshof	073 850 4804
Gauteng	Bumbi Mahlangu	Nguni, Bonsmara, BXB	257	83	Bumbi Mahlangu	Khalangani	Hammanskraal	072 096 3876
KwaZulu-Natal	Enkanyezini Livestock (Pty) Ltd	Brahman Bonsmara Beefmaster	600	77	James Luvuno	Driekwart	Vryheid	028 771 3076
Limpopo	Sadiki Farm Pty	Bonsmara	75	95	Rudzani Sadiki	Welgewaagd	Thabazimbi	072 415 0667
Mpumalanga	Inkonyane Kangwane Holding (Pty)	Nguni	70	92	Phakade Khanyile	Kleinfontein	Amersfoort	084 584 6732
Northern Cape	Maria Kantwan	Bonsmara	90	98	Maria Kantwan	Rust en Vrede	Kimberley	082 797 8777
North West	Waetsho Makgale	SA Angus	64	62	Waetsho Makgale	Sekobye & Sons Farm	Rustenburg	071 340 4058

The winner of the 2023 ARC National Kaonafatso ya Dikgomo of the Year Award was Rudzani Sadiki from Limpopo

Rudzani Sadiki
Welgewaagd
Thabazimbi
Cell: 072 415 0667
Email: sadikirp@gmail.com

Kaonafatso ya Dikgomo

A new dawn has broken: Contributing to Food Security through Animal Improvement

Agricultural Research Council's Kaonafatso ya Dikgomo is a dedicated animal recording scheme for emerging/smallholder farmers

Solutions Solutions Solutions

- We provide a comprehensive suite of animal health and production services
- We partner with you to determine your needs and action
- We collect animal performance information
- We use scientific methods to select animals and help you grow your livestock enterprise
- We have proven track record of success
- We offer advice on livestock marketing
- Over 7 000 emerging/smallholder farmers are benefitting under the scheme

Eligibility and Participation

Any emerging/smallholder cattle farmer can participate in the scheme and it is operational in all nine provinces.

For more information about the scheme, contact
012 672 9111

Human Communications 129321

2023 ARC National Mentor of the Year Award

The primary aim of this award category is to acknowledge farmers with exceptional leadership skills and their efforts in building capacity and skills through information dissemination. This includes the mentoring and assisting of fellow farmers to adopt and implement the relevant technologies and management skills to enhance their productivity and sustainability. In short, this award category assesses how a farmer ploughs back his/her skills, knowledge and experience to the benefit of others. Farmers who enter this category should have a record of accomplishment that attests to their efforts to train and mentor others and very importantly to show the impact of their actions and mentoring initiatives.

This year we had two winners for this category:

Naudé Pienaar
Zondagspan Santas, Mahikeng, North West
Cell: 082 776 8283

Piet Mothepu
Kirkdale Farm, Koppies, Free State
Cell: 078 875 3376

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YOUR PARTNER IN RUMINANT NUTRITION

EASTERN REGION

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Regional Sales Manager
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*Middelburg/Botswana/
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Volksrust

CP De Vos
082 415 8239
Standerton

Theuns Botha
082 820 5858
Ermelo

Riaan Raath
082 652 9311
Rustenburg

Pieter Smit
082 467 5549
Middelburg

Nardus Van Wyk
082 775 9437
Lichtenburg

NAMIBIA

Paul Van Der Merwe
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Windhoek, Namibia

BOTSWANA

Nardus Van Wyk
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Botswana

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Regional Sales Manager
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George

Kobus Gerber
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Riversdale

Gawie Bester
082 774 2579
Porterville

JC Vollgraaff
079 264 7965
Hermanus

Charl Vorster
084 812 7378
Mid-Karoo/De Aar

Zet Wapi
071 609 5043
New Business Manager

Reece Dormehl
083 304 8092
Barkly East

Hennie Slabbert
082 336 6442
Jeffreys Bay

Peter Webster
083 232 1249
Alexandria/Cannon Rocks

Neels Van Rooyen
084 578 0820
Cradock

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Regional Sales Manager
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Parys

Arno Ferreira
082 829 3887
Dewetsdorp

Koos Van Rensburg
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Klerksdorp

Bendre Herholdt
082 376 9864
Parys

Neels Muller
082 467 5573
Hoopstad

Gerrit Naude
082 781 3827
Upington

Frikkie Nel
082 771 4033
Senekal

Jayef Steyn
082 826 1058
Delareyville

Jan-Hendrik Zietsman
084 513 8616
Reitz

Willie van den Berg
082 560 2398
Bethlehem

Reinier Müller
082 924 7835
Heilbron

Corjan Muller
082 451 7573
Vrede

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Pierre Marais
Regional Sales Manager
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Ellisras

Rinus Riekert
071 468 1088
Settlers

Naas Steenekamp
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Modimolle

Fanie Van Jaarsveld
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Vivo

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Regional Sales Manager
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Vryheid

Shaun Miles
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Kokstad

Neale White
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Bergville

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Vryheid

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MOLATEK

2023 ARC National Special Performance Test Class

Running for over four decades, this award category aims to recognise bulls with exceptional performance traits. Only bulls that were awarded Gold or Silver merit certificates after completing a standardised growth test (Phase C) of the National Beef Recording and Improvement Scheme during 2022, are eligible to compete in this award category. Residual Feed Intake or RFI, a trait that describes a bull's ability to utilise feed efficiently, is also considered. Only one bull per breed is identified to represent the entire breed and adjudication criteria includes both performance traits and functional efficiency. Every bull that participates on behalf of its breed is thus crowned as the overall national winner within the participating breed.

Table 6 lists the 14 bulls with their respective performance figures. Table 7 lists the owners of the bulls and their contact details.

Table 6: 2023 ARC National Special Performance Test Class sponsored by Plaas Media/Stockfarm

Breed	Bull Id	Birth date	Centre Tested	ADG		FCR		RFI	Adjusted Shoulder- / *Hip Height (mm)	Adjusted Body Length (mm)	Adjusted Scrotum Circum. (mm)
				(g)	Ind	Kg/kg	Ind				
Beefmaster	V 21 0022	15/07/2021	Cedara	1881	122	5.08	118	-	1210	1372	325
Boran	GB 21 0015	06/07/2021	Glen	1345	110	5.03	121	-	1145	1331	316
Braford	GM 21 0010	13/05/2021	Sernick	2134	121	5.49	103	-	*1252	1363	367
Brahman	S69 21 0053	02/10/2021	Bufland	1466	121	5.23	116	-2.762	*1267	1408	260
Brangus	V5 21 0098	27/10/2021	Glen	1776	106	5.44	112	-0.681	*1238	1381	342
Braunvieh	DEK 21 0053	12/10/2021	Vryburg	2151	118	4.49	124	-	1240	1496	357
Charolais	GE 21 0008	20/10/2021	Vryburg	2058	107	4.75	119	-	*1224	1455	370
Hereford	DVB 22 0041	21/01/2022	Elsenburg	2143	119	4.43	120	-	*1265	1444	335
Limousin	YF 21 0901	28/10/2021	Irene	1790	104	5.64	107	-1.423	*1222	1407	299
Nguni	EX 21 0220	05/05/2021	Elsenburg	1219	105	5.48	103	-	1178	1277	293
Romagnola	AB 21 0015	06/09/2021	Irene	1677	99	5.97	104	-	1203	1364	335
Santa Gertrudis	GB 21 0004	25/09/2021	Vryburg	2237	124	4.77	108	-1.098	*1269	1387	374
Simbra	HLM 20 065B	16/11/2020	Zimeyer Genetics	2290	150	6.06	106	8.719	*1390	-	410
Sussex	CC 21 0083	22/10/2021	Glen	1802	101	5.16	115	-	*1285	1417	350
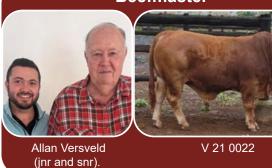
Table 7: The owners of the 2023 ARC National Special Performance Test Class

Breed	Bull Id	Owner	Town	E-mail	Cell no
Beefmaster	V 21 0022	Allan Versveld	Volksrust, Mpumalanga	allantwinhydro@gmail.com	082 458 9458
Boran	GB 21 0015	Gideon Botha	Luckhoff, Free State	kolskootborane@gmail.com	082 386 7724
Braford	GM 21 0010	Gert vd Merwe & Johan de Jager	Bethal, Mpumalanga	dejagerskraal@gmail.com	060 966 3693
Brahman	S69 21 0053	Carel Chalmers	Mokopane, Limpopo	pcjtrading@limpopo.za.net	082 896 9586
Brangus	V5 21 0098	Ferdie Naudé	Welkom, Free State	Brangus.v5@gmail.com	082 490 5678
Braunvieh	DEK 21 0053	Erik de Klerk	Boshof, West Free State	erik@airportn8.co.za	082 787 5859
Charolais	GE 21 0008	Ruan Erasmus	Stella, North West	Ruanerasmus09@gmail.com	072 386 0411
Hereford	DVB 22 0041	Danie van Breda	Hermon, Western Cape	danie@orcrest.co.za	082 850 6101
Limousin	YF 21 0901	Johan Fourie	Modimolle, Limpopo	johan.allphase@gmail.com	082 093 7650
Nguni	EX 21 0220	Hannes Eksteen	Piketberg, Western Cape	exteen@telkomsa.net	082 946 2157
Romagnola	AB 21 0015	Ferdi van Niekerk	Parys, Free State	ferdivn2@gmail.com	072 350 3362
Santa Gertrudis	GB 21 0004	Gert Brits	Delareyville, North West	gertbrits8@gmail.com	076 097 2548
Simbra	HLM 20 065B	Lourens Muller	Lindley, Free State	l.hlmuller@gmail.com	066 290 9880
Sussex	CC 21 0083	C.B. Cillié	Bloemfontein, Free State	ccillie@bfn.co.za	083 388 0830

2023 ARC National Special Performance Test Class

Beefmaster

Allan Versveld
(jnr and snr).

V 21 0022

Boran

Gideon Botha

GB 21 0015

Braford

Gert vd Merwe &
Johan de Jager

GM 21 0010

Brahman

Carel and Annamie
Chalmers

S69 21 0053

Brangus

Ferdie Naudé

V5 21 0098

Braunvieh

Erik de Klerk

DEK 21 0053

Charolais

Ruan Erasmus

GE 21 0008

Hereford

Danie van Breda

DVB 22 0041

Limousin

Johan Fourie

YF 21 0901

Nguni

Hannes Eksteen

EX 21 0220

Romagnola

Ferdi van Niekerk

AB 21 0015

Santa Gertrudis

Gert Brits

GB 21 0004

Simbra

Lourens Muller

HLM 20 065B

Sussex

Erina Cillié du Preez
& CB Cillié

CC 21 0083
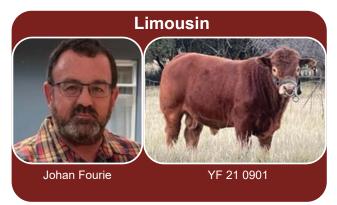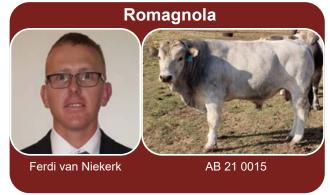
2023 ARC National Beef Cattle Improvement Herd of the Year Award

To be eligible as a nominee for this category, a farmer had to excel in a number of performance traits of his/her herd. It has become one of the most prestigious award categories. This category also adjudicates the level to which the nominee is involved with industry, his/her interaction with their fellow farmers and their efforts to build and add value to the beef production industry. Breeders and herds across breeds in Southern Africa can enter this award category.

The traits that are assessed relate to the performance of the herd itself and includes;
• The level of reproduction of the herd
• Overall participation and implementation of performance testing as a tool for improvement
• Cow efficiency in the herd (including post-weaning performance)
• The completeness of performance records
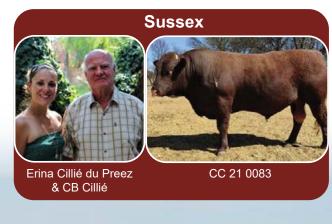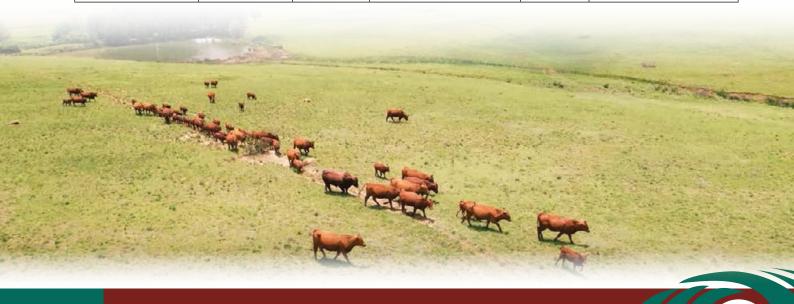• The size of the cowherd (must consist of at least 50 cows)
• The calving performance of the herd
• Genetic trends and progress in the herd and the application of modern scientific breeding techniques.
• The contributions and reputation of the participating herd owner is also considered, in particular regarding his/her leadership and guidance to other farmers and stakeholders.

The 2023 ARC National Beef Cattle Improvement Herd of the Year finalists are presented in Table 8.

Table 8: 2023 Finalists for the ARC National Beef Cattle Improvement Herd of the Year Award sponsored by Plaas Media/Stockfarm

Herd Name	Owner	Breed	Town	Cell no	Email
Bushmans Mountain Tuli Stud	Christo Rothmann	Tuli	Venterstad, Eastern Cape	082 572 9506	christo@sizanani.com
Exsteen Nguni's & Sangas	Hannes Eksteen	Nguni	Piketberg, Western Cape	082 946 2157	exteen@telkomsa.net
Santapine (Pinekloof Trust)	Howard Hobson	Santa Gertrudis	Ladybrand, East Free State	082 410 2401	pinnacle.santas@gmail.com
Santarust Santa Gertrudis	Johan & Heinrich Havemann	Santa Gertrudis	Delareyville, North West	076 097 2548	gertbrits8@gmail.com
Tierkloof Simmentalers	Corné de Jager	Simmentaler	Reitz, Free State	082 920 2998	cornedejager1977@icloud.com
Up George Bonsmaras	Derek Ralfe	Bonsmara	Ladysmith, KwaZulu-Natal	071 687 8995	dralfe@telkomsa.net

Bushmans Mountain Tuli Stud - Christo Rothmann

Exsteen Nguni's & Sangas - Hannes Eksteen

Santapine (Pinekloof Trust) - Howard Hobson

Santarust - Johan & Heinrich Havemann

Tierkloof Simmentalers - Corné de Jager

Up George Bonsmaras - Derek Ralfe

The winner of the ARC National Beef Cattle Improvement Herd of the Year 2023 was Up George Bonsmaras of Derek Ralfe

Derek Ralfe
Ladysmith, KwaZulu-Natal
Cell: 071 687 8995
Email: dralfe@telkomsa.net

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  - o National Dairy Cattle Improvement Scheme
  - o National Pig and Small Stock Improvement Schemes
  - o Kaonafatso ya Dikgomo for smallholder farmers
- Quantitative and Qualitative **Analytical services for feed and food analysis**
- **Animal Forensic Services**
- **National Genetic Evaluation** of Livestock (e.g. BLUP Analysis)
- **Germplasm Conservation** of farm animal genetic resources
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Contact details:

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Tel: +27 (0) 12 672 9111
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RELIGIOUS SLAUGHTER: Potential Barriers to Beef Market

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Phumeza Mashiyi
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This year the prices of a weaner calf was low at around R29.00 during the months of May when summer rainfall areas were weaning their calves. Two very educated farmers sold around that time and were shocked to see the prices as reflected in their paychecks. The impact of the extended period of closed exports markets amongst other challenges is always reflected in the prices offered to farmers. The good news that came with the 15th BRICS summit was the opening of our beef markets to China and Saudi Arabia. The difference between the two markets is mainly that Saudi Arabia market other than food safety also require meeting religious prescripts of Islam called halaal certification. The halaal meat market globally is huge and Islamic countries inspect our facilities for food safety as well as halaal certification. The Saudi market is valued at over $5 billion. South Africa offers a premium quality beef and should be easily accessing all these markets.

Our homework is to understand the requirements of these markets and understanding religious slaughters requirements is as critical as diseases control. The article aims to conscientize cattle farmers and the beef value chain actors about the basics of religious slaughters that have an impact on our access to markets.

Religious slaughter refers to slaughter of livestock according to specific religious principles for food production purposes. The Halal (Muslims) & Kosher (Jews) are the two major types that has major influence on beef consumption and export opportunities as the two religions grew in population in many countries.

HALAL Slaughtering method

Halal is an Arabic word that translates to permissible / lawful in Islam. Islamic laws are based on Holy Quran and on practises by Honourable Prophet Mohammed. Halal food was introduced in the South Africa in 1945 and formed Not for Profit Organization in 1986 called the Muslim Judicial Council Halaal Trust. The World Halal Council (WHC) is the certification organisation that oversees Halal agencies in the world. One of RSA agencies is called South African National Halaal Authority (SANHA), and both provide Halal regulatory services. Dhabihah / Zabihah is the prescribed method of slaughter for all meat sources excluding fish and other sea life per Islamic law. Slaughterhouse must be a licensed Halal slaughterhouse.

Basic requirement for HALAL slaughter

- Animals must be of Halal species e.g., Poultry/Ruminants like cattle, sheep, and goats.
- Animals must be alive without injuries and scars.
- Animals must be slaughtered by a sane Muslim man.
- A very sharp knife must be used.
- Animals should not witness the slaughter of another animal.
- Bismillah Allahu Akbar (In the name of Allah, Allah is the greatest) must be recited before and during slaughter.

- The front of the neck must be cut in one swift, deep incision that cuts oesophagus, trachea, carotid glands, and jugular veins without removing the head.
- The head of the animal should be facing Qibla (direction towards sacred Mosque in Mecca) however this step is not mandatory.
- Animal must be left to drain out blood completely.
- After skinning, the trained personnel will label the meat as Haram/Halal.

Figure 1 Halal labelled beef (source LA Farms)

KOSHER Slaughtering method

Kosher refers to any food or beverage that Jewish dietary laws allow person to eat. Jewish laws are based on the Torah and Jews believe in Yahweh (God). Kosher diets limits pork, blood consumption, shellfish and meat from certain animals and animal parts. Shechita is the religious procedure of slaughtering Kosher animals. It is the only method of producing kosher meat and poultry allowed by Jewish law. Kosher slaughters are predominant in Israel and cities with large population of Jewish population like New York, London, and Paris. South Africa's has 50 000 -80 000 Jews, dominant in Gauteng Province. Kosher Certified South Africa (KCSA) is responsible for certification of all Kosher products in South Africa.

Basic requirements for KOSHER slaughter

- Only a Shochet, specially trained religious slaughter man may slaughter an animal.
- The animal slaughtered must be a ruminant and / bird.
- The Shochet must have special training both religious according to Jewish law and the practical training needed to slaughter properly.
- He requires a certificate of training called Kabalah that includes a practical test.
- A sharp knife called Chalef must be used to cut the neck (jugular veins, carotid arteries and oesophagus and the windpipe)
- The Chalef must be extremely sharp, must be checked after each use and must be twice the size of the animal's neck.

Kosher animals must be thoroughly examined prior slaughter to check for illness or injuries. The animals must be restrained to ensure correct and painless slaughter. The blade must be inspected to ensure its well sharpened. Cutting of the esophagus, trachea, carotid arteries, jugular veins in one incision must occur, if done correctly the animal will die in seconds. The carcass must be hoisted in the air so that blood can completely drain out as blood consumption is not Kosher. Essential organs of the animal will be examined to check for defects e.g., lung disease. Following slaughter, a Jewish inspector (Bodeck) examines the carcass and rejects certain parts called Trefah. During the slaughtering no pausing, no pressuring, no digging, no slipping, and no tearing is allowed. If all these rules are followed, the meat will be labelled as Kosher.

Concluding remarks

Halal and Kosher are slaughters without pre-stunning of the animal, which many organisations and countries consider inhumane as it is causing pain, suffering, agitation, stress, and discomfort to the animal. Meat scientists are concerned more about the quality of meat produced by these methods as stress impact on meat quality. This calls for the balance to ensure humane treatment of animals, tender meat, and access to these markets. The ethical and economic significance of slaughtering animals for consumption by all people must not be underestimated. An appreciation of different religious slaughter practices will not only assist in reflecting upon the mainstream practice of meat production, but also offers the possibilities of exploring the benefits of the practices, from practice to science. The wish is to continue to produce high value beef meeting Halal and Kosher prescripts.

Support All Farmers

Hope Pugh Pjesky
Oklahoma, USA
hopepjesky@gmail.com

Since 2007, I have been blessed and honored to have the opportunity to travel to several other countries and visit agricultural operations. I just reached a long-term goal of visiting farms on every inhabited continent when I visited friends in South Africa and Botswana. I have also had the opportunity to host farmers from many other countries on my farm in northern Oklahoma, USA. During this time, one thing that has become obvious to me is farmers everywhere have a lot in common. Farmers all have similar challenges and opportunities.

I support all farmers, no matter what country they are from. I know farmers from every inhabited continent, and I have lost count of how many different countries, and I support them all.

I support all farmers, no matter what size their farm is. My farm is middle sized by American standards. I know some very large farmers from developed nations and some smallholder farmers from developing nations and I support them all.

I support all farmers, no matter what they produce. I produce beef cattle and wheat on my farm. I know farmers who produce virtually every kind of crop and food animal on earth and I support them all.

I support all farmers, no matter what production practices they use. I use conventional production practices on our farm. I know farmers who use organic, biodynamic, regenerative, natural, free range, grass fed, no-till, confinement, and high-tech production practices using all the latest technology including biotechnology, synthetic fertilizers, antibiotics, hormones and other animal health products and I support them all.

I want all farmers to be productive and have a good life. I am careful to not be selfish in the policies I advocate. Because I have a much larger worldview now, I only speak out on issues I believe would benefit all farmers. I encourage all farmers to look beyond their individual farm and think about the larger agriculture and food industry around the world.

When I was in Southeast Asia, I saw some farmers who had a much better quality of life than other farmers in the same countries. The difference was they had been given the tools to access world markets for their products. I support free trade because it benefits both small farmers in developing nations and larger farmers in developed countries.

I know farmers from many countries who cannot access technologies they want to use, which have been proven safe and effective, because their government has banned the use of them. I also know consumers who would like to be able to purchase products they do not have access to because their government will not allow the products to enter their country even though they are perfectly safe. These people should have the right to choose.

There are also many farmers in this world who would be much more productive if they had at least the same level of private property rights farmers have in the United States. These are the issues I advocate for and I try to be as ideologically pure on these issues as I can. I strive to never to be a hypocrite.

I have also learned there is no universally good or bad agricultural practice and no perfect size for a farm. A practice you believe to be the best in your area could be completely wrong in another part of the country or world. Something you think would be a horrible practice in your area can be absolutely correct in another place. All farmers can be successful once they find the products (crops and/or animals) and productions practices that are best suited for the unique area where they live and are able to access markets to get their products to consumers who want them.

With 9.8 billion people to feed by 2050 and a quickly increasing middle class around the world, farmers around the world should not be competing. Farmers should be supporting each other so all farmers can be productive and have good lives. If that happens consumers will also benefit. There will be markets for all of our products.

One of the biggest challenges farmers all face is activist groups attacking agriculture from every possible direction. How can farmers ever expect to be successful in combating those attacks if farmers are saying negative things about each other? In fact, some of those activist groups get their negative ideas about agriculture from other farmers.

I support all farmers. Wouldn't everyone be better off if all farmers felt that way?

Ms Hope Pugh Pjesky is a farmer / rancher from Oklahoma, USA. Her farm is a crop-livestock mixed farm, which grows hard red winter wheat and raises beef cattle. She was the 2008 Eisenhower Agriculture Fellow to Japan, Malaysia and Thailand. On her fellowship, she did a comparative analysis of the agricultural trade policies, food safety, and defence and traceability practices in Japan, Thailand, and Malaysia. Furthermore, Ms Pjesky has been involved with several agricultural organisations and has been a vocal advocate of agriculture throughout her career.

The importance of Beef cattle record keeping

Thokozani Ndonga

ARC-Animal Production, Irene

NdongaT@arc.agric.za

One of the greatest challenges for livestock producers is keeping all of their records up to date. There are different types of records that can be kept for a beef operation and there is a variety of options or methods for tracking that information (manual/ electronic) e.g INTERGIS.

Care should be taken to select a record keeping option that is both easy to use as well as easily accessible and that will provide the necessary information for the operation to remain sustainable and profitable.

To have an efficient management system in place means to be able to manage your future better which is achieved by means of management of information. Nevertheless, to make well-informed decisions you need to have an applicable record keeping system in place.

Why must farmers keep records?

Record keeping is a necessary element of good livestock business management. With no written records, farmers have to depend on their memory while making decisions regarding their farm practices. Nevertheless, memories can become unreliable after a few days, months or years. Thus, recording of the performances of the animals can be done easily if animals have some identifications / numberings. Thus, both animal recording and identification are always required. If we know what is happening on the beef cattle farm, we need to maintain some useful farm records. Farm records are like the progress report cards students get at school. If farmers have farm records, they can tell how well they are managing their farm in comparison to other farmers. Farmers can also see the strengths and weaknesses in their farm operations. It is also important to have accurate facts and figures when borrowing money, seeking government funding and submitting tax returns.

Factors one need to recognize in aid of creating records in order to succeed in beef cattle farming

To succeed in beef cattle farming especially, the following factors need to be recognised and understood in aid of creating a management information system (records):

Climate and its direct effect on the animal

Restricted breeding seasons are chosen based on climatic conditions of areas. It also determines feed supply of that region, which need to be matched with different production stages of your herd. Cows should calf when there is enough grazing of good quality, for their own maintenance and milk production.

Health management

A good health maintenance program should be in place to ensure survival of livestock. Prevention programs keep herds healthy and productive. Animals with good disease resistance reduce the cost of production significantly, as less money is spent on medication.

Nutrition

Fluctuating availability of feeds and specific nutrients demand better understanding of nutrition and supplementary feeding by farmers. Beef cattle convert grass into proteins (meat) of high quality. It is important for them to get balanced ration to convert maximally.

Reproduction and Breeding

Fertility is the most important trait in the profitability of beef cattle farming. The number of calves born in a herd directly affect the income and the expenses of the beef enterprise. Animals should reproduce better genetic materials that will thrive on that farm. Progenies should grow faster on the same farm under the same management

Economics

Lastly, production economics and markets should be the underlying driving factor in the management of beef cattle farming. The market should dictate the management style of the herd.

To monitor all these aspects successfully farmers need to keep records. Records provide the ability to control the production process. They enhance efficiency and sustainability of resource use. Records help identify opportunities to improve management in beef cattle farming. Records provide a measure of the sustainability of beef production as a business in your area. However, the record system must be cost effective, easy and simple, and the record keeper/farmer must ask himself: What do I need to know about my farm? Also, it must be stressed that the record system must be used. No system will work if it is not being used.

Type of records that should be kept on a beef cattle farm

Types of records to be maintained in beef farming include these follwing:

Calving register: This register maintains the records of calving that take place in the farm. It maintains dam and sire number of the calf, calf ID number, sex and its date of birth and any other remarks like type of calving (normal/abnormal).

Calf register: maintains the records of calf at the farm, calf ID number, sex of the calf, sire number, dam number, birth weight etc.

Individual Animal Identification: It is a given fact that seedstock producers already do this for genetic evaluation, but as mentioned, individual animal ID is becoming an imperative practice in beef industry in the country wide for biosecurity reasons. From a biosecurity standpoint, this is important even if there is no national identification database because individual animal identification gives the ability to trace an animal. If by chance there is an animal with Foot and Mouth Disease, it can easily be traced back to the owner.

Growth record of young stock: This record maintains the weight of the young stocks at different intervals or production stages.

Livestock register: This register records the number of the animals at the farm along with their identification number, date of birth, sire number, dam number, calf and its gender, date of calving, date of purchase, date of sale/auction/death.

Herd health register: This register maintains the record of the diseased animals along with history, symptoms, diagnosed disease, treatment given and name of the veterinarian who treated.

Cattle breeding register: This register maintains the details of breeding practices in the farm such as cow number, date of calving, date of heat and services along with the bull number, date of successful service, pregnancy diagnosis records, expected date of calving, actual date of calving, calf number etc.

Animal History sheet: This maintains animal number, breed, date of birth, sire and dam number, number of lactation, date of disposal/death, cause of disposal etc.

Benefits of record keeping in the farm

- Records provides basis for evaluation of animals from past records hence help in selection and culling of animals

- Helps in preparing pedigree and history record of animals
- Helps in assessing the past records and designing better breeding plans to avoid inbreeding, selecting superior parents and helps in better replacement and culling practices
- Helps in progeny testing of bulls
- Helps in analysing feeding cost and benefits from animal product outputs. Hence helps to formulate economic feeding strategies for optimal productions

The importance of genetic improvement in the farm

Genetic improvement ensure the efficient and economically production of quality meat as well as other farm products for consumers/ market. Agricultural research council assist beef cattle farmers to improve their breeding stock and encourages all spheres in beef cattle farming to purchase stud-breeding bulls with the aim of improving beef production of their beef cattle herd. The auction catalogue is a challenge to most of commercial and emerging farmers to interpret. The ARC can assist by recommending the bulls on the auction catalogue that has potential in meeting the individual farmer's breeding goals.

Summary

There are many different methods for keeping records in a livestock operation. The key is to develop a method that is both easy to use as well as easily accessible. In beef production, it is very easy to keep records, as a farmer do not have to do it every day. The ARC with its livestock improvement scheme helps emerging beef cattle farmers start record keeping and information interpretation.

10 Principles to improve your beef cattle farming

Dr Wynand Kruger

Kruger Afrikaners

krugerwynand1@gmail.com

The beef market is a growing market and meat is the main nutritional source for protein. There is much room for improvement from stud breeder, commercial farmer and emerging farmers. No matter the breed, quantity of cattle or what production system you use, in the end most of your cattle are sold as meat. It is therefore particularly important to farm as efficiently as possible.

As a young stud breeder, I have found that there are a few things that are cardinal to add value to your farming:

1. Weigh and measure
There are many aspects that can be weighed and measured, but by only weighing your weaning calves at 205 days / 7 months you can deduce which cows produce and wean good calves.

2. Good eye for carcass qualities
Train your eye by regularly attending courses to learn what to look for. It is important to know what qualities to look for in a carcass for optimum beef production.

3. Replace / cull poor producing cows
A cow that gives no calves year after year is just a passenger and must be culled. You are running a meat factory and not a hotel with free accommodation. Always have a notebook by hand where you can jot down when a bull walks with your cows, and when they calve.

4. You need to get the best possible genetics that fits your wallet
Buying a 1 million Rand bull is not something everyone can do, but do buy the best genetics that you can afford. Also keep in mind that it is better to buy from a registered breeder.

5. Good pasture management
Rotational grazing is essential to make long-term use of your land. You will damage the land when grazing your cattle in pastures without rest. The key is to practice sustainable farming.

6. The right dosing schedule is a must

7. Lick supplement
Most pasture types in South Africa lack microelements such as zinc, selenium, urea etc. and can be helped with lick supplements. There are different licks for different seasons, use them accordingly.

8. Breeding and calving season
It has been proven that calves born a month after the first rain do better with growth. This puts less stress on the cows and also helps them to get pregnant again. Having a set calving season also helps with data collection.

9. Know your animals
Spend as much time as possible between your animals, familiarise yourself with them.

10. Farm with a breed that you love and understand
We live in a time where information is easily available, but as one's ego is, one only wants to follow one's own ideas. Do not be shy to talk to other farmers. Approach farmers in your area and hear what diseases are an issue or ask about challenges they face.

Plan a dosing program in cooperation with your veterinarian. Work with institutions that promote progress, such as the ARC. Invest in yourself, attend information days.

There are many experts who can help to improve your cattle farming. Every little bit of help takes you closer to success.

Swallow your pride, ask questions, and strive for progress.

Delegates that visited the Irene Bull testing centre at ARC-AP, Irene

Zelda King
ARC-Animal Production, Irene

The delegation from the Kingdom of Eswatini (Ministry of Agriculture)

The delegation from the Kingdom of Eswatini stressed the importance of exploring and establishing feedlotting enterprises aimed at growing and expanding their meat value chains. Breeding and genetics also formed one of the pillars of their focus areas of livestock production aimed at enhancing the genetic improvement of their national herd. The delegation highlighted that increasing their offtake was also a priority and the mandate of ARC's Animal Improvement Schemes were emphasized in terms of their role when addressing genetic improvement of our herds, as well as the necessity for performance data collection that is vital for enhancing profitability and sustainability of production.

Delegate from United States

Ms Hope Pugh Pjesky is a farmer / rancher from Oklahoma, USA. Her farm is a crop-livestock mixed farm, which grows hard red winter wheat and raises beef cattle. She was the 2008 Eisenhower Agriculture Fellow to Japan, Malaysia and Thailand. As part of her fellowship, she did a comparative analysis of the agricultural trade policies, food safety, and defence and traceability practices in Japan, Thailand, and Malaysia. Furthermore, Ms Pjesky has been involved with several agricultural organisations and has been a vocal advocate of agriculture throughout her career. More information about Ms Pjesky can be found at https://hopepjesky.wordpress.com / and asianagriculture.blogspot.com

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- bereik met elke uitgawe sowat 10 000 bees- en skaapboere landswyd, wat elk die tydskrif direk via e-pos ontvang.
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An insight into the feeding behavior of feedlot cattle

Dr Bekezela Dube

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In commercial beef production, growth performance is a very important aspect, as it is directly related to meat yield and the cost of producing this meat. Animals must reach slaughter weight while consuming the least amount of feed possible. This is because feed is the most expensive component of any beef production system. To achieve this, beef animals are kept in feedlots for a certain period, where they are fed specially formulated feed that will optimize their growth performance. Some factors should be taken into consideration if optimization of feedlot performance by beef animals is to be a reality. Although feed availability in terms of quantity and quality are crucial, growth performance of an animal will also depend on how an animal eats, when it eats and how much it eats. These parameters are partly influenced by the sex of the animal and temperature and humidity variations during the day. Information on the feeding behaviour of feedlot animals may contribute in feedlot management to optimize growth performance of the animals.

The GrowSafe system makes it possible to obtain vital information on the feeding behavior of feedlot animals as it measures feed consumption of the animals in real time. Thus, several valuable measurements can be obtained that are not possible with the traditional feedlot system. A study on the Nguni-Angus crosses was conducted at the Agricultural Research Council-Animal Production campus to determine the feeding behaviour of these animals. This study used 50 animals, where 32 females and 18 males, were placed in the GrowSafe system for 90 days. The information collected was on eating frequency, time of eating, eating rate, time spent eating per visit to the feed trough and total daily intake.

There were differences in the frequency at which the different sexes visited the feeding trough, with females making 63 visits per day and males making 49 visits per day. The females ate at a faster rate than the males, and the respective rates were 22.89 and 19.98 g/sec. However, during each visit to the trough, the females spent less time eating

(62 sec) compared to the males, which spent 105 sec. Despite the more visits made by the females than males to the feed trough, the males consumed more feed (0.24 kg) per visit than the females (0.16 kg). In addition, the total time spent eating per day of 61.77 min by the females was less than the 82.64 min spent by males. Also, the total feed consumed per day was less in females (9.78 kg) than in males (10.78 kg). When meal size was expressed per weight of the animal, the males also ate more compared to the females. The males grew faster at 1.59 g/day, whereas the females grew at 1.22 g/day. Although, the females grew slower, they were more efficient in utilizing the feed consumed than their male counterparts. The differences observed in the feeding behaviour of males and females in this study may be due to differences in their physiological characteristics and nutritional requirements.

The animals generally consumed throughout the day and night, with the least visits to the feed trough and lowest eating rate occurring between 4am and 6am. Both males and females had similar eating trends throughout. Eating frequency peaked during the daylight hours between 8am and 6pm. Surprisingly, it is between 8am and 6pm that these animals ate less feed and spent less time eating compared to the other times. These results indicate that although the animals visited the feeding trough many times and ate at a high rate during the daylight hours, they could not consume a lot of feed and only ate for a short time. This can be due to heat stress as eating generates heat, which increases body temperature and contribute to heat stress. On the other hand, at night when it was cooler, the animals were able to make few visits to the feed trough and still managed to eat more feed and spend more time eating. It was also noted that heavier animals prefer to eat during the cooler hours from 8pm to 6am. These feeding behaviours may therefore be used to design feeding programs for beef cattle to achieve optimum performance of feedlot cattle.

Auction catalogue as a guideline for selection

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Afric Afrikaners
Marletras2402@gmail.com

Introduction

The importance of breeding objectives for a commercial herd was discussed during the Afrikaner Bushveld Study Group's "School of Beef", hosted at the recent Thabazimbi Show. Breeding objectives should be tailor-made for each herd, depending on the environment, breed type, market requirements and production system. Selecting specific breeding material to better your herd can be a challenging process. The lack of specific breeding goals for your herd could result in the aimless selection of a breeding bull and this can place the genetic potential of your cowherd at a disadvantage. The interpretation of the auction catalogue, especially on traits of economic importance, such as fertility and growth, are essential tools for the commercial beef producer. Fertility and growth will enhance the optimum number and weight of weaner calves, in order to improve profitability.

Importance of the breeding bull

"Best Linear Unbiased Prediction" (BLUP) information on the catalogue, is based on performance data and is an unbiased, objective method to identify superior genetics. The physical appearance of a breeding bull is however just as important to ensure functional efficiency.

Although functional efficiency is a subjective inspection by breed inspectors, it is important to note that the process is based on minimum breed standards, which would also ensure functionality. Traits (good or bad) are heritable and the purpose of selection is to ensure superior genetics and improvement. The heritability of growth traits are fairly high and an inferior bull may influence the performance of a herd negatively. The wrong bull for your herd could end up breeding calves with lower weaning weights.
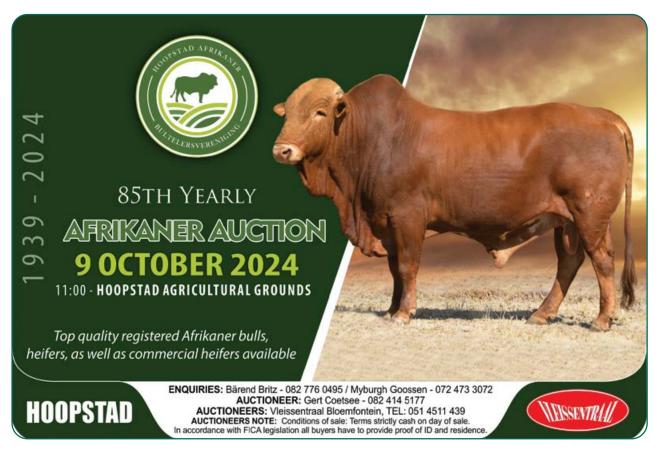
The selection of the ideal breeding bull is probably one of the most popular topics for discussion during auctions, as its importance and genetic influence, can never be underestimated. Although bulls are only 3% of a herd's composition, they genetically contribute 50% towards each calf. If his heifers are selected for replacement, the genetic influence of a bull becomes even more prominent in a herd, for years to come. Always keep in mind that the bull also carries genes influencing the milk production potential of his daughters.

Auction catalogue as a selection tool

The interpretation of the auction catalogue may be challenging for buyers and for this specific reason, it is often ignored. The limited time between lots during the auction, also do not allow enough time to really interpret all the information at hand. Best practice would be to get a copy of the auction catalogue, at least a few days prior to the auction, to allow proper selection of potential breeding stock.

Bulls on offer have already been inspected and passed the test for functional efficiency, which is a method of quality control. But by just visually selecting a bull and ignoring the performance information available, is similar to buying a vehicle without looking at its specifications, such as engine size, performance etc. The information on the catalogue is readily available; to enable the buyer to make a more informed decision on traits that cannot be seen by the naked eye. Questions such as which bull's progeny will grow faster, have more milk or limit calving difficulty when mated with heifers, can be determined by the interpretation of the performance information on the auction catalogue.

Fertility

The breeding value for scrotum circumference, which is an indication of semen quantity, the inter-calving-period of the dam and the number of calves produced, could assist the buyer to evaluate the fertility status of the bull. The semen quality test, done prior to the auction, can be requested from the owner.

Frame type

Breeding bulls are usually purchased at a relatively young age of about 3 years. Body length and height varies within a herd and even more so between different herds and environments. The breeding values for these two traits make it possible for the buyer to determine the frame type of a bull and whether it will fit into his new production environment. These traits are important to consider, in order to limit adaptation challenges, especially when buying breeding stock from a different environment.

Phenotype vs genotype indexes

It is important not to confuse the phenotypic and genotypic traits, which appear on the catalogue. The phenotypic indexes are indications of the performance of an animal, within his contemporary weighing group. Genotypic indexes are the genetic ranking of an animal, within the breed. The principle of an index value of a 100 as average is applicable to the breeding value index. The guideline of the index, to be within the range of 90 to 110, is also applicable to avoid extremes on specific traits.

Table 1 Selection guidelines, based on breeding objectives

Trait	Breeding value/measurement	Description	Selection guideline
Reproduction	Scrotum (mm)	Scrotum circumference (Phase C/D)	On or above breed average
	Inter Calving Period (days) of dam	Number of days between 2 calves	Minimum breed standards
Growth	Birth Direct (kg)	Calf's own growth potential	On breed average
	Wean Direct (kg)	Calf's own growth potential	Above breed average
	Wean Maternal (kg)	Milk production of daughters	On breed average
	Year weight (kg)	Calf's own growth potential	Above breed average
	18 Month Weight (kg)	Calf's own growth potential	Avoid extremes
Frame type	Height (mm)	Height measured in phase C\D	Avoid extremes
	Length (mm)	Length measured in phase C\D	On or above breed average

When a bull is selected for a specific breeding goal, the selection criteria could be as follows:
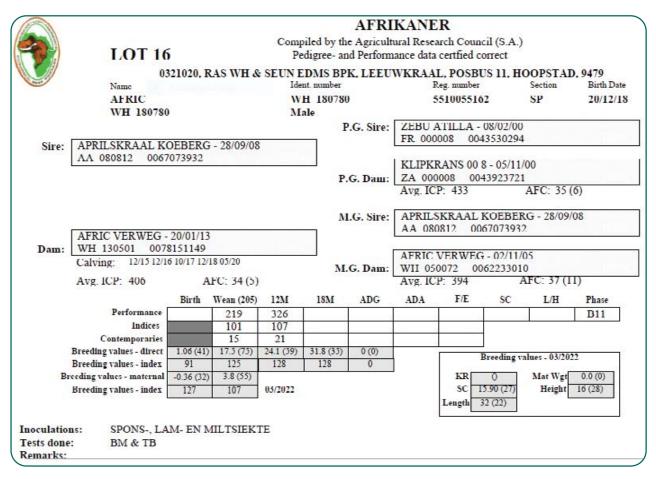
1. To be mated with heifers without the risk of calving problems: breeding values for birth direct on- or below breed average.
2. Breeding replacement heifers: above breed average for wean direct and on breed average for wean maternal. This is more of a balanced approach.
3. Corrective mating: a specific limitation, for example very low weaning weights, can be corrected by using a bull with extreme breeding values for wean direct and maternal.
4. Maximum growth: above breed average for growth at wean, as well as for post wean traits.
5. Terminal breeding: all progeny gets slaughtered. The female offspring is not suitable as replacement heifers, because of the extreme breeding values on growth. Mate these bulls with mature cows to avoid calving problems.

6. To improve reproduction or fertility of your herd: always keep the reproduction statistics of the bull's dam in mind. In addition to this, the scrotal circumference breeding value of the bull has to be on, or above breed average.

Beef breeders are primarily meat producers and calf growth in the post wean phase will always be important, particularly to feedlots. For this reason, it is important for the breeding bull to be at least on breed average for growth traits such as wean-, year- and 18-month weights. Be cautious of extreme breeding values for post wean weights. Weight at 18 months of age is an indication of mature weight and if selection on growth is your only priority, the result will be bigger cows, with higher maintenance requirements. A poor or extensive environment cannot support these bigger frame animals. This will, in turn, negatively impact fertility.

Photo 1 WH 16 687, Afric Majoor from the well-known Afric Afrikaner stud herd. An example of a functional efficient bull, according to breed standards. Pedigree information on the catalogue indicates parents as well as grandparents to ensure the buyer makes an informed decision on a desired bloodline.

Above: An example of an auction catalogue lot

Information in the catalogue

Apart from the lot number information and contact details of the current owner, sex, name and the identification number of the animal, the section and birthdate appears on the top of the page. The pedigree information can also be valuable for buyers, who want a son of a well-known sire or dam.

Reproduction

The dam's reproduction information, which includes her calving records, age at first calving and the average inter calving period.

Production

The phenotypic weaning weight is adjusted for age, to a 205-day weight. This is done in order to ensure comparison between calves of different age groups, in the same contemporary group. The breeding value with an accuracy percentage value in brackets, which is an indication of the reliability of the breeding value.

(A higher accuracy indicates more information was available to calculate the breeding value.)

Summary

Try to get hold of the auction catalogue before the auction and make a shortlist of bulls that fit into your breeding goals. On the day of the auction, you can still select your favorite bull out of this short list.

Be aware of extreme breeding values. An aesthetically pleasing bull may not have the desired breeding values, but a bull with desired breeding values may also be aesthetically pleasing!

Experienced ARC personnel in the beef industry, are available in all provinces and can be contacted for assistance with any of the above mentioned, as well as for other field related services such as real-time ultrasonic scanning, bull growth testing and selection of breeding material.

LANDBOU radio

"SO REG IN JOU KRAAL"

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An award-winning category
The story of
Ba kwa-Hlabedi farm

Selina Hlabedi
& Thokozani Ndonga
Ba kwa-Hlabedi farm, Vanderbijlpark
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Background

Ba Kwa-Hlabedi in Farming (Pty) Ltd business was registered in 2014 as a private company. Today the farming operation is called Bakwa-Hlabedi Farming and I'm sharing the management of the land with my son, Thabang.

Since its establishment in 2014, the business has been involved in the production of Livestock (cattle and sheep) and crops (maize, soya and vegetables), but primarily focusing on cattle and maize production. The farming activities are conducted on a 489.4067ha portion of land acquired from the Department of Rural Development and Land Reform (DALRRD) in 2014, so thus it is a Land Reform 30 years leased farm. The farm started with the herd size of 15 Brahman and 15 Simbra cows herd running with 1 Brahman, 1 Simmentaler and 1 Simbra bulls respectively.

However, the animals weren't tested by the department before they were handed over. When I have the cattle tested, it came to light that the entire herd was infected with brucellosis. "We held numerous meetings with veterinarians, but finally it was written on the walls. We couldn't take the animals to auction. They all had to be slaughtered." There was another major trauma to face stock theft. The family suffered of two major stock theft incidents: first 200 pregnant ewes were stolen and then 78 pregnant ewes. "After this we decided to not keep small stock on the farm anymore. We're simply too close to the main road."

Total size of the farm

The business/farm operations take place on a 498,58ha farm located in Vanderbijlpark in the Emfuleni Local Municipality, which forms part of the Sedibeng District Municipality of the Gauteng province. Furthermore, the farm is situated along the N1 highway connecting Johannesburg, Free State and North West. Furthermore, the farm is located approximately 61.7km away from Potchefstroom, 107Km away from Johannesburg, and 21.9km away from Vereeniging, which enables access to a concentration of key market channels. 260ha is arable land (in a process of expanding), on which 200ha is for maize, pasture and soya, 10ha for vegetables but only 3ha planted due to the previous heavy rain season, 280ha for grazing of cattle and 4ha for residential and storage.

Breed type and the production system

Then, Ba Kwa-Hlabedi started breeding with Bonsmara, a breed that was selected for based on its adaptability to the tough conditions, affordability of the breeding bulls, docile calves and desired weaning weight of the calves. A feedlot finishing system was also introduced recently with the aim of supplying the abattoirs in order to enhance the profitability of this enterprise. The farm also produces its own-planted pastures in the form of Eragrostis turf for making bales and Kikuyu, clover and rye grass for grazing. Additionally, it also produces maize and soya beans. All operations necessitate a constant water supply that is provided for in the form of boreholes and dams for

water storage. The area receives around 850mm of rainfall per year and the farm also harvest rainwater, which is critical during certain periods of the rainy season.

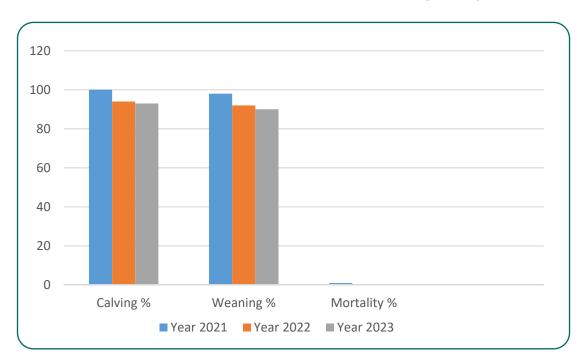## Cattle herd size, composition and performance for three years (2021, 2022 & 2023)

Figure 1 Cow reproduction performance of Ba kwa-Hlabedi farm

Taking hands with the ARC's Kaonafatso ya Dikgomo livestock recording scheme

Ba kwa-Hlabedi farm became the member of the Kaonafatso ya Dikgomo livestock recording scheme managed by the ARC in 2019 and started to record and submit birth notifications to the National Database, the integrated registration and genetic information system (INTERGIS). We also both of us attend the ARC's livestock training programme courses in beef cattle management, animal nutrition and small stock management. The course was of great value to our quest to understand nutritional demands by cattle at different production stages. Since we started recording and submitting performance data, our beef cattle herd have been captured on the INTERGIS. The wean test reports from the INTERGIS are important selection tools in our quest to select more productively and efficient breeding animals. The particular report also displays the weaning index of each calf to determine the calves' performance within its contemporary group, which is valuable in this regard. Ba kwa-Hlabedi farms apply a balanced approach when it comes to selection of animals for economically important traits, considering both performance testing data as well as the functional efficiency of our animals.

Award category winner

Ba kwa-Hlabedi farm was named ARC National emerging beef farmer of the year for 2022 by the Agricultural Research Council (ARC). This award category is another flagship award of the ARC that acknowledges emerging beef farmers that are members of the Kaonafatso ya Dikgomo (KyD) Scheme of the ARC and that have excelled on how they manage and improve their herds and enterprises making use of record keeping, amongst others. Finalists, aiming to become fully-fledged commercial farmer, from each of our country's

provinces are identified and they ultimately contest for the title of National Winner. The purpose of this award category is to acknowledge members of the Kaonafatso ya Dikgomo Scheme who perform well on specific criteria related to recording, management and performance of their herds.

Award category winner of Female Entrepreneur Awards (FEA)
- 2018 - Top Entrepreneur in the sector: Commercial: 1st Runner up
- 2019 - Top Entrepreneur in the sector: Commercial: 2nd Runner up
- 2023 - Top Entrepreneur in the sector: Commercial: 2nd Runner up

Leadership Role
I became a Coordinator for the City of Johannesburg - Women in Agriculture and Rural Development (WARD) from 2007, In 2010 Chairperson of Johannesburg region, 2012 Chairperson of Gauteng Province, 2016 Secretary General and 2023 The President of Women in Agriculture and Rural Development.

The future plans for the farm
Our main goal is to ensure long-term sustainability and to move away from what may be perceived as functioning in "survival mode". To achieve this objective however, a few key milestones need to be achieved over the next three years, which include:

Meeting the required threshold return on the capital invested.
Investing in the adoption of ecological sensitive practices in order to reduce the dependence on a progressively increasing use of fertiliser on pastures that sustain both cattle and sheep.

Investing adequately in the dam infrastructure to ensure adequacy of water availability and supply to support the animal herds and to supplement the limited rains in early spring and late summer.
Building effective relationships with the various relevant stakeholders in the field of agriculture to ensure a prosperous future.

WHY *Boran?*

- Boran are non-selective grazers, with a rumen and metabolism that can handle poor roughage.

- Adaptable, retain their condition and are productive on all veld types.

- Possesses an incredibly strong herd instinct that makes it easy to manage herds in forested environments.

- Can be successfully fed from the veld.

- Offers excellent carcass quality with a high slaughter percentage and exceptional meat tenderness.

- Has a good temperament and longevity.

- Is easily manageable and moves comfortably over long distances and rocky terrain.

- Offers exceptional crossbreeding capabilities and excellent hybrid vigor.

- Ideal for producing high quality meat at a low input cost.

BORAN

Contact details

Boran office: 051 410 0951/61

Breed advisor: 082 821 1527

boran@boran.org.za

www.boran.org.za

Understanding Phase C & D reports

Jurgen Hendriks & Zelda King

ARC-Animal Production, Irene
Hendriksj@arc.agric.za

Various measurements (weights, body measurements) are taken during the period when animals are tested either on farm or at a test station for post weaning tests. This information is then processed and various reports are generated which contain information on which to base selection decisions.

During a Phase C tests the breeder will receive an Interim report every 2nd week.

After a test has ended, the breeder will receive 3-reports with the results of the specific bulls in test:

Growth Test Report / Body Measurements Report / RTU Report

Interim report

Interim Report
National Beef Recording and Improvement Scheme

Deelnemers No/Participant No : 0545619MIX
Toets No/Test No : C12
Begin : 20-SEP-22

Datum Verwerk/Date Processed : 18-JUL-23
Aanvang/Adapt : 23-AUG-22
Laaste/Latest : 13-DEC-22

Diere/Animals : 3
Dae/Days : 84

Dier Besonderhede/Animal Details				Gewig Besonderhede/Weight Details						Voeding Besonderhede/Feed Details			
ID No Rek/Comp No	Ges/Sex	Vaar/Sire ID No Rek/Comp No	Moer/Dam ID No Rek/Comp No	Geboorte/Birth	Begin	Einde/End	Toename/Gain	GDT/ADG IND	ADA/GDO IND	Totaal Voer/Total Feed	FCR/VOV IND	PRD. RFI	Stal/Stable Groep/Group
ZZZ210001 059165049	M	RASMZZZ 170001 059021832	RASFZZZ 110011 050390006	22/12/2021	225	368	143	1605 119	930 88	773	5.73 121	-.84	1007 N/A
ZZZ210002 059166490	M	RASMZZZ 170012 059021360	RASFZZZ 180004 059139605	22/12/2021	220	355	135	1464 108	896 85	751	6.11 114	-.614	1008 N/A
ZZZ210003 059160649	M	RASMBBB 130033 059095099	RASFZZZ 170002 059090878	28/12/2021	231	348	117	1240 92	886 84	763	7.32 95	0.029	1009 N/A
Opsomming van Groep/Summary of Group Aantal Diere/Number of Animals : 3							395 131.67	1436	904	2287 762	6.39	-.48	

Tien Jaar Gem/Ten Year Rolling Avg : Ras/Breed : Aantal Diere/No of Animals :	Ges/Sex M	GDO/ADA 1054 78	GDT/ADG 1353 78	KV/KR 15.59 78	VOV/FCR 6.94 78

*) Indekse GDO, GDT, VOV & KV uitgewerk op tien jaar gemiddelde per ras en toets sentrum. (Slegs van toepassing indien dier voldoen aan Fase C kriteria)
*) Indices ADA, ADG, FCR, & KR calculated on ten year rolling average per breed and test centre. (Only applicable if animal complies with Phase C criteria)
**) 'N Negatiewe RFI-waarde is meer wenslik as 'n positiewe RFI-waarde aangesien dit aandui dat die dier meer doeltreffend is as die gemiddelde
**) A negative RFI value is more desirable than a positive RFI value as it indicates that the animal was more efficient than average

Trait definitions:

ID nr:	Ear tag of the animal
Sire ID no / Dam ID nr:	Sire and Dam of this specific bul
Birth:	Date that calf was born
Begin:	Weight when test started
End:	Weight of the animal for that week
Gain:	Weight gained from the start of test to present
ADG: during	Average daily gain – The average weight an animal gained each day the test period calculated with a regression line
ADA:	Average daily gain per day of age - average weight gain per day from day of birth
Total feed:	Feed intake to present

FCR: Feed Conversion Ratio- the amount of feed needed by an animal to gain 1kg of body weight. The lower   the FCR value the more efficient an animal will be

RFI: Residual feed intake – the difference between an animal's actual feed in take and expected feed intake   based on its body size and growth rate. The lower the value the better

Ten Year Rolling Average: The average of certain traits for all animals of a specific breed tested at the specific test station. For Phase C12 and C22 tests an animals performance is compared to the centre averages, for phase C32 and phase D tests comparisons are made within test group when calculating indices.

Growth Test Report

Generated once the trial has been completed.

Wean / Adap: Wean date and date adaptation started
Begin /Final: Dates when test started and ended

Age
Wean/Adap; Begin/Final: Age the calf was when it was weaned, adaptation started and age when test started and ended

Weight
Birth/Wean: Weight of calf at birth and wean
Begin/Final: Weight of calf when test started and ended

Test Results
Wean: Daily gain from birth to weaning
ADA: Daily gain from birth to end of test
ADG: Average daily gain from start of test to end of test
DFI: Average daily feed intake during test
FCR: Feed conversion ratio during the test period
KR: Kleiber ratio is a measure of efficiency where growth rate is divided by metabolic weight and indicates how efficiently an animal grows
RFI: Residual feed intake value calculated for the test duration

Index

Wean:	Index value where an animal is compared to its contemporaries on farm
ADA:	Index compared to the test group/test centre rolling average
ADG:	Index compared to the test group/test centre rolling average
FCR:	Index compared to the test group/test centre rolling average
KR:	Index compared to the test group/test centre rolling average
SC/SC Adj:	SC is the actual scrotum circumference measurement; SC Adj. is the corrected SC for body weight
MA:	Merit of calf at the end of test:
Gold:	100 plus index for ADG and 107 plus for FCR
Silver:	95 plus for ADG and 100 plus for FCR
Bronze:	90 plus for both ADG and FCR

Remarks

Pass, Rejected or Stand over – depending the outcome of an inspection by allocated inspector for the breed.

Body Measurements

Body Measurements
National Beef Recording and Improvement Scheme

ARC • LNR

IRENE FASE C1 SENTRUM Participant No : 0545619MIX   Date Processed :04/01/2023
PRIVAAT SAK X2   Beef Test No :   C12
IRENE
0062

Animal Details				Recording Details						Test Results			
ID No Comp No	Sex	Sire ID No Comp No	Dam ID No Comp No	Birth Date Final Date	Age	Birth Wght Final Wght	Shld H Hip H	Body Length	Scr Cir Skin Thk	SH/HH Adj	Body L Adj	Scr Cir Adj	L/H Ratio
ZZZ210001	M	ZZZ 170001	ZZZ 110011	22/12/2021	356	37		1310	290		1317	292	
059165049		059021832	050390006	13/12/2022		368	1250		16	1255			1.05
ZZZ210002	M	ZZZ 170012	ZZZ 180004	22/12/2021	356	36		1300	240		1307	245	
059164490		059021360	059139605	13/12/2022		355	1240		15	1245			1.05
ZZZ210003	M	BBB 130033	ZZZ 170002	28/12/2021	350	38		1290	250		1301	257	
059160649		059095099	059090878	13/12/2022		348	1210		18	1219			1.07
Summary of Group Number of Animals :	3				354	37	0	1300	260	0	1308	265	0.00
						357	1233		16	1240			1.06

Recording Details

These measurements are taken at the end of test

Age: Age the calf was at end of test

Birth-/Final Wght:	Weight at birth / Weight at end of test
Shld H / Hip H:	Shoulder- or Hip Height depending on breed
Body Length:	Body length measured from in front of the shoulder to behind the hindquarters
Scr Cir / Skin Thk:	Scrotum circumference will be taken and must oblige with the breed standard, Skin thickness

Test Results

L/H Ratio:	Ratio of the animals length divided by height

RTU Scanning Report

RTU Scanning Report
National Beef Recording and Improvement Scheme

IRENE FASE C1 SENTRUM
PRIVAAT SAK X2
IRENE
0062

Participant Code : 0545619MIX
Beef Test Code : C12

Phase :
Test Type :

Phase C
C12

Date Processed : 04/01/2023

ID No Comp No	Sex	Sire ID No Comp No	Dam ID No Comp No	Birth Date RTU Date	Age	Final Wght	Rump Fat	Rib Fat	Eye Muscle	Marbling	Marbling Index	Carcass %	Redmeat Index	Muscle %	Muscle Index	Kg Meat (Estimated)	Fat	Eye Muscle	Marbling
ZZZ210001 059165049	M	ZZZ 170001 059021832	ZZZ 110011 050390006	22/12/2021 13/12/2022	356	368	5.2	1.5	55	1.6	109	63.2	103	34.6	103	127.52	0.00	0.00	0.00
ZZZ210002 059164490	M	ZZZ 170012 059021360	ZZZ 180004 059139605	22/12/2021 13/12/2022	356	355	6.9	2.7	50	1.6	87	58.1	95	31.9	95	112.42	0.00	0.00	0.00
ZZZ210003 059160649	M	BBB 130033 059095099	ZZZ 170002 059090878	28/12/2021 13/12/2022	350	348	5	2	64	1.7	105	61.9	101	34.5	102	120.35	0.00	0.00	0.00
Summary of Group : 3						354	357	5.7	2.1	56	1.6	100	61.07	100	33.67	100	120.10	0.00	0.00	0.00

Recording Details

RTU date: When scanning was done

Rump Fat: mm of fat at rump site measurement

Rib Fat: mm of fat at rib site measurement

Eye Muscle: Eye muscle area measurement expressed in cm2, measured between the 12th and 13th rib

Test Results

Carcass %:   Estimated slaughter %, calculated from the RTU measurements and body weight

Red meat Index: Index calculated from the estimated slaughter % compared to the group

Muscle % / Index: Estimated % of muscle on the carcass, calculated from the RTU measurements and body weight

Kg Meat (Estimated): Calculated by multiplying the estimated % muscle with the final weight

Vryburg Beef cattle farmer's day

Tebogo Serapelwane
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ARC-Animal Production National Beef Recording and Improvement Scheme hosted a successful Beef Cattle Farmer's Day on 5 September 2023 at André Kock & Son Auctioneering Pens in Kuruman, Northern Cape. Attendees on this day was 200 Farmers (commercial and emerging) (159 male and 41 female). The farmer's day was hosted in partnership with Lamus Bonsmara Stud and Department of Agriculture, Land Reform and Rural Development-Northern Cape Province.

The theme of the farmers' day:

Sustainable resource utilization and identification in livestock production (Beef)
- Mr Wynand Nel, Department of Agriculture presented the following topics: Veld Management, Northern Cape
- Visual veld condition determination: How and why is done by Dr Gilbert Pule (ARC)
- Making the best use of animal genetics resources to select for sustainable profit by Dr Japie van der Westhuizen (SA Stud Book)
- How to interpret and use the Bonsmara catalogue to select for sustainable profit by Mr Louis Steyl (Bonsmara SA)
- Parasite control in livestock by Dr Raisebe Kekana (MSD)

Demonstration: Ideal weaner, what the market wants by Mr Joppie Pretorius (Andre Kock & Son) Functional efficient bull by Mr Louis Steyl (Bonsmara SA)

Presenters

Registration table

Demonstration on Bull Functional Efficiency

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Breed purity and structure: Is it still important?

Dr Ben Greyling,
Dr Pranisha Soma &
Hannelize Swart
ARC-Animal Production, Irene
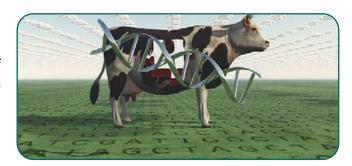Ben@arc.agric.za

"Breed purity is nature's poetry"

Breed purity, considered by many as the cornerstone of responsible breeding, is a concept that includes both the pedigree and the intended form and function of a breed. For many centuries, farmers have aimed to preserve the unique traits and qualities that define a breed. Through both its conservation and utilisation, breed purity aims to maintain genetic diversity that forms the basis of the resilience and adaptability of cattle, which forms the foundation of responsible and innovative breeding. The latter is also central to a breeders' aims when it comes to the genetic improvement of their herds.

Breed societies and registries typically establish and enforce the standards and criteria for determining breed purity within their respective breeds which is typically measured through a combination of pedigree records, visual inspections, and genetic testing. Breed purity in essence thus refers to the degree to which an individual animal or a group of animals conform to the established breed standards and genetics of a specific breed. Breed purity is also central to maintaining the traits of any breed in terms of its genetic makeup/traits and physical characteristics that are distinctive of the breed. Purebred or stud animals are those animals that have been bred up to purebred status as a result of a number of crossings making use of full-blood or stud animals. The more generations of purebred ancestors an animal has, the higher its purity.

Structure within and among breeds

When we talk about population structure of our cattle, we refer to how different or similar groups, populations or breeds are in terms of their genetic traits that is the result of selective breeding and adaptation to their environment. Structure within and among breeds are interrelated to breed purity and is of course also an important factor in your breed management, conservation, and genetic improvement program. Population structure within and among cattle breeds, is dictated by a number of genetic and demographic factors, including the genetic diversity within the breed, historical demography and geographical isolation (that affect gene flow between populations) and of course selection pressure, both natural and artificial, that is typically applied in a breeding program.

Tools to assess purity and structure of our breeds.

Structure and purity within and among breeds can be assessed making use of molecular genetic technologies. These technologies measure these characteristics very objectively and accurately and has become a valuable tool to breeders, researchers and breed societies. It is of particular value for breed societies when it comes to the verification of their pedigree records. A purity test requires a databank of genotypes of reference individuals whose breed of origin is known, the

so called reference population. The individuals in a reference population should also reflect the full range of genetic diversity within a particular breed and should be unrelated. Of course one should avoid including animals in a reference population who's genetic makeup is unknown or not in compliance with the relevant breed standards. Scientists make use of the aforementioned principles and technologies to ultimately compare an animal's DNA to that of a reference population to establish the degree of genetic purity and the degree to which the population or breed is structured. These scientific tools are also valuable when it comes to crossbreeding programs where farmers take advantage of the different groups of genes that code for desired phenotypes within a breed.

DNA technology to test for purity and structure: Where are we?

Understanding DNA based testing requires a brief explanation of the DNA structure. The DNA molecule contains four variations of a chemical structure called a base. These variants are referred to in shorthand as A, C, G and T. Chromosomes are comprised of millions of these four bases arranged in a linear fashion called a DNA strand. The sequence of these four bases at specific sites along the chromosomes is what determines the genetic code for each individual animal. Also found throughout the animal genomes are specific sequences of bases repeated in a tandem fashion and referred to as microsatellite DNA markers. The genomes of mammalian species contain thousands of these microsatellite markers. The microsatellite markers, exhibiting high levels of variation, is relatively uniformly distributed across the genomes of cattle (and other species) and have proven to be an extremely valuable molecular genetic markers for genetic studies. They have been and still are being used (results published in scientific papers) across the world to assess structure, purity, levels of genetic variation (and inbreeding) and gene flow between and among breeds and populations, to name but a few applications.

Genomic population structure analysis thus assesses the degree to which breeds share genes/ gene markers (e.g. Microsatellites or SNPs). It is however true that newer technology has been developed that includes single nucleotide polymorphism (SNP) markers that offer additional and often value adding information in the field of population genetics. Currently, there are a number of microsatellite markers approved and recommended by the International Society for Animal Genetics (ISAG). The Animal Breeding and Genetics laboratory of the Agricultural Research Council makes use of 11 ISAG approved markers to assess a range of genetic indicators (e.g. levels of variation, inbreeding, genetic differentiation, etc.) and a panel of 17 markers for paternity verification across various cattle breeds. By using microsatellites, the breed composition of an individual can be determined against the reference population. These markers surely are adequate for the intended purpose.

Summary

The answer to the question of whether breed structure and purity is important, is certainly a yes. Understanding population structure within and among cattle breeds is essential for breed management, conservation and genetic improvement programs. It helps maintain genetic diversity, improve breed performance and ensure the long-term viability and sustainability of cattle populations. Knowledge regarding the genetic makeup of your animals also come into play when embarking on cross breeding, aimed at selecting for particular attributes that are important and in line with your breeding objectives. By carefully considering these factors, cattle producers can make informed decisions when crossing purebred cattle with non-purebreds, increasing the likelihood of achieving their breeding objectives and producing healthy, productive and genetically sound offspring.

Performance testing is important for feedlot profit

Prof Michiel Scholtz
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It is important that the commercial beef cattle farmer that markets weaner calves take notes of the factors that determine feedlot profit. Performance is very important and if he pays attention to these factors, he can get higher prices for his weaner calves.

The South African feedlot industry markets between 70% and 80% of the total beef in South Africa. These feedlots have the capacity to accommodate approximately 650,000 animals at a time. Depending on economic and management practices, the South African feedlot industry supply up to 1.7 million cattle for slaughter annually. These feedlots differ in size from holding a small number of animals to more than 160 000 animals and consists of three different categories namely; farmer feeders, seasonal feeders and commercial feeders. Commercial feeders are usually integrated with the downstream segments of the value chain in the form of abattoirs, deboning facilities, packing and the retail sector.

Few of the animals fed in large commercial feedlots are bred by the feedlots themselves. The feedlots are therefore mainly dependent on beef cattle farmers who supply weaner calves. It is therefore important that these weaner calf producers understand which factors determine the profit of a feedlot. In this way, they can try to meet the needs of the feedlot.

Important production factors linked to the success and viability of feedlots are:

- The calves must show a positive feeding margin
- Calves must be able to produce at least 210 to 250 kg A2/A3 carcass after at least 100 days in the feedlot
- A mortality rate lower than 1%, but preferably lower than 0,8%
- The beef to feed ratio must be greater than 1:13 (one kg of beef should be able to purchase at least 13 kg of feed)
- An average daily gain (ADG) of above 1.6 kg/day is optimal, especially if the price gap between weaner and carcass prices decrease
- Procurement of calves with good genetic merit that fit the goals of the feedlot

A study was recently conducted in the United States to determine the relative economic importance of factors that influence feedlot profit. I have adapted this information for South African conditions and it is summarized in TABLE 1.

Table 1 Factors that influence feedlot profit and the relative economic value in order of importance

Carcass weight	+34.1%	As expected the carcass weight has the biggest effect on profit
Deaths, diseases and injuries	-31.6%	These factors all have a negative impact on profit
Weaning weight	-15.3%	A higher weaning weight has a negative effect on profit
Feed intake	-10.7%	A higher feed intake has a negative effect on profit
Classification	+5.3%	A optimum classification (A2/A3) contributes to profit
Days in the feedlot	-3.0%	The time in the feedlot has a small effect on profit, as long as the animal is growing

Almost half of the feedlot profit (45%) is determined by two production traits. The feedlot profit is dependent on (1) carcass weight (34.1%) which is determined by the growth in the feedlot and therefore average daily gain (ADG), as well as (2) the amount of feed (10.7%) consumed, which can be linked to feed conversion ratio (FCR). Both of these traits are measured by the beef cattle performance testing schemes. Commercial weaner calf producers must therefore use breeding bulls to breed calves for the feedlots that meet these requirements. This can result in higher weaner calf prices if the feedlots are aware of this. Farmers should therefore make the genetic merit of their breeding bulls available to the feedlots. One challenge, however, is that there are probably not enough such breeding bulls available.

It is important to distinguish between the feedlot situation and the total production cycle of beef cattle. In the case of the total production cycle, reproduction (43%) is the most important characteristic, followed by growth (30%) and then feed intake (24%). It is important that the cows' feed intake is not too high and therefore feed intake is relatively more important in the case of the total production cycle. However, growth is still more important than feed intake.

Where feedlots do not have sufficient information about the potential of the calves they purchase, they rely on experience and use their gut feeling. This can be demonstrated by an example when the ARC sold a group of weaned calves at an auction in December 2020. The Bonsmara and Bonsmara x Afrikaner calves, which were red, weighed an average of 195 kg and were sold for R38.56 per kg (excluding VAT). The Bonsmara x Nguni calves, which were multi coloured (mottled), with an average weight of 191 kg, were sold for R28.80 per kg (excluding VAT). The difference was almost R10 per kg, or R2 020 per calf. The reason for this difference is that feedlots know that Nguni types do not grow fast in the feedlot and therefore used colour patterns to identify Nguni types.

The combined factor that has the second largest effect on feedlot profit is deaths, diseases and injuries. Unfortunately, there is a "perception" that a certain genotype is prone to pneumonia in the feedlot and therefore feedlots discriminate against calves of this genotype. Horns in cattle can also cause bruises and injuries and more polled cattle can be accommodated in the same space at feed troughs. The risk of bruising and potential carcass damage during transport to the abattoir is also reduced which limits economic losses. Feedlots

therefore prefer polled calves or calves that have been dehorned.

It may come as a surprise to some people, but the weight of the weaner calf is the third most important factor, and a heavier weaner calf has a negative effect on feedlot profit, because a heavier calf leads to a negative price margin in the feedlot. This is the reason why heavier calves fetch a lower price per kg at auctions or when feedlots are buying calves directly from farmers. However, it still remains important that a carcass weight of at least 200 kg to 220 kg must be maintained, as many abattoirs, agents, supermarkets and butchers discriminate against carcasses weighing less than 200 kg or even 220 kg.

It is surprising that there are still breeders that aim to wean calves that weigh 260 kg at weaning. Not only will they get less per kg for their weaner calves, but their cows will also get bigger, which means they will have to keep fewer cows. The environment may also not be able to support the larger cows, which can lead to a lower calving percentage.

The classification of the carcass has a minor effect on feedlot profit. However, it is necessary to make sure that the cattle are not too thin or too fat when they are slaughtered. This will only change when South Africa gets a grading system that replaces the current classification system. Likewise, the number of days the cattle are in the feedlot does not have a big effect on feedlot profit, as long as the cattle are still gaining weight.

ARC Farm Assessment Toolkit (FAT)
Achieve Profitable & Sustainable Farm Enterprises

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The ARC FAT App

FAT – Objective & Overview

The objective of ARC apps vary depending on their focus area. The objective of the FAT is to allow for the evaluation of an entire farming enterprise in a scientific manner, using the natural resource base of the farm as foundation. The resources inform relevant enterprise, which lead to a level of economic prospects for the farm, in combination with associated infrastructural and managerial evaluation. In a nutshell, it aims to help the farmer achieve a profitable and sustainable enterprise, by highlighting the areas of potential and comparing with current performance, as well as providing the information resources and support to give the farming enterprise a roadmap to achieve their potential.

The ARC has developed several apps and systems, which focus on the different ARC campuses to support the various research work they do. These include apps and systems for beef and dairy cattle, small stock, numerous grain and crop applications, pest prevention and monitoring apps, soil, water & climate apps – the list is extensive. The FAT is rather unique within the ARC in that it harnesses the value and power of the ARC campuses by collaborating across the many agricultural disciplines within to deliver ultimate value for the client.

The FAT target audience are agricultural service providers, support bodies and farmers – the app constitutes an expert system though – and requires analysis of guidance by experts. This means the farmer will not use the app directly, but can request an evaluation and receive a comprehensive report with visuals to help interpret results.

FAT - R&D

The development of the FAT app began only after the research and scientific concepts had been thoroughly tested out in practice. It all happened organically, when ARC–Agrimetrics realised the first logical step was to consider the natural (and other) resources, before delving into enterprises – then to describe the enterprises in the necessary detail, and lastly analyse other factors such as infrastructure, operational skills, risks and limitations of the enterprise.

One of the app developers was invited by the research team to observe this process in action for a week during which an expert panel was evaluating farming enterprises. The purpose was to observe and understand the current practice with a view to integrating all the tools, processes and data into a single app.

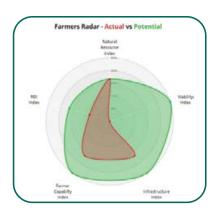*Scientific & Holistic Farm Analysis & Evaluation*

This is how the seeds for the Farm Assessment Toolkit were sown, and about a year later 4 system developers from the ARC ICT Apps division began the work to design and develop the FAT app. It was critical for the technical team to understand what the business needed from the FAT in order to deliver a solution that was fit for purpose.

A prototype development approach was chosen, allowing for iterative and incremental developments, which the end users could test and provide feedback. The value of this approach is it fosters close consultation between the research and technical teams, which in turn helps ensure the app development is on target and meets expectations.

FAT – Access & Usage

One of the main development aims of every app is to make it user friendly and intuitive. The FAT app requires expert guidance – but is easy to follow and logical. Whilst a farmer could use it him/herself, it is better to have a few experts as part of the process – at this stage; it is not freely available and is provided as a service package, so the ARC-Agrimetrics team can be approached to evaluate a specific farm enterprise.

The FAT app only provides a portion of the value; the greatest value is in the expert panel made up of experienced scientists who look at every aspect of the farm. They bring an objective and expert evaluation to the process, tapping into their extensive networks when points are contested or uncertain to settle on the most accurate and scientific answer for the specific farming enterprise.

Farmers Radar – Visual Summary of Farming Enterprise

The ARC ICT Apps division are always working on new apps and systems, as well as behind the scenes on data projects, which are the lifeblood of the apps. These new apps are guided by requests from the ARC campuses, and we are always excited to work on a new app that focuses on a different or emerging field.

One of the challenges is with marketing the ARC apps, and the time to demonstrate to end users in a way that they understand how their farming performance can be positively impacted. One of the ways we are working to overcome this is by making use of visuals to easily and quickly communicate the app message to the end users – we do this through the app itself using visual interfaces, graphs and charts to simplify complex data, and communicating through videos. This also helps to overcome the challenge of catering for users with different languages as well as low literacy levels.

Getting the latest research results to farmers is one of the important mandates of the ARC, and there is an increasing focus on apps to help ensure this information dissemination keeps up with the changing times. The older generation of famers still tend to prefer hard copies and paper based reports, however the adoption rate of apps is expected to accelerate especially among the younger generation of up and coming farmers.

This means we also have to ensure that the data, which is the lifeblood of the apps and systems, are maintained and kept up to date so that the information we provide is current and relevant. The FAT app is kept up to date with new commodity data as well as other new, relevant information. The beauty of the app lies in its adaptability.

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                    Mr Gert de Nysschen;
                    Mr Zibusiso Ncube;
                    Mr Graham Buchanan
Research Team: Dr Aart-Jan Verschoor;
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Shelter of Livestock in extreme weather conditions

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Extreme heat and severe cold snaps can have a negative impact on livestock on pastures. These conditions can also affect housed livestock (poultry, pigs) but this article focuses on pasture animals.

With the expected worldwide increase in ambient temperatures, livestock production will be negatively affected. Average daily temperatures (°C) and relative humidity (%), where livestock start to experience heat stress effects, may be adjusted downwards: for cattle from 23°C to 21°C. Also, weather patterns are expected to shift, with longer periods of sun and heat, between shorter and heavier rain periods. To ensure that livestock is not exposed to the sun's radiation and high temperatures; they must have access to shade and other cooling strategies. In beef cattle, the threshold temperature above which dry matter intake is adversely affected is 30ºC, with a relative humidity of below 80%; if the relative humidity is above 80%, the threshold temperature drops to 27ºC (Figure 1). Cattle that are heat stressed will show increased respiration rates as they try to cool themselves. If cows are breathing at more than 60 breaths per minute, action is needed.
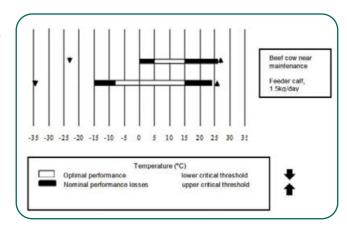

Figure 1 Critical ambient temperatures and zones for optimal performance and nominal performance losses in beef cows and feeder calves

During winter, we must ensure that livestock are protected from the cold winds that accompany the cold fronts that move in over southern Africa at this time.

Summer shade

Extreme heat causes significant stress for all animals. This in turn can result in performance losses, severe discomfort and in extreme cases, abortions or death. Animals consume water to reduce metabolic heat and it is important that they have access to fresh, cool and clean water that

is available in sufficient quantities, and that their water troughs fill quickly. Cattle can easily drink 10 litres each in just a few minutes. Animals should not be handled during periods of high ambient temperatures as this can increase their metabolic heat load. The ideal time to work with animals in summer is just after sunrise (6am-8am).

The metabolic heat load in livestock can be reduced by providing more nutrient-dense feeds and feeds that have a positive stronger cat-ion to an-ion balance in the. During times of heat stress, livestock, especially ruminants, tend to eat more during the cooler night and early morning hours. This knowledge can be used by farmers to provide more feed during the night and in the early morning.

We can identify heat stress by observing livestock and looking for the following behaviour and symptoms:

- Panting (open-mouth breathing)
- increased respiration rate (>60 breaths per minute)
- increased water intake
- loss of appetite
- listlessness or lethargy
- increased salivation
- in severe cases the animal may become unconscious

Livestock that are kept on pastures can be protected from sun radiation and high temperatures in different ways. Protection can include trees and structures.

- **Shade trees:** these are the cheapest solution. Although local indigenous tree varieties are recommended, evergreen non-invasive exotic trees can also be considered. The

moisture evaporating from their leaves cools the surrounding air, so livestock prefer trees to anything their owners can construct. Where trees are used and planted, a tree maintenance programme on the farm is advised, as continuous congregation under a tree may lead to soil degradation and to the tree dying. A risk factor is severe thunderstorms, where lightning may strike these trees and kill livestock underneath.

- **Shade structures:** various materials can be used to create shade structures. These can be zinc roofing sheets, shade cloth material, wooden planks, reeds or tree branches. The height of these structures plays an important role in their use by livestock. The upper 1 to 1.5 metres under the roofing material is the hottest part under the shade structure. With 80% shade cloth material, this trapped heat can be less as heat can escape through the shade cloth. It is therefore recommended that a shade structure with a height of 3 to 4 metres be used for cattle, and 2 to 3 metres for small stock and free-range pigs.

- **How much shade:** The recommended shaded area per animal is suggested in the table below.

Suggested shaded area requirements for beef, dairy cattle (75% of optimum amount), and small stock:

Beef calves (±200kg)[1]	1.5 – 2 m²
Beef cows[1]	3 – 4 m²
Dairy cows[1]	4 – 5 m²
Small stock[2]	1 – 2 m²

This may seem a lot, but as the sun moves overhead, the shaded area also moves.

- **Where to put up the shade structures:** As airflow is important to ensure limited heat build-up beneath a shade structure, shade structures should be at least 30m away from farm buildings and placed in such way that wind can move through the structure.
- **Fixed shade structures:** these cannot be moved and are not always placed where they are needed. This can become costly for the farmer. Fixed structures are most suited to feedlots and dry-lots – on pastures, they may cause livestock to congregate close to the shaded area, which can result in over-use of the pasture near the shaded area and cause it to become severely trampled and muddy.

- **Portable shade Frames:** these could have a ski-type base for easier transport. The frame can be 3m wide, 6m long and 3m high, with 6-7cm tubing towing triangle with a hook that can be connected to a tractor. The frame can then be moved where it is required. An 80% shade cloth is recommended, preferably in a light colour that reflects sun and reduces heat. Corrugated zinc sheets can also be used.

- **Shade requirements**: A well-designed portable shade structure can reduce total heat load by 30-50% for livestock. As cattle are not always under the shaded areas and it will be impractical to provide 100% shade to livestock, a practical compromise is to provide 75% of this requirement to your livestock. As an example, if the herd size is 100 LSU, and you need about 3m2 per animal, a shaded area of 300m2 (15m x 20m) will be required. This is large and 75% of this will be a shaded area of 225m2, or 15m x 15m. It will be difficult to construct a single portable structure of this size, and using the 3m x 6m structure proposed above, about 10 or 12 of these will be required for 100 LSU, which will not be possible for most farmers. Therefore, shade trees would be a more practical solution.

Winter shelter

During winter, we also need to ensure that livestock are protected from the cold winds and freezing temperatures. The cold weather warnings are issued to farmers to ensure that the livestock is protected from the cold snaps.

- **Tree lines, shrubs and high grass:** if livestock are to remain on the pastures during the winter, they could be exposed to cold winds. Providing wind breaks behind which livestock can lie down and not be exposed can improve welfare for the livestock and also reduce maintenance requirements (less energy is spent on keeping warm). Where camp systems are used, non-invasive shrubs or tall grasses can be planted along the fences to provide protection against cold, windy conditions in winter.

Benefits of providing shade and shelter to pasture animals

- **Weight gain:** researchers at the University of Arkansas have found that providing cattle with artificial shade resulted in an average daily gain of more than 20% compared with cattle without shade, and cattle with tree shade showed a nearly 60% increase compared with those with no shade.

- **Milk production: others** (University of Florida) indicated that dairy cows provided with shade produced 10-19% more milk than cows without shade.

- **Fertility:** researchers (University of Missouri) found that shade increased the overall pregnancy rate of cows by nearly 40%.

- **Improves water quality:** livestock tend to drink more to cool down when heat stress occurs – standing in streams or dams can be a familiar sight. Putting up a functional shaded area away from the stream or dam can reduce this behaviour and reduce the stirring up of the water (which becomes less muddy) and trampling of the grass or ground around the water source.

Pictures from Google of animals seeking shelter and the types of shelter that could be provided

Picture 1 Cattle utilizing shade from large advertising boards, no shade trees in the paddock

Picture 2 Portable shade structure for larger groups of animals

Picture 3 Portable shade structure for a few animals

Picture 4 Portable shade structure being moved

Angus – weighed and NOT found wanting

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ANGUS
SOCIETY OF SOUTH AFRICA

Mentorship in livestock farming and its snags

Llewellyn Angus
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Mentorship is a fine balancing act.

When a mentor helps a farmer with advise and time up to the point where the farmer becomes totally dependent on the mentor it means that it is not mentorship anymore but rather that the mentor is now doing the farming management for the farmer. The way to avoid this is to have an open relationship where the parties have boundaries as far as the amount of involvement is concerned. This should be cleared up at the beginning of a mentor-farmer relationship.

The converse is also true where a mentor gives "too little" advice to the farmer. In this instance, the farmer feels left out in the cold and often results in the farmer being confused and worse off with his farming. When a mentor just doesn't have enough time to follow through with his advice he should explain this to the farmer and suggest the farmer gets other avenues of aid and knowledge.

A mentor must be prepared to "follow through" with his advice but only up to a point. Otherwise, we end up with the fist situation mentioned above.

The farmer, on the other hand, should realize that he is the one that must DO. What I mean by this is the farmer must realize from the beginning that it is his responsibility on his farm to make sure things work. The mentor should always be seen as an aid and not a solution to a problem. The farmer must listen clearly to advice and not keep falling back on the mentor to keep clarifying matter that have already been handled. This ends up in a lot of frustration for the mentor.

Bottom line: There are boundaries in a mentorship program and relationship. These boundaries should be spelt out clearly from both the mentor and the farmers side. We want a win-win situation and not a win-lose situation or even a lose-lose situation where both parties are worse off than before the relationship began.

A mentor should decide clearly before mentoring if he can "go the distance" but the parties should know what the distance is and where the distance ends.

Play open cards with each other

Tinus says farewell to ARC

Tinus Viljoen
ARC-Animal Production (1981-2023)

The end of a journey and the beginning of a new one

"If all difficulties were known at the outset of a long journey, most of us would never start out at all". "Life is like unto a long journey with a heavy burden". My career journey has been a long journey of 42 years. It taught me, if you dream, have the ambition, the passion and want to work hard, then you could achieve.

My journey at ARC started in June 1981, at the Irene Campus as an Intern student. In 1983, I joined the Beef Scheme in the Eastern Cape. I was based in Queenstown as a junior research technician until the end of July 1990. My next destination was at Elsenburg regional office for Milk- and Beef recording, as a Senior Research Technician. I stayed here and fostered my clients, for the remainder of my career journey with ARC, which came to an end in May 2023.

Firstly, I would like to thank my colleagues, mentors, academic institutions and my family for all the support they have given me and also the opportunities to build my career within the ARC. I am thankful to the ARC for giving me countless opportunities to grow both professionally and personally, I will miss the ARC, but I will always look back on this time fondly.

Last, but not the least, I would like to thank the more than thousand clients I have served in this period of my career, from the East to the West of RSA. I have learned a lot from all of you and especially those who trusted me to help improve their herds.

I leave my journey's footprints behind, for the next generation to carry on with the journey and make it their own

Paul, Betsie, Tinus, Luré & Heinrich

"It is good to have an end to Journey toward; but it is the Journey that matters, in the end"

(Author unknown)

Bouvorm by vleisbeeste

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Inleiding

Die seleksie van teeldiere is daarop gemik om diere te indentifiseer met langlewendheid, waartydens daar hoë vlakke van reproduksie behaal word; asook die teel van nageslag wat gesog is vir die koper/verbruiker. Die teeldiere moet dus oor die vermoë beskik om gereeld te kalf (vroulike diere), asook die genetiese vermoë hê om kalwers te teel met goeie groei wat voer doeltreffend kan omskakel in vleis.

'n Dier se fisiese eienskappe speel n groot rol by die dier se vermoë om aan te pas in sy/haar omgewing, wat die dier se produktiwiteit en langlewendheid sal beïnvloed.

Tydens n visuele inspeksie is daar n paar belangrike eienskappe waarna gelet moet word, onder andere; raamgrootte en liggaamsstruktuur, bespiering, bene, hoewe en reproduksie organe.

1. Raamgrootte en Liggaamstruktuur

Daar bestaan ongelukkig nie een raamtipe wat die beste geskik is vir alle produksiestelsels nie, dit is egter gewenst om met 'n tipe bees te boer wat wel winsgewend is onder verskeie omstandighede, hetsy dit diere is wat vanaf die veld bemark word of waar speenkalwers of self gevoer of aan die voerkraal bemark word.

Daar word meestal verwys na klein, medium en grootraamdiere of iets tussen in. Kleinraamdiere beskik oor die vermoë om goed aan te pas en produktief te wees, maar skiet soms kort in hul nageslag se groeivermoë. Grootraamdiere produseer weer nageslag met goeie groei by hoë voedingspyle; maar die teeldiere sukkel soms met aanpasbaarheid weens hul hoë onderhoudsbenodigdhede, dit het weer 'n negatiewe impak op reproduksievermoë veral onder ekstensiewe omstandighede.

Mediumraamdiere beskik oor die vermoë om beide produktief te wees onder ekstensiewe toestande en om nageslag te teel met aanvaarbare groei.

Op groeiende diere is hoogtemates 'n goeie aanduiding van n dier se raamgrootte; die lengte van die pypbeen kan ook gebruik word as aanduiding van raamgrootte. Diere wat baie kort op die been is; word soms na verwys as vroegrypdiere; is geneigd om vinniger vet neer te lê en laer groeitempos te hê, waar laatrypdiere (hoog op die been) weer geneigd is om goed te groei maar vir lang periodes gevoer moet word om die nodige graad te haal by slagting.
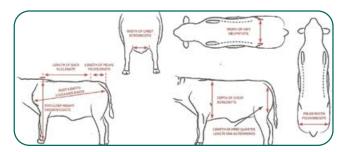
Foto 1 Skeletontwikkeling

Positiewe struturele kenmerke
• Skouers nie te grof – kan lei tot kalfprobleme
• Kapasiteit – diepte en breedte van lyf, goeie sprong van rib
• Lengte van lyf – lengte van heup na sitbeen
• Wydte tussen voorbene (borsvloer) asook agterbene
• Breedte by heup- en sitbene

By vroulike diere word n wigvorm verlang, die wigvorm word van die kant sowel as van bo gesien waar die dier breër en dieper in die agterkwart as in die voorkwart is.

2. Bespiering

Bulle moet meer bespiering wys as vroulike diere, maar nie tot n mate dat dit die dier se beweeglikheid beïnvloed nie. Koeie/verse moet steeds vroulik vertoon. Dit is belangrik om berspiering/vleiseinskappe by bulle te beoordeel op slagouderdom (tydens groeifase) en wanneer die dier die naaste aan slagkondisie is.

Bulle – kortliks is groot en lang spiere gesogd; goed gedefiniëerde bespiering oor die skouer, rug, lende en agterkwart. Die bul se binne dye moet sy agterbene wegdruk van mekaar (veroorsaak wydte tussen agterbene), met goed gevulde buite dye. Indien die dier goeie lengte van heup na sitbeen het en goed gevulde dye wat laag afsny na die haak toe, sal dit veroorsaak dat die dier baie volume en dus gewig in die agterkwart dra.

Koeie/Verse – diere in produksie kan min vleiseienskappe toon aangesien die grootmaak van kalwers hul kondisie laag hou. Daar moet n balans wees tussen bespeiring en vroulikheid, met relatiewe vol bespiering oor die rug, lende en agterkwart.
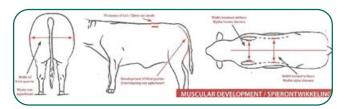

Foto 2 Spieronwikkeling

3. Bene en hoewe

Dit is belangrik dat n dier goeie loopvermoë het vir langlewendheid. Indien n dier enige been of hoefprobleme het kan dit veroorsaak dat dit n negatiewe impak het op die dier se produksie. Die bene moet korrek geplaas wees onder die dier met die regte hoek vir voor en agterbene.

Wees versigtig vir
• Voorbene – regop in skouer, uitdraai pote, bakbene, X-bene, duiftonig
• Agterbene – sekelhakkig, regophakkig, koeihakkig
• Kootgewrigte – lang kootgewrigte laat dier deurtrap, regop kootgewrigte belemmer stapvermoë
• Hoewe – uitgroei of krulhoewe, nie semetries, groot spleet tussen hoewe, klein hoewe, min spasie tussen haarlyn en grond

Foto 3 Bene en hoewe

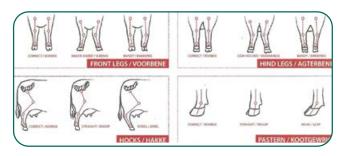## 4. Reproduksie organe

Bulle – teelballe van dieselfde grootte wat goed ontwikkel is, waarvan die epididymis sigbaar is. 'n Skoon skede wat na vore wys met n klein opening sonder prolaps.

Koei/Verse – teelorgane moet goed ontwikkel wees, klein vulva is n teken van onvrugbaarheid. Uier moet goed aangeheg wees en teen die regte hoek, met spene wat nie te groot is nie.
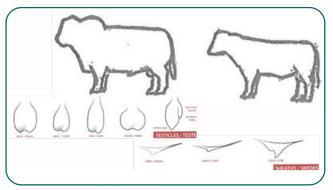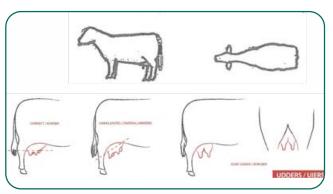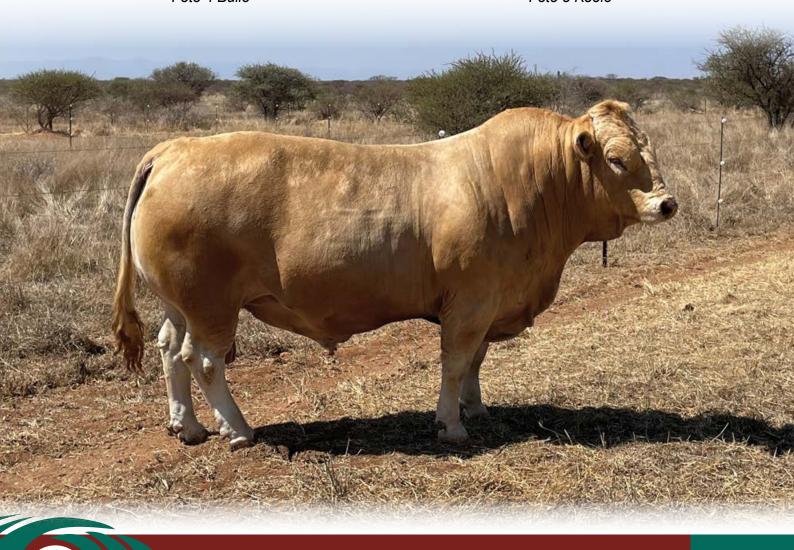

Foto 4 Bulle

Foto 5 Koeie

Boost Productivity with heifers

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The replacement heifer is the foundation of a productive cowherd. Its selection and development can greatly affect the profitability of the farm through its genetics, future performance and longevity.

Good heifer management practices

Good heifer management should aim for early puberty, a higher weaning rate, low mortality and early identification of female animals for turn-off. The goal is to ensure that only efficient first-calf cows enter the main cowherd at three years of age. Heifers have greater nutritional demands than cows because they are attempting to reproduce and grow simultaneously. Usually only well-managed heifers will conceive during their initial lactation.

When selecting heifers, focus on traits that are economically important. A heifer has no proven track record in traits such as reproduction, ease of calving and maternal ability, therefore use all available information relating to its dam and, where applicable, its sire, siblings and other relatives to make an informed selection.

Where available, use breeding values (rather than indices) in selection, along with other important traits, especially functional efficiency.

Good heifer management system is required

Ensure that heifers are suited to the production environment, as first-calvers have high nutritional needs.

Manage heifers and first-calf cows separately. A heifer that calves in synchrony with the rainy season is much easier and cheaper to manage than one calving out of season. Generally, once female animals begin to cycle, a joining period spanning three cycles or nine weeks is required to achieve a 95% conception rate. Approximately 90% will conceive within a couple of cycles and 95% within three cycles.

Essentially, weight, condition and growth rate are more important than age, as these will determine the health of both cow and calf.

The importance of nutritional management

Nutritional management is important so that heifers reach desired critical mating weight and are in body condition score of 3 or better at calving. Maintain adequate body condition and growth during their first lactation. Weaner nutrition is critical as poor growth in this period can increase weight at puberty, thus reducing early lifetime fertility. A good simple approach is to manage nutrition to keep heifers well above maintenance so the skeleton keeps growing.

Heifers must have access to adequate pasture, water and supplementation to keep them in the best possible condition. When heifers and first-calf cows lose condition prior to calving, their reproductive systems tend to shut down, which significantly reduces their chances of re-conceiving during lactation.

Good heifer nutrition starts with sound pasture and grazing management.

Seasonal conditions, pasture condition, soil type, stocking rates, land condition and grazing management all greatly affect pasture quality and quantity. These factors are important as they affect consumption of dry matter and hence the nutritional status of the animal. Additional nutrients may be required to enable in-calf heifers to cycle again the following calving.

Supplements may be necessary to correct major mineral deficiencies, which can significantly affect feed intake, growth rates and fertility.

Time of the year that is best to breed heifers

In selecting the best time of year to breed heifers, it is recommended to synchronise lactation with the raining season to improve the chance of heifers successfully rearing calves and of re-conceiving during the first or second lactation. A heifer that calves synchronised with the raining season is much easier and cheaper to manage than one that calves out of season. As a general rule, once females began to cycle, a joining period spanning three cycles or nine weeks is required to achieve a 95% pregnancy rate. About 90% will get pregnant within a couple of cycles and 95% within three cycles.

- A bull ratio of 1:15 is recommended. Bulls should pass a Bull Breeding and Soundness Examination.
- Get heifers at 65% of expected mature weight at breeding. Use short breeding season: 45 – 65 days.
- Breed heifers: 4 – 6 weeks before the cow's breeding season. Use proven ease-of-calving bulls on heifers.

How to improve heifers genetically

Both age and weight at puberty are highly heritable, which means that genetic progress can be made in these traits. Sire-effects alone can account for variations of at least 100kg at puberty in female animals. Additionally, heifers that conceive early in the breeding period can be identified and recorded for future reference.

There is a genetic correlation between scrotal size in bulls and age of puberty in their daughters. Objective selection of bulls with above-breed-average scrotal size estimated breeding values will help in making genetic progress. Selection and management of heifers and first-calf cows are critical for a high reproduction rate, age at first calving, immediate re-conception, continual reproduction, easy calving, high weaning weight and low calf mortality.

Measuring carcass traits on live animals making use of Real Time Ultrasound scanning technology - is it still an option?

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Technology has become an indispensable tool for beef producers all over the world, playing a central role in management, decision making and ensuring sustainable and profitable production of a product that is in high demand. Of course we must also ensure that the return on investment in a technology is justifiable. The production profile of our country's commercial beef producers is considered by many to be comparable to that of developed countries, reasons being that we make use of sophisticated breeding methods, technologies and management practices aimed at sustainable and competitive production.

One of the many technologies made use of by the beef production sector includes Real Time Ultrasound scanning (RTU-s), mainly used for assessing carcass traits and for reproductive management. RTU-s is one of the technologies that has also already made its mark in the beef production sector due to its ability to generate objective and quantitative data relating to the internal carcass traits and composition of animals, both of which is of biological and economic importance. One of the main outcomes of ultrasound data is the generation of breeding values for carcass traits. The latter is used by producers for improving the genetic potential of their herds with regard to meat yield and carcass quality. There are a couple of advantages to RTU-s compared to conventional carcass traits analyses that include:

- RTU-s is executed in a safe and non-invasive manner on live animals, compared to having to slaughter animals (offspring) previously to determine their carcass merit
- Collecting ultrasound data is also a much cheaper and more efficient than conventional methods and the data is collected in real time
- Data can be collected on a large number/population of animals for evaluating carcass traits of breeding animals, compared to progeny testing

Carcass traits that can be assessed with RTU-s include back fat or rib-fat and rump fat which are considered subcutaneous fat, eye muscle area and intramuscular fat or marbling which are all indicators of meat quality and yield that ultimately relates to the market value of the carcass.

Marbling. Marbling, or intramuscular fat, is considered by many a proxy for the general eating quality of meat. In the USA studies have shown that a minimum of 3% marbling is correlated with improved flavour while levels above 7,3% on the other hand discourages consumers that are health conscious. Marbling is also deposited at a later stage of an animal's life compared to the other two fat deposits (rump- and rib fat). The genetic correlation between marbling and fat thickness is also low, suggesting that selection for improved marbling can be done without increasing external fat. One should keep in mind however

that management and nutrition are both central to the deposition of both subcutaneous fat and intramuscular fat, especially high-energy diets and particular nutrients. Since marbling is deposited at a later stage of an animal's life, a general rule is that cattle should be scanned during the rounding off phase and on a diet containing the desired energy and nutrients. It should be noted that the South African production system is mainly a weaner calf production system where animals are typically slaughtered after a four-month feedlot period. This prevents young animals from having marbling at slaughter age. From a genetic point of view, marbling is also considered a quantitative trait, meaning it is encoded by numerous genes, each of which contributing differently to the trait.

This trait is also known to be the most challenging one to measure accurately by RTU-s, the reason being that in many cases not sufficient marbling is present in the muscle during scanning to measure it accurately and reproducibly. Low levels of marbling also makes it particularly challenging to not only quantify the amount of marbling, but also to detect the degree of variation that exist between animals for this trait. The latter is of course essential for selecting genetically superior animals eventually. From experience it is recommended that at least 5mm subcutaneous fat must be present before considering to scan for marbling. This in view of the fact that there is little variation in marbling deposition in animal that have less than 5mm of subcutaneous fat. It should be noted that although our meat classification system does not accommodate marbling and producers are not compensated for it, some breeds like the Wagyu do concentrate on this trait making use of alternative

technology to be able to assess it. Of course our animals are also slaughtered at a much younger age than in most other countries. It should be kept in mind that there are national and international niche markets where there is a demand for marbled beef, opening up opportunities for export.

Eye muscle area (EMA) or rib eye assessment. The size in square centimeters of the EMA is used as an accurate indicator of overall carcass muscling and beef yield. For our production and meat classification system, ribeye area as a trait is much more relevant than marbling. The trait is also highly heritable which enables selection for superior genetics making use of breeding values. Similar to other traits, care should however also be taken not to focus too strongly on single trait selection but rather have a more balanced approach between the different carcass traits. Focusing for instance, only on ribeye area may result in increased mature frame size that will require higher maintenance input costs, amongst others.

Subcutaneous fat. Fat is another economically important trait that forms part of our meat classification system, and is also assessed making use of RTU-s. Fat is deposited after bone and muscle development and it is also firstly deposited abdominally, followed by inter-muscular deposition, subcutaneously deposition and finally intramuscular deposition. Both rib fat and back or rump fat, indicators of external fat, are highly correlated and heritable, which makes it possible to improve the trait genetically through selection. These traits also influences lean meat yield since fat bulls for instance have less lean

meat in the carcass. Fat measurements also gives an indication of the bull's fleshing ability and it is generally accepted that either too much or too little fat is undesirable.

Keep the scan results credible and scientific - RTU-s and contemporary groups. Since the expression of the genes that encode for carcass traits are also affected by the environment, animals to be scanned for data to be used in breeding value predictions should be included in well-defined contemporary groups. These groups are separated in terms of breed, sex, being born in a particular calving season and also reared and managed under similar conditions. Well-defined contemporary grouping is essential to enable accurate selection of animals based on their desired phenotypes – in other words, we can accurately and scientifically define differences between animals and use the information to select for animals in line with a particular breeding goal.

Conclusion. RTU-s technology has proven itself as a very valuable tool for beef producers, enabling them to make more informed decisions about breeding, management, and marketing that relate to carcass traits. The National Beef Recording and Improvement Scheme (Scheme) of the Agricultural Research Council has been advocating and applying this technology in support of our producers for many years and has a dedicated team of technicians that are accredited to measure back fat, rib fat and eye muscle area. The Scheme is also adopting and implementing modern developments around RTU hardware and software in order to satisfy the demands from industry, in particular when it comes to enhancing the overall profitability and sustainability of the beef production sector.

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ARC-AP & North West Department of Agriculture and Rural Development in collaboration for information dissemination practices

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Information dissemination forms integral part of the ARC initiatives that are executed countrywide in assisting entry-level farmers. These platforms are also ideal vehicles for creating opportunities where all role players of the beef production industry can engage with each other. The days are designed in such a manner that it accommodates and caters for small scale/emerging farmers, and presentations are made by ARC team of researchers and technicians. Several accredited farmers' training were co-hosted by ARC and Provincial Departments of Agriculture in North West province. Training started in September 2022 and ended in February 2023, and covered all 4 districts of the province. The title of the course is "Developing Understanding of the Free Range Beef Production Environment'. Upon completion of the course, learners are awarded with a certificate with 10 credits, and the course was offered at National Qualification Framework 03. The training was focusing on sustainable and profitable beef farming enterprises.

Background and Justification

The Agricultural Research Council – Animal Production (ARC-AP) signed a service level agreement (SLA) with the North West Department of Agriculture and Rural Development. The agreement between the two parties was to train a total of 432 farmers in livestock production, with particular emphasis on Free Range Beef Production. Training comprised of 361 farmers in beef productions, and 24 for pigs and 37 for poultry production.

The program was to empower the learners (Selected from villages by NWDARD officials), from NW province by giving them an opportunity to acquire / refresh skills that will allow them to be able to apply their knowledge in their day-to-day operations at their different work locations. This is to increase their efficiency and productivity in agricultural enterprises. The needs for these skills were identified by the NWDARD. The ARC requested NWDARD to select learners with at least grade 10 level of education since the course was offered at NQF Level 03s. The training programme was conducted over a period of 5 days per groups of 20 learners. The Department requested that the practical should be orally done in fear of transmissions of diseases. Therefore, the oral practical was done as they form part of the assessment process.

Picture 1 Group of learners and facilitators at one of the training sites

Learners wrote a competency test after lecturers were concluded as part of their knowledge assessment; they were also assessed in terms of their skills by writing the formative and completing the oral assessment tests.

Material design and Development

Considering that the course was conducted at NQF level 3, the training, formative assessment, summative assessments, and the activity workbooks were designed to be understandable for the learners to be able to comprehend, keeping in mind that the minimum requirement of Grade 10 education needs to be adhered to. The facilitation were done through PowerPoint presentations, group discussions and demonstration presentations and through videos that illustrated the various principles in the unit standards, as well as practical discussions. Learners were taught in English and Setswana. However, in some instances, due to load shedding the presentation were interrupted, and therefore, reading from the book (learner Guide) was sometimes implemented.

Picture 2 Learners writing summative assessment test

The Assessment process

In order to carry out a fair and just assessment, the following steps were carried-out;

- **Pre-assessment** - meeting was conducted in order for the learners to sign a memorandum of agreement. Learners were prepared by ARC accredited assessors, an hour before the actual assessment was done. Any fear, low confidence, language barriers, and any other forms that might hinder the assessment process were dealt with accordingly.

Conduct Assessment

Assessment were conducted at the venue where learners received the training and was done on the last day of the training. The learners were assessed to gather evidence on whether they were **competent** (C) or **not yet competent** (NYC) against the specific outcomes of the unit standards. The assessment were carried out in accordance with the assessment plan as agreed upon by both the learners and the assessor. In order to accommodate those learners that had special needs, such as limited understanding of English and the limited ability to read and write, the assessment techniques were adjusted without compromising the quality, validity, and fairness of the assessment.

During the pre-assessment meeting, learners were informed of what is expected of them in order to reduce anxiety, and put them at ease and eliminate misunderstanding and to maintain the integrity of the assessment process. The learners were each provided with an assessment activity workbook with clear guidelines on assessment as part of the portfolio of evidence (POE).

Picture 3 Group of learners at Matlosana Municipality

The learners were assessed on the agreed date, at a suitable venue, and with adequate assessment resources as per the Learner Assessment Contract. The summative assessments and assessment activity workbooks, together with portfolio of evidence were assessed to judge if the learners were competent or not yet competent.

Competencies demonstrated

The following assessment methodologies were used to assess competency of the learners as prescribed in the unit standards:

• Written questions, in the form of summative assessments and activity workbooks were completed and formed part of the portfolio of evidence.

• The learners were asked to demonstrate some practical concepts under observation.

• The evidence to determine competency was provided in the form of a Portfolio of Evidence Judgment against the competencies of the unit standards

Evidence was presented in order to make a judgment on the competencies of the learners against the competencies of the unit standard. The portfolio of evidence were used as the main instrument to collect information for the process of assessment. The evidence provided was checked against the unit standards for authenticity, consistency, sufficiency, validity and whether it was current and sufficient.

Feedback on assessment to the learner

Feedback to learners were done on the last day of training, at venues where training was facilitated. All learners attended to remedial actions, as they have to comply with the requirements of the Unit Standard. Each learner was assessed individually as prescribed by the Assessment Procedural Plan. Learners were informed of the progress made, and each learner was enabled to identify areas of improvement.

Similar livestock farmers' training are expected to be conducted in various provinces in order to empower and develop livestock farmers in the country.

agriculture & rural development

Department:
Agriculture and Rural Development
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

The basic essentials of cattle breeding and farming

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1. Farm with a breed adapted to your area and conditions

The more extensive or "tough" your conditions are the more Bos indicus type or Sanga type animals you should farm with. Synthetic breeds with Brahman influence like Brangus or Simbra would work well in these conditions. Also, Sanga type like Nguni or Afrikaner or their synthetics like Bonsmara do well in tough conditions. "Good" or more intensive conditions with a higher stocking rate would be best utilized with more Bos Taurus type cattle like Simmentaler or Charolais.

Synthetics with both Bos Taurus and Bos indicus or Sanga background are adapted to a wide range of conditions and that is why they are so popular. Bovelder, Brangus, Simbra are examples. Basically speaking the "better" your conditions the higher producing breed type you should breed with and vice versa.

2. The veld or pasture on your farm is the factory and starting point for your cattle farming.

Look after your veld! This implies the correct stocking rate for your area and a full growing season rest for at least a third of your veld every year. The rested veld is then utilized in the dormant or winter season in the summer rainfall areas.

3. Farm with nature

Your cattle should calve in the spring in the summer rainfall areas so that cows can produce enough milk for their calves and also have enough body condition to get back into calf for the following spring. This implies a strict mating and calving season. For example, start mating the end of November and take the bulls out the end of February. Make sure your heifers are 65% of mature body mass when mating. Example if cows weigh round 500 kg the heifers should weigh at least 325 kg at mating.

With breeding seasons, one quickly determines which females are not pregnant and skipping calving. Use the correct licks for your area. Usually it's a phosphate lick in summer and a protein lick in winter.

4. Herd health and monitoring for STD (sexually transmitted diseases) is vitally important.

Regular bull tests for trichomonas and vibriosis is very important. One must be able to control your bulls when cattle breeding. This implies keeping them on your farm and preferably never in perimeter camps where they could make contact with other cattle. Also try to put pregnant females or weaners in perimeter or boundary camps so that outside bulls cannot mate with your cattle. Good boundary fences are essential.
A veterinarian is an essential partner in your cattle business.

5. Fertility of your herd is the most important economic factor by far.

The management aspects of fertility have been touched on above. The genetic aspects are

equally important. Use bulls with good fertility figures and above average scrotal size figures. Let stud breeders advise you on good fertility breeding values.

6. Have a breeding goal
Just as stud breeders have breeding goals so too must each commercial farmer have one. Usually weaner production is the system followed. Therefore, one wants easy calving and good growth to weaning in your herd. Cow mass should always be kept in check as bigger cattle have higher maintenance requirements and herd fertility will suffer. Use bulls that have the estimated

breeding values (EBV's) to give you those results you require.

Crossbreeding is an amazing tool for increasing herd productivity. It can only work if it is planned crossbreeding. Let a consultant or mentor help you with this. Otherwise, you may end up with a mixed herd of various breed types.

Remember "the eye of the farmer makes his cattle fat." This saying implies that you should regularly move among your animals and inspect them for problems.

Enjoy your cattle

Centralised growth test Schedules at ARC test centres for 2024

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CEDARA BULL TESTING CENTER – TEST DATES 2024
CEDARA BULTOETSSENTRUM – TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
1	27-12-23	03-01-24	31-01-24 / 24-04-24	01-05-24	28-04-23
2	24-01-24	31-01-24	28-02-24 / 22-05-24	29-05-24	26-05-23
3	21-02-24	28-02-24	27-03-24 / 19-06-24	26-06-24	23-06-23
4	27-03-24	03-04-24	01-05-24 / 24-07-24	31-07-24	28-07-23
5	24-04-24	01-05-24	29-05-24 / 21-08-24	28-08-24	25-08-23
6	22-05-24	29-05-24	26-06-24 / 18-09-24	25-09-24	22-09-23
7	26-06-24	03-07-24	31-07-24 / 23-10-24	30-10-24	27-10-23
8	24-07-24	31-07-24	28-08-24 / 20-11-24	27-11-24	24-11-23
9	21-08-24	28-08-24	25-09-24 / 18-12-24	25-12-24	22-12-23
10	25-09-24	02-10-24	30-10-24 / 22-01-25	29-01-25	26-01-24
11	23-10-24	30-10-24	27-11-24 / 19-02-25	26-02-25	23-02-24
12	27-11-24	04-12-24	01-01-25 / 26-03-25	02-04-25	29-03-24

For enquiries relating to the Cedara bull testing centre please contact
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ELSENBURG BULL TESTING CENTRE - TEST DATES 2024
ELSENBURG BULTOETSSENTRUM - TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
1	22-01-24	25-01-24	22-02-24 / 16-05-24	17-05-24	20-05-23
2	12-02-24	15-02-24	14-03-24 / 06-06-24	07-06-24	10-06-23
3	11-03-24	14-03-24	11-04-24 / 04-07-24	05-07-24	08-07-23
4	06-05-24	09-05-24	06-06-24 / 29-08-24	30-08-24	02-09-23
5	22-07-24	25-07-24	22-08-24 / 14-11-24	15-11-24	18-11-23
6	23-09-24	26-09-24	24-10-24 / 16-01-25	17-01-25	20-01-24
7	09-10-24	12-10-24	09-11-24 / 01-02-25	02-02-25	05-02-24
8	21-10-24	24-10-24	21-11-24 / 13-02-25	14-02-25	17-02-24
9	11-11-24	14-11-24	12-12-24 / 06-03-25	07-03-25	09-03-24

For enquiries relating to the Elsenburg bull testing centre please contact
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E-mail: ManyongwanaR@arc.agric.za

GLEN BULL TESTING CENTRE - TEST DATES 2024
GLEN BULTOETSSENTRUM - TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
13	10-08-23	17-08-23	14-09-23 / 07-12-23	14-12-23	10-12-22
14	07-09-23	14-09-23	12-10-23 / 04-01-24	11-01-24	07-01-23
15	05-10-23	12-10-23	09-11-23 / 01-02-24	08-02-24	04-02-23
16	02-11-23	09-11-23	07-12-23 / 29-02-24	07-03-24	04-03-23
17	30-11-23	07-12-23	04-01-24 / 28-03-24	04-04-24	01-04-23
1	28-12-23	04-01-24	01-02-24 / 25-04-24	02-05-24	29-04-23
2	25-01-24	01-02-24	29-02-24 / 23-05-24	30-05-24	27-05-23
3	22-02-24	29-02-24	28-03-24 / 20-06-24	27-06-24	24-06-23
4	21-03-24	28-03-24	25-04-24 / 18-07-24	25-07-24	22-07-23
5	18-04-24	25-04-24	23-05-24 / 15-08-24	22-08-24	19-08-23
6	16-05-24	23-05-24	20-06-24 / 12-09-24	19-09-24	16-09-23
7	12-06-24	20-06-24	18-07-24 / 10-10-24	17-10-24	14-10-23

For enquiries relating to the Glen bull testing centre please contact
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E-mail: moshounyanem@arc.agric.za

IRENE BULL TESTING CENTRE - TESTDATES 2024
IRENE BULTOETSSENTRUM - TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
12	15-11-23	16-11-23	14-12-23 / 07-03-24	14-03-24	12-03-23
1	01-01-24	02-01-24	30-01-24 / 23-04-24	30-04-24	28-04-23
2	24-01-24	25-01-24	22-02-24 / 16-05-24	23-05-24	21-05-23
3	19-02-24	20-02-24	19-03-24 / 11-06-24	18-06-24	16-06-23
4	20-03-24	21-03-24	18-04-24 / 11-07-24	18-07-24	16-07-23
5	22-04-24	23-04-24	21-05-24 / 13-08-24	20-08-24	18-08-23
6	29-05-24	30-05-24	27-06-24 / 19-09-24	26-09-24	24-09-23
7	01-07-24	02-07-24	30-07-24 / 22-10-24	29-10-24	27-10-23
8	24-07-24	25-07-24	22-08-24 / 14-11-24	21-11-24	19-11-23
9	26-08-24	27-08-24	24-09-24 / 17-12-24	31-12-24	22-12-23
10	02-10-24	03-10-24	31-10-24 / 23-01-25	30-01-25	28-01-24
11	21-10-24	22-10-24	19-11-24 / 11-02-25	18-02-25	16-02-24

For enquiries relating to the Irene bul ltesting centre please contact
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E-mail: hendriksj@arc.agric.za

VRYBURG BULL TESTING CENTRE - TEST DATES 2024
VRYBURG BULTOETSSENTRUM - TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
1	09-01-24	11-01-24	08-02-24 / 02-05-24	06-05-24	06-05-23
2	06-02-24	08-02-24	07-03-24 / 30-05-24	03-06-24	03-06-23
3	05-03-24	07-03-24	04-04-24 / 27-06-24	01-07-24	01-07-23
4	03-04-24	04-04-24	02-05-24 / 25-07-24	29-07-24	29-07-23
5	25-04-24	02-05-24	30-05-24 / 22-08-24	26-08-24	26-08-23
6	28-05-24	30-05-24	27-06-24 / 19-09-24	23-09-24	23-09-23
7	25-06-24	27-06-24	25-07-24 / 17-10-24	21-10-24	21-10-23
8	23-07-24	25-07-24	22-08-24 / 14-11-24	18-11-24	18-11-23
9	20-08-24	22-08-24	19-09-24 / 12-12-24	17-12-24	16-12-23
10	17-09-24	19-09-24	17-10-24 / 09-01-24	13-01-25	13-01-24
11	15-10-24	2024/10/17	14-11-24 / 06-02-25	10-02-25	10-02-24
12	12-11-24	14-11-24	12-12-24 / 06-03-25	10-03-25	09-03-24

For enquiries relating to the Vryburg bull testing centre please contact
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E-mail: tebogo@arc.agric.za

WINTER CASTLES BULL TESTING CENTRE - TEST DATES 2024
WINTER CASTLES BULTOETSSENTRUM - TOETSDATUMS 2024

Test number Toets Nommer	Arrival Aankoms	Adaption Aanpassing	Test period Toets periode	Departure Vertrek	Born after Gebore na
1	15-01-24	17-01-24	14-02-24 / 08-05-24	09-05-24	12-05-23
2	12-02-24	14-02-24	13-03-24 / 05-06-24	06-06-24	09-06-23
3	11-03-24	13-03-24	10-04-24 / 03-07-24	04-07-24	07-07-23
4	04-04-24	10-04-24	08-05-24 / 31-07-24	01-08-24	04-08-23
5	13-05-24	15-05-24	12-06-24 / 04-09-24	05-09-24	08-09-23
6	17-06-24	19-06-24	17-07-24 / 09-10-24	10-10-24	13-10-24
7	08-07-24	10-07-24	07-09-24 / 30-10-24	31-10-24	03-11-23
8	12-08-24	14-08-24	11-09-24 / 04-12-24	05-12-24	08-12-23
9	16-09-24	18-09-24	16-10-24 / 08-01-25	09-01-25	12-01-24
10	14-10-24	16-10-24	13-11-24 / 05-02-25	06-02-25	09-02-24
11	11-11-24	13-11-24	11-12-24 / 04-03-25	05-03-25	08-03-24

For enquiries relating to the Winter Castles bull testing centre please contact
Brent McNamara at Cell: +27 (0)84 819 291 • E-mail: Brent.Mcnamara@agriec.co.za
The site is located in Alexandria, Eastern Cape

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