

In memory of Bryan Harvey

Bryan Harvey, who has died just weeks short of his 56th birthday, was the son of Len Harvey, founder of the Tuli breed.

Bryan was born on the 27th March 1954 at Gwanda where he spent his early years at the Tuli Breeding Station. Here, it is said, he was exposed to the Tuli and his father's love for and dedication to the breed from his earliest receptive moments. This was to influence his own passion and enthusiasm for the Tuli for the rest of his life.

Bryan matriculated at Plumtree High school and after two years military service went on to complete a degree in Agricultural Economics at the University of Natal, Pietermaritzburg. After graduating he held various jobs in Zimbabwe but in 1978, at the ripe old age of 24, he bought his first Tulis and started weekend farming in Shangani with his parents.

1979 proved to be an eventful year in his life. While doing military service he was involved in an action during which he was shot in the legs. This incident caused him to be hospitalized for two months and left him with a limp for the rest of his life. This

did not, however, stop him from walking down the aisle with his bride, Cherine, later that year. Three children Tarin, Fraser and Devlin were born to them in the years that followed.

Cherine fully supported Bryan and stood behind him in all his endeavours, sharing his passion for the Tuli. On his father Len's retirement Bryan moved his parents to Linslade Farm, Gweru, and the company, Len Harvey & Sons, was founded. Adjoining land was purchased and the Lebar Tuli Stud was started. They purchased a number of females from various breeders and bulls from the Tuli Breeding Station. Within 16 years Bryan had grown the stud herd to over 400 breeding cows - the largest Tuli herd in Zimbabwe. Were it not for the political situation in that country and the fact that much of Linslade and many surrounding farms were lost in the so called land acquisition program, Bryan would no doubt have reached his target of 600 breeding cows.

Bryan and Cherine did not give up, though. Despite having to sell off a large number of animals Bryan continued to



(27.3.1954 – 9.3.2010)

farm with his beloved Tulis on farms he rented all over. Adversity, if anything, prompted him to foster with greater vigour the proud legacy his father had left cattle breeders all over the world. Besides the Tulis, Bryan also ran a Holstein dairy herd which at one time numbered as many as 180 cows.

Bryan's skills, drive and passion played a large part in spreading Tuli genetics across the world. Today progeny from the Lebar Tuli Stud can be found on three continents and 10 countries. He will be remembered and his legacy nurtured.

Our thoughts and gratitude go out to Cherine and the children, for the irreplaceable loss they have suffered and for the support and encouragement they gave Bryan over the years which, to a large extent, enabled him to achieve what he did.

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Bestuur van verse en eerstekalkoeie vir verhoogde reproduksie en maklike kalwing

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Enige vleisbeesboer wat sy sout werd is weet dat reproduksie die belangrikste beperkende faktor is wat die produksiedoeltreffendheid van sy kudde beïnvloed. Ten spyte hiervan, is dit onrusbarend om te sien hoeveel beesboere steeds die reproduksiebestuur van hul kuddes verwaarloos.

Reproduksiebestuur rus op vier bene, naamlik voeding, kuddegesondheid, (veral geslagsiektes), seleksie vir vrugbaarheid en paringsbestuur. Ons gaan hier spesifiek fokus op bestuurspraktyke by verse en eerstekalkoeie wat daarop gemik is om verse maklik te laat kalf en eerstekalkoeie weer vinnig in kalf te kry, aangesien hierdie aspekte die mees algemene probleme is wat beesboere ondervind met reproduksiebestuur. As gevolg van die hoë koste verbonde daaraan om 'n vers groot te maak tot na eerste kalwing, kan geen boer dit bekostig om jong koeie op hierdie kritiese stadium van hul reprodusiewe lewe te verloor nie.

Die primêre doelwit met versbestuur moet wees om verse dragtig te kry voordat hulle 27 maande oud is, sodat hulle sal kalf voordat hulle 36 maande oud is. Die gewig, kondisie en groeitempo van verse is belangriker aanduiders as ouderdom om te bepaal wanneer verse die eerste keer gedek kan word. Indien verse te swaar en/of te vet sou word om op 24 maande ouderdom te paar, kan dit oorweeg word om hulle op ongeveer 18 maande ouderdom te paar, mits voldoende goeie kwaliteit weiding en/of oesreste, hooi of kuilvoer beskikbaar is na kalwing om te verseker dat hul kondisie optimaal bly vir herkonsepsie. Indien sulke verse dan ses maande gerus word voordat hulle weer gedek word (om dan in die hoof kalfseisoen te kalf), sal dit hoër herkonsepsie verseker.

Die volgende bestuurspraktyke kan gevolg word om die reproduksiedoeltreffendheid van verse en eerstekalkoeie te verbeter:

- **Maak seker dat die koeie inpas by die produksie-omgewing.** Waak veral teen grootraam koeie waar die beskikbaarheid van voedsel beperkend is. Omdat eerstekalkoeie self nog groei en 'n kalf soog, is hul voedingsbehoefte baie hoog en sal hul reproduksie noodwendig daaronder lei indien hul baie kondisie verloor.
- **Bestuur verse en eerstekalkoeie apart.** Dit is baie belangrik dat verse, vandat hulle gespeen is totdat hulle die tweede keer kalf, as 'n aparte groep of groepe bestuur word. Dit sluit in meer aandag, die beste kampe, strategiese byvoeding en 'n spesiale gesondheidsprogram.
- **Kry verse op 65% van verwagte volwasse gewig by paring.** Indien die volwasse koeie gemiddeld 500kg weeg, moet die verse dus 325kg weeg aan die begin van die teelseisoen.
- **Gebruik 'n kort teelseisoen.** Die teelseisoen van verse behoort ideaal gesproke slegs 45 tot 65 dae te wees om druk te plaas op vrugbaarheid.
- **Paar verse 4 tot 6 weke voor die koeie se teelseisoen begin.** Deur verse vroeër as die koeie te paar, gee dit hulle 'n langer postpartum herstelperiode. Hierdie praktyk moet egter slegs oorweeg word indien die verse voldoende voeding kry vóór kalwing en ook ná kalwing totdat voldoende groen gras beskikbaar

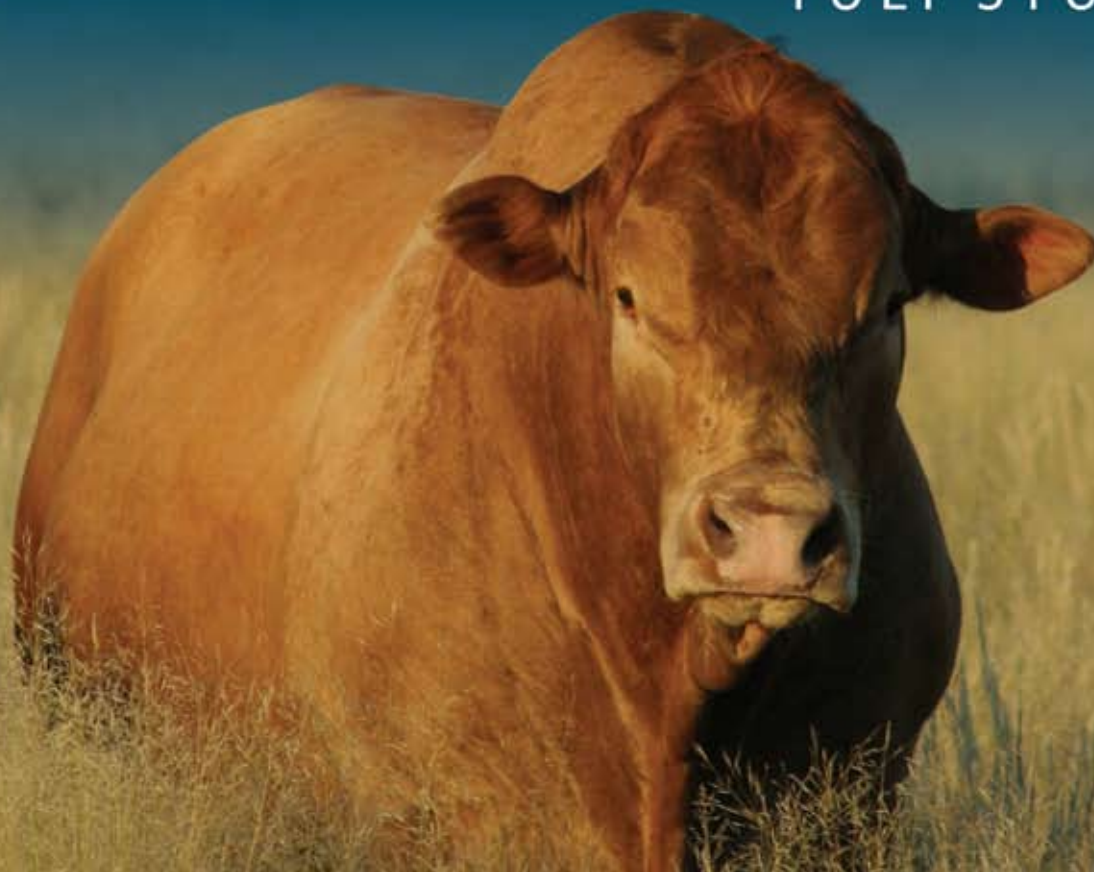
is, anders kan dit die probleem vererger!

- **Paar meer verse as wat nodig is vir vervangings.** Meer verse (tot 50% meer) as wat nodig word vir vervanging behoort gepaar te word, sodat daar voldoende dragtige verse beskikbaar is om alle nie-dragtige koeie en koeie wat vir ander redes uitgeskot moet word te vervang.
- **Oorweeg sinchronisasie van verse.** Die doel hiermee is om verse vroeg dragtig te kry gedurende 'n kort teelseisoen. Sinchronisasie is 'n redelik algemene praktyk by KI, maar hou ook voordele in by naruurlike dekking.
- **Meet verse se pelvisopening voor paring.** Ten einde verse wat moeilik sal kalf vroegtydig te identifiseer, kan hul pelvisiese openinge deur 'n veearts gemeet en die met klein pelvisopening uitgeskot word voordat die teelseisoen begin. 'n Vers wat maklik kalf se baarmoeder en geboortekanaal herstel vinniger en sy kom gouer weer op hitte as 'n vers wat moeilik kalf.
- **Gebruik beproefde gemak van kalwing bulle op verse.** Moeilike kalwing verleng die postpartum herstelperiode wat lei tot swakker herkonsepsie. Gebruik dus slegs bulle met 'n relatief lae teelwaarde vir geboortegewig op verse om maklike kalwing te verseker.
- **Gee aan eerstekalkoeie die beste beskikbare voeding.** Die voorsiening van die beste beskikbare voeding (hetsy weiding, hooi of mieliereste en lek) aan eerstekalkoeie nadat hulle gekalf het is krities om aan hul hoë voedingsbehoefte te voldoen en te verhoed dat hulle kondisie verloor.
- **Verminder oormatige energie byvoeding in die laaste drie maande van dragtigheid.** Indien nodig, kan addisionele energie gedurende die

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laaste 50 dae van dragtigheid gegee word om te verseker dat verse se kondisietelling 3 - 3½ (op 'n 5-punt skaal) is by kalwing. Wees egter versigtig, aangesien oormatige energie byvoeding in die laaste drie maande van dragtigheid kan lei tot groot kalwers en moeilike kalwing.

- **Voorsien 'n prikkellek 21 dae voor die teelsiesoen begin.** Die voorsiening van 'n prikkellek 21 dae voor die teelsiesoen begin tot 42 dae in die teelseisoen, sal meehelp om 'n hoë konsepsiesyfer te behaal.
- **Voorsien ionofore aan koeie na kalwing om die benutting van voer te verbeter.** Verskeie studies het getoon dat die voer van ionofore na kalwing voerkostes met slegs ongeveer 12c/dag verhoog, maar dat dit die postpartum interval verkort met gemiddeld 18 dae, mits voldoende energie beskikbaar is.
- **Stel verse en eerstekalkoeie bloot aan koggel bulle.** Die blootstelling van verse en eerstekalkoeie aan koggel- of steriele bulle of geandrogeeniseerde koeie vir minstens 9 dae voor die begin van die teelseisoen, sal hulle stimuleer om te begin ovuleer en meehelp dat hulle vroeg in die teelseisoen dragtig word.
- **Gebruik 'n hoër verhouding bulle by verse.** Die gebruik van 'n hoër verhouding bulle by verse – veral gedurende die eerste 21 dae van die teelseisoen – kan voordelig wees.
- **Verleen vroegtydig hulp by moeilike kalwings indien hulp benodig word.** Nadat 'n vers 1½ uur in stadium 2 (hoewe sigbaar) van kalwing was, sal elke addisionele 30-minute vertraging in hulpverlening lei tot 'n addisionele ses dae in die interval tot sy weer dragtig word.
- **Speen kalwers vroeg speen gedurende droogtes of voedingstekorte.** Vroeë speen van kalwers (tot 40 dae vroeër) is volgens navorsing een van die beste metodes om die reproduksiedoeltreffendheid van eerstekalkoeie te verbeter, aangesien dit voorkom dat hierdie koeie te veel kondisie verloor.

Elektroniese Data – Voordele en Besparing

Leslie Bergh, LNR-Diereproduksie-instituut, Irene

Soos die meeste van u waarskynlik bewus is, maak die Skema voorsiening vir twee opsies om data te stuur/ontvang, naamlik 'n papier opsie en 'n elektroniese opsie.

Die aantal kuddes wat gebruik maak van die opsie om data (geboortekenningsgewings, prestasietoetsdata, oordragte en kansellaries) elektronies in te stuur en terug te ontvang, het die afgelope drie jaar sterk toegeneem. Meer as 55% van alle kuddes wat deelneem aan die Skema maak reeds gebruik van die elektroniese opsie. Dit verteenwoordig ongeveer 75% van alle prestasietoetsdata wat ontvang word.

Voordele:

Die voordele om data elektronies te stuur, is kortliks die volgende:

- **Maklik:** Met vleisbeesbestuur sagteware soos BeefPro kan u baie maklik elektroniese datalêers (geboortekenningsgewings, prestasietoetsdata, oordragte en kansellaries) skep en per e-pos stuur aan Stamboek of die LNR.
- **Laer kostes:** Die 2009/10 per kapita fooie van die Vleisbeesskema maak voorsiening dat kuddes wat gebruik maak van die elektroniese data opsie 63% minder betaal as kuddes wat gebruik maak van die papier opsie (R2-50 vs R4-00 per dier, BTW uitgesluit). Vir 'n kudde met 300 diere beteken dit 'n besparing van R450 per jaar.
- **Minder risiko dat data verlore kan raak:** Elektroniese versending van data deur middel van e-pos is baie meer betroubaar as met gewone (slakke) pos.
- **Vinniger verwerking en terugvoer:** U kan binne 'n paar uur nadat u die direse se gewigte ingestuur het, reeds u amptelike indekse, ens. terug hê op u rekenaar.
- **Minder foute:** Vleisbeesbestuur sagteware soos BeefPro kontroleer dat alle data volledig en korrek is voordat dit gestuur kan word. Vertraging in verwerking van data as gevolg van foute en navrae word dus grootliks

uitgeskakel. Data hoef ook nie weer by Intergis gepons te word nie, wat moontlike ponsfoute uitkakel.

- **Spaar tyd, papier, posgeld en petrol:** U hoef nie verslae te druk, poskantoor toe te ry en seëls te koop om dit te pos nie.

Ons wil graag almal wat nog nie gebruik maak van die elektroniese data opsie nie, aanmoedig om dit te oorweeg. Kontak asseblief u plaaslike LNR streekskantoor om dit te reël. Indien u belang stel om BeefPro aan te koop om gebruik te maak van die elektroniese data opsie, kontak ook asseblief u plaaslike LNR streekskantoor.

Wie kan dit gebruik?

Alle deelnemers wat oor 'n e-pos adres en die nodige bestuurssagteware (soos BeefPro) beskik wat u in staat stel om data in die voorgeskrewe elektroniese formaat te stuur, kan gebruik van van hierdie opsie. Let asseblief op dat slegs deelnemers wat die elektroniese data opsie gekies het EN hul data in die voorgeskrewe elektroniese formaat instuur, die voordeel sal geniet van die laer per kapita fooie. Om te kontroleer op watter data opsie u kudde tans is, gaan na Logix (www.logix.org.za) > Navrae > Deelname > Deelnemer Besonderhede > Elektroniese Data Opname. Indien u opsie nie korrek is nie, kontak u LNR streekskantoor om dit te verander.

Watter formaat?

Let asseblief op dat SLEGS data wat in txt of csv formaat gestuur word, as "elektroniese" data beskou word vir doeleindes van opname op Intergis. [Data wat ander formate (byvoorbeeld pdf, Excel of Word) gestuur word, word NIE as elektroniese data beskou nie, aangesien dit NIE direk opgeneem kan word op Intergis nie en dus weer gepons moet word deur Intergis personeel].

Om data in elektroniese formaat uit BeefPro te stuur, gaan na Data Stuur/Opneem > Stuur en kies dan die betrokke data wat u wil stuur (Parings/KI, Geboortekenningsgewings, Prestasietoetsdata, Oordragte en Kansellaries). Gebruik die Hulp funksie op die betrokke skerm of skakel u BeefPro agent indien u onseker is oor hoe die funksie werk.

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Inbreeding

is it a tool to be used by cattle breeders?

Leslie Bergh, ARC-Animal Production Institute, Irene

What is inbreeding?

Inbreeding is the mating of animals that are more closely related than the average animals in a breed. Inbreeding increases the proportion of homozygous (identical) gene pairs and decreases the proportion of heterozygous gene pairs.

This homozygous gene pairs would be desirable if the gene the animal received from each parent leads to superior performance. However, most animals carry undesirable genes that usually remain

hidden, unless the animal is homozygous. Because an inbred animal is more likely to be homozygous for any gene, the animal is more likely to express undesirable genes, and hence, undesirable traits.

Inbreeding depression

Inbreeding does not create undesirable recessive genes, but it does bring to light these unfavorable genes. This leads to inbreeding depression, which is a decline in average performance. Inbreeding depression has the greatest effect on traits associated with fitness and having low heritabilities, such as reproduction and calf survival. Other traits that are negatively affected are mothering ability, growth rate and cow productivity. Inbreeding thus has serious negative effects on overall animal performance, and hence, profitability. Inbreeding depression is essentially the opposite effect of heterosis (hybrid vigor), which is the advantage gained from crossing lines or breeds.

In a study reported in 1993 it was found that for Australian beef cattle a 1% increase in inbreeding resulted in an increase of one day in the calving interval and on average 2% less calves were weaned. For each 1% increase in inbreeding, weaning weight decreased with 0.4kg. Each 1% increase in the inbreeding of cows resulted in a further 0.3kg reduction in weaning weight of their calves, mainly due to poorer milk production.

There is scientific evidence that the rate of inbreeding is more important than the absolute value of inbreeding. Where the rate of inbreeding increases slowly, culling and strict selection criteria can be used to largely eliminate undesirable types and poor producers. Care should therefore be taken to keep inbreeding at a fairly low level by avoiding matings of brothers with sisters or parents with their offspring.

Inbreeding coefficient

Inbreeding of an animal is measured with the inbreeding coefficient. The inbreeding coefficient measures the percent increase

in homozygous gene pairs in an individual relative to the average of the population from which the individual came. If an animal has an inbreeding coefficient of 0.25, it is expected to have 25% more homozygous gene pairs than a non-inbred animal from the same population. The inbreeding coefficient can have any value between 0 (non-inbred) and 1 (100% inbred). A Full brother-sister mating will result in an inbreeding coefficient of 25%; a father-daughter mating also in 25%; a half brother-sister mating in 12.5%; a grand dam-grandson mating also in 12.5% and a cousin-cousin (common grandparents) mating in 6.25% (in all cases assuming that the parents are not already inbred).

Pre-potency

Inbreeding promotes an increase in pre-potency, which is the ability of a sire or dam to consistently pass on its characteristics. Pre-potency results from an increase in homozygosity. Since an inbred animal will have more homozygous gene pairs than a non-inbred animal, there are fewer possible gene combinations for the sperm or egg cells. As a result, the offspring should be more similar to each other. The advantage of pre-potency is more than counteracted by the decline in selection intensity and loss of genetic variation due to inbreeding.

Line breeding

Line breeding is simply a type of inbreeding where the aim is to maintain a high relationship to some outstanding ancestor while keeping inbreeding as low as possible. It has the advantage of maintaining genes from outstanding individuals that are no longer available for breeding purposes. The dangers of line breeding are the inevitable buildup of inbreeding and the possibility of line breeding to an inferior son of an outstanding bull.

Conclusions

Inbreeding should only be used by breeders who have a clear understanding of its purpose and risks. Unless approached very carefully, the dangers of inbreeding far outweigh the advantages. If an animal carries undesirable recessive genes, these genes would be expected to be brought to light by inbreeding.

Perhaps the most important aspect to remember about inbreeding is that practicing a high level of inbreeding will most probably result in a decline in average performance for various traits, especially traits related to reproduction and calf survival. This will inevitably lead to fewer progeny available to sell, calves with poorer performance and less attractive to most customers.

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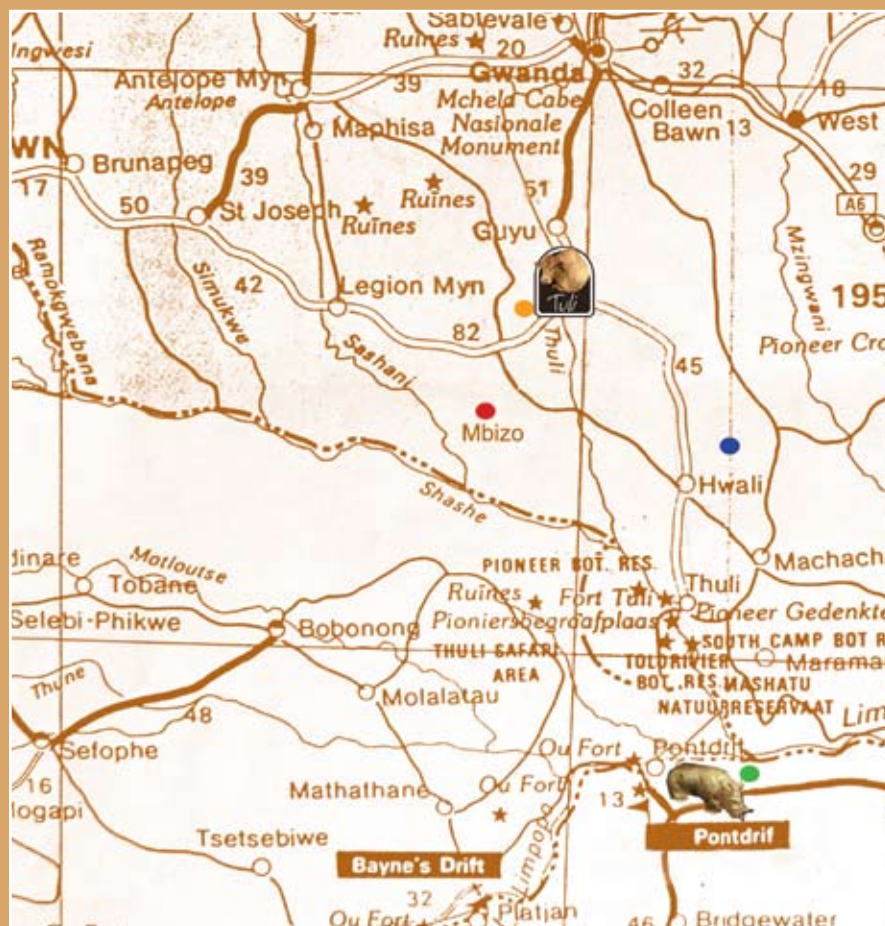
Cattle at Mapungubwe

At the confluence of the Limpopo and the Shashe Rivers lies South Africa's newest National Park, Mapungubwe, named after the 'kingdom' which flourished here around a thousand years ago. It was transferred to the SANParks in 1995 and declared a Unesco World Heritage Site in July 2003. So interesting is the area and rich the variety of plant life to be found here that already in 1922 it was declared a Botanic Reserve under the name Dongola. In the forties wheels were set in motion to create an enormous nature reserve, the Dongola Wild Life Sanctuary. It became a highly politicised issue when farmers, whose farms were to be expropriated, fought the project tooth and nail and the idea was eventually dropped. In the 1980's the archaeological site at Mapungubwe Hill and the nearby K2 was declared a National Monument.

Historic background

The modern day story of Mapungubwe really started in Dec 1932 when a teacher, Ernst van Graan, his son Jerry and some friends decided to investigate rumours of hidden treasures on the farm Greefswald on the banks of the Limpopo River. On reaching the flat summit of a sandstone hill, deemed to be sacred by the local black people, they discovered many ceramic vessels, human bones and a variety of gold objects. The discovery was brought to the attention of historian, Prof Leo Fouche from the University of Pretoria. He subsequently led the first expedition to Mapungubwe, and also edited the first book about it in 1937. Fouche accompanied his friend Jan Smuts, the opposition leader at the time and a keen amateur botanist, to the area soon after the discovery was made public in 1933. The farm Greefswald was subsequently bought for the nation while the University was to act as custodian of the treasures of Mapungubwe.

Up to the present a vast treasure of objects has been unearthed at nearly four hundred documented archaeological sites in the area - the most important being Mapungubwe Hill, its southern terraces,



- Tuli breeding station area
- Mapungubwe National Park
- One of the original foundation bulls was called Hwali and presumably came from here
- Foundation Sire Mbizo probably came from here

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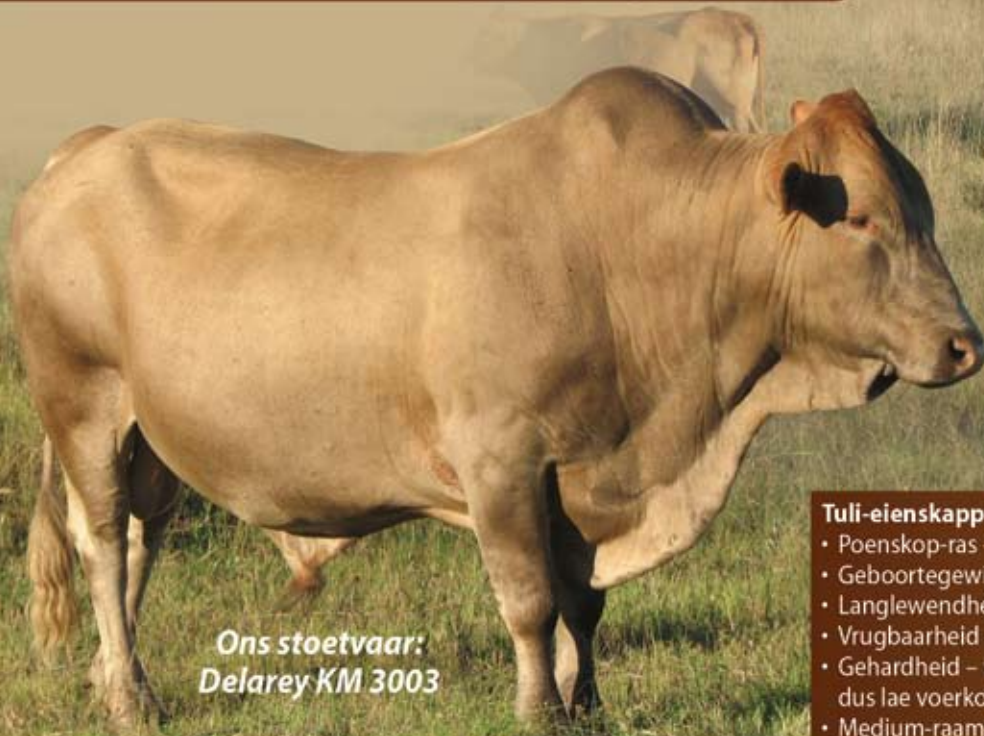
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Schroda and K2. Over the years every surge of interest and renewed efforts by historians, archaeologists and other scientists in the field have added more to our knowledge and understanding of the long forgotten people who lived in this valley. Today the 'Mapungubweans' are being claimed as ancestors by most of the modern tribes in the area - Venda, Shona, Karanga, etc - but no unbroken line can be drawn which conclusively links this early kingdom with any of the modern claimants.

The 'kingdom' of Mapungubwe predates that of Great Zimbabwe and was at one stage the largest early Iron Age community in the sub-continent. Over a period of 400 years, from about 900AD to 1290AD Mapungubwe rose to prominence, flourished and was then abandoned quite suddenly. Although it is now clear that the people were African and not, as postulated in the early years, Phoenicians, Arabs or some other unlikely possibilities, exactly where they came from and why they left is still being debated. Thousands of objects have been found over the years - clay pots and shards, clay figurines, iron and ivory or bone tools, glass and gold beads by the thousands and the remains of delicate gold covered wooden objects such as bowls, bangles, a ceremonial staff and animals, the most famous of which is a small gold rhinoceros which has today come to symbolise the so-called "African Renaissance".

All these discoveries have led scientist to conclude that this was a much more sophisticated civilization than had previously been believed possible of the



prehistoric inhabitants of Africa. There were skilled miners and metalworkers making practical as well as purely decorative objects for both personal use as well as trade purposes. Proof exists that they were traders with established trade links with Egypt, India and China, through ports on the east coast of Africa. Ivory and skins were exchanged for beads and cloth, and enough gold could be found in outlying districts to satisfy the demands of their trading partners. In the last 70 years of the kingdom of Mapungubwe, when the actual summit of the hill was occupied, their social structure had apparently evolved to include some sort of royalty or elite, removed from the ordinary people.

However, the most exciting thing about the Mapungubweans, for purposes of this Journal, is the fact that they were farmers. Although stone-age San hunter-gatherer probably roamed the Limpopo valley from before the birth of Christ and early Iron Age people, possibly with cattle, arrived around 500 AD they were replaced by this much larger farming communities who owned cattle, goats, sheep and even dogs as well as growing crops such as sorghum, wild millet, beans and cotton.

From the bone fragments in communal as well as family middens (rubbish dumps) it has become clear that up to 96% of the meat consumed by the Mapungubweans was from domestic animals and not wild game. This percentage decreased sharply towards the last years of the kingdom which points to a decrease in the animal numbers. Through complicated formulae and by measuring the depth of dung deposits in what remains of prehistoric cattle kraals it has been calculated that there could have been as many as 26,000 head of cattle in the area at the time. It is thought that roughly 9000 people lived at Mapungubwe just before the kingdom collapsed. Each ten member family unit required about 30 large animal units and the carrying capacity of this type of veld would only allow, at best, 1 such unit per 10-15 hectare so it follows that every 30 animals needed at least 300 hectares. For years experts have been speculating about the reasons behind the sudden



abandonment of Mapungubwe around 1290. Overgrazing has been suggested as a very possible reason and it makes sense if one calculates the area necessary to accommodate so many animals. A cataclysmic event such as the Black Death, which wiped out between a third and a half of the population of Europe in the years 1300, could have resulted in a sudden drop in population numbers. The availability of gold at Great Zimbabwe and the scarcity thereof at Mapungubwe could have given rise to the increased prominence of the former and the general decline of the latter. Other scenarios such as climate change – a 'Little Ice Age' has been mooted – , droughts, and livestock diseases such as that caused by tsetse fly, or Rinderpest and Anthrax could all have decimated the cattle herds and resulted in famine and the sudden abandonment of this 400 year old settlement.

Can our modern day Tuli be linked to Mapungubwe and it's ancient civilization?

In the early 1940's Len Harvey, father of the modern Tuli cattle breed, had become aware of beefy, yellow animal in some of the native herds in the southern bushveld of Zimbabwe (then Rhodesia), where he was Agricultural Officer. They always looked in better condition and among them he often saw polled animals. He persuaded the Government that a cattle improvement project, using these indigenous animals as basis, instead of exotic European breeds, would be a great idea. A piece of Crown Land, 40km southwest of Gwanda, was allocated to the project and after the necessary preparatory work had been completed Len and his fellow Agricultural officers set about identifying and buying animals from all over the adjacent area. Within a couple of months two foundations sires, Mahuke and Marupisi were selected as well as some 60 females. Mahuke was a scurred bull and in 1951 sired the first good quality, polled bull named Guyu, after the dry riverbed of the Guyu Creek in which he was born. Because Harvey specifically selected polled animals Guyu became the main Stud sire, in the early years of the Tuli Breeding Station (TBS) and had a massive influence on the mother herd. Most cattle breeds have a certain percentage of polled animals and this is also true of the Tswana type ancestors of the modern Tuli who

were to be found in this unique part of Africa where the modern geographical entities of Zimbabwe, South Africa and Botswana meet. Here it is interesting to note that amongst all the thousands of bones and fragments, horns and other skeletal parts of animals discovered at the archaeological digs around Mapungubwe some skulls of polled cattle were also found. Also, in October 2009 Pretoria University presented some newly restored treasures from the Mapungubwe trove to the media – among them a gold-plated, unmistakably bovine, humped and probably polled animal!!

Harvey named his golden cattle "Tuli", after the yellow sand of the Tuli River which ran through the TBS and eventually joins the Shashe river. This area has been described as *eragrostis/mopane* sweet Bushveld and resembles the Mapungubwe reserve closely. Geologically the area around Mapungubwe is an outlier of the Karoo System. Reddish yellow sandstone, shale and mudstone of the Cave Sandstone Age form the hills and valleys of the Limpopo valley. Although the archaeological sites directly associated with Mapungubwe are surrounded by mixed, open vegetation in which a spectacular number of Boabab trees stand out, a major part of the area up to the TBS is covered by mopane veld. *Colophospermum mopane* generally grows in association with a number of other trees and shrubs such as *Commiphora mollis* and members of the Combretum family in a somewhat sparse and tufted grassveld. *Eragrostis spp* dominate the grasses. Along the river banks a variety of *Acacia spp.* occur with other tall, well-leaved species. Many of these tree varieties have palatable leaves and this would account for the Tuli's inherent ability and inclination to both graze and browse.

Temperature between 18°C and 32°C in January and 4°C and 22°C in mid-winter is average for the area although temperatures as high as 42°C and as low as -7°C in July have been recorded. Frost is common between the months of June and August. Having evolved under these circumstances it is easy to understand why Tuli readily adapt to virtually all climatic conditions, whether it is in the middle of the Karroo, Australia or Canada.

The area from Mapungubwe north to beyond where the TBS used to be at Guyu is semi-arid and hot with erratic rainfall varying between 140mm and 500mm per annum. Between November

and March thunderstorms are common but so too are severe droughts. During dry periods the Limpopo dwindles to a mere trickle of water and the Shashe becomes a vast expanse of sand and both can be crossed at will by man and beast. It stands to reason that these rivers, which today demarcate the political boundaries between the Republic of South Africa, Botswana and Zimbabwe, cannot be regarded as ever having formed permanent geographical barriers, even between Iron Age communities and their livestock living on opposite banks.

Harvey's dream, the Tuli Breeding station, had been established within a 100km of the Mapungubwe site and many animals for his project were sources from much closer by. I think it does not take too fancy a flight of the imagination to speculate that some descendants of the cattle farmed by the Mapungubweans a thousand years ago may have survived to the present day in the modern Tuli.

The hypothesis about possible connections between the Tuli and Mapungubwe is entirely my own but the conclusions I've arrived at are, I believe, in the spirit of modern archaeology and related sciences – that is – not necessarily always based on facts but on what is possible and what is probable within a framework of what I myself want to believe.

Information related in the article was gratefully gleaned from scholarly tomes, theses and articles about Mapungubwe with the sole purpose of pointing the average cattle farmer and other interested parties in the direction of a field of knowledge about which he/she would not necessarily be aware as well as a wealth of published material which is not easily available to the uninitiated.

Carmen Welz

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Gehard, Gespleerd, vrugbaar met baie melk.

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AM 07-57

**Beste TKP
20-40 Koeie
2de 2009**

Teelbeleid

**Om funksioneel doeltreffende
diere te teel wat vrugbaar, gehard, en
aangepas is by uiterste omstandighede**

The origin of the indigenous Livestock of SA



According to the archeologists, South Africa was occupied solely by San hunter-gatherers before the time of Christ. These people survived by hunting game species rather than keeping domesticated livestock. The origin of the domesticated animals is thought to in the Middle East about 9 000 years ago. Sheep and goats were probably the first animals to be domesticated followed by cattle and pigs and, lastly, horses. There is evidence of further centres of domestication in the Indus valley and perhaps in the north of Africa in the Sahara region which had a considerably wetter climate at that time.

The processes of barter, warfare and migration resulted in a southern movement of the animals down the length of Africa. This southern migration took the nomads and their animals to the central lake area of Africa where they settled. At this stage, there was probably a mixing of breeds. Recent archeological finds suggest that a further southward migration from here may have arrived in South Africa as early as 400BC but, certainly, by 200 AD the Khoi-khoi pastoralists arrived at our northern borders with early sheep breeds. A second wave of migrations between the 3rd and 7th centuries brought early Iron Age communities into the eastern parts of the country with cattle, sheep, goats, chickens and, probably, pigs. By 600 to 900 AD there were large numbers of animals in the Limpopo valley and Lesotho but these populations crashed by 1000 AD presumably due to environmental constraints. At about this time Arabs brought their animals into Africa through the processes of trade and warfare. There is evidence of increasing and decreasing waves in the numbers of livestock in South Africa since that time, the last decrease taking place during the Zulu wars of the last century.

Although most of the evidence of early domesticated breeds has been found by archeologists, there are early records of domesticated livestock in Egyptian paintings and carvings in temples. There is also mention of domesticated sheep in Genesis. Later rock paintings are to be found in many regions of Africa - a particularly rich inheritance can be seen in South Africa.

A last phase of introduction began in the 16th to 17th century when European settlers brought their farm animals into the country. Many of these breeds, which included breeds of horses, donkeys and pigs, have adapted to their new environment.

The early domesticated livestock became adapted to the harsh African environment during their migration from the north and are hardy and disease tolerant. Despite these advantages, there is still a perception that adapted livestock breeds are inferior to exotic breeds due to their smaller size and lack of uniform colour. As a result, the numbers of the indigenous breeds are declining due to replacement and interbreeding with less-adapted imported breeds. Despite this decline in numbers, descendants of the early breeds of domesticated livestock still frequent the rural areas of South Africa.

Despite the fact that these remarkable animals are still surviving in Africa, the loss of some of the breeds is causing concern. In 1995, the World Watch List for Domestic Animal Diversity listed eight breeds in Africa as critically endangered, seven as endangered and fifteen at risk. These breeds are likely to be lost in the near future if immediate action is not taken.

Article courtesy of ARC



VEN TULI'S

Bergplaas - Mortimer - Cradock



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Tuli-bloed demp “verwarming”

Louw Pretorius

Aardverwarming laat wêreldkongresse sonder oplossings. Vleisbeesboere het egter 'n plan. Resultate met Tuli-bloed in belowende kruisteelt-navorsing in verskeie tropiese- en subtropiese lande – is wis en seker vir kennisneming.

Bo-aan die voorkeurlys vir kruisteling met die Tuli is die DNS-bewese feit dat die ras 'n *Bos taurus* met 'n verskil is. In kruisings met die Seboerasse sorg hulle vir 'n beter gehalte vleis. In kruisings met die Europese *B. taurus*-rasgroepe boet laasgenoemde nie vleisgehalte in nie, maar wen gehardheid in die vorm van genetiese aanpasbaarheid by uiterste klimaattoestande – warm of koud. Hulle is uitstekende benutters van en presteerders op natuurlike veld – selfs in droogtetye. Tulikalwers kan op die veld markklaar afgerond word.

Australiërs – die grootste rolspelers op die gebied van doelgerigte kruisteling, het hul eerste Tuli's in 1990 vanuit Zimbabwe ingevoer nadat 'n konsortium tussen 'n sindikaat van telers en die land se toonaangewende Navorsingseenheid, CSIRO, vir dié doel beslag gekry het. Dit toon minstens die erns waarmee Australiese boere en navorsers die Tuli toe al bejeën het. Rasegte skenkerdiere is by geregistreerde telers geselekteer en embrio's is by 'n kwarantynsentrum op die Cocos-eilande in die Indiese Oseaan in Australiese plaasvervangerkoeie geplaas. Sowat 20 Tuli-bloedlyne was in die 74 kalwers verteenwoordig waarmee die ras in dié nuwe land afgeskop het. Hieruit is uiteindelik die 12 primêre bullyne geselekteer wat die basis van die meeste Tuli's tans in dié land as onderbou het.

Wanneer die Australiese beesboere van kruisteling praat, moet jy weet dis 'n massale bedryf. Die land is statisties 7,686,850 km² groot (1 km² = 100 ha) waarvan die grootste noordelike gebiede 'woestyn' en harde tropiese grasvlaktes is. Tuli-bloed as draer van verdraagsaamheid gekombineer met prestasie in so 'n uiterste warm klimaat, is 'n belangrike rede vir hierdie boere en hul kundiges se erns ten opsigte van hul kruisteeltnavorsing – pertinent gemik op naderende aardverwarming.

Dié land se grootste enkele trop diere met Tuli-bloed behoort aan die 'North Australian Pastoral Company', (NAPCO). NAPCO was deel van die sindikaat betrokke by die CSIRO-invoere en is veral gefokus op die ontwikkeling van 'n aangepaste kruisras by

hul strawwe omgewing. Hierdie sogenaamde Kynuna-kruising is 'n samestelling van 3/8 Korthoring, 1/4 Tuli, 1/4 Rooi Angus en 1/8 Brahman. Die Tuli is ingeskakel veral weens die ras se droogte- en hitteverdraagsaamheid en ten spyte daarvan, goeie vleisgehalte en vrugbaarheid – laasgenoemde weens lae hormoonvlakke tydens melkafskieding wat dus nie ovulasie verhoed nie. NAPCO het meer as 3,000 Kynuna-kruiskoeie en 750 bulle wat progressief Tuli-genetika indra in hul Noord-Australiese kudde van 100,000 beeste.

NAPCO se voorbeeld is gevolg deur 'S. Kidman & Co Ltd.' (Kidman), hoewel aangepas by effens ander behoeftes soos die voorkeur vir poenskop diere op die strawwe tropiese grasvlaktes van Noord-Australië. Hierdie kruising bekend as "Coolibah" is saamgestel uit 'n eeuouwe inheemse kruising, naamlik die Murray Grey (1/4), Tuli (1/4), Charolais (1/4) en Brahman (1/4). Om die ontwikkeling van hierdie kruising verder te ondersteun het Kidman in 2007 NAPCO se vroulike rasegte Tuli-stoetery van 12 diere gekoop. In 'n KI-program word tans op die bloedlyne van net die vyf beste bullyne uit die aanvanklike 12 gekonsentreer ten opsigte van bouwvorm, 'n ligter kleur haarkleed en poenskoppe, sê mnr. Greg Campbell, hoof uitvoerende beampte (HUB) van Kidman.

Volgens hom behoort die vier-ras Coolibah-kruising 75 % basterkrag of genetiese aanpasbaarheid te kan handhaaf, terwyl hul kalwers by geboorte tussen 28 kg en 35 kg weeg met geen

kalfprobleme. Die haarkleed is kort en glad met 'n oorwegend egalige kleur wat wissel van wit tot rooi met voorkeur vir die ligter skakerings wat bevorderlik vir hitteverdraagsaamheid is. Die kalweres is 95 % poenskoppe. Almal word gebore in die land se noordelike somerhitte met 'n absolute minimum verlies weens hittestres soos ook by aangrensende Brahman- en Charbray-kuddes word tans op twee verskillende plekke in dié droë trope proefondervindelik getoets. Sou die Coolibrah die beste vaar ten opsigte van vrugbaarheid, groei en opbrengs, sal teelprogramme vir dié kruisras aansienlik opgeskerp en uitgebrei word na 'n uiteindelijke noordelike Coolibrah-kudde van 80,000", sê Campbell.

Interessant: In diereteelt is dit sogenaamd 'edel' om nie die doelpale (lees rasse) met mekaar te vergelyk nie. Tog is dit dikwels die aard en gehalte van die speelveld (lees *aardverwarming*) wat die spelpatroon bepaal. Luister dus fyn wat Campbell verder oor die Tuli in Australië sê.

"Tuli's in Australië word gekniehalter deur 'n baie nou plaaslike genepoel, uitsluitlik weens uitermate streng eie kwarantynvereistes. Vir die vinnigste genetiese vordering met 'n ras soos die nuwe Coolibrah is die ideaal om sowat 15 topgehalte Tuli-bloedlyne beskikbaar te hê waarvan minstes 12 nog ingevoer

met dié drie rasse in 'n klein navorsingskudde met 'n driehoek-kruisprogram in 'n koei/kalf-stelsel by Kingswood, Texas. 'n Intensiewe wisselstelsel van drukkeweiding word op natuurlike veld toegepas. Die gemiddelde somerreënval is 660 mm/jaar met temperature van tot 45 °C. Net die minimum aanvullende voeding word in die wintermaande gebruik, terwyl proefresultate in groot kommersiële kuddes deeglik geverifieer word. Beide die N'dama uit Senegal en die Tuli uit Zimbabwe is oor 5 000 jaar deur die natuur geselekteer midde-in die warm tropiese omgewing verder geteister deur lang droogtes en inheemse parasiete.

'n Deel van Lukefahr se navorsing dek ook die genetiese invloed ten opsigte van kleurverskeidenheid by die Tuli. Ook die Amerikaanse mark verkies die ligter kleurskakerings soos die Australiërs weens beter hitteverdraagsaamheid gepaard met beter voerinnamte en dus ook prestasie in die warm somers, sê hy.

Sy driehoek-kruisprogram het in 2000 begin, maar dis eers sedert 2007 dat die meeste koeie 'n kruising van al drie rasse is. "Hierdie genetiese smeltpot verteenwoordig 'n kombinasie van gewenste eienskappe soos poenskoppe, 'n gladde haarkleed vanaf wit, deur geel tot 'n rooi kleur, vroeë puberteit, ligte maar welvarende kalwers, klein spene maar optimale melkproduksie, lae parasietbesmetting en uitstaande vleisgehalte met gewenste marmering. Fyn vertikale velplooie vergroot veloppervlakte en bevorder verdamping tydens afkoeling. Volwasse koeie weeg

moet word. Embrio's is uiteraard die oplossing. Vir dié doel gaan Suid-Afrikaanse bloedlyne geïdentifiseer word wat geen verband met die huidige in Australië het nie. Daar is baie telers in Suid-Afrika met goeie stamboom- en prestasierekords van hul Tuli's. Kidman het egter nog vyf jaar nodig voordat met sekerheid gesê kan word dat hul Coolibrah-kruising die antwoord vir 'n nog warmer noordelike landstreek is. Dan sal bykomende nuwe bloedlyne die absolute voorkeur moet geniet", aldus Campbell.

Gaan die Suid- en Suider-Afrikaanse vleisbeesbedryf – navorsing inkluis – vir die Coolibrah wag om hierdie aangepaste genetika weer terug te kan invoer? Eina!

Die feit dat soortgelyke resultate wat in die voorgenoemde megaboerdery realiseer ook in die suide van Texas, VSA, se droë en warm ongunstige klimaat by temperature van tot 45 °C volhoubaar kan wees in kleiner kuddes op nagenoeg 146 ha natuurlike veld met drukkeweiding asook spaarveld vir winter of droogtes, spreek boekdele. Inligting hieroor is vervat in 'n vorderingsverslag deur dr. Steven Lukefahr, professor in genetika aan die Texas A&M Universiteit by Kingsville, VSA, en enkele medewerkers. Lukefahr is bekend in Suid-Afrika op grond van sy intense belangstelling in en waardevolle navorsing oor die genetiese potensiaal van die Tuli en ander bekende poenskop rasse soos die Angus en Senepol. Laasgenoemde het in die VSA beslag gekry uit die N'dama-ras van Wes-Afrika. Hy boer self

gewoonlik 1,000 pd. tot 1,100 pd. (nagenoeg 450 kg tot 500 kg) met 'n 4 tot 4½ telling vir raamgrootte en 'n kondisietelling van gewoonlik 6. Die jaarlikse uitskot van koeie is minder as 10 %. Dis ook nie vreemd nie dat kalwers op die ouderdom van ses tot sewe maande teen 60 % tot 70 % van hul ma se gewig speen. 'n Hoë vlak van genetiese aanpassing (86 %) bly behoue in die kruiskudde deur telkens die rotasie van rase te herhaal", sê Lukefahr.

Die tersaaklike verslag is gelaai met interessante inligting ten opsigte van die inherente verhouding tussen dier én omgewing. Dis 'n redelik uitgemaakte saak dat inheems aangepaste Afrika-rasse en veral die relatief maklik bekombare Tuli waarvan die beste genetika wêreldwyd tans in Suid-Afrika gesentreer is, 'n leeuandaal het ten opsigte van 'n genetiese bydrae in die lig van aardverwarming. Die kinkel in die kabel blyk in die huidige stadium nog navorsing oor optimale natuurlike weigewasse en die volhoubare bestuur daarvan te wees. Trouens, resultate in die verslag is hoofsaaklik gegrond op proefondervindelike waarnemings, bestuurspraktyke en rekords in hierdie verband. Volgens Lukefahr moet die bevindings egter nog in beheerde proewe bevestig word voordat dit aan die groot klok gehang kan word.

Landbouweekblad 7 Mei 2010

ARTHUR SCHULZE
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Stud sire HBH 04-858

**TULI BULL SEEN AT
NAMPO 2009**

Ons strewe is om sorgvrye mediumraam beeste te teel wat aangepas is by hul omgewing. Om hierdie rede word insette beperk tot die minimum. Streng seleksie vir reproduksie waar alle oop diere geprul word na 'n kort teelseisoen versker ook dat ons diere se grootte optimaal is vir die moeilike omgewing waarin ons boer. Ons kudde was die afgelope 7 jaar 'n streeksfinalis in die LNR/ABSA Kudde van die Jaar Toekennings met 'n gemiddelde TKP van 381 dae vir alle koeie in die kudde oor alle kalwings.



At our annual bull sale held on 18 September 2009, 10 Tuli bulls sold for an average price of R19 500. The top priced bull sold to Mnr PW Michau of VEN Tuli's, Cradock, for R60 000. The second highest priced bull sold to Mnr SD Naude from Rhodes for R22 500. Ten registered Tuli open heifers were also sold for an average price of R9 950, with the top priced heifer selling for R14 000 to Mnr CF Slabbert. Our sincere thanks goes to all our clients for their valued support during 2009. Be assured that we will continue to strive to give you even better value for your money in the future.



HBH 07-012

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