

BUFFELKORREL
WILD PHOS 8 LEK
RENOSTER KORREL
WILD MAKROPAK 10
WILD MAKROPAK 30
WILDPRODUKSIE KORREL
WILD ONDERHOUD KORREL



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Minimums MAXIMUMS

by Craig Shepstone

AFRICAN BUFFALO OR CAPE BUFFALO (*SYNCERUS CAFFER*),
IN PRIVATE OWNERSHIP, SOUTH AFRICA.



PIET VAN DER WALT COMPARING A REPLICA FROM THE REAL HORNS OF THE ROWLAND WARD WORLD RECORD BUFFALO (62 6/8") WITH LOCALLY HUNTED BUFFALO TROPHIES. SCAN THE QR CODE OR VISIT www.youtube.com/watch?v=XtCWfneCDSI TO WATCH A VIDEO: FIRE CHAT: PIET VAN DER WALT (PIET VLOEK) CHALLENGES ROWLAND WARD AND SCI. Photo and video © Meldt van der Spuy.



THE ROWLAND WARD WORLD TROPHY RECORD BUFFALO WAS KNOWN IN TANZANIA IN THE REGION 'MANYARA' AND WAS FOUND AS A LION KILL. SCI AND ROWLAND WARD METHODS OF MEASUREMENT ARE OFFICIALLY RECOGNISED WORLDWIDE.
Image courtesy: www.hunting-trophies.com

The economic value of many ungulates is derived from the willingness of trophy hunters to pay for rare large-horned or large-antlered (trophy) animals. The shortage of high-quality animals has led to wild-life breeders producing more trophy-quality game for the economic advantage that trophy hunting has added to the industry. This has created a very positive spin-off, namely a greater demand for healthy breeding animals.

Horns are found on all males in the family Bovidae, the hollow-horned ruminants, but are absent in one third of the females. Horns play an important role in social and sexual interactions; sexual dimorphism exists in most species in terms of horn size, use and shape.

The majority of the research that has been done on horn size was done on wild sheep and goats in America and Asia living on natural grazing areas. Horn growth in wild sheep is well known to vary in populations



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FEMALE MOUNTAIN GOAT (*Oreamnos americanus*), MOUNT EVANS, COLORADO, US. Photo © Dawn Wilson.



GATHERING SHED ANTLERS OR 'SHEDS' ATTRACTS DEDICATED PRACTITIONERS WHO REFER TO IT COLLOQUIALLY AS SHED HUNTING, OR BONE PICKING. IN THE UNITED STATES, THE MIDDLE OF DECEMBER TO THE MIDDLE OF FEBRUARY IS CONSIDERED SHED-HUNTING SEASON, WHEN DEER, ELK, AND MOOSE BEGIN TO SHED. THE NORTH AMERICAN SHED HUNTING CLUB, FOUNDED IN 1991, IS AN ORGANISATION FOR THOSE WHO TAKE PART IN THIS ACTIVITY. Photo © Imfoto.

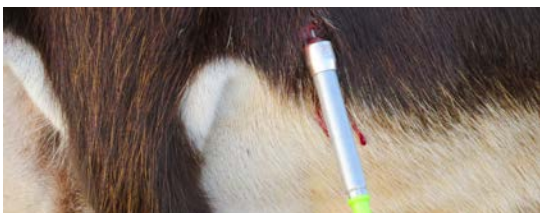
due to differences in climate and soil characteristics. Horn-growth research on African game is ongoing, focusing on growth per animal per day in millimetres. In a study on the naturally grazing mountain goats, *Oreamnos americanus*, it was found that total length and basal circumference of horns was positively correlated with mass, chest girth and hind-foot length in both male and female animals. Sexual dimorphism in terms of body mass of male mountain goats increases up to the age of five years; horn-growth dimorphism tends to reach its peak at two years of age (Cote *et al.*, 1998). The main contributors to antler growth are age, nutrition and

genetics. Age and optimal nutrition can only stimulate the buck's antler growth within the genetic capability of the animal. The supply and intake of optimal nutrition will have a great effect prior to and during antler growth. Since the 1950s, when modern-day research started quantifying the affect of nutrition on antler development, it was learnt that a number of nutritional components interact to generate the bony matrix of antlers, namely protein, energy and minerals. Similarly, these nutritional components are necessary for horn growth as well. The main difference is that antlers are shed every year, followed by a larger set of antlers year after

year; the horns on Bovidae, by comparison, grow longer year after year. **AGE, GENETICS AND NUTRITION AS FACTORS AFFECTING HORN GROWTH IN BOVIDAE**
Age
Most horn growth occurs during the growth phase of all young animals, with the growth rate slowing down as an animal approaches maturity. Rates of horn growth differ between species. In some species, the horns stop growing once an animal has reached maturity, while in others they keep growing, but at a considerably slower rate.



SABLE ANTELOPE HERD (*Hippotragus niger*). 'MOPANIE', A MALE OFFSPRING OF THIS SABLE BREEDING BULL, 'PIET', WAS SOLD FOR R27M (ABOUT US\$1.86M), MORE THAN DOUBLE THE PREVIOUS RECORD, AT THE PIET WARREN BULL AUCTION ON 24 SEPTEMBER 2015 IN LIMPOPO, SOUTH AFRICA. DRIVEN BY GROWING DEMAND FROM INTERNATIONAL HUNTERS FOR RARE AND LARGE-HORNED ANIMALS, THE WILDLIFE RANCHING INDUSTRY IS ONE OF THE FASTEST-GROWING INDUSTRIES IN SOUTHERN AFRICA.

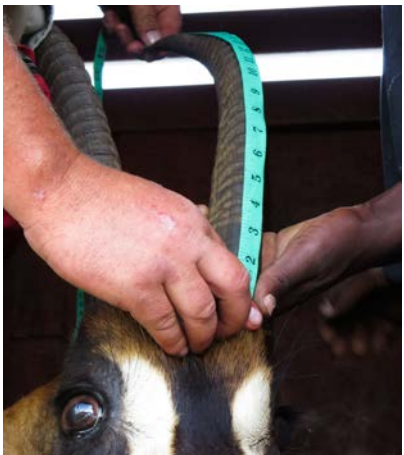


Genetics

The heritability of horn length is published as 0.41 on a scale where 1 would be 100% without any environmental influence (Hall BK, *Bones and Cartilage: Developmental and Evolutionary Skeletal Biology*, Chapter 7, p.117, Academic Press).

Nutrition

The direct advantages of supplemental feeding are: trophy class animals mature at an earlier age; it allows genetically superior animals to reach their potential; and you have the ability to carry more quality animals in a given area. When breeding trophy animals, it is strongly advised that a long-horned female animal, or a female animal from a herd of long-horned males, be grouped together with a long-horned male, allowing a superior combination of genes to



“The main contributors to antler growth are age, nutrition and genetics. Age and optimal nutrition can only stimulate the buck's antler growth within its genetic capability.”



express an animal with even longer horns. To maximise the horn growth, these animals need to receive the correct nutrients in the correct amounts and balance, so enabling them to reach their genetic maximum.

Nutritional components important for optimal bone and horn growth are: rumen non-degradable/bypass protein; sulphur-containing amino acids such as methionine and lysine; vitamins such as choline, Vitamin A and biotin; macro-minerals such as calcium, phosphorous and magnesium; and trace minerals such as zinc, manganese and copper.

WHAT IS HORN AND WHAT INITIATES ITS GROWTH?

In short, the horn is a keratinous epidermal shell enclosing a living bony interior (the cornual process) that grows out from the frontal bone of the skull. The surface of the bone is ridged and porous, allowing nutrient supply via blood vessels. The bony surface is covered with a papillated dermis that is continuous with the periosteum and epidermis of the bone, which keratinises into its protective covering, the horn. The chemical composition of horn is similar to that of hoof.



Regarding skeletal development, a foetus gets more nutrients in the correct amount and balance in utero than those which a mother can supply via the milk. Milk supplies nutrients that allow the young animal to grow fast to maturity.



NUTRIENTS REQUIRED FOR OPTIMAL HORN GROWTH:

Nutrient		Feed source dry season	Feed source wet season
Calcium		Well balanced game pellets, licks.	Well balanced game salt mineral licks.
Phosphorous		Well balanced game pellets, licks.	Well balanced game salt mineral licks.
Magnesium		Well balanced game pellets, licks. Water soluble mineral and vitamin supplementation.	Well balanced game salt mineral licks. Water soluble mineral and vitamin supplementation.
Sulphur containing amino acids	Lysine and Methionine	Well balanced game pellets, licks. Water soluble mineral and vitamin supplementation.	Water soluble mineral and vitamin supplementation.
Trace minerals	Copper, manganese, zinc	Well balanced game pellets, licks. Water soluble mineral and vitamin supplementation.	Well balanced game salt mineral licks. Water soluble mineral and vitamin supplementation.
Vitamins	Vitamin A, biotin	Well balanced game pellets, licks. Water soluble mineral and vitamin supplementation.	Water soluble mineral and vitamin supplementation. Vitamin A injection.



“ENIGE WILDSBOER WAT ERNSTIG IS OOR DIEREGESONDHEID EN VOLGEHOUE OPBRENGS BEHOORT EPOL TE GEBRUIK.”

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AFRICAN BUFFALO (*SYNCERUS CAFFER*) TROPHY SKULL. Photo © joppo.

When considering nutrient supply to horns, it is important to realise that skeletal health and bone growth are directly related to optimal horn growth. The horn growth of an individual animal starts as cartilage in the foetus, where the mother supplies the necessary nutrients via her blood; as the foetus grows, large sections of the cartilage ossify into bone.

Post-parturition, the mother can only supply nutrients via her milk. As the animal grows older and feeds on available forage, it receives nutrients from the forage and what supplemental feed is available.

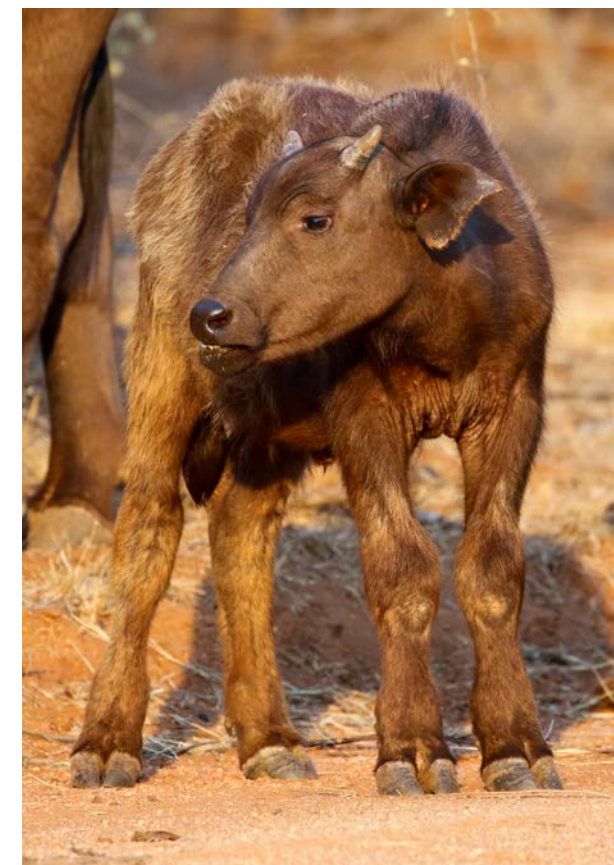
Please note that, regarding skeletal development, a foetus gets more nutrients in the correct amount and balance *in utero* than those which a mother can supply via the milk. Milk supplies nutrients that allow the young animal to grow fast

to maturity. If it happens that the mother cannot supply the foetus with the necessary nutrients for optimal bone growth, so supplying the foetus with the building blocks for future skeletal growth, the foetus won't be able to achieve optimal growth, leading to either a smaller animal or an animal that struggles with bone-growth

problems such as *osteochondrosis latens*, a condition seen in cattle and horses.

Conclusion

If the mother receives poor nutrition, she will not be able to ensure an optimal supply of nutrients via her blood to her foetus, resulting in a



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young animal that has not received the building blocks for optimal skeletal growth, resulting in sub-optimal horn growth. To prevent this, it is necessary to supply the mothers with the correct nutrients, allowing optimal foetal growth and milk that leads to a healthy calf that grows optimally, ensuring optimal horn growth.

PRACTICAL ADVICE

In the dry season, supply the animals with the nutrients mentioned above in the correct amount and balance – protein pellets that contain the optimal amounts of amino acids, phosphorous, calcium and trace minerals.

In the wet or green season, supply the animals with the macro and trace minerals found in properly formulated salt mineral licks – please avoid the use of salt blocks as they supply only salt.



For any assistance in obtaining supplements or top-ups for improved horn growth in male animals, please contact Craig: craig.shepstone@gmail.com

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