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APRIL 2009

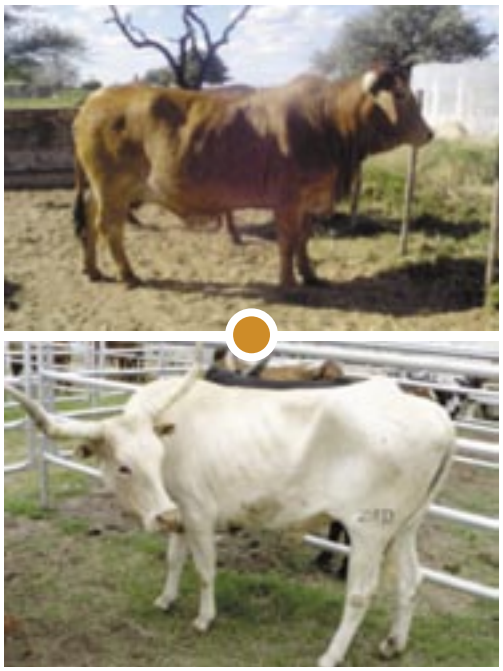
AGRA CO-OPERATIVE LTD MEMBERS' NEWSLETTER
AGRA KOÖPERATIEF BPK SE LEDE NUUSBRIEF

LIVESTOCK

VALUE ADDITION ON THE FARM?

IS IT POSSIBLE?

In Namibia a lot has been said recently concerning the concept "value addition". To some this concept has developed into a curse since it has impacted on the principles of the free market, with export of small stock that has been limited and income of the primary stakeholder that declined. This noble concept has therefore, for some, resulted in value erosion. To some others this is a concept that has nothing to do with the producers of livestock and they prefer to argue that value addition can only take place once the animal is slaughtered. Fact is that value adding on livestock too is a chain of processes - each process adds value and exceeds the value of the end product of the previous process. Animals differ. What leaves the farm gate may differ significantly in value from producer to producer. Consider the following examples:



The abattoirs will most definitely prefer the brown cow in the photos above. Value was added to this animal by investing in a good bull and by the producer investing even more to create the optimum environment for growth. Most probably more value was added on the farm in the superior cow above, than what can be added in the next link in the value chain.

The calf on the left will by far be in greater demand by speculators and feedlots. The meat-bone ratio is better, growth potential is better and the potential is there to grow a lot of muscle. This once again is due to value added on the farm by improving the genetics and the environment.

A **B**

Consider the two close-ups of karakul garments above. **A** was made from very low quality pelts. The lustre is metallic, the hair coarse and unpleasant to touch and the garment of low value. In the case of **B**, high quality karakul pelts left the farm and enabled the furriers to come up with a very expensive garment of extreme quality. One can understand

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REDAKSIONEEL

Die mens is 'n wonderlike aanpasbare wese. Ons is vol afwagting vir dinge wat in die toekoms lê: die reënseisoen, kalftyd of lamtyd; oestyd, bemarkingstyd. Dikwels gebeur dinge egter nie na verwagting. Dit reën harder en meer, daar is vloede, markte verander, produkpryse daal, siektes breek uit. Dan is dit nodig om die situasie te bestuur en aanpassings te maak. Inligting en raad is onontbeerlik in tye soos hierdie en dis waar die kennis en ondervinding van ander van groot waarde is. Dis ook hier waar ons sien dat Namibiërs nie sommer gaan lê nie en dit maak Agra as 'n Namibiese besigheid trots Namibies!

Hierdie *Ring* is weer propvol inligting om u te help om uitdagings, soos verbossing en die handhawing van dieregesondheid, die hoof te bied.
Die beginsel van waardetoevoeging en die nuwe arbeidswet bied elk sy eie uitdagings en noodsaak sekere aanpassings. In hierdie uitgawe kyk Pieter Hugo uit 'n ander hoek na waardetoevoeging.
Beginnende in volgende maand se *Ring*, sal 'n reeks bêre-artikels verskyn oor Arbeidswet no 11 van 2007. Hierdie artikels, deur Labour Dynamics Labour Relations Practitioners, sal verskillende afdelings van die Arbeidswet bespreek met spesifieke verwysing na die landbou-omgewing. Antwoorde op gereelde vrae sal ook verskaf word.

Onthou dat u welkom is om enige inligting, voostelle, versoeke of kommentaar rakende die *Ring* aan ons te stuur na Agra se Senior Bestuurder: Korporatiewe Aangeleenthede, Birgit Hoffmann, Privaatsak 12011, Windhoek of per e-pos aan birgith@agra.com.na

Groete tot die volgende uitgawe!

Albé Snyman
Kommunikasiebeampte
Privaatsak 12011
Windhoek
Tel: 061-290 9273
Epos: albes@agra.com.na

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why the label on B reads : *"a piece of art that begs to be touched!"* In **B** the value adding on the farm was huge! It was added by the producer purely through improving the genetic composition of the breeding stock. Investment in good rams/ewes presents the pelt industry with the primary product that furriers can add value to in the next link of the value chain.

Quite a difference! One may ask how did this happen? The answer was already given. The producers, in some cases, added value with effective selection- and breeding procedures and by creating a conducive environment for the animals to grow. They protected the animals from disease, supplemented the feeding and ensured enough food through effective pasture management. Good management practices lead to value adding and there should not be any argument about that. A healthy, genetically superior animal, raised on natural veld without the application of all kind of stimulants, with the desired fat grading, has a higher value than a lean or emaciated animal. Sick animals on the contrary will have extremely low to no value.

The meat-bone ratio in a carcass is important. The more muscle, the more meat and the better this ratio. If one can produce more meat for less food consumed the whole process of generating money out of natural grazing (grass) becomes more effective. A significant example of this is our present diesel sedan motors. We are experiencing high performance (0-100km in 7 sec, top speeds above 200km/h) but also low diesel consumption (5-7 liters/100 km). Now that is some value added to the old slow, smoking and diesel guzzling versions!

The same applies to the livestock industry. Some animals grow faster with less fodder. In the Bonsmara breed, mention is made of "2 x 5"- Bonsmaras. These animals have the ability to grow 2 kg per day under optimum conditions while converting only 5kg of concentrates (feed) into 1 kg of meat. The norm will be a "1 X 8" animal.

How do we identify these superior performers? Serious cattle-, sheep- and goat breeders can put male animals through various tests to identify the feed-efficient ones. These tests can be done under intensive conditions (in a feedlot- referred to as Phase C-growth testing) or under natural veld conditions (referred to as Phase D-growth testing.) When selecting the best growers on Phase D results, one automatically gets the bonus of also selecting the animals best adapted and with the hardiness to take the punch and outperform the rest. By investing in this kind of testing the right animals are identified. Buying a male animal from such a breeder enables the commercial producer to add value to the quality of the product that leaves the farm gate. It will have better conformation, higher meat to bone ratio, a better fat grade and eventually a carcass that is higher in demand. Prime cuts from such a carcass will usually be bigger with a premium on it.

Value can also be added by investing in tests to determine meat tenderness. Today Genestar analyses are available to breeders to evaluate breeding animals for their ability to pass meat tenderness on to their progeny. Ultrasonic tests were developed to determine inter- and intramuscular fat and to evaluate the ability to pass it on to their progeny, contributing to taste and juiciness in the meat. Ease of calving can be evaluated. The ability of male animals to pass sufficient milk production on to their female progeny can be evaluated. Breeding values of male animals in general can be determined.

In conclusion the following:

The producer has the possibility to add a lot of value on the farm, whether he/she produces weaners, slaughter-cattle, goats, lamb, mutton or karakul pelts or whatever product, by focusing on (i) genetically superior animals and (ii) on optimizing the environment for these animals. To identify the superior animals, producers should make use of the test results of animals offered by breeders. The more tests an animal has been put through, the surer one can be of its potential to add value or not. Buying evaluated breeding stock takes a lot of risk out of the investment and makes a lot of sense.

Pieter Hugo
Manager: Agra Professional Services Division

KNOW YOUR PRODUCT

PRODUKTE VAN PROFESSIONELE DIENSTE

Die Professionele Dienste Afdeling het die volgende produkte wat u by Marieta Grobler by 061-2909208 kan bestel. Aflewering word ook telefonies gereël.

- Grassaad van *Anthephora pubescens* (borseltjiegras), *Brachiaria nigropedata* (swartvoetjie) en *Schmidtia pappophoroides* (meerjarige Kalahari sandkweek) om die weiveld te herstel
- Grassaad vir die vestiging van aangeplante weiding: *Cenchrus ciliaris* (bloubuffelgras) cv. Biloela
- Gedetailleerde riglyne vir die volhoubare bestuur van Namibiese weiveld, tesame met die nuwe uitgawe van *"Grasses of Namibia"*
- *"Grondwater"*, 'n boek van Otto van Vuuren wat die alledaagse gebruiker van water oor hierdie kosbare bron inlig

1. Grassaad om die weiveld te herstel

Die saad van waardevolle meerjarige weigrasse soos *Anthephora pubescens* (borseltjiegras), *Brachiaria nigropedata* (swartvoetjie) en *Schmidtia pappophoroides* (meerjarige Kalahari sandkweek) is nou in klein hoeveelhede beskikbaar. Hierdie grasse word in die veld ingesaai om 'n gedegradeerde graslaag se produksie en voedingswaarde te verhoog. Meng verskeie grassoorte se saad met stywe, vloeibare kraalmis ("mis-dagha"), droog die miskoek en strooi dit aan die begin van die reënseisoen in die veld uit. Die miskoek verhoed dat die grassaad wegwaai of deur voëltjies en insekte opgevreet word. Die miskoek sal ook slegs oplos as dit genoeg reën en dan lê die saad sommer op 'n bemeste stuk grond. Gee die ontkiemende grasplante kans om te vestig deur die miskoeke onder afgekapte doringbome te plaas (as meganiese bosbeheer toegepas word) waar die jong grasplant vir 'n rukkie teen beweiding beskerm is. Die ontkiemende grasplant kan ook beskerm word deur die miskoek met doringtakke te bedek. Gee die grasplant kans om tot saadvorming te ontwikkel voor dit die eerste keer bewei word sodat dit saad kan maak en vanself in die veld kan vestig.

Anthephora pubescens (borseltjiegras) is een van die smaaklikste en voedsaamste klimaksgrasse van ons weiveld wat veral graag deur beeste gevreet word. Groen plante verskaf soveel as 9.6% proteïene aan vee en in die winter nog steeds 4.7%. Vergelyk dit met 'n behoefte aan 7% proteïene in die dieet van groeiende herkouers en 5% proteïene vir liggaamsonderhoud. Die verteerbaarheid van borseltjiegras vir weidende herkouers is 62.4% in die somer en 45.6% in die winter, wanneer dit droog is. Die groeiende herkouer benodig 'n dieet wat 55% verteerbaar is terwyl 47.5% benodig word vir liggaamsonderhoud. Borseltjiegras is dus 'n baie voedsame gras wat die voedingswaarde van die veld verhoog. Dit is egter redelik gevoelig vir beweiding en moet elke keer na beweiding toegelaat word om tot saadskiet te herstel voordat dit weer bewei word. Borseltjiegras is 'n sterk polgras wat baie gehard teen droogte is en regoor die hele Namibië op enige soort grond groei. Die saad ontkiem baie maklik as dit eers vir 'n jaar ryp geword het.

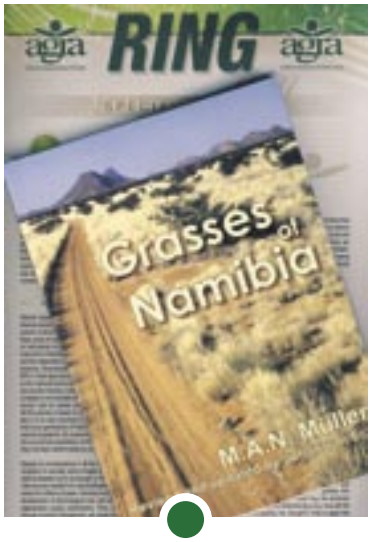
Brachiaria nigropedata (swartvoetjie) is baie produktief, baie smaaklik en het 'n soortgelyke proteïeninhoud as borseltjiegras. Sy verteerbaarheid is egter effens laer, naamlik 58.5% in die somer en 40.6% in die winter. Hierdie sterk polgras is nog meer gevoelig vir oorbeweiding as borseltjiegras en groei graag op diep, goed gedreineerde sandgronde of klipperige berggronde. Dit is 'n klimaksgras van die sentrale en noord-oostelike dele van Namibië. Die saad ontkiem redelik moeilik en hervestiging vereis meer saad as met ander grassoorte.

Schmidtia pappophoroides (meerjarige Kalahari sandkweek) is seker dié gras van die smaaklike soorte wat die beste onder strawwe beweiding oorleef. Dit word baie graag deur beeste en skape gevreet en verskaf in die somer, wanneer dit groen is, soveel as 7.3% proteïene en 'n verteerbaarheid van 61.6% aan die weidende herkouer, wat die produksiebehoeftes van jong groeiende herkouers oorskrei. In die winter daal sy voedingswaarde tot 3.7% proteïene en 45.7% verteerbaarheid, wat laer as die onderhoudsbehoefte van herkouers is. Meerjarige *Schmidtia pappophoroides* lyk baie soos eenjarige Kalahari suurgras en moenie daarmee verwar word nie. *Schmidtia pappophoroides* is geneig om met ranke te groei en is dus baie meer bestand teen swaar beweiding as bogenoemde polgrasse. Dit bind die bogrond baie effektief, beskerm grond teen erosie en verhoed, in digte stande, die vestiging van swarthaak saailinge. Hierdie subklimaks- tot klimaksgras groei regoor Namibië in enige soort grond. Dit is een van die mees waardevolle grassoorte vir die Namibiese bees- en skaapboer. Die saad ontkiem net goed as dit een jaar ryp geword het en in 'n miskoek ingebind word.

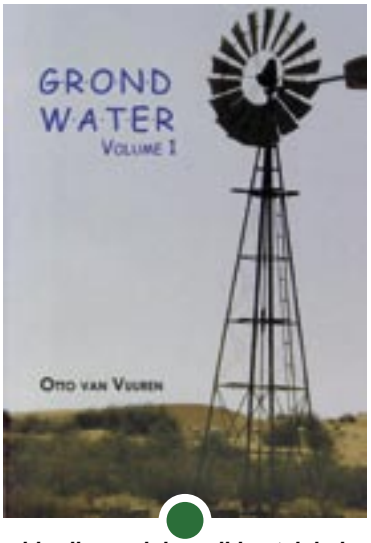
2. Grassaad vir die vestiging van aangeplante weiding

Bloubuffelgras (*Cenchrus ciliaris*) is die gras in Namibië wat die meeste vir aangeplante weiding gebruik word. Oor die algemeen word die kultivar "Molopo" geplant, wat 'n hoë opbrengs maar 'n relatief geringe smaaklikheid het. U kan nou die kultivar "Biloela" bestel. Biloela is groen eerder as blou van kleur en produseer effens minder maar is baie meer smaaklik as Molopo. Beeste vreet dit dus baie meer gretig terwyl skape dit beter benut as vir Molopo. Dit is egter minder koue-bestand as Molopo en ryp vroeër droog. Omdat dit meer verteerbaar is, sal die koste van byvoeding afneem en diereproduksie toeneem, veral in die winter. Dit moet net soos Molopo-bloubuffel gevestig en bestuur word.

3. Gedetailleerde riglyne vir die volhoubare bestuur van Namibiese weiveld, tesame met die nuwe uitgawe van "Grasses of Namibia"



Die nuwe uitgawe van oorlede Mike Müller se boek *"Grasses of Namibia"* het in 2007 verskyn, geredigeer en opgedateer deur Johan van Eck. Die inhoud is byna verdubbel en dit bevat nou inligting oor die belangrikste 140 van Namibië se 400 grassoorte. Die gedeelte oor die grasse se waarde vir veeboere is veral baie uitgebrei. 'n Artikel deur Dr. Axel Rothauge oor die volhoubare benutting van Namibiese weiveld word saam met die boek versprei. In hierdie artikel word verduidelik hoe weiveld bestuur moet word vir hoë en volhoubare produksie en hoe gedegradeerde veld herstel kan word. Dit is gebaseer op 'n reeks radiopraatjies wat in 2008 uitgesaai is.



4. "Grondwater", deur Otto van Vuuren

Die skrywer van die gewilde reeks in *Die Republikein* oor grondwater het sy artikels nou in boekvorm saamgestel. Die boek *"Grondwater (Volume 1)"* is op bestelling beskikbaar. Dit is 'n waardevolle bron van inligting vir enige gebruiker van grondwater en sal bydra tot die volhoubare gebruik van hierdie skaars hulpbron.

Indien u enige navrae oor hierdie produkte het of hierdie produkte wil bestel, bel gerus vir Marieta Grobler by 061-2909208 of stuur 'n e-pos aan advies@agra.com.na

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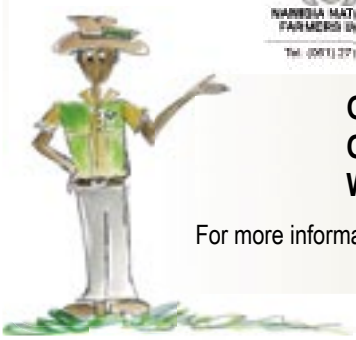
Public lectures for emerging commercial farmers

In partnership with
Emerging Commercial Farmers' Support Programme

This event is sponsored by the Emerging Commercial Farmers' Support Programme (ECFSP), implemented by the Joint Presidency Committee (JPC) of the Namibia National Farmers' Union (NNFU) and the Namibia Agricultural Union (NAU) and is financially supported by the European Union (EU) under the 9th European Development Fund (EDF9)

Joint Presidency Committee



Gobabis	**2 April 2009**	**Keetmanshoop**	**28 July 2009**
Omaruru	**23 April 2009**	**Mariental**	**29 July 2009**
Windhoek	**24 June 2009**		

For more information or to confirm your attendance, please contact Patrick Kaaheke at Agra Head Office Tel 061-2909234 or Adelheid Mouton: Tel 061-2909335

VELD MANAGEMENT

AERIAL SPRAYING TO CONTROL BUSH ENCROACHMENT

Aerial spraying to control bush encroachment refers to herbicides that kill woody plants ("arboricides") being applied from the air by light aircraft. It is virtually impossible to obtain accurate statistics on how much arboricide is used in Namibia in total, let alone how much is applied from the air, as there is no central authority that regulates and monitors the use of arboricides in Namibia. After an arboricide is registered for use in the country, no further authority is exercised over its use and the individual user is fully responsible for the results.

All the arboricides sold by AGRA in all of 2008 would have been enough to treat a mere 1,500 hectares of encroached rangeland, assuming an average bush density of 3,000 bushes of 2 m height per hectare and an arboricide application rate of 3 kg/ha or 2 litres/ha. Only two-thirds of the products sold were suitable for aerial application but not all would have been used this way as they can also be applied as spot treatment on the ground. Other agencies dominate the market for arboricides and sell in one month what Agra sold in one year. From what little information is publicly available, about 30,000 hectares of rangeland were treated with arboricides in Namibia in 2008, but how much was applied aerially is anybody's guess. However, it appears that farmers are increasingly considering the aerial application of arboricides; hence this article.

A general characteristic of aerial bush control is that large swaths of rangeland are blanketed with arboricides and that there is no selectivity in placing the arboricide at all. As was explained in the March article of the *Ring*, arboricides are non-selective herbicides that can kill most woody plants if applied at a high-enough dose and many kill grasses too. A land user who applies arboricides from the air foregoes the most efficient tool available to decide which woody plants to kill and which ones to let live: placement. The ecological effect of aerial application of arboricides is drastic and continues for a long time. It spreads mass destruction amongst plants that took decades, even centuries to grow. It is crucial to use this application method only when really needed.

When to use aerial spraying: thin; don't eradicate!

Due to its drastic and long-term effect on the environment, aerial application of arboricides should only be used as a last resort, when no other method of bush control is viable or feasible. A dense stand of woody tree-equivalents of which more than 95% belong to a single species is one of the few instances that justifies aerial control. If the catastrophic effect of leaving all the trees and bushes on the land is worse than the catastrophic effect of killing all of them, aerial spraying is justified. Spray density and volume, droplet size, flying speed and height and wind speed are crucial in determining the efficiency of aerial spraying. A tree-equivalent (TE) is a bush of 1.5 m height so that a large camelthorn tree may be equivalent to several TEs.

A dense monostand of invasive bush is unlikely to have been caused by "normal" bush encroachment due to fire-exclusion or overgrazing. The existing variety of woody species is not killed during "normal" encroachment, when a layer of invasive shrubs infiltrates underneath and in-between the existing shrubs and trees. As a result, the invasive species normally make up less than 95% of all TEs. Even the very dense stands of trees and bushes in the Grootfontein and Tsumeb districts still display a remarkable variety of woody species (see Photo 1), most of which would be killed by the aerial application of arboricides. This is an undesirable result and chemical control should therefore not be applied unselectively from the air, but by selective application on the ground (spot treatment). A monostand of invasive bushes is most likely the result of previous bush control gone wrong or due to some ecological or man-made catastrophe. The criterion for aerial application of arboricides is thus a combination of the density and the uniformity of bush invasion: only very dense stands of bush that consist predominantly of one invasive species should be treated aerially as the few desirable woody plants present in such a monostand do not justify the effort required to keep them alive.

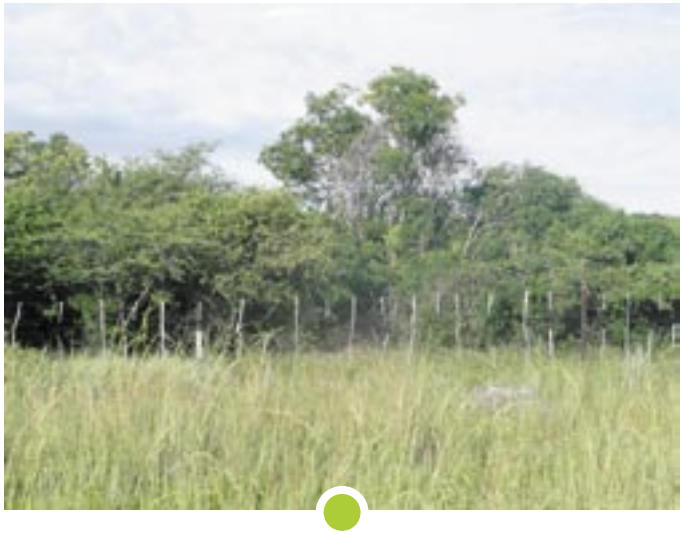


Photo 1: A very dense stand of shrubs and trees in the Grootfontein district, with an estimated density of 8,000 bush/ha. Most of the bushes are considerably taller than the game fence so that the number of tree equivalents (TE) probably exceeds 30,000 TE/ha. The natural bush density in this area would be closer to 1,500 to 2,000 TE/ha. Notice the large variety of woody species present, which eliminates aerial spraying as the method of arboricide application.

Where this is not the case, other methods of chemical or mechanical control should be used. Dense stands of mixed species composition can be attacked and thinned from the edges inwards, until the heart of the thicket has been thinned as well. The invasive woody species can be eradicated, but the other, desirable woody species must be left intact (Photo 2) so that the end result is still a veld in which grasses and woody plants remain in balance. This control process takes time as it means that bush control becomes a component of everyday farming

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routine, applied in small bits and pieces to a farm over many years until, at the end of it all, the whole farm has been treated. **The first rule of bush control in Namibia should be that bush should be "thinned" to acceptable levels and not "cleared" or "eradicated" completely**; and this takes time.

Photo 2: The uniform, dense stand of sickle bush (*Dichrostachys cinerea*) (photo top) justifies unselective control as with aerial spraying, but the heterogeneous situation on the bottom photo does not. The dense stand of sickle bush in the foreground (photo bottom) is just an under-storey of undesirable invasive shrubs amongst an over-storey of desirable trees (the original woody layer), which would perish with aerial spraying of arboricides.

What happens after aerial bush control?

If aerial spraying is done correctly, i.e. if it achieves a blanket cover and applies arboricides at the correct concentration, it results in the death of nearly all susceptible woody plants, i.e. their eradication. Only shepherd trees and noenie bushes of the *Boscia* type usually survive as they are less susceptible to arboricides that kill thorn bushes and trees of the *Acacia* and *Dichrostachys* type. The only *Acacia* species that appears slightly more tolerant of arboricides is the candle-pod acacia ("trassiebos", *Acacia hebeclada*). Valuable fodder bushes like brosdoring (*Phaeoptilum spinosum*), camphor bush ("vaalbos", *Tarchonanthus camphorates*), brandy bushes (*Grewia species*) and ghabba (*Catophractes alexandri*) are very susceptible and die easily.

Since most arboricides do not have a residual action, grasses and weeds re-grow prolifically from seed after aerial control. There is literally a grass explosion with grass yields being up to 12 times higher than before aerial control, depending on the density of the woody layer. The grass explosion is mainly due to two factors:

- The woody plants enriched the soil with plant nutrients. Especially the leguminous woody plants (most thorn bushes and trees) fix large amounts of atmospheric nitrogen in the soil and nitrogen is a major plant nutrient. These nutrients now become available to other plants that can react quickly, such as annual and pioneer grasses. Improving the composition of the grass sward by increasing the abundance of perennial grasses is another matter and will be discussed in a subsequent *Ring* article.
- The dead woody plants no longer take up soil moisture and all the moisture is now available to herbaceous plants. On bush-encroached veld, soil water is predominantly held at a very shallow depth (0.5m) and only where bush density is low does soil water content increase at deeper levels (> 1 m).

The spectacular effect of fertilization on grasses wears off within 7 years, after which time the built-up soil fertility under tree canopies has been exhausted and the soil returns to its inherent fertility status. However, even after 22 years, the grass yield on controlled veld can still be 60% higher than it was before bush control. This less spectacular but long-term improvement in grass yield is due to reduced competition by woody plants for especially soil moisture; the first factor limiting grass growth in semi-arid savanna rangelands. The art of bush control is to extend the moisture benefit for as long as possible by maintaining a stable balance between a few woody plants and many herbaceous plants, so that the long-term, grass-based carrying capacity of a farm can recover to what it was before bush encroachment.

Re-infestation of bush-controlled veld

The second rule of bush control in Namibia is that aftercare is required after all methods of bush control but especially after aerial control. Aftercare refers to the continual control of re-growing woody plants, re-growing mostly from seed but sometimes by coppicing, to prevent the re-infestation of bush-controlled veld. The grass-bush balance of the savanna has been severely altered by the severe reduction in the number of woody plants. The immediate response of the vegetation is for woody plants to re-colonise the exposed veld. However, the life cycle and reproduction rate of woody plants is much slower than that of herbaceous plants and there is no dramatic "explosion", only a gradual re-infestation which, if left unchecked, may result in bush encroachment as bad as or worse than the original colonization.

84% of our natural rangelands consist of mixed grass-and-dwarf shrub vegetation in the Nama-Karoo biome and the *Acacia* or broadleaved tree-and-large shrub savanna biome ("bosveld", Figure 3). Woody plants are an integral and vital part of these mixed vegetation biomes and are kept in check by competition from a healthy, perennial grass layer and the occasional hot fire that wipes out woody seedlings and saplings. Bush eradication as achieved with aerial spraying leads to

re-infestation because woody plants will try to re-establish themselves in an environment in which they can grow perfectly well, but from which they were removed artificially. Re-infestation has to be checked by aftercare; which is really the only time other than establishment of woody plants from seed that fire and heavy browsing by goats or game animals can control invasive bush (e.g., Archer, 2003). Obviously, aftercare can also be achieved by chemical or mechanical means.

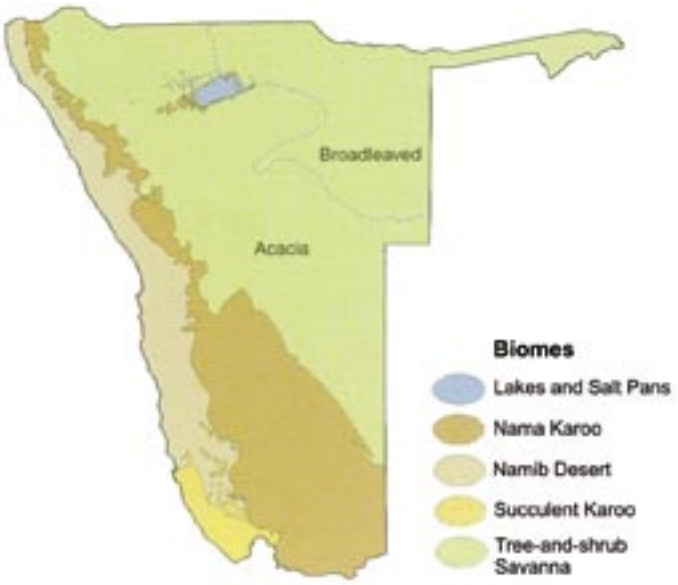

Figure 3: The largest part of Namibia consists of mixed vegetation in which woody plants occur naturally and from which they should not be eradicated, but only thinned (source: Mendelsohn, J., *et al*., 2003. *Atlas of Namibia*. Ministry of Environment and Tourism, Windhoek)

Nature will try and correct the imbalance brought about by the eradication of woody plants as speedily as possible. Re-infestation usually occurs within five years of initial bush control and various pioneer woody species are involved. If seeds of blackthorn ("swarthaak", *Acacia mellifera*) are still present and rainfall is favourable, they will germinate and grow. However, blackthorn seeds are short-lived and are normally destroyed sooner than they can germinate. The next pioneer candidate is sickle bush ("sekelbos, omutjete", *Dichrostachys cinerea*) if it was present before bush control. Its seeds are long-lived, hard-coated and not digested in the ruminant stomach. If rainfall is favourable, it will re-establish en masse since there is no longer any competition from other woody plants. If there was no sickle bush in the area before, any of a number of other woody pioneer species will take over, e.g. the blue-grey bitter bush ("bitterbos, wolbos, pietbos"; formerly *Blumea gariepina*, now *Laggera decurrens*) (Photo 4), brandy bushes (*Grewia species*) or ghabba (*Catophractes alexandri*).

Photo 4: The blue-grey, yellow-flowering bitter bush ("bitterbos, wolbos, pietbos"; formerly *Blumea gariepina*, now *Laggera decurrens*) has become more abundant and obvious in the last couple of years. It is a perennial soft-wood pioneer that can only establish on bare soils with minimal grass competition. It is completely unpalatable and easily controlled chemically, and mechanically by pulling it out of rain-soaked soil. It will not establish in a vigorous layer of perennial grasses. It is often the first woody pioneer to re-infest bush-controlled veld.

Why thin but not eradicate invader bush?

Where all other woody plants were destroyed due to aerial control, the pioneer woody plants will have a field day and re-colonise the veld in a uniform wave that can cause a greater problem than the original bush encroachment. The second generation of invasive species is likely to be more noxious than the first, which had to compete against established woody plants, the original inhabitants. So the re-infestation will be more damaging and require more chemicals and expense to control than the original colonization. If the intention is to clear woody plants off the veld and to keep them out of their natural environment, aftercare will have to be never-ending and extremely intensive. Should the farm change owners and the new owner is not aware of the situation, he will soon be swamped by a wave of nasty woody pioneers (Photo 5). The inevitable, rapid and severe re-infestation of veld from which woody plants were eradicated by aerial chemical control is one of the major reasons why this method is not the best option to control bush encroachment.

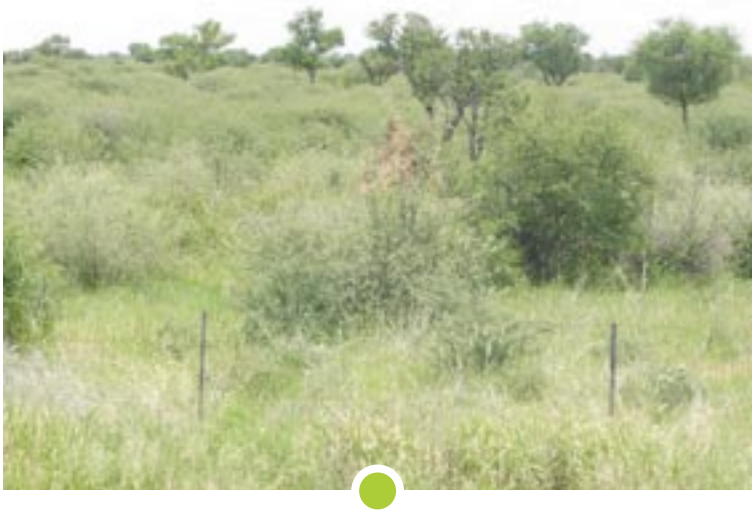

Photo 5: Re-infestation of veld originally cleared by aerial spraying of arboricides, which was survived only by large shepherd trees (*Boscia albitrunca*). Lack of aftercare causes sickle bush (light green bush in middle of picture) and ghabba (bluish-grey bush in foreground) to vie for the empty places. Grass production is again depressed drastically.

If a natural density of mature woody plants, especially those belonging to the climax community, e.g. camelthorn trees (*Acacia erioloba*), are left on the veld, their competition will severely curtail the ability of woody pioneers to take over the veld (Smit, 2003). The more large trees and bushes are left standing, the fewer small bushes will be able to re-invade the rangeland and the less aftercare will be required, because the rangeland is more stable. Eradicating all woody plants from the veld might have the most dramatic effect, but the expense and effort to maintain this state will mount in the long term, failing which the picture will change just as dramatically and for the worse! In essence, leaving

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a sufficient number of mature, climax species of woody plants on the veld after bush control is an aid in slowing-down the re-infestation rate of woody pioneers and should be exploited by farmers for this purpose (Smit, 2003).

Bush encroachment and re-infestation of bush-controlled veld will follow each other in a vicious cycle of 15-20 years if the two main causes of bush encroachment, viz. near-complete exclusion of occasional hot fires and the over-utilization of the grass sward, are not addressed as well. The occasional hot fire, strategically timed to coincide with the establishment of bush seedlings after a number of successive good rainfall years, can prevent colonization or re-infestation with woody plants (see *Ring* of October 2008). At the same time, a grass sward dominated by perennial pioneer grasses appears to be more resistant to the establishment of bush seedlings than a pioneer or annual grass sward; apart from also supporting a higher level of animal production.

Woody plants feed the soil ...

A savanna from which most woody plants have been eradicated is an impoverished savanna. Woody plants and especially leguminous thorn bushes and trees make an invaluable contribution to soil fertility, plant and animal production. They act as nutrient pumps that make deep-soil nutrients available to plant roots in shallow soil layers. It has been estimated that, in African broad-leaved savannas, as much as 97% of the nutrients taken up by tree roots deep down in the soil are deposited in the top soil by leaf fall (Ola-Adams & Egunjobi, 1992). Even in our *Acacia* savannas, broadleaved woody species such as kudu bush (*Combretum apiculatum*), mopani (*Colophospermum mopane*), sour plum (*Ximenia* types) and buffalo thorn ("wag-'n-bietjie", *Ziziphus mucronata*) reduce soil moisture loss by forming a mulch of dropped leaves and fertilize the soil once the mulch disintegrates. This fertilization effect is in addition to the prevention of soil erosion because tree roots hold soil securely in place.

In the Omaheke region, topsoil collected under the canopies of thorn bushes, which are leguminous plants, contained 71% more nitrogen and 54% more potassium than topsoil collected under the canopy of non-leguminous woody plants and topsoil from the open. Topsoil under non-leguminous trees in turn contained 15% more available phosphorus than topsoil under thorn bushes and a staggering 343% more available phosphorus than topsoil in the open. All three these elements are macro plant nutrients that stimulate plant growth. These measurements indicate significant soil enrichment due to trees and bushes. In addition, topsoil under leguminous trees had the highest organic matter content; important for soil microbial activity and water retention. Topsoil under leguminous trees had the highest cation exchange capacity (Rothauge et al., 2003), which is a measure of overall soil fertility and nutrient retention. Topsoil under thorn bushes is much more fertile than topsoil under non-leguminous bushes, which in turn is more fertile than topsoil in the open that is not covered by woody plants.

Woody plants growing in a semi-arid savanna create islands of increased soil fertility. It is not only the tree or bush that adds plant nutrients to the soil, but also the birds that roost in it at night, the animals that rest in its shade and the various smaller animals for which it is a home, e.g. spiders. This valuable function may be completely lost if especially the thorny bushes and trees, which are very sensitive to arboricides, are eradicated by unselective arboricide application followed by efficient aftercare. Our soils are not especially fertile to start with and super-efficient bush control may result in even less fertile soils. Fortunately, such super-efficient bush control is rare in Namibia, but it does show that too few woody plants per hectare may impair the soil's ability to sustain grass growth. This may be important for hay farmers, who de-bush the land for the production of mechanically-harvested grass.

... and feed grasses and animals

The same trial in the Omaheke region showed that grasses that grew under a tree canopy were more nutritious and contained 34% more crude protein than the same type of grass that grew only a few meters away on open soil not covered by a tree canopy (Rothauge *et al*., 2003). As a result, the grasses under tree canopies were grazed preferentially by cattle, especially during the dry winter months and if cattle were kept at a higher stocking rate (Rothauge, 2006). The grazing preference was exerted within a grass species, e.g. *Eragrostis lehmanniana* ("knietjiesgras") was utilised more if it grew under a tree (especially a leguminous tree) than in the open. This resulted in the grass under trees becoming overgrazed easily (Photo 6) and being replaced by weeds or even bare soil. Cattle, like all domestic livestock and wild animals, forage selectively and will always, if given a chance, consume the most palatable and nutritious plants first. If grass under a tree is preferred to the same type of grass growing in the open, the patch under the tree or bush will be overgrazed sooner than the open veld. Removing too many trees and bushes from a savanna will thus result in a poorer grass diet for animals and reduce animal production.

Photo 6: The overgrazed patch under the blackthorn tree is clearly visible; the result of preferential grazing by beef cattle because the soil under trees is more fertile and thus the grasses are more nutritious and palatable than out in the open

This effect is in addition to the well-known association between savanna trees and certain grass species like *Panicum maximum* (white buffalo grass, white panic) and *Eragrostis scopelophila* (mountain love grass) that prefer to grow in the fertile, shaded environment under trees.

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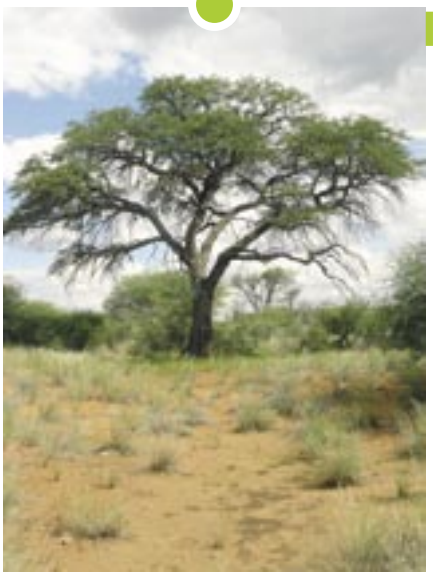
Woody plants supply valuable animal feed

The most obvious loss to the livestock rancher if too many woody plants are cleared from the veld is the loss of excellent, nutritious browse fodder in the form of leaves, fruit and pods. Most woody plants have green leaves for a much longer period than grasses and are thus relished by animals during the dry time of the year; when the grasses are dormant. Leaves from non-thorny woody plants are eaten green off the plant or when they are dry and have fallen to the ground, but thorn bush leaves are a seasonally-limited resource for grazing animals like beef cattle. Unlike specialised browsing animals, cattle cannot browse thorn bush leaves off the bush because their muzzle is too broad. They can only utilise the leaves for a few weeks after they have fallen in mid-winter; before the winter winds scatter them. During this short period, leaves fallen from thorn bushes were actually much preferred by free-ranging beef cattle even to climax grasses in the Omaheke trial (Rothauge, 2006). Leaves from woody plants generally contained nearly four times as much dietary crude protein than grass leaves (14.5% vs. 3.9% in the hot-dry season) and were 20% more digestible (52.2% vs. 43.4% in the cold-dry season). The leaves of leguminous woody plants were even more nutritious, containing 79% more protein than those of non-leguminous woody plants.



Pods from leguminous trees and shrubs are well-known as a superior feed for livestock and wild game animals. Normally, they are only consumed when they are ripe, either while still on the tree (e.g. candle-pod acacia) or once they have fallen off (e.g. camelthorn) (Photo 7). A sure sign of cattle struggling through winter is the half-bitten-off uprights pods of the candle-pod acacia, which cattle struggle to reach because of the plant's viciously hooked thorns. Camelthorn pods are relished and cattle will clean up the recently-fallen pods under a camelthorn tree if kudus did not get there first. In the Omaheke region, cattle jostling with each other were observed to consume 21 camelthorn pods per minute. A well-grown pod weighs 23 g and contains about 14.4% crude protein and 6.9 MJ ME/kg energy (Rothauge, 2006) so that cattle were taking in 70 g dietary crude protein for every minute spent feeding on pods. This is akin to feeding a high protein concentrate at a critical time of the year, when quality forage protein is scarce. After about 1 ½ hours, the cattle had cleaned up most pods from underneath most trees and lay down to digest their meal. The scent of almonds was heavy in the air because even ripe pods release some prussic acid when they are digested in the rumen, but not enough to poison the animal. Usually, it is the unripe pods that cause mortalities, but fortunately, they are high up in the trees.

Photo 7: The pods of leguminous trees such as the candle-pod acacia (top) are a valuable, high-protein fodder for domestic livestock and wild game animals. A majestic camelthorn tree (bottom) can easily bear 200 kg of pods in a good year like this year.

In summary

From the above, it should be clear that too many trees and bushes on the rangeland are not good and too few are not good either. The land user must get the balance between grasses and woody plants right. The best yardstick we have is that the tree equivalents (1.5 m high tree) per hectare should be about twice as many as the average annual rainfall of an area. Bush encroachment reduces the grass-based carrying capacity and soil moisture status of veld, but the unselective aerial application of unselective arboricides will tilt the balance too far towards the grass side, inevitably leading to massive re-infestation and should also be avoided. In fixing the bush encroachment problem, we should aim at a long-term solution and not replace one problem with another! Whichever application method is used, chemical bush control is expensive: aerial spraying is generally said to cost N$450/ha and chemical spot control on the ground N$250/ha. In most instances of bush control, selective placement of chemicals to kill only the targeted species and individuals, or mechanical means of taking out targeted individuals without too much soil disturbance, are better options that result in a more stable and productive rangeland in the long term, even if these methods take a longer time and more effort than aerial spraying. The land user might as well maximize the long-term gain of bush control, even if it is not the most spectacular in the short term, and use aerial chemical control only as a last resort; never as a first choice.

Dr. Axel Rothauge
Agra Special Projects Consultant

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VETERINARY FIRST AID

ANIMAL HEALTH

Abscesses

An abscess is defined as a ***localized accumulation of pus*** in a cavity, walled off by connective tissue and formed by dead and disintegrating tissue, usually as a result of bacterial infection, as a sequel to a wound. The presence of an abscess produces pressure on the surrounding tissue, which subjects the animal to considerable pain. Subcutaneous abscesses are recognized by a distinct swelling or lump and abscessation of the superficial lymphnodes gives rise to swollen glands. If abscesses are left untreated they may burst and drain pus. Bacteria commonly associated with abscess formation are ***Corynebacterium pseudotuberculosis*** (previously known as ***Corynebacterium ovis***) and ***Arcanobacterium pyogenes*** in sheep and goats and ***Arcanobacterium pyogenes*** in cattle. ***Arcanobacterium*** was previously known as ***Corynebacteruim***. Abscesses generally form when small wounds or skin lesions become infected with these bacteria or due to penetrating and retained foreign bodies, like grass seeds. Other common causes of abscess formation include injections with non – sterile, contaminated needles, skin not disinfected before administration of injections, sharp objects penetrating the skin like nails, wire and thorns, shearing wounds, bite wounds, tail docking wounds, castration wounds, tick bites and navel infections in newborn animals. In sheep, grass seed awns can penetrate the skin around the throat, causing abscesses to form in the area of the tongue and the pharynx. Abscessation by ***Corynebacterium pseudotuberculosis*** can lead to severe enlargement of the lymphnodes of the head and neck and infection may spread to internal organs. Foot abscesses, often caused by tick bites of thorns, must be distinguished from Foot Rot.

Prevention and control consists mainly of eliminating possible causes, good animal husbandry practices, strict hygiene and aseptic technique during vaccination, tail docking and castration, disinfection of shearing instruments and isolation and culling of heavily infected animals. Prevent introduction of infected sheep into a clean herd by having them examined during quarantine by a veterinarian who will palpate the lymphnodes. Tick control is necessary to prevent abscesses forming on the udder and scrotum. Where these control measures alone are not sufficient to prevent recurrent problems with abscessation, animals can be vaccinated against ***Corynebacterium pseudotuberculosis*** and ***Arcanobacterium pyogenes***.

Treatment: Treating abscesses with antibiotics is usually not effective. Initially abscesses are very firm, but tend to mature rapidly. Disposable plastic gloves should be worn when dealing with an abscess and all care should be taken to prevent contamination of the facilities and environment with pus. As soon as the abscess becomes softer or when it develops a soft area and fluid can be palpated, it is lanced (cut open) by making a single large vertical or crossed incision through the skin into the abscess with a scalpel. Most abscesses should be opened almost to the full size of their diameter. This precaution will prevent skin healing before the abscess cavity has been completely eliminated. In certain locations it may be desirable to aspirate some fluid from the lesion to ensure that it is neither a haematoma nor a hernia. It is a mistake to attempt to lance an abscess before it is sufficiently mature.

Since pus usually starts to drain immediately upon lancing, a container, like a plastic cup should be ready at hand to collect it. This is subsequently disposed of by incineration. The next step is to ensure that all the contents of the abscess are removed, either by massaging it from the outside or by scratching it out with a gloved finger. Then the abscess is flushed out repeatedly with a catheter tipped 50 ml or 60 ml syringe and saline solution, prepared by dissolving 2 teaspoons of table salt in one liter of lukewarm water. This is done until no more pus drains from the abscess. Subsequently the abscess is rinsed out by injecting a Povidone Iodine solution into it. Lastly an antibiotic aerosol can be sprayed on and around the abscess, which is left open to continue draining. Some abscesses may require repeated flushing and rinsing over a number of days, until they drain no more pus and can be left to heal. If flies are a problem use an insecticidal aerosol around the abscess. Additional systemic antibiotics are only used in cases of severe multiple abscessation.

Photos:
Division of Parasitology, Onderstepoort Veterinary Institute

Wounds

A wound is a traumatic separation of skin, mucous membrane, or organ surface. It is either simple, if no deeper tissues are involved, or compound, when muscles, tendons, nerves and bones are involved. Tissue damage may be the result of physical, chemical and/or biological insults. The essential features of the body's response to wounds are cell migration to bridge the gap, cell multiplication to replace the lost cells and finally, cell maturation so that tissue function can begin again.

The earliest records of medicine dealt largely with the treatment of wounds and the fruitless search for magic potions and healing drugs. Time has not diminished the importance of wound healing. The rational treatment of wounds should benefit and support the healing process, as well as prevent additional tissue damage and infection.

Sequence of events in the healing wound

Wound healing is divided into four phases, which tend to overlap and should therefore be considered a continuous sequence of events, proceeding in an orderly manner in all uncomplicated wounds:

1. **Phase of traumatic inflammation (0 – 3 days):** Following the injury, the cut blood vessels are sealed by contraction, accumulation of blood platelets and deposition of a fibrin clot containing trapped red and white blood cells. In the adjacent tissue, blood vessels dilate and fluid accumulates (oedema), leading to swelling. The severity of the signs associated with this phase is directly related to the severity of the trauma.

2. **Destructive phase (1 – 6 days):** Certain types of white blood cells migrate into the injured tissue to destroy dead and dying cells. The necrotic (dead) tissue is removed by cell autolysis, enzymatic activity, phagocytosis and the burrowing of new epithelium beneath the surface. This phase is prolonged and cellular activity increased when there are large amounts of dead tissue or retained foreign bodies present in the wound.

3. **Proliferation phase (3 – 14 days):** This phase consists of the proliferation of new capillaries and fibroblasts into the fibrin clot as well as an increase in the precursors of collagen and the appearance of fine collagen fibrils, resulting in an increase in tensile strength of the healing wound. This is also referred to as granulation or granulation tissue.

4. **Maturation phase (14 days – 1 + years):** Maturation of the wound is associated with the gradual reduction in the number of small blood vessels, and a reduction in the number and size of the fibroblasts and histiocytes of the granulation tissue. This phase is not complete for more than a year, and goes together with a slow sustained increase in the tensile strength of the wound due to an increase in the total amount of collagen as well as more stable bonding of the collagen. This is essentially scar formation which eventually ends with the contraction of the scar.

Delayed or improper wound healing can lead to complications like ulceration, formation of sinus tracts and the formation of exuberant granulation tissue (proud flesh).

Other complications of wounds include shock, infection, abscess formation, haematoma formation, cellulitis, gas gangrene and tetanus.

There is a different approach for treating recent, clean, non – infected wounds and older, dirty, contaminated and/or infected wounds. The most challenging cases are often the result of bite wounds inflicted by predators. In general all wounds in live stock are treated as open wounds, i.e. they are not sutured and are also not covered by dressings, unless they are too extensive, in which case veterinary help is required. The first step in wound treatment is to control excessive bleeding, if present, either by applying pressure with a pressure dressing, held or bandaged in place or the application of a tourniquet proximal to the wound. As the next step in the treatment the hair along the wound margin should be clipped very short with scissors or shaved with a razor blade, since hair in a wound acts as a foreign body and slows down the recovery process.

- **Clean wounds:** they are usually disinfected once with a Povidone Iodine Solution, (Woundine, Betadine, Milbedine, Oberdine Wound, Eye and Footrot Spray) dried and sprayed with an antibiotic containing wound aerosol (e.g. Necrospray, Terramycin Wound Aerosol, Panthox Aerosol, Alamycin Aerosol, Engemeycin Spray), or a wound cream or ointment (Acrisulf Ointment). It should be remembered that all anti-septic agents, in the form of creams, ointments and solutions are irritant to tissue and have a toxic effect on the immature cellular repair process and can therefore delay wound healing. Excessive and prolonged use of topical antiseptics in the treatment of wounds to control infection must therefore be avoided. Topical antibiotics seem to be the most beneficial to control pathogenic bacteria and their application is repeated on a daily basis until the wound is covered by a healthy scab. It is then left to heal on its own. Extensive or deep wounds may have to be repaired surgically. In such a case, consult a veterinarian. A wound aerosol containing insecticides and gentian violet (Supona, Difly Wound Spray, Wound Aerosol NF,) controls ticks and kills maggots and is used for cuts, abrasions, after dehorning, branding, shearing, tail docking and castration to prevent infections and maggot infestation. To control ticks around certain wounds, like elastrator ring castrations, use oils or grease like Tick Grease or Coopers Expel.

- **Contaminated and infected wounds:** Any wound in which treatment has been delayed for more than 12 hours should be considered infected. Suppuration or the discharge of pus, tissue debris and inflammatory fluids from a wound is usually caused by the action of pathogenic bacteria. A suppurating wound is usually slow to heal and presents the constant danger of further complications such as toxaemia and septicaemia. These latter conditions induce malaise, fever and weakness and can lead to death. Suppurating wounds that occur on the upper half of the trunk and neck are difficult to control since they do not drain well and infection tends to penetrate down-

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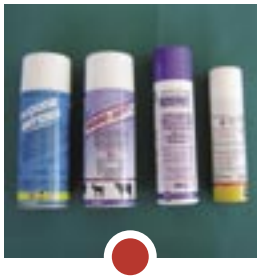
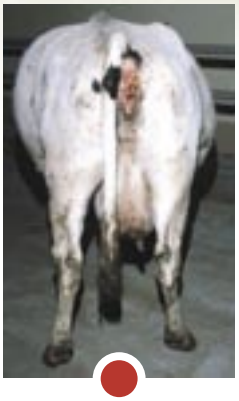
ward into the deeper tissues. Wounds occurring in the lower half of the trunk tend to have a better prognosis, since better drainage tends to prevent deep infection. Suppurating wounds of the lower limbs are less frequently complicated by septicaemia and toxaemia but may carry the risk of infection of the tendons as well as septic arthritis. After clipping or shaving the next step in the treatment of these wounds is the removal of as much debris, dead tissue, pus, blood, etc. from the wound, using a saline solution (see above for preparation of saline solution). If necessary a brush can be used to scrub a wound clean and dead tissue is cut away with scissors or a scalpel. Infected wounds should not be closed, but like abscesses, need to drain adequately to get rid of the infection and necrotic tissue. It may even be necessary to make additional skin incisions where there is inadequate drainage or where pockets filled with suppuration fluids form. After careful and thorough cleansing and depending on the severity, an antibiotic wound aerosol, Acriflavine/Glycerin Emulsion or Acrisulf are applied to the wound. If maggot infestation is present, an insecticide containing aerosol like Supona needs to be used as well. This will also control flies in general in and around the wound. Systemic treatment with injectable antibiotics is required to clear up the infection. These steps are repeated on a daily basis until the wound becomes a clean wound after which treatment is continued as for a clean wound. Alternative remedies for wound treatment include Povidone Iodine ointment, wound barrier creams, wound oil and various other wound sprays and aerosols. MUPS Lotion is a solution containing mercurochrome, urea, propylene glycol and sulphanilamide, for use as an antiseptic wash and wound cleanser, while Panthox Aerosol Spray contains an Oxytetracycline, gentian violet and d-Panthenol to accelerate the wound healing process. Suppurating fluids draining from infected wounds are harmful for the normal skin, when allowed to drain down and accumulate on the skin. To prevent this reaction, the exudates is washed from the skin daily and a coating of petrolatum ointment (Vaseline) or milking cream is applied to protect the skin.




Remedies for treatment of wounds available at Agra branches.

Bloat

Bloat or ruminal tympany refers to conditions characterized by massive distension of the abdomen as a result of accumulation of gasses or fermentation in the rumen and reticulum, either mixed with or separated from the fluid and solid ingesta. These gasses are normally eructated (burped) out via the oesophagus, but in cases of bloat this cannot occur. Cattle are mainly affected by this condition, while sheep seem to be less susceptible. Untreated bloat is usually fatal.



Primary Bloat: This is the most common cause of bloat and results mainly from grazing on very succulent pasture, particularly young rapidly growing legumes like lucerne in the pre-bloom stage. The disease also occurs occasionally when cattle are grazed on cereal crops, rape, cabbage, peas and beans and young grass with high protein content. Ingestion of the more succulent parts of the plants and avoidance of the more mature portions can be a specific risk factor and bloat is less likely to occur if the crop is harvested and fed than if it is grazed. Another occurrence of primary bloat is in animals confined in feedlots and barns, when insufficient roughage is fed or the feed is too finely ground. Animals accustomed over long periods on feeding on dangerous pastures may be less susceptible than other animals, and accordingly the mortality rate in young cattle is much higher than in mature animals. Foaming or frothiness of the ruminal contents is the vital factor causing primary bloat. It is therefore also referred to as frothy bloat. The gasses of fermentation are trapped in frothy gas bubbles and cannot be eructated, leading to bloat. Obvious distension of the rumen occurs suddenly, sometimes as soon as 15 minutes after eating bloat- producing pasture. Although the whole abdomen is enlarged, the distension is usually most obvious in the upper left flank. It is accompanied by signs of discomfort and pain, restlessness, kicking at the abdomen, frequent lying down and getting up. There is marked respiratory distress, very rapid breathing (R.R. up to 60 per minute), open mouth breathing, protrusion of the tongue, salivation and extension of the head. Sometimes projectile vomiting occurs, and soft faeces may be expelled in a stream. The heart rate is also markedly increased up to 100 – 120 per minute. If animals are treated by trocarization or passage of a stomach tube, only small amounts of gas will escape before frothy material blocks the cannula or tube, with virtually no reduction in the distension.

Treatment: The treatment of primary bloat is aimed at breaking up the foam and this is best achieved by oral administration of oils or commercial anti frothing agents. The amount used is usually 0.5 – 1 liter for cattle and 30 – 60 ml for sheep. The type of oil is unimportant, most vegetable (sunflower seed oil, olive oil etc.) and mineral oils (liquid paraffin pure mineral oil) being effective. Turpentine is an older form of treatment and reduces the viscosity of ruminal foams. It is less satisfactory than bland oils and it is very irritant. Commercial anti bloat agents contain oxyethylene - oxypropylene polymer (Bloat Guard Drench and Bloat Guard Feed Top-Dressing) administered at 30 ml up to 200 kg bodymass and 60 ml for over 200 kg bodymass, or dioctyl sodium sulphosuccinate (Docusol, Surfactol) administered at a rate of 100 ml per animal. All remedies for the treatment of frothy bloat should be administered by stomach tube to avoid aspiration and to remove free gas.

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Prevention: Various preventative measures can be taken, like feeding dry hay before the time, restricting the time of grazing on dangerous pastures, harvesting and feeding rather than grazing, preventative dosing with oil or anti – bloat remedies and top dressing of pastures with anti foaming agents.

Secondary Bloat: This results occasionally from physical obstruction of the oesophagus, ruminal atony and unusual postures. The resultant distension is the result of accumulation of free gas and it is therefore also referred to as free gas bloat. The excess gas is usually present as a free gas cap on top of the solid and fluid contents of the rumen.

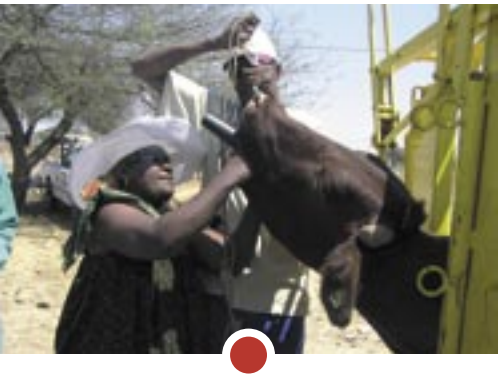
Obstruction of the oesophagus can be caused by a foreign body, by stenosis or by pressure from enlargements outside the oesophagus, like enlarged lymphnodes or tumours. The condition also occurs in tetanus in young animals, probably due to spasms of the muscles of the oesophagus.

A sudden marked change in pH of the ruminal contents due either to acidity or alkalinity causes rumen movements to stop (ruminal atony), but the bloat which results from it is usually mild, probably because the gas producing activity of the ruminal microflora is greatly reduced by the pH change.

Unusual postures, like lateral recumbency (lying on the side), are commonly characterized by secondary bloat.

The clinical signs of secondary bloat are basically the same as for primary bloat. The difference is, that when a stomach tube is passed or upon trocarization large quantities of gas escape and the distension subsides markedly.

Treatment: Treatment of secondary bloat consists of passing of a stomach tube. If an oesophageal obstruction is present it will be detected this way. Inserting a trocar and cannula into the rumen via the left paralumbar fossa is a very painful and dangerous procedure and should only be considered as a last resort in extreme emergencies to salvage the animal.



Dr Rainer Hassel
Animal Health Consultant

AGRA NEWS

AGRA SHARES KNOWLEDGE

The Agra specialists provide farming management advice to the Namibian farmer every Monday, Wednesday and on Friday in the *New Era* newspaper.

Plant poisoning Plant poisoning is very common at this time of year because the poisonous plants (e.g. "Vermeerbos", "Slangkop" and "Tulp") may be the only green fodder around. Poisonous plants are more abundant in overgrazed veld. Keep animals out of heavily infested camps until the grasses are green. Do not introduce new animals onto infested veld. Physically dig out the poisonous plants and destroy them. Animals poisoned by "Vermeerbos" are unable to swallow and therefore regurgitate plant material, which results in a green discolouration around the muzzle. There is no specific treatment. "Slangkop" and "Tulp" poisoning causes staggering, muscle tremors, respiratory distress, diarrhoea and death, can be treated with activated charcoal at a dose of 2g per kg body mass mixed with water.

Visit your nearest Agra branch today.

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Animal production and pasture management advice is published by the Agra specialists twice monthly in the *Republikein's* Agricultural pages for the Namibian farmer.

U SPESIALIS IN LANDBOU

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Volhoubare weidingsbestuur: Die huidige toestand van die weiveld

Omtrent 57% van Namibië is met bos- of struikveld (Engels: "savanna") bedek waarin die gras en die houtagtige komponent in 'n kompeterende balans met mekaar verkeer; 27% van die land is met droë woude bedek waar die bome so hoog uitgroei dat die grasse daaronder kan floreer en 16% is woestyn, wat so droog is dat slegs baie min plante daar kan groei. Die woestyn bied vir die mens geen tuiste nie en is grootliks ongeskonde, maar die bosvelddele en droëwoude is die basis van Namibië se vee- en wildbedryf. Oor- en wanbenutting veroorsaak agteruitgang van die weiding in 84% van die land en die mees sigbare aspek daarvan is bosindringing.

Bosindringing is die toestand waar inheemse bosse, wat normaalweg maar 'n geringe komponent van ons weiveld uitmaak, skielik begin toeneem en uiteindelik die weiveld heeltemal oorneem (sien foto). Meeste van die mak veesoorte waarmee ons die inheemse wilde diere vervang het, is grasvreters wat die graslaag erg beskadig as beweiding nie fyn beheer word nie. Gevolglik verswak die grasse en die bosse, wat minder gevreet word en 'n sterker wortelstelsel het as grasse, neem oor. Daarbenewens kan ons deesdae veldbrande baie goed beheer en voorkom, maar dis een van die min "natuurlike vyande" van bos.

Die gevolg van bosindringing is dat grasse omtrent uit die veld verdwyn, veral die waardevolle meerjarige grasse. Beeste en skape vermaer en diereproduksie en die mens se rykdom verminder. Meer as 40% van Namibië is onderhewig aan erge bosindringing, wat die produktiwiteit van die weiding met tot 100% kan verlaag en beesgetalle oor die jare met die helfte laat verminder het. Gevolglik ontgaan ons veeboere N$700 miljoen se potensiële inkomste elke jaar. Teen hierdie tempo gaan daar binnekort nie 'n veebedryf oor wees nie en raak volhoubare weidingsbestuur 'n absolute prioriteit!

Vir meer inligting kontak u landbouspesialis by Agra, Dr Axel Rothauge, Tel: 061 - 290 9354, of stuur u vrae aan advies@agra.com.na