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Volume 3
MAY 2023

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The Bonsmara breed The breed for any and every reason

Phase C testing makes a major contribution to the agricultural industry

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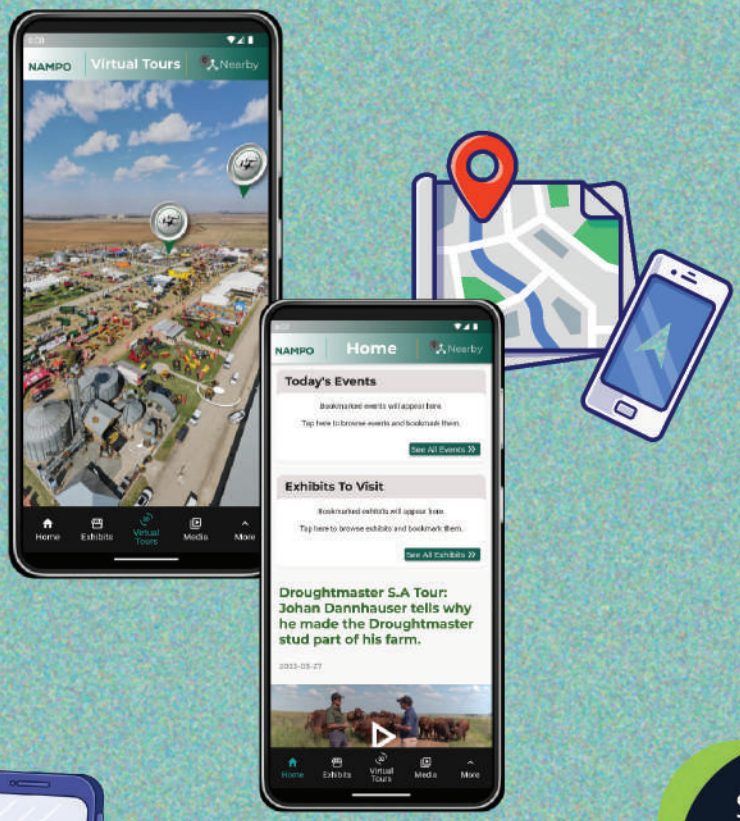

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NAMPO

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Foreword

Dear readers,

I am thrilled to introduce you to the 3rd edition of the MyFarm Magazine, a publication dedicated to showcasing the vibrant and diverse world of farming in South Africa. Our magazine is packed with insightful articles, latest auction and events calendar, and with visuals that celebrate the beauty and importance of agriculture.

At MyFarm Magazine, we understand that farming is not just a profession, but a way of life. Our team of writers, photographers, and editors are passionate about agriculture and are committed to bringing you the latest news, trends, and innovations in the field.

In addition to our pdf publication, we are excited to announce the launch of our FarmSpace app, which allows you to access all of our media files and articles in the palm of your hand. With FarmSpace, you can stay up-to-date on the latest farming news and trends, connect with other farmers, and even find new markets for your products.

We are proud of our magazine and the role it plays in promoting agriculture and connecting farmers around the world. We hope you enjoy reading MyFarm Magazine as much as we enjoy creating it.

Voice of the Farmer

Tinus Havinga

Director of FarmSpace

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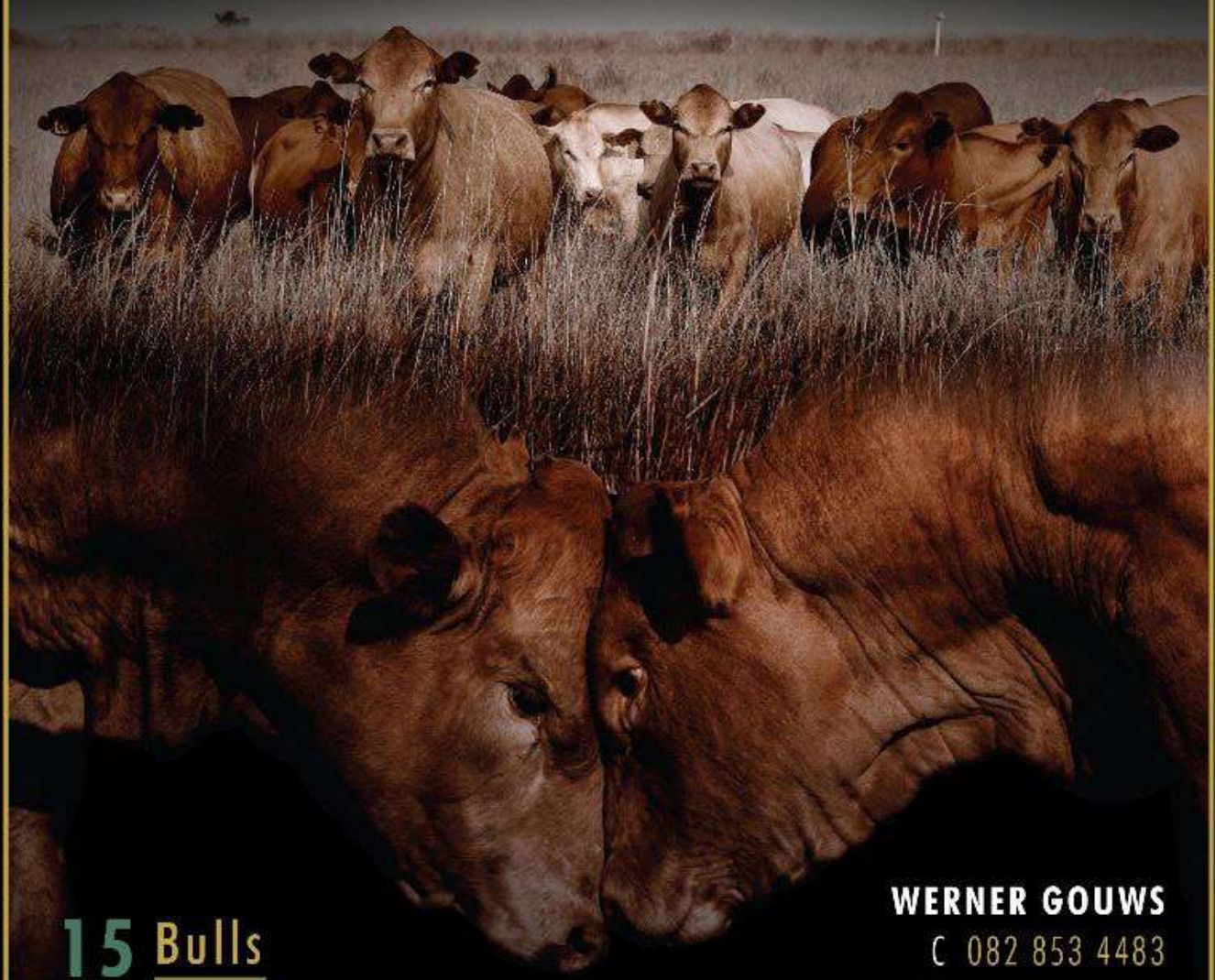

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NAMPO HARVEST DAY 2023

The full experience at the click of a button!

Authors: André Groenewald (Director of FarmSpace) & Suné Bartman (MSc Agric Production Physiology and Product Quality)

The Nampo App is a state-of-the-art agricultural experience platform that provides a unique and interactive experience for visitors to Nampo.

If you're a farmer, agricultural enthusiast or simply looking for a fun and informative day out, the Nampo 2023 Harvest Day app is essential to download for your next trip to the largest agricultural show in Southern Africa. The Nampo App is a state-of-the-art agricultural experience platform that provides a unique and interactive experience for visitors to Nampo. This amazing app offers a range of features designed to enhance your time at the show and connect you with exhibitors like never before.

Here's a closer look at what the Nampo App has to offer:

Enhanced Navigation:

The Nampo App offers a highly interactive map and exhibitor directory, making it easier than ever to navigate the show. The app also works offline, so you won't have to worry about losing signal or internet connection.

Product Information:

The Nampo App provides detailed information about the products on display at the show. You'll be able to explore the products in detail and find out more about the exhibitors and their offerings.

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If you're unable to attend the show in person, the Nampo App provides a 360-degree virtual tour of the show. You'll be able to explore the exhibits and products from the comfort of your own home and get a taste of the Nampo experience.

Advertising Opportunities:

The Nampo App provides a range of advertising opportunities for exhibitors, including main page and main category banner ads, as well as specific category ads. This is a great way for exhibitors to get their products in front of potential customers.

Food Directory:

Whether you're looking for a quick bite or a sit-down meal, the Nampo App has you covered. With the food directory, you can easily find the perfect spot to refuel and continue exploring the show.

Product Tags:

The Nampo App also features Bluetooth-enabled product tags, which provide exhibitors with data on user engagement. This data can be used for remarketing campaigns and helps exhibitors understand their target audience.

Treasure Hunt:

The Nampo App is also home to an exciting treasure hunt, where you can win bespoke prizes by visiting specific spots at the show. This feature provides a fun and interactive way to engage with the exhibits and enhance your Nampo experience.

The Nampo App provides a truly unique and interactive experience for visitors attending the largest agricultural show in Southern Africa. With its range of features and technologies, the app offers something for everyone, providing visitors with a fun and unique experience while also offering exhibitors valuable data on user engagement, advertising opportunities and providing an exceptional and interactive experience. So, why wait? Download the Nampo App today and discover the ultimate agricultural experience!

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Ermelo Bonsmara Groep

Bonsmara

The breed for any and every reason

Author: Suné Bartman
(MSc Agric Production
Physiology and Product Quality)

Roughly 100 years ago, our country suffered an economic catastrophe that would inspire the origin of one of the most dominant breeds of beef cattle South Africa has ever seen. The Great Depression of the 1930's caused a sudden lack in demand for many agricultural products, destroying the prices on the once profitable commodities farmers made a living from. Many farmers found themselves unable to repay the mortgages on their over-capitalized farms, and the remaining farmers had to do all in their power to optimize production and increase profits.

Beef producers found themselves in need of animals that could produce more; something that offered better carcass quality, calving regularity and meat output than what the indigenous Afrikaner cattle had to offer. Because of this, the country saw an influx of Bos Taurus breeds - from Europe and the US - known for their high productivity and high-quality beef. The arrival of these animals on the African shores was cause for much hope and excitement, however the extreme heat and humidity soon proved too much for these unadapted animals, who greatly suffered from subtropic degeneration. This meant that they were no longer able to thrive and produce at the same levels as they had in their native environments - a significant problem, as South African farmers of the time greatly depended on these cattle for food and future economic sustainability.

The need for a new breed of cattle was soon realized; one who could efficiently produce high quantities of beef in extensive, subtropical climates, without compromising on beef quality and reproduction traits. This was the reasoning behind the development of the Bonsmara cattle breed - famously named after its creator, Professor Jan Bonsma.

The Bonsmara is a composite breed of cattle that developed in 1936 in the Transvaal Province of South Africa at the Mara Research Station. Since the British breeds were not suitable for the subtropical climate of South Africa and the local Afrikaner breed struggled with calving regularity, professor Bonsma tested various breed combinations in order to achieve the perfect blend of genes to overcome these challenges.

Bulls from five British beef breeds were used on Afrikaner cows, and performance tests were done on their progeny. Selection procedures were very strict and science-based, resulting in rapid progress of the upcoming breeds performance. Ultimately, the better performing Hereford and Shorthorn cross-breeds were continued, and three-quarter Afrikaners were mated to half-breeds to obtain progeny with 5/8 Afrikaner and 3/8 Hereford or Shorthorn blood.

Initial breeding results were very encouraging, with weaning weights of the crossbred cows averaging around 195 kg at 240 days - about 20% higher than those of the three parent breeds. Likewise, the calving percentages of the crossbred cows were noticeably higher. The calf mortality rate was much lower than in the British Beef breeds and closer to that of the more resistant Afrikaners.

The Bonsmara was recognised as a breed in 1964, and 8 years later in 1972, it was officially registered. Between 1970 and 1998 the number of active breeders increased from 37 to over 300, with more than 95 000 breeding females available.

In less than 25 years, the Bonsmara had managed to become so popular that it had grown to be numerically the strongest beef breed in South Africa.

Due to its hardiness and adaptability, the Bonsmara became so popular that it was subsequently exported to many of South Africa's neighboring countries, and even as far as Australia, Argentina, Brazil and the USA where it has demonstrated its worth under comparable circumstances. From the initial beginnings, the Bonsmara has undergone significant evolution, thanks to its selective breeding and

Bonsmara cattle are also known for their adaptability to subtropical climates, high fertility, calving ease, and excellent meat quality.

Furthermore, the Bonsmara's calm temperament and ease of handling have made it a popular choice for livestock farmers countrywide. These traits also make them uniquely suitable for use in crossbreeding programmes, both in South Africa and abroad.

compulsory performance testing system. This has resulted in a genetically improved animal that meets the needs of commercial meat producers and stud breeders alike. Performance testing involves weighing and conformation inspections of all stud cattle and has been instrumental in the breed's improvement.

Through this system, breeders have been able to select animals with desirable traits such as high meat yield, low maintenance requirements, and excellent mothering abilities. As a result of this selective breeding, the Bonsmara of today is a medium-framed animal with better growth and lower maintenance requirements than its earlier counterparts. Bonsmara cattle are also known for their adaptability to subtropical climates, high fertility, calving ease, and excellent meat quality.

Furthermore, the Bonsmara's calm temperament and ease of handling have made it a popular choice for livestock farmers countrywide. These traits also make them uniquely suitable for use in crossbreeding programmes, both in South Africa and abroad.

As a result of these improvements, the Bonsmara has become a sought-after breed and valuable asset in the livestock industry, contributing to the continued growth and success thereof. Through the research conducted at the Mara Research Station and the continued research being done, Bonsmara cattle have been shown to perform better on marginal grazing than other breeds, including indigenous, dual-purpose, and British beef breeds - exactly what is needed for the extensive beef production industry.

With the continued use of research and compulsory performance testing for economic traits and physical appearance, the Bonsmara is expected to remain the most dynamic beef breed in South Africa. As the livestock industry continues to grow and evolve, the versatility and adaptability of the homebred Bonsmara breed will undoubtedly play a crucial role in its success.

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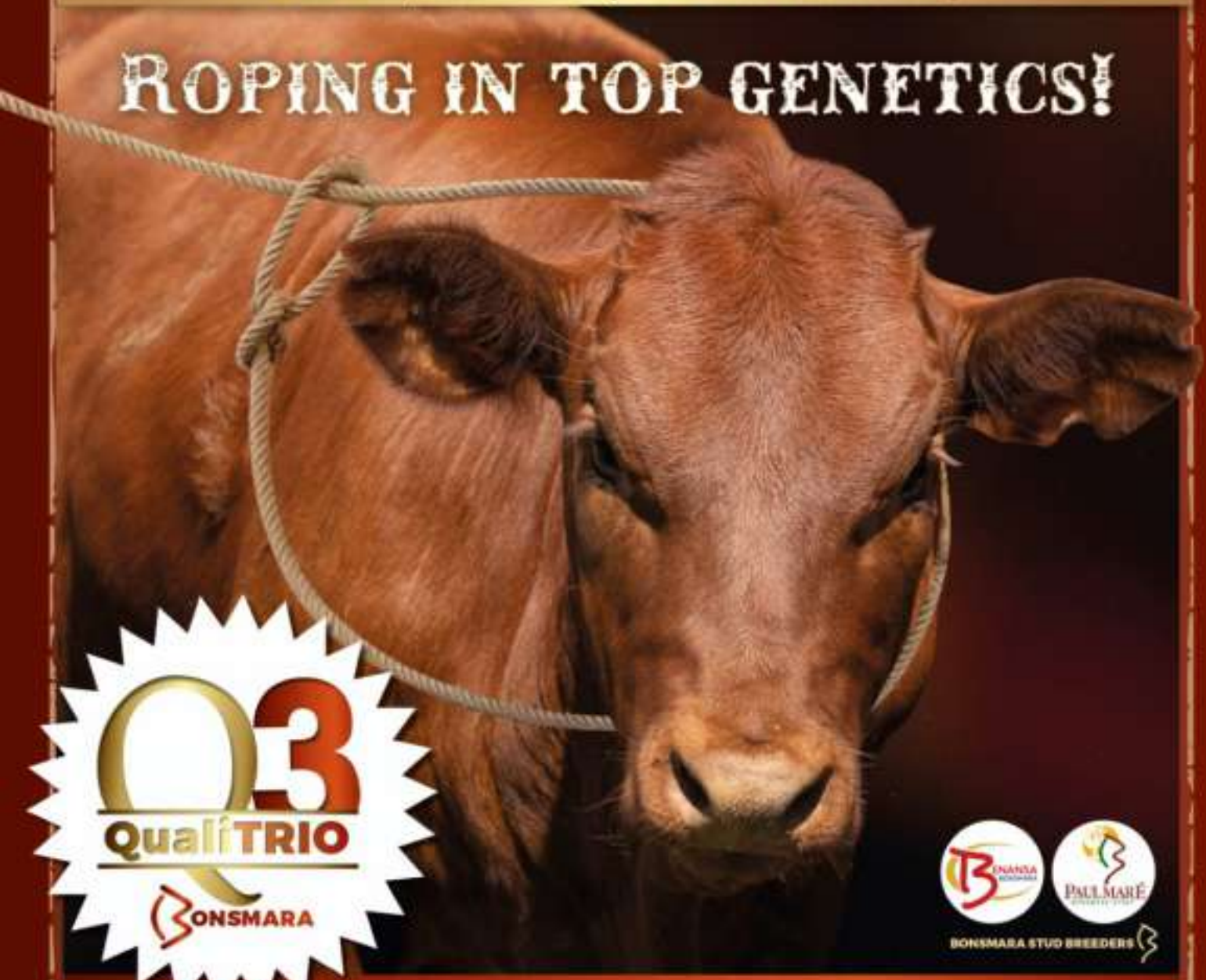

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THE CONTRIBUTION OF PHASE C PERFORMANCE TESTING TO THE EFFICIENCY OF BEEF PRODUCTION

The South African National Beef Cattle Improvement Scheme

Author: Suné Bartman
(MSc Agric Production Physiology and Product Quality)

As the challenges faced by cattle farmers continuously increase, producing beef as efficiently as possible has never been as vital as it is today. The rising input costs and ever-growing pressure to produce more meat with less resources greatly encourages breeders to search for ways to optimize growth, and limit costs. Efficiency is the product of both improved genetics and improved management; two factors only achieved by observation, measurement and record keeping. These are the factors considered and applied by the South African National Beef Cattle Improvement Scheme. The Beef Cattle Improvement Scheme supplies the beef industry with objective performance information as a means of improving the economic efficiency of beef production.

Animal recording and performance testing allows for genetic enhancements and improved management practices that will ultimately lead to optimal production and economic efficiency. This improvement scheme consists of multiple phases, from phase A to phase D, that regards reproduction efficiency, pre- and post-weaning growth rates, as well as potential feedlot performance. Feedlots play a massive role in the provision of high-quality beef to the consumer, as 75% of all beef produced in South Africa comes from feedlots. Therefore, selection of breeding material based on their feedlot performance is a sound way to maximise the probability of good feedlot performance in their offspring.

What are Phase C performance tests?

Phase C performance tests are done on stud bulls in order to pertain an estimate of the performance of his progeny in typical feedlot conditions. Phase C testing allows for the comparison of the feedlot performance of various bulls of the same breed from different farms and from different years. This is due to the measurement of individual feed intake of all the ad lib fed animals. Bulls selected for phase C testing are evaluated immediately after weaning under standardized feedlot conditions, at a central testing station. Environmental influences are minimal as bulls are tested right after weaning, while they are still in their growing phase, ensuring that the comparisons are fair and test results are accurate. These animals undergo a 28-day adaptation period and are then tested for a period of 84 days. The growth tests are standardised in order to determine if the individual bull will contribute to the genetic improvement of the future herd.

What is tested for?

The performance tests include weekly weight measurements, individual feed intake measurements, a sequence of body measurements (shoulder height, body length, skin thickness and scrotal circumference) and average daily gain (ADG's) measurements. Body measurements are taken of each bull calf at the end of the test. Functional appearance scoring is also done on a series of traits, followed by a functional evaluation. ADG's are seen as a very important measure of production efficiency and are defined as the mass gained by an animal in a 24-hour period. It is a measurement indicative of the growth rate of the animal. However, the feed efficiency of an animal – determined from the feed intakes and mass gain – is seen as an even more important determinant of the potential productivity of the animal, as it represents the product output of the animal relative to the input costs.

The importance of Phase C performance tests

The 2nd greatest contributor to feedlot expenses - just short of the expense of purchasing weaners - is the cost of feeding. This means that feed efficiency is one of the most important traits influencing the production efficiency of a herd and the economic efficiency of a feedlot. Feed efficiency is most commonly measured by the feed conversion ratio (FCR), which is defined as the amount of feed - measured in kg - required to obtain a 1 kg gain in live mass. Decreasing the amount of feed required to gain 1kg of meat would decrease the resource-input to product-output ratio, resulting in a significant increase in productivity. This represents potentially millions of rands over the entire beef sector and poses the opportunity to improve the genetics of the South African breeding stock. This would become particularly apparent in the face of feed shortages or increased feed costs. In addition to this, bulls tested in phase C conditions fetch up to 15% higher prices than the average for that breed. Despite this, a very small percentage of stud breeders submit their bulls for Phase C testing. This is possibly due to the fact that costs for phase C tests are considerably higher per animal than phase B and D tests. However, these costs are nearly negligible when considering the benefits. Firstly, FCR measurements are very accurate and, as discussed previously, indicative of the potential increase in efficiency. Secondly, bulls subjected to phase C testing inevitably undergo a certain amount of stress, particularly the claws of the animals. Sound claws are essential for beef cattle, given the marked influence they have on functional longevity and subsequent performance. Phase C testing is a natural selection process against weak claws; approved animals have a much smaller chance of developing claw problems later in their life.

Phase C performance testing requirements

Each animal will be inspected by an inspector appointed by the society to ensure it meets the minimum breed standards. All animals that are rejected by its respective inspector will not receive any merit. Only bull calves eligible for registration and recording, as well as grade bull calves approved by the breeders' society concerned are considered for testing. These calves must be between 151 and 250 days of age at the begin adaptation date, with a mass falling within the minimum to maximum range for the specific breed. No exceptions regarding the mass and age are allowed. In addition to these requirements, bull calves are only eligible if they are certified for immunization against anthrax, botulism, black-quarter, lumpy skin disease and IBR at least two weeks prior to arriving at the phase C test centre.

Breeders will receive bi-weekly reports on their animals performance, as well as an end-of-adaptation and mid-test report on the live weight and general condition of their bulls. A final report will be issued to the owner and breed society containing the results of all the parameters previously discussed. At the end of each test, merit awards are made based on the stipulations of the National Beef Recording and Improvement Scheme. Gold, silver, or bronze merits are awarded based on the performance criteria used to award the different merit categories, after which the animals will be brandmarked accordingly.

In summary

Despite the additional costs, phase C performance tests provide the breeder with an opportunity to make well-informed decisions regarding the best breeding material to use for long-term sustainable production. The tests allow for not only the chance to improve performance and efficiency, but also considers these improvements in the context of animal functionality. This means that genetic improvement can be made towards optimal production without compromising on other important traits vital to the success of the beef industry.

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Features of Different Cover Crops for the winter season

Author: Stiaan Heyns
Editor: Suné Bartman
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In the previous article, we focused on the importance of regenerative agriculture, specifically cover crops, in promoting healthy soils and sustainable crop production. It discusses the potential benefits of cover crops, including the presence of beneficial insects and the reduced risk of crop diseases. It also emphasizes the importance of applying basic principles by applying specific practices, such as diversifying plant species, minimizing aggressive tillage and careful planning and management of crops.

Cover crops are an important aspect for growers to consider, and the first thing they should do is determine a clear purpose for its use. Growers should determine what they want to get out of the cover crop in terms of benefits, such as:

- Promoting biodiversity
- Weed suppression
- Biomass production
- Nitrogen fixation
- Reduction of soil compaction
- Control of erosion
- Feed production
- Stimulation of microbial activity
- Bio-fumigation
- Attraction of natural predators and pollinators
- Low maintenance
- Moisture conservation
- Combating soil diseases

Other core benefits to remember about cover crops:

Cover crops increase root mass in different soil layers, leading to better aeration in the soil, as well as the soil's waterfiltration and holding capacity. Cover crops aid in the rapid build-up of humus or organic carbon levels and improve microbial dispersal. It provides better protection against pests and for healthier soil as well as promoting favorable conditions for useful insects such as earthworms.

It is important to keep all of these goals in mind when choosing cover crops or mixes. Depending on the specific needs of your farming operation, you can prioritize one or more of these goals. For example, if you are primarily concerned with erosion control, you may want to choose cover crops with deep, fibrous root systems that can hold the soil. If nitrogen fixation is a priority, leguminosas cover crops may be the best choice. It is also worth considering how multiple goals can be achieved with a single cover crop or mixture, such as using Leguminosae for both nitrogen fixation and weed suppression.

Producers should examine the available species of mulch crops to determine which species will best meet their needs. This can include selecting species that will grow best in the specific climate and soil type of the farm. When growers have a holistic approach to cover crops, they can optimize the management of the cover crops in their farming operations. This may include choosing when to plant, harvest and remove it. The correct management of cover crops can contribute to a healthy and sustainable farming operation catering to future generations.

Since cover crops have different functions, it is important to determine what the purpose of the crop is.

Is the goal to add organic matter to the soil?

Maybe to add nitrogen to the cultivation system?

To stimulate biological soil activity?

Or to protect the soil during the winter months?

Its main purpose is to suppress weeds in a natural way.

Various cover crops are considered "smother" crops because they are used to control or suppress weeds. Crops that give the best results are those that germinate quickly, provide fast ground cover, and form dense leaf canopy.

Its main purpose is soil improvement through **nitrogen fixing.** Legumes such as lupins, clovers, vetches, and beans that can capture atmospheric nitrogen can also provide nitrogen to subsequent crops. When sources of manure or compost are not readily available, legumes can be inserted in a crop rotation to supply nitrogen to the cash crops. Nitrogen fixation legumes should be inoculated with rhizobium bacteria before planting (see inoculation guidelines). Legumes require specific strains of fresh or well-preserved inoculants. Inoculation is especially important if the legume has never been cultivated on the site before. Also note that legumes have different growth habits, especially when they are used in mixtures. Some are crawlers and others have a recumbent growth habit.

To interrupt pest life cycles, it is important to select cover crops from a different family than the future cash crops so that they do not harbor pests or diseases that can have a negative impact on the next cash crops. Some cover crops may carry out **bio fumigation** if tilled into the soil, while other crops serve as non-hosts. The host status differs between species and varieties for different pathogens and diseases.

The properties of the **cover crop residue** are very important because they have a direct influence on the outcome of organic matter decomposition (humification and mineralization) and other plant nutrition dynamics. Young and succulent green manor crops with a low C:N ratio will feed soil microorganisms, while a mature, fibrous green manure crop such as grain straw will form stable organic matter but provide less stimulation of soil biological activity.

The right cover crop can even look decorative among other ornamental plants. Crimson clover can serve as a good example, with its flowers tightly packed together like strawberry stems. You would hardly think that it improves the **soil.** Cover crops with large tap roots or bulbs can penetrate the soil and break compacted layers. In the process, it can increase filtration and aeration. It is not limited to these species, because all root types can support this process.

Faba beans tolerate **water leached** conditions better than other grain legumes such as field peas and lupins. This means that faba beans can grow better in soil that contains a lot of water or where there is a high groundwater mirror, unlike other legumes that cannot perform as well against water leached conditions and be resistant. Other options for crops that grow better in these conditions exclude field peas and lupins, but there are other options that can be considered.

Cover crops can play an important role in **promoting biodiversity** and ecosystem services in farming systems. By attracting beneficial organisms such as predator insects, parasitoids, and pollinators, cover crops can help control pests and increase crop yields, for example,“Buckwheat” is a cover crop known for attracting a wide variety of

beneficial insects, including lacewings, ladybugs, and hoverflies, all of which are natural hunters of louse, thrips, and other crop pests. Phacelia is another cover crop that is attractive to pollinators, such as bees, and also provides habitat for beneficial insects.

Radish and mustard plants are also effective cover crops in attracting beneficial organisms. Radish can attract soil beetles, which are predators of slugs and other ground wound pests, while mustard plants can attract parasitic wasps that lay their eggs in the eggs or larvae of other insects, eventually leading to their death. Overall, cover crops can be a valuable tool in promoting natural pest control and increasing biodiversity in farming systems. By providing habitat and food for beneficial organisms, cover crops can help reduce reliance on synthetic pesticides and fertilizers and promote a more sustainable approach to agriculture.

In this article, we put the focus on winter cover crops . There is a large selection of winter cover crops to choose from and the choice depends on the specific conditions of your farm. For example, if you have a drought-stricken area, you might consider choosing crops that can grow well in low rainfall conditions. If you have problems with weeds, you can choose crops that grow quickly and form a thick crop. The most common winter cover crops include oats, rye, vetch, triticale, lupins, medics, clovers, various varieties of cabbage and many more. It is important to remember that a good plan for winter cover crops often includes a combination of several crops in order to achieve a wide variety of goals.

Winter cover crops are planted in the autumn and winter months to cover the soil and protect it from erosion, washing out and evaporation during winter and early spring. These crops can also help make the soil healthier by adding organic matter to the soil, improving the structure of the soil, and increasing the biodiversity in the soil stage. An important aspect of winter cover crops is that they can also serve as a source of food for livestock and wildlife during winter. It can be in the form of pasture, hay or silage. Some of these crops may also play an important role in managing weeds, improving soil fertility and promoting biological control of pests.

Winter Cover Crops

1. Berseem clover (*Trifolium alexandrinum*)

- Berseem clover is an annual temperate clover, which should be planted every year
- It has an upright growth habit and is sensitive to frost
- Mainly used for green manuring

2. Arrow-leaved clover (*Trifolium vesiculosum*)

- A good legume to use as green manures for soil improvement
- Can be planted in corn rows if wide-pitched spacings are used for corn
- It can also grow as a standing crop for grazing during the winter
- Under irrigation, it can be used for dairy cows

3. Biserrula (*Biserrula*)

- Very good quality feed in terms of dry material digestion, metabolizable energy and crude protein
- Tolerant to heavy grazing
- High seed yield and hard seeds provide a seed bank for many years

4. Bitter Lupin (*Lupinus albus L.*)

- Biological weed control can be done during the vegetative growth period due to the high alkaloid levels in the plant
- The seeds are high in protein and are often used as feed for livestock
- Also used as a green manure crop
- Serves as a nitrogen fixer

5. Broadleaf Sweet Lupin (*Lupinus albus L.*)

- The White Lupine is an annual legume with a very erect growth habit, a thick woody main stem and a strong taproot
- It is an important rotating crop along with the grain
- It has excellent nutritional value for livestock
- The pod does not resemble the bitter lupin and does not fall apart easily
- Can be used for silage when contained in mixtures
- Serves as a nitrogen fixer

6. Forage-Peas (*Pisum sativum*)

- Feeders are tasty and are produced for hay and silage
- Although it can handle low temperatures, heavy frosts can reduce the formation of the pods
- It has great potential as a rotational crop in a crop rotation system
- Serves as a nitrogen fixer

7. Fodder Vetch (*Vicia villosa*)

- It's a fine-stemmed, one-year-old legume with a creeping / runner growth habit
- Produces very good hay and does not cause bloat in livestock
- Combine well with grain crops to make good quality hay and silage
- Serves as a nitrogen fixer

8. Faba Beans (*Vicia faba*)

- This is an important rotational crop with cereals
- Can be used as silage with other crops in mixtures
- Excellent nitrogen fixer

9. Forage Turnips (*Brassica napus*)

- Have an excellent yield
- It is insect resistant
- Have a low stem dry matter percentage

10. Japanese Radish (*Raphanus sativus*)

- It is planted because of the thickened roots
- Radish is normally planted as animal feed in winter and autumn
- Japanese radish is cold-resistant and is not affected by frost
- It promotes water filtration, aerates the soil, and alleviates soil compaction
- Japanese radish has a potential DM yield of 12-14t/ha
- Leads to good production during winter, roots and leaves can be fed

11. Fodder Beets (*Beta vulgaris*)

- Feed beets enable farmers to produce 20 - 30 tons DM/ha of high quality feed that animals can consume in winter and spring when feed availability is critical
- Performs best in deep and fragile soil that has a good ability to store nutrients and moisture
- It is an inexpensive source of roughage, which was the salvation of many farmers with livestock in dry years. This is especially good roughage for sheep
- It requires good autumn rains to establish and grow for winter feeding

12. Turnip (*Brassica rapa*)

- It can be sown along with ryegrass and oats/clover
- It is an inexpensive source of roughage that is a salvation for many farmers with livestock in dry years. It is especially good as roughage for sheep and can be grown together with cereal crops such as oats and rye
- It requires good autumn rains to become established, so it can pile up for winter feeding

13.Medics (*Medicago sativa*)

- Medics are a good crop to use for stitching as well as for perennial pasture use
- It is usually advised to graze it in a fixed number of animals per area
- The planting material has a high protein content and the dry pods eaten during the summer months lead to good animal performance
- Medics are also an excellent rotating crop with cereals, with advantages such as nitrogen fixation, reducing disease and controlling weeds
- DM yields of 8 mt/ha are possible with a carrying capacity of 4-5 small livestock units during winter and up to 10 small units/ha during spring
- Thanks to the hard seed envelope, the seed can re-establish the following year

14. Serradella (*Ornithopus sativus*)

- Serradella is a creeping to semi-erect growing annual plant with a deep, well-developed root system capable of growing roots up to 1 meter deep
- Serradella does not have hard seed and they can germinate earlier than expected
- This makes it more difficult to re-establish naturally, unless there is summer rain to enable the plant to develop
- It is very good as a pasture, hay and silage producing crop
- Combine well with fodder grain
- The hard-seeded varieties will re-sow themselves the following year

15. White Mustard (*Sinapus alba*)

- Late ripening variety, allowing maximum biomass production
- Helps suppress weeds and serves as a ground cover
- Its taproot can grow deep, break soil, and search for nutrients
- Functions well as a biofumigant and suppresses verticillium in potatoes
- High pollination value

16. Phacelia (*Tanacetifolia*)

- Produces abundant biomass and does a good job of capturing excess Ca and nitrogen's before filtrating into groundwater
- Suitable if this will be followed by a strong cash crop, such as potatoes, in early spring
- Ideal as a cover crop for oilseed rotations (non-hosts for club root disease)
- Intercropping option with maize and sugar beet eating (data show that phacelia reduces the population of the onion beet nematode, *Heterodera schachtii)*
  A good cover crop in vineyards and apple orchards (benefits for useful insects). Excellent value for pollinators
- Tolerant of cold and drought
- It grows well in dry soil. Phacelia has rapid establishment and blooms rapidly (6-8 weeks) and blooms for up to 8 weeks
- It reduces soil erosion and improves soil structure

17. Cocksfoot (*Dactylis glomerata*)

- Cocksfoot is a very sustainable perennial grass
- It grows relatively slowly in the sowing year, but in the second and next years it is very powerful
- Cocksfoot growth in the summer months is important.

It is winter-hardy and drought-resistant. It is also very suitable for hard rotational grazing by sheep

18. Oats (*Avena vetua*)

- Forage grain usually provides a good green bite in early winter and spring. Very tasty
- They respond well to irrigation or supplemental irrigation.
- Take advantage of rotational grazing with a rest period for regrowth
- Grain crops are suitable for grazing, hay production and silage
- Marketing/end product use: Human consumption, Animal feed/feed, Grain, Hay/forage and Cover Crops

19. Phalaris (*Phalaris aquatica*)

- Phalaris is a deep-rooted perennial grass
- It is very well adapted to winter rainfall areas where the rainfall is 380mm and above
- Phalaris are drought tolerant and can handle waterlogging well
- This grass develops slowly, and therefore it does not compete well with weeds at an early stage. Therefore, before sowing, the soil should be weed-free. The grass should not be allowed to grow very high because it becomes unpalatable to livestock
- There is the danger of poisonous alkaloids. This primarily affects sheep
- Phalaris is not a high-carrying capacity grass, but plays a strategic role in the feed flow. It produces well during fall and spring

20. Rye (*Secale cereale*)

- They usually have an upright growth habit
- Early plantings are ready for grazing in 50 days

Rotational grazing can be used for best results

- The grain is of great value to ruminants and has a crude protein of 10-13%
- Rye can be used for grazing, hay, etc., as well as grain feed
- Height ranges from 1.7m to 2.3m
- Well adapted to extreme climatic conditions
- Rye is an open-pollination crop

21. Triticale (*Triticale*)

- A wintergreen forage providing quality from May to October
- It remains edible until the end of September
- Early plantings are ready for grazing in 40 days. Rotational grazing can be used for best results
- The grain is of great value to ruminants and has a crude protein of 10-13%
- Triticale can be used for grazing, hay, ensilage as well as a grain feed

Each plant has unique features that make it suitable for different applications, such as grazing, hay production, silage and more. For example, forage beets can produce large quantities of high-quality feed, while farmers can also turn to forage grasses such as ryegrass, which are highly adaptable and respond well to irrigation.

It is important to remember that choosing a cover crop depends not only on the characteristics of the plant, but also on factors such as local climatic conditions and the nutritional needs of your livestock. With the right knowledge and decision making, the right cover crop can make a big difference on your farm's success. There are many other cover crops suitable for the winter season like Black oats, fodder barley, ryegrass, white-and-red clovers, Chigory etcetera.

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A True South African Treasure

THE BOERBOEL

Author: Suné Bartman
(MSc Agric Production Physiology and Product Quality)

The origins of the Boerboel has long been shrouded in mystery, with early records simply describing them as "a farm dog of uncertain origin". However, as we delve deeper into history and tales from around the world, we begin to uncover a clearer picture of where these magnificent animals originate from. The first traces of large dogs being used for hunting can be found as far back as the 7th century BC in ancient Syria. Two Assyrian Kings, Asarhaddon and Ashurbani-pal, were known to use these large dogs to hunt wild horses and lions. The murals in the Syrian rooms of the British Museum in London depict these dogs as being even bigger and heavier than the large dog breeds we are familiar with today.

The use of large dogs for various purposes continued through the centuries, with prominent figures and armies across the globe utilizing them. Philemon Holland's work, translated from Pliny's Natural History in 1601, contains several references to large dogs being used by Germanic kings and the Cimbrians to guard their belongings during battles.

The King of Albania even gave Alexander the Great a giant dog as a gift, which was eventually used to hunt bears, wild boars, and deer. It wasn't just in Europe and the Middle East that large dogs were prized - in Africa, the Cynomones tribe in Ethiopia bred dogs described as "Indian dogs," which were descendants of the Babylonian dog. These dogs were considered a tradeable commodity and were big, strong, and suitable for fighting lions.

With the arrival of European settlers in South Africa, their large and strong dogs, such as the Bullenbijter, were brought over and crossbred with the dogs of the native inhabitants of Africa. This is how the Boerboel, as found on countless farms, and which later trekked north with the Great Trek, originated. It's fascinating to look at the history of the Boerboel and trace the genetic material that came together to create this magnificent breed. The Bullenbijter from Europe, with its early roots in Albania and Syria, and the African dog of the black tribes of Africa, probably descended from the Cynomones of Ethiopia, with its earlier roots in Babylon during the Persian domination, and the even earlier lineages via India back to Albania and Syria.

The Boerboel is known for its protective instincts and loyalty to its family, making it a popular choice as a guard dog.

The South African Boerboel Breeders' Society (SABBS) is the only organization authorized to officially register Boerboels and is responsible for the standards that govern identification, recording, evaluation, and improvement of the breed.

Owning a Boerboel comes with its own set of responsibilities, and it's important to have the necessary information to make an informed decision. Consider your needs and whether you have the means to care for the dog for its entire life. Do you have sufficient space and a secure environment for a large breed dog? Do you have the necessary knowledge of canine behavior to raise a large dog with protective instincts? It's important to obtain as much information as possible about the breed and breed standards by talking to SABBS office bearers, breeders, and members.

The Boerboel breed is a fascinating and unique dog with a rich history and diverse ancestry. From the large dogs used by Assyrian kings to hunt wild horses and lions in ancient times, to the Bullenbijter brought to the Cape of Good Hope by Jan van Riebeeck, to the African dogs of the black tribes of Africa, the Boerboel has been bred from large and strong dogs with good characteristics.

Owning one of these giant furballs can bring a great deal of joy, love, and security to your life, but it's crucial to remember that this comes with a significant responsibility. It's essential to consider your needs and whether you have the time, the means and the patience to raise and care for a dog of this caliber, also considering whether you have the necessary knowledge and commitment to raise a well-adjusted and balanced dog. By educating yourself on the breed and seeking guidance from experts, you can make an informed decision and ensure that your Boerboel thrives and brings you years of happiness and companionship.

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COLOSTRUM MANAGEMENT

THE FIRST LINE OF DEFENCE

Author: Suné Bartman
(MSc Agric Production Physiology and Product Quality)

Colostrum is the multifaceted secretion produced by mammalian mammary glands during the initial postpartum period, which is a crucial part of the well-being and survival of new-born livestock.

As an essential component to the success of any breeding operation, increasing your knowledge surrounding colostrum and the management thereof is vital. Colostrum is the multifaceted secretion produced by mammalian mammary glands during the initial postpartum period, which is a crucial part of the well-being and survival of new-born livestock. It is a highly concentrated, bio-active fluid exhibiting a yellowish colour and a thick, creamy consistency - replete with nutrients and antibodies. As a complex biological fluid, colostrum plays a pivotal role in the development of an infant's immune system by providing a myriad of immune, growth, and tissue repair factors. Its composition includes significant quantities of complement components, which function as natural anti-microbial agents. These components actively stimulate the maturation of the infant's immune system, fortifying their ability to combat potential infections and diseases during the early stages of life.

Colostrum can mean the difference between life and death for new-born calves, as it is the primary source of passive immunity. Passive immunity - acquired from an external source - is crucial in protecting the calf during its vulnerable early stages. Colostrum delivers essential proteins known as immunoglobulins (Ig), which help establish this protective shield.

A calf is considered to have attained adequate passive immunity when blood IgG concentrations are greater than or equal to 10 g/L at 24 hours of age. Calves with blood Ig levels below this threshold are at an increased risk of death. Colostrum is a vital source of vitamins A, D, and E, which are essential for the calf's growth, reproduction, and immune response. The transfer of these vitamins across the placenta is limited, and the neonate relies on colostrum consumption to establish adequate tissue stores.

Colostrum is also abundant in magnesium, which is essential for the calf's health. Magnesium absorption decreases as the calf ages, highlighting the importance of colostrum intake. The absorption of nutrients, including carbohydrates, amino acids, fatty acids, and large molecules like immunoglobulins, occurs primarily in the small intestine through various processes such as active transport, passive diffusion, and pinocytosis.
Proper maturation and functioning of the neonatal intestine enable the calf to digest and absorb nutrients from colostrum and milk, supporting postnatal growth and organ development. The somatotropic axis, a major postnatal endocrine regulatory system for body growth, is stimulated by the intake of colostrum and milk, promoting anabolic metabolism in calves.

The first weeks of life are critical for new-born calves due to their high pathogen susceptibility. Cows, like other ruminants, have an epitheliochorial placenta that prevents passive immunity transfer to the neonate during gestation. As a result, new-born calves are agammaglobulinemic and depend almost entirely on colostrum for their initial immune protection.

Colostrum is not only rich in nutrients but also contains non-nutrient factors that promote immune system development and intestinal maturation in calves.

Colostrum quality is determined by the presence of immunoglobulin G (IgG), which makes up approximately 85-90% of the total immunoglobulins in colostrum. There are two main types of IgG: IgG1 and IgG2. Colostrum also contains IgM (7%) and IgA (5%), both in multiple forms. While new-born calves absorb all three types of immunoglobulins, IgA partially returns to the calf's intestines to provide local protection, and IgM mainly contributes to the primary immune response. Since IgA and IgM have a shorter lifespan compared to IgG, their protective functions are limited. High-quality colostrum typically has an IgG concentration of over 50 g/L.

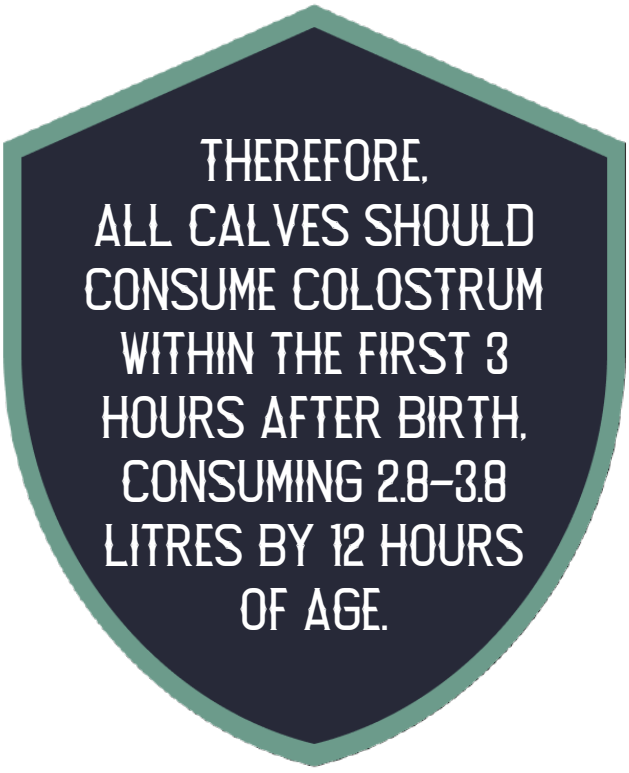
It is widely accepted that a calf's blood should have an IgG concentration of at least 10 mg/mL between 24 and 48 hours after birth to indicate successful immune transfer. Failure to achieve this level is associated with higher calf illness and death rates. The concentration of immunoglobulins (Ig) in colostrum can vary depending on factors such as the cow's disease history, the volume of colostrum produced, the season, the breed, the cow's nutrition during the dry period and the age of the cow.

The difference between 20 and 100 g/L of IgG in colostrum can mean the difference between colostrum deficiency and adequate colostrum status in the calf. Older cows often produce better quality colostrum than younger cows. However, if older cows are not exposed to many pathogens, the colostrum produced may not have high levels of antibodies. The type of antibodies in colostrum depends on the antigens to which the cow was exposed, either through disease exposure or vaccination.

Furthermore, cattle raised on a farm will produce colostrum with antibodies specific to the organisms on that farm, which is an added benefit. Milking or leaking of milk from the udder before calving can significantly reduce the concentration of antibodies in colostrum. Generally, colostrum produced in large volumes will have lower Ig concentrations than colostrum produced in smaller volumes.

Colostrum from cows that produce more than approximately 8.16 litres at the first milking usually has a lower Ig concentration (18 lb. or 8.16 litres rule). However, this is only a general rule, as the relationship between Ig concentration and volume is not constant. The timeframe for colostrum uptake is imperative, and ensuring an immediate and sufficient colostrum supply after birth is crucial for successful calf rearing.

The calves' ability to absorb immunoglobulins (Ig) diminishes significantly after 12 hours and is completely blocked at 24 hours of age.



Colostrum from cows that produce more than approximately 8.16 litres at the first milking usually has a lower Ig concentration (18 lb. or 8.16 litres rule). However, this is only a general rule, as the relationship between Ig concentration and volume is not constant.

If the calf cannot nurse, it is essential to use high-quality frozen or fresh colostrum (with a minimum of 50 g of IgG/L). If colostrum availability is limited, a bovine-serum based commercial supplement can be used either to fortify an existing colostrum source or to replace colostrum when none is available. It is imperative that absorption of Ig occurs before gut closure, the process by which the calf's intestine becomes impermeable to the large Ig proteins.

In a healthy calf with access to liquid feed or colostrum, gut closure typically occurs within 24 hours after birth. Inadequate colostrum management practices, such as on-farm storage and feeding methods, can impact the immune components in colostrum and subsequently the immune status of the new-born calf.

The small intestine is widely considered the primary site of absorption for colostrum in new-born calves. The high pH level in the abomasum of new-born calves helps prevent proteolytic digestion of immunoglobulins (Ig). However, research findings are not entirely consistent in determining whether the absorption process is selective or not. The ability of a new-born calf's intestinal epithelium to absorb colostrum demonstrates a linear decrease from birth until gut closure.

In general, calves are believed to absorb Ig up to twelve hours after birth.

It is recommended that new-born calves receive two litres of colostrum within twelve hours of birth.

Some studies suggest that the presence of the dam may have a positive effect on absorption, however various factors can influence the validity of this. The role of breed in Ig absorption is also debated in the literature, with no clear consensus. While corticosteroids or hormones might have a marginal impact on Ig absorption, their use is generally not recommended for pregnant cows or new-born calves due to potential risks and side effects.

Ensuring an adequate supply of high-quality colostrum, within the critical timeframe, can make a significant difference in the calf's immunity and overall development. If fresh colostrum is not available, commercially available colostrum supplements or replacers can be used as an alternative. It's essential to consult your veterinarian on the use of these supplements or replacers to ensure they meet the nutritional requirements of the new-born calf. Storing colostrum for later use is a valuable practice for producers who may not always have access to fresh colostrum.

Having a stored supply of high-quality colostrum can be achieved by freezing the colostrum collected from the first milking after calving. A colostrometer can be used to measure colostral quality on the farm, warranting that the colostrum contains at least 50 g of Ig/L. Proper storage of colostrum allows for quick thawing when needed, ensuring that calves receive the necessary immune protection in a timely manner. By understanding and implementing best practices for colostrum storage and alternatives, producers can provide their new-born calves with the essential immune protection and nutrients needed for optimal growth and development.

Colostrum can be stored by freezing it in milk cartons or plastic containers, which can later be thawed and mixed with warm water for feeding. To preserve the antibodies, it is crucial to thaw colostrum using a warm water bath, avoiding boiling temperatures that may destroy its immune properties.

It is evident that effective colostrum management on farms plays a pivotal role in ensuring successful immunity transfer and providing new-born calves with the optimal foundation for growth and development. By adhering to the "Three Q's" guideline, which encompasses Quantity, Quality, and Quickness of feeding, as well as additional factors such as quantifying immunoglobulin transfer and maintaining cleanliness, producers can significantly improve calf health. Key aspects of colostrum management include timely provision of sufficient high-quality colostrum, minimizing bacterial contamination, and closely monitoring calves' blood IgG levels within the first 24 to 48 hours of life.

Despite the wealth of existing knowledge on colostrum management and its impact on colostrum quality and immune transfer to calves, there is still room for further research and development. Current studies are exploring various aspects of colostrum management, such as milking methods, treatment and storage procedures, and administration techniques, to continue refining best practices and enhancing the well-being of calves.

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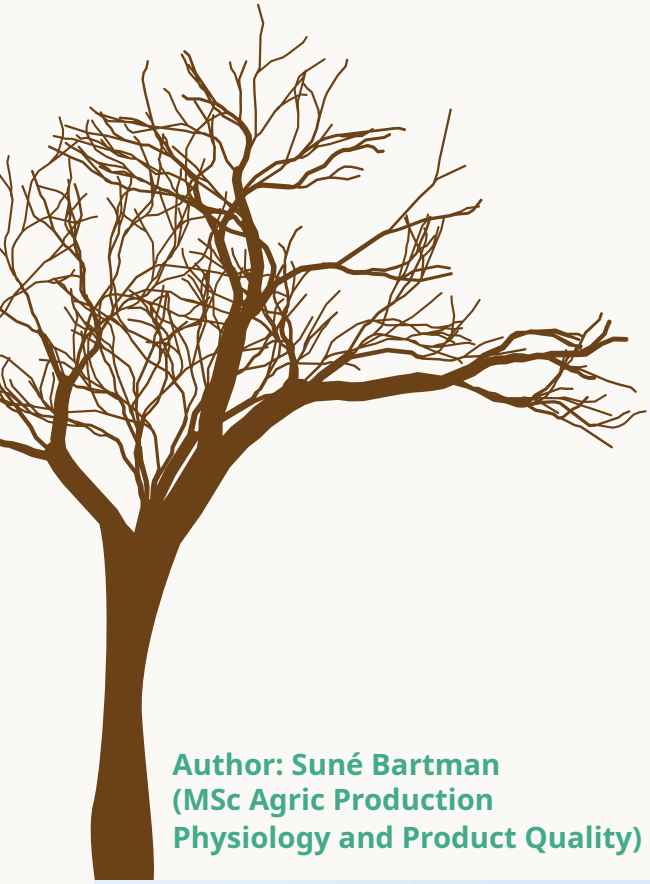
"Success is the sum of small efforts repeated day-in and day-out"

THE GOAT

FRIEND OR FOE IN THE ONGOING BATTLE AGAINST BUSH ENCROACHMENT?



Author: Suné Bartman
(MSc Agric Production Physiology and Product Quality)

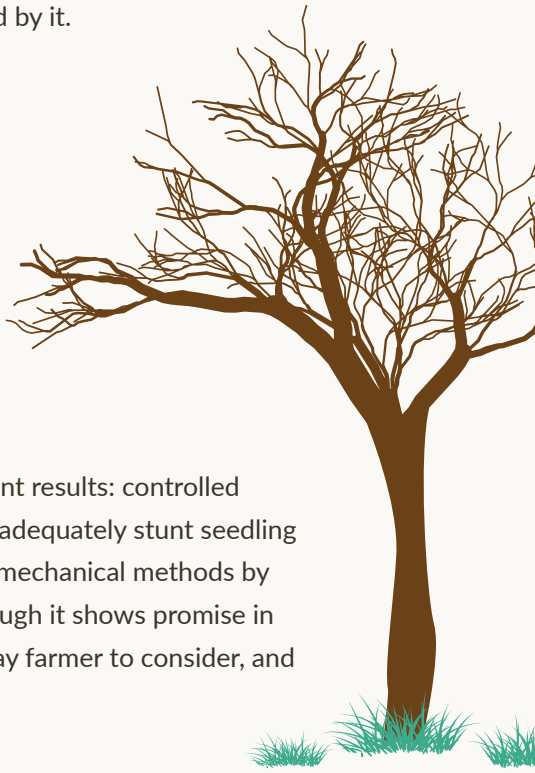
Bush encroachment... For any farmer who has ever made their living off grazing animals, these words have a very obvious and unconcealed significance: declining grazing capacity, higher feed inputs and lower profit. This infamous ecological process entails a shifting from grass-dominated vegetation to wooded vegetation, ultimately declining the grazing capacity to such an extent that a previous economically viable livestock property is no longer feasible. Thus threatening not only the livelihood of the farmer, but on a larger scale also risking food security and the existence of the grassland biome.

The global importance of grasslands is shown by their extent; they comprise about 26% of earth's total land area, and 80% of all agricultural productive land. In South Africa, the grassland biome is the second largest biome, subsequent only to the savanna biome.

Both grassland and savanna regions are of great agricultural importance, providing the feed base for grazing and browsing livestock, thereby also contributing to the markets based on livestock derived products such as fertilizer, transport, fibre and leather.

Both biomes, however, are also threatened by the advancement of bush encroachment. Before land was divided into farms and managed by farmers, this phenomenon had always been controlled by natural occurring hot fires as well as herbivores. Removal of both these factors to accommodate grazers, in combination with overgrazing - which weakens the grasses to such an extent that they are unable to withstand competition - and poor management practices, resulted in the continual progression of encroachment.

The woody species compete with the existing, potentially overgrazed grass species for natural resources, suppressing and reducing any further foliage development and thus decreasing the potential grazing capacity of the encroached area. Considering everything mentioned above, addressing this issue is of utmost importance for every farmer affected by it.



THE QUESTION NOW, IS BY WHAT MEANS?

Many approaches have been attempted in the past, all showing relatively insufficient results: controlled fires, aimed at encouraging grass regrowth, are neither hot, nor intense enough to adequately stunt seedling growth. Manual means by labour is too time consuming to really be effective, and mechanical methods by machine, just not economical. Even chemical control was put to the test, and although it shows promise in restricting further growth of woody species, it is just too expensive for the everyday farmer to consider, and also poses a threat to the health of livestock if accidentally consumed.

SO, WHAT ABOUT THE GOAT?

Goats can be considered a biological method of bush control, yet the wide belief that goats are destructive to their surroundings due to diminishing the biodiversity and excluding other ungulate species, have limited the popularity of using them as a control method in the past. Recently, however, studies have suggested that goats can do more good than harm if properly managed. In a study done in the False Thornveld in the Eastern Cape, the effect of continuous browsing by goats on the bush clump density, structure and species composition was conducted. Researchers wanted to establish whether goats have any influence in long term bush development, and if they have potential as biological control methods. What they found was that species composition was relatively unaffected by browsing activities, with a higher tendency towards increased, rather than decreased biodiversity, contradicting the theory that goats are destructive to their surroundings.

Frequency, height as well as canopy- and ground diameter of bush clumps were shown to have declined in browsed areas, as opposed to unbrowsed, controlled areas. Overall, horizontal and vertical growth was seen to be stunted in areas where goats were allowed to browse at stocking rates intended for bush control. Stem densities were shown to have increased in browsed areas, but this had no effect on the abundance of the herbaceous layer. Overall it was found that the bush density, as it were before goats were introduced, has not decreased or increased by browsing activities. However, the rate at which densities increased were drastically reduced. It was also evident that, in addition to browsing, trampling by goats aided in the deceleration of bush encroachment, opening up ground covered by bush, and thereby permitting for improved grass growth.

TO BROWSE OR NOT TO BROWSE?

The question that now arises is whether implementing this method would be the practical option, and if so, how to go about it? Goats can definitely be considered a practical and cost effective way of managing bush encroachment, but the treatment required will all depend on the degree of encroachment in the different areas or different grazing units. If encroachment has progressed to an unmanageable extent, browsing alone would not be sufficient to significantly repress the aforementioned. Preceded, intense burning would be required, followed by a sound browsing plan. However, in cases where encroachment has not meaningfully affected the grazing capacity, browsing alone would be adequate in controlling further expansion thereof. Altogether, browsing can be reflected as a cost effective, non-destructive and proficient means of managing the ever present occurrences called bush encroachment.

AUCTIONS

11	May 11:00 am	Vlakvlei, Viljoenskroon	QualiTrio Bonsmaras Production Auction	Read more
31	May 11:00 am	Waterford, Viljoenskroon	Waterford and Chan Te Mar Droughtmaster Production Auction	Read more
1	June 11:00 am	Farm Klipeiland Bronkhorst spruit	Gouwsberg Tuli Stud Production Auction	Read more
3	June 07:30 am	Groenfontein, Derby	Fonteine Borans 16th Production Auction	Read more
4	July 11:00 am	Ermelo, The Bull Ring Auction house	Bonsmara Group Production Sale	Read more

EVENTS

16 -19 May	12pm	Bothaville	Grain SA's NAMPO Harvest Day	Read more
2 June	9:00 am	Du Preez Landgoed Grootpan, Noordwes	Stroperresies	Read more
29 July	9:00 am	Loftus Versfeld Stadion	Lamb Champs	Read more

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