

Cattle Farming in the Eastern Free State

Overview

The Eastern Free State, where Sandstone Estate is situated, is known for its beautiful scenery. The area is characterized by mixed farming practices which include livestock and crop farming.

Climate and Resources

Warm, rainy summers and very cold winters with severe frost are common. Rainfall is higher in the Eastern Free State than in other parts of the Free State ranging between 500mm and 730mm. Rainfall distribution is often very irregular, especially in the western parts making management more challenging.

The Free State has deep sandy soil in the west becoming shallower towards the east with a higher clay content which is primarily used for crop production.

In general this mixed farming area is used for summer and winter grains, as well as game, cattle and sheep farming. The most common crops are maize, soya beans, sunflowers, grain sorghum and winter wheat. Crop residues form an integral part of livestock enterprises.

Since profit margins of crops are progressively coming under pressure, marginal soils are converted to planted pastures resulting in a stronger livestock component.

Cattle production

The Eastern Free State is ideal for Cattle farming since the carrying capacity of natural pastures is between 4.5-5 large stock unit per ha and planted pastures with added green feed cultivation make it more ideal to farm with cattle. Crop residues are often available as an added benefit for especially cattle farming.

Crossbred cattle types are more common, primarily because of weaner production. Beef cattle farming are more prominent than dairy, and there was a shift from sheep production over the last decade due to economic circumstances and theft respectively. Cattle stud farms are also common in this area. Calving season is usually during springtime.

Current challenges

The Eastern Free State's natural pastures become sour as winter progresses, causing farmers to face a challenging winter. Additional planted pastures and crop residues can help them overcome these challenges.

Currently, the amount of available grazing material is under immense pressure due to the severe heat and lack of rainfall during the summer months. As a result from that, crop residues are scarce due to bad harvests and the fact that many farmers could not plant any crops on parts of their farms. This directly impacted the amount of crop residues available as supplementary feeding for stock.

Looking forward

Even though circumstances are not currently looking good, farmers will have to manage the situation. The primary focus is to prevent livestock deaths and financial losses, therefore farmers need to manage cash flow and protect the core breeding stock, since these animals have to reproduce and generate income. The selling of surplus or old animals is encouraged to protect scarce resources for the prime stock. Carcass prices of beef are currently very high, especially C-grades. Use supplementary feed very discerningly. If possible prevent animals from walking great distances at a time. Rather keep camps small with sufficient shade and accessibility to clean water.

Available grazing material on veld (natural pastures) is very sparse over large areas of the central region of South Africa. Conditions look bleak for grazing conditions to return to normal in the coming summer and winter. In addition to providing meager grazing material, low soil moisture will also have a negative impact in the spring and early summer on veld production and animals. Crops are already adversely affected, and what has usually been used as animal feed crop residues will not be readily available.

The current situation is critical, but it can be managed and the following measures can help to prevent unnecessary deaths, and reduce financial losses:

- Ensure as far as possible to maintain a responsible cash flow.
- Protect core breeding stock. Female animals should generate revenues again after the drought.
- Where possible, make strategic use of complimentary feeding on pasture.
- Lessen the amount of animals that make use of forage on the farm by marketing surplus animals or temporarily removing them from the veld and putting them in a corral or pasture.
- Limit animal movement by placing them into small camps with shade trees or other shelter. There is better control of the amount of fodder provided to the animals on a daily basis.
- Ensure that all animals have constant access to enough clean drinking water.
- Separate the stronger from the weaker animals to lessen competition at the feed troughs.
- Prevent malnutrition of especially cattle that weaken and lie down because of poor nutrition, before they are fed.
- Don't feed animals ad lib. over long periods. Ration fodder according to desired production levels, e.g. survival or maintenance (maintenance of body weight) or lactation.
- Don't waste food by throwing it onto the ground – use suitable feeding troughs or old transport tyres.

- Provide rationed amounts of fodder every second or third day. In so doing, most animals get enough food to eat. It will also lessen competition at the feeding troughs.
- What can be fed? The basis for ruminants is roughage, whether on the veld or in the trough. Course ground roughage is always better to use (waste reduction) as in the long form. The energy content can be increased with a suitable source (eg. Ground corn) and balanced with a suitable raw protein source. The intake of minerals are balanced according to the needs of the animals.
- Feed pellets are merely convenient (transport, handling, less wastage) but course ground roughage, appropriately balanced (as explained above), is sufficient for the needs of the animals.
- Limit the daily intake of salt (NaCl) in sheep to 5-10g and cattle to 50 – 60g.

The Core Herd

- Herds should be grouped according to age and production status. Determine pregnancy under cattle as soon as possible after the current breeding season. In Sheep and goats, ewes are scanned and multiple pregnancy statuses are determined to make specialized adjustments in their feeding.
- In addition to pregnancy, the condition of the teeth are also determined, especially older cows and ewes. Pregnant cows must be able to graze well at least from farrowing to weaning.
- Worn teeth can complete their production in corrals but at a price.
- Create an inventory of all available veld and other feed sources. The information is necessary to determine how many mouths can be kept till after the beginning of next summer.
- Reduce the amount of animals dependant on food sources by marketing surplus animals or temporarily remove them from the veld. Make note of the female offspring reproduction record and weaning weight. Less productive animals can be culled across all age groups.
- The principle of “cut-your-losses” is relevant here and further expenses should be weighed against further income over the short to medium term. Beware not to get rid of young breeding animals because they are now in a good condition and pregnant, and and because premiums can be negotiated.
- Get Veterinary advice before making possible adjustments to the dosage and vaccination programmes.

General

Farmers' situations differ - contact a professional expert to help with strategic planning. If there is little grazing material on the veld, licks won't help either – often large amounts of supplementary feeding are given on the veld under such conditions. Determine in advance when to move animals from the veld and to feed animals strategically in smaller camps. Road reserves may have plant material to cut and bale. The tops of barbed cactus is a very good feed source - whole sheets for cattle and coarsely chopped for sheep and goats. During droughts, we can not be too picky about the quality of food sources that might be making a difference between life and death for animals. If low-grade roughage as veld grass

straw or stubble or Prickly pear leaves are available, animal nutritionists can use it as a basis to formulate a diet that can meet animals' minimum needs.

The Ruminant

Plant material that is selected during droughts in poor and dry field, is low in raw protein. The digestive system of ruminants and symbiosis with microbes in the big and (reticulo-rumen) offers the opportunity for raw protein with a non-protein nitrogen (NPN) as feed grade to supplement urea. The microbes in the reticulo-rumen break cellulose (fiber) off and form new nutrients (volatile fatty acids and microbial protein). The complex four-part "stomach" gradually evolved from the drinking phase (monogastric) to a physiologically mature ruminant. In younger calves and lambs the reticulo-rumen is still evolving. So use natural and higher quality protein rather than NPN; bypass protein can be strategically provided.

Additional nutrition (cattle licks)

It is always advisable to answer the critical questions for a supplementary feeding program:

- What is the purpose of the supplement? Are protein, energy, a combination of protein and energy, or minerals added? Do animals' condition have to increase or dry animals' mass only have to be maintained or does lactation have to be supported? Animals in different production phases must therefore strategically receive specific types and quantities of supplements.
- How can the goal be best achieved? Are the less productive animals removed to make all forage available for the remaining animals? The option is not used often and can make a major contribution to make supplementary feeding programs more effective and affordable for the remaining animals.
- Can it be determined whether the goal has been reached? Most well-intentioned efforts to improve animal performance for maintaining rarely recommended levels of supplementation, fail in this instance. Ingestion of supplementary feeding varies and is influenced by feeding space (number of animals / trough), access to the troughs (dominance among animals), level of replenishment and how often feeding troughs are filled.
- Unless the provision of supplementary feeding is managed, some animals eat too little and other animals eat too much to benefit from it.
- Animals should not be fed on the veld fruitlessly.
- A variety of products are available; get advice from a professional animal nutritionist about the options and products that can be considered.
- Animals may experience a moderate loss (10-15%) in body mass, but it must be done over a relatively long period and controlled by judicious feed management.

Wildfires

- Wildfires or fire caused by accident can change an already dire situation into a disaster. Areas that experienced veld fires are already suffering from extreme drought
- Make effective firebreaks, especially along roads, around living quarters and dumps. Roads are not good fire breaks because the road surface is smooth and coals are easily blown over the road by the wind. Fire spread also through storm water drains.
- Wildfires suppress grass production for about two seasons. Veld must at least have one growing season to rest and recover after an accidental fire and at least one growing season before a planned fire.

In closing

Production and reproduction of cattle is usually weaker during droughts when the animals become ill; the size depends on how serious the drought is. Lactating cows, late pregnant heifers and weaned calves are most vulnerable because of their higher nutritional needs. A good understanding of the factors needed for a cost-effective management strategy to mitigate the effects of drought on production, reproduction and health. The following general management aspects should be considered for beef cattle:

- Determine cows and heifers's pregnancy as soon as possible (8 weeks for cows and 6 weeks for heifers) after bulls are removed. Non-pregnant animals can be identified for culling and stage of pregnancy (early, middle and late conceptions) is determined from this period.
- Along with body condition, the information is used to identify cows that will benefit from early weaning and / or strategic supplementation and those that should be sold. Informed decision-making creates an opportunity to mitigate the effects of drought.
- Sheep Production can also benefit greatly from the early weaning of lambs - the ewes are then fed on a lower maintenance level and the lambs are quickly rounded in a corral.
- Animal Health begins at the mouth; good nutrition is the foundation of healthy animals and production. Changes in management may also require adjustments in the program for disease prevention (vaccination). Remember vaccination is a simple action (an injection), while generating immunity entails a more complex process in the animal that requires protein (amino acids in the diet) to produce antibodies. During drought, the dry season is especially tough and the protein content of grass is low. Timely vaccination may be considered in order to ensure development of better immunity.
- Drastic changes in management as the restriction of animals in cages cause greater stress and susceptibility to disease. Increased incidence of opportunistic diseases may escalate and animals may need vaccinations that are not normally required. Specific local conditions and circumstances will determine any changes in vaccination, dipping and dosing programmes. Discuss any possible adjustment in the disease management program with your veterinarian.
- Vitamin status also has to be re-evaluated and supplemented.

Management of Acid Grassland

Sour veld for this article is defined as grassland in the higher rainfall areas of South Africa, like the Highveld of Mpumalanga, similar grassland areas in KwaZulu Natal and the eastern parts of the Free State and the Eastern Cape. The summer rainfall in these areas is relatively high and reliable, with reasonable assurance of adequate grazing of an acceptable quality. The winters are cold and dry, with accompanying shortages of pasture. Winter Field also typically have low nutritional value. Therefore, relatively expensive wintering strategies are inherent in fodder flow applications in the acid grassland areas of South Africa.

Target with Sour veld Management:

The effective use of veld is crucial for the development of cost-effective feed-flow applications. With this as background, the following simple goal is set for the use and application of veld:

1. Promoting the vigor of grass, especially the more palatable species, for maximum veld production during the rainy season (summer).
2. Grazing practices are focused on availability of high quality pasture for good animal performance.
3. Provision of adequate grazing of better than normal quality in the winter.

Knowledge Base

Research in the 1980s and 1990s at Nooitgedacht / Athole Mpumalanga Cedara / Kokstad in KwaZulu Natal and Döhne research station in the Eastern Cape, laid down the following key principles:

1. Grass vigor:

Defoliation of grass during the growing season inevitably leads to a decline in vigor in the next growing season.

The intensity and frequency of defoliation has only a small influence on the extent of the decline in vigor. In other words, it does not really matter what kind of cattle-type or grazing system is not grazed, grass production in the growing season following grazing the previous year, is significantly lower than that of fields that rested the previous growing season. The decrease in production due to grazing can be practically accepted as 50%. In other words, veld that rests in the growing season, will in the next growing season, double its produce. This is an important starting point.

Grazing veld during dormancy in winter, does not have an influence on grass production in the next growing season. This has the important implication that if veld has rested in the growing season, it can be grazed in the winter in a veld-based fodder flow program.

2. Pasture quality and animal production

2.1 The role of fire

Fire is and always will remain a controversial topic. Everyone knows that uncontrolled, wildfires are very dangerous and harmful. Controlled fire by contrast, is a very important component of a sour veld management program that focuses on good animal performance. This is especially true in sheep but also in cattle. The controlled spring burning of veld that rested during the previous growing season, and grazed during the winter, is an important component of a feed flow program focused on good animal performance.

2.2 Sheep: Beef relationship

Cattle are bulk grazers that utilize long grass effectively. Sheep are selective eaters who prefer short protein rich pasture for good animal performance. Research has shown that grazing veld with cows, has a positive influence on sheep performance where sheep either feed with or directly after cattle. The optimum sheep, cattle ratio is 6: 1.

2.3 Grazing and stocking rate

Any roaming schedule has a detrimental effect on grass growth. Therefore, the Grazing strategy in the season of grazing is focussed on good animal performance. Graze relatively early after a fire (especially sheep) and keep the field in a high quality growth phase. In practice this means the following:

Separate field types based on preferred grazing areas. Further fences and some camps are determined by what is needed for good stock management. There is not a recipe for a certain number of camps. Divide the field into two equivalent units. The two blocks are then in a biennial rotation system rested and grazed in turn in the growing season. (Rest in growing season 1, grazed in growing season 2).

In the season of grazing, camps in the grazing block are grazed according to the camp indicator approach. According to this, animal are moved through camps as per the requirements for good animal performance. Animals begin grazing in the indicator camp and are moved to the next camp when necessary. Once the indicator camp shows sufficient regrowth, animals are moved back to the indicator camp etc. The application of the indicator camp principle is also an excellent way to manage the inherently variable seasonal rainfall, veld production and carrying capacity, both in terms of animal performance and appropriate stocking rate.

2.4 Utilization of winter field

Acid Grassland has the reputation of inferior, low quality grazing in winter. Traditionally, winter veld is already grazed during the previous growing season. Through selective grazing

of the preferred grass, the tasty, high quality material is already eaten. The dormant winter veld is obviously of low quality. In contrast, winter veld that rested from the previous growing season is still standing. The preferred grazing is still available on the veld that was spare. Although a lower quality than in the summer, it is a protein supplement that continues to be a valuable roughage in a low-cost feed flow program.

3. Schematic representation of the 50: 50 management program for acid grassland.

	Grazing Block 1		Grazing Block 2	
	Growing Season	Winter	Growing Season	Winter
Year 1	Rest	Graze	Burn and Graze	Can graze
Year 2	Burn and Graze	Can graze	Rest	Graze
Year 3	Rest	Graze	Burn and graze	Can graze
etc.				

Summary

High rain sour veld has the advantage of relatively reliable growing season field production, but the disadvantage of relatively low quality pasture and animal performance. The proposed field management system provides a solution for the low grazing quality with the added bonus of an increase in grass vigor and field production. Savings veld in the system provides valuable winter food for a cost-effective field-based fodder flow program. This system is easy to apply and does not require large capital inputs. It provides a simple approach to the sustainable utilization of high rain acid grassland, while the focus can be on good animal performance.