



CASE STUDIES: REGENERATIVE LIVESTOCK PRODUCTION IN NAMIBIA



ABOUT THIS PUBLICATION

The three case studies profiled in this publication are drawn from the National Agricultural Union's publication *Regenerating Namibian Livestock Farmers*, which serves to support the government's Regenerative Livestock Production Strategy (2019). These three case studies provide concrete examples of how Namibian farmers are putting organic principles into practice. All three farms use regenerative grazing practices, one of them is certified organic. They show how this approach can build resilience to the challenges faced by livestock farmers in Namibia, particularly climate shocks such as the latest drought. They also highlight the benefits of this approach – increased production, improved profits per hectare over time and enhanced resource management and income diversification strategies.

The case studies were commissioned by the Namibian Organic Association (NOA) as part of its work for the Knowledge Hub for Organic Agriculture in Southern Africa (KHSA). KHSA is part of the Knowledge Centre for Organic Agriculture in Africa (KCOA), a collaborative country-led partnership funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and non-governmental organisations across Africa. The KCOA aims to scale up the adoption of agroecological and organic farming practices through five knowledge hubs in Africa. The other hubs are implemented by GIZ with in-country partners in North, West, East and Central Africa. The South African-based Sustainability Institute supports implementation of the Southern Africa hub. NOA is an in-country partner of the KHSA in Namibia.

NOA is a membership-based association that was established in 2009 by a group of dynamic farmers and consumers with the common interest of developing the organic sector in Namibia. NOA promotes organic agriculture through various activities: training and capacity building, advocacy and awareness raising, certification of organic produce for the local market, and more recently, developing the local organic beef sector. It commissioned these three case studies to highlight the benefits of adoption of organic principles in livestock production for the commercial livestock sector in Namibia. This is part of its ongoing work through KHSA to enable and support a transition of the sector towards organic production principles.

ACKNOWLEDGEMENT

Written and compiled by Colin Nott and Jerome Boys with input from respective farmers.

This collection of case studies were produced by NOA as part of a larger series titled 'Regenerating Namibia's Livestock Farmers' produced by the Namibian Agricultural Union with support from KHSA, NOA, Feedmaster and the African Climate Fund in 2022.

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INTRODUCTION

This section provides case studies on farms using the regenerative grazing model (one of the farms is certified organic) and practices that align with the four principles of organic agriculture: Health, Ecology, Fairness and Care.

- **Health:** Organic agriculture maintains and builds the health of soil, plants, humans and animals because the health of these elements is interconnected.
- **Ecology:** Organic agriculture works with and mimics living ecosystems and natural cycles to help support their continuing functioning.
- **Fairness:** Organic agriculture emphasises and ensures fairness, justice and respect in relationships between farmers, processors, distributors, traders and consumers, and between these groups and the Earth.
- **Care:** Organic agriculture supports the precautionary principle in all its management decisions to protect the environment and the health of people today and in the future.



As highlighted throughout this case studies series, regenerative agriculture is a conservation and rehabilitation approach to food and farming systems and focuses on regenerating topsoil, growing biodiversity and enhancing ecosystem services. The aim is to achieve ecologically sound and healthy environments that are able to sustain profitable operations.

Organic agriculture is a production system that 'sustains the health of soils, ecosystems and people'. It uses ecological processes and environmentally friendly practices and products to benefit the 'shared environment'. In addition to the benefits offered by regenerative agriculture, organic production principles provide clear standards, and mandate which inputs are allowed or not.

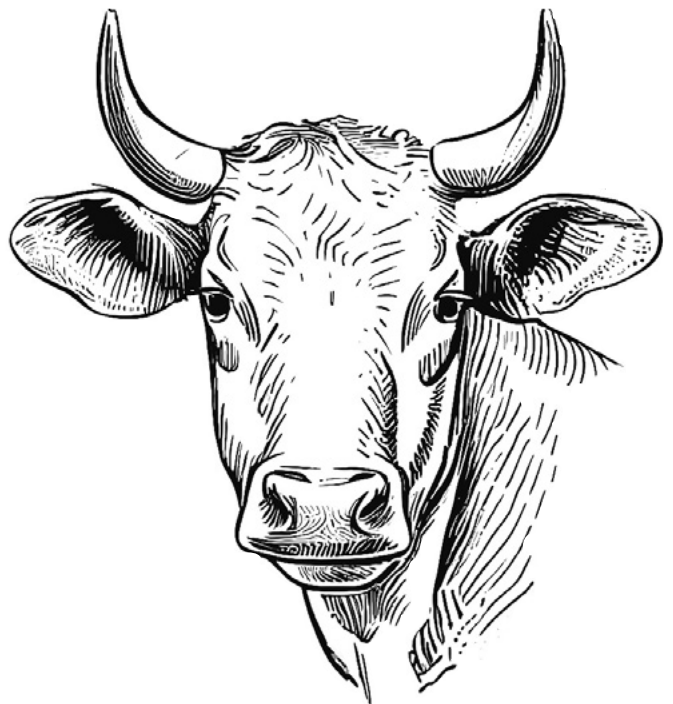
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Organic livestock production focuses on the following principles (more detailed information is available in the Organic Livestock Factsheet Series, which can be found at www.noa.org.na):

- **Animal welfare**, including that animals must be provided with a natural organic (non-genetically modified) diet and licks may not contain urea (NPN). Castration and dehorning are allowed without anaesthetics until six weeks of age (but not under EU standards).
- **Sustainable grazing practices**: Rotational grazing practices build vigorous quantities of veld of high nutritious quality, preventing soil erosion. Should natural grazing be encroached by bush or weeds, these cannot be eliminated by using chemicals.
- **Prevention rather than cure**: Livestock must be adapted to thrive in their environment (farming with adapted breeds) without preventative veterinary interventions. Treatment of a sick animal is required to prevent suffering, but the withdrawal period before use of animal products is doubled. Vaccines are allowed according to national legislation. Repeated use of antibiotics makes an affected animal lose organic status.

Marketing of organic agricultural products in Namibia adheres to the standards as defined by the International Federation of Organic Agriculture Movements (IFOAM). For export, for example, to the European Union or United States, certification by an accredited third-party certifier is required. Producers need to comply with the respective organic standards, which are part of official legislation. Both the livestock and rangelands must be certified.



For more information on organic livestock production and certification, please contact the Namibian Organic Association (NOA): info@noa.org.na or noa@nnf.org.na.

CASE STUDY SUMMARY

FARM KRUMHUK

The farm is situated 20km south of Windhoek



FARM FACTS

Description: Highland thornveld savannah.

Enterprise: Diversified organic and biodynamic farm; main extensive land-based activities are cattle using the planned grazing and combined herding (PGCH) approach with game.

Property size: 8 500 ha (of which only 4000-6000 ha are used by cattle due to steep mountainous landscapes)

Functional classification of area: Escarpment with plains and hills; frost conditions.

Average annual rainfall and variability: Average: 427mm; lowest: 172mm; highest: 1015mm

Elevation: 1850 metres above sea level

Owned/rented: Section 21 Company – Not for gain; full-time management.

Motivation for change and approach: The severe impact that the 1980s drought conditions had on the farm (as well as nationally) stimulated the farmers to look at new ways of increasing their farming resilience and of building a community of practice.

Main innovation: Planned grazing and combined herding with livestock guarding dogs; mobile overnight kraals to enable safety; using regenerative, organic and biodynamic principles.



“It is important to caringly observe nature as well as the people around you to find answers for your management questions. This is as important as all the charts, measurements and records needed to measure your success.”

KEY RESULTS

- Predator losses have decreased from 40 calves to 1-2 calves per year as a result of using planned grazing and combined herding, Anatolian dogs, and mobile overnight kraals.
- Calving percentage is an average of 72% since the onset of planned grazing and combined herding and bulls being with the herd all year.
- Reduced input costs by only providing block salt to the animals.
- Noticeably improved resource base, with improved ground cover and a reduced flow into gullies and dams.
- Direct market to the public and to organic market outlets in Windhoek enables good prices.
- Human-livestock interactions are calm and stress free.
- The building of a community of knowledge and practice.



GRAZING MANAGEMENT APPROACH BEFORE AND AFTER THE 2014 INNOVATION

Description	Before innovation	After innovation
Number of Camps	31	12 fenced camps. Herding has allowed some internal fences to be taken down.
Number of camps/herds	24	All cattle are kept in one herd and herded to a new unfenced 'camp' each day and allowed to graze selectively (an estimated 180-360 camps per herd). Every day, 80x80m electric-fenced mobile overnight camps are erected, allowing for 360 treated areas per year (230ha per year).
Time spent in a camp	2 weeks	1 day in growing season; 1 day in non-growing season (herders move livestock to a new grazing 'camp' daily). <i>Note:</i> Some areas along routes (e.g. to water) are grazed more often, where higher animal impact occurs.
Time spent out of a camp (for rest/recovery)	3 months in growing season	The aim is to graze once per growing season and once in the non-growing season. The herd size determines whether the whole farm can be grazed in the growing and non-growing seasons.



Left: illustrates the effect of collected bush being used to slow and redirect the flow of water.

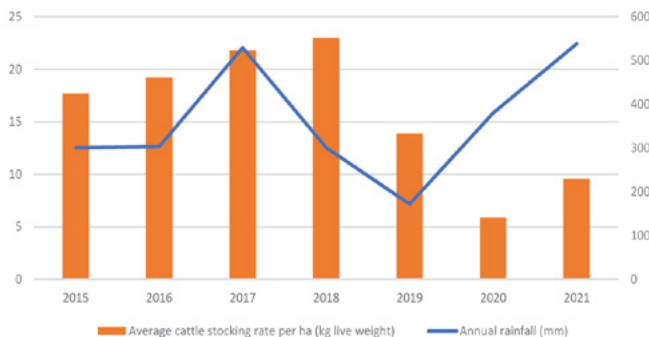
Right: The distinctive green area signifies a trial electric-fenced overnight kraal erected in June 2018, where 500 head of cattle were kept overnight for seven days (still visible today in 2022). The herd provided a high dung and urine impact as well as hoof impact to the soil. The increased carbon and nutrients to the soil resulted in an explosion of diversity as well as an increase in the quality of available forage for the livestock. This successful trial re-enforces the need to promote the practice of animal impact in order to improve the land, especially in heavier clay soils.



The average amount of available grass and browse in kilograms per hectare is 651 and 256, respectively, giving a total of 908 kg/ha of available forage to the livestock. The average woody tree density per hectare is 519, which is below the point where bush control is required (3200 TTTE/ha). The biodiversity of the grass and bush component is made up of 23 and 13 species, respectively. The Biodiversity Index of the farm is a good value (0.7), which indicates little dominance of the grasses and shrubs growing on the farm.

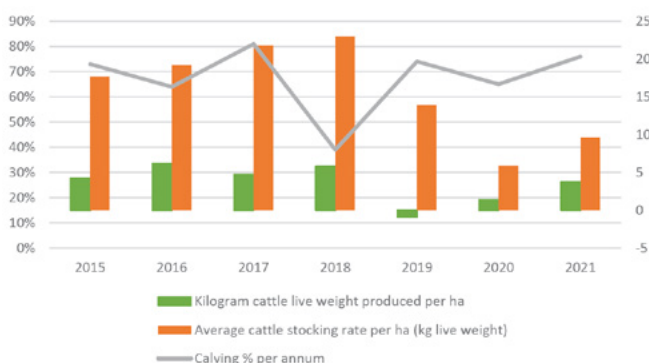
RESILIENCE OF THE FARM

Ecological and financial resilience during and after the 2019 drought. Destocking of the core cattle herd was necessary (from 23kg/ha to 6kg/ha) due to a high congregation of game on the farm, but numbers are recovering fast.



MONEY-MAKING POTENTIAL OF THE FARM

An average of 72% cattle calving has been achieved over the ten-year period. The live weight produced on the farm since 2015 is 4kg/ha.



CHOICE OF ANIMAL/S:

Although farming began with Simmentaler breeds, it was later shifted to using Nguni with Bonsmara bulls. Currently, only Nguni bulls are used. The Nguni bulls remain with the single herd all year round, which results in two natural calving seasons. The majority of calves are born between January and March and a second, smaller number are born in June and July each year. High losses to predators resulted in the adoption of a planned grazing and combined herding approach, with 40x40-metre electric-fenced mobile overnight camps, herders with mobile accommodation, and Anatolian dogs to assist with deterring predators further.



KEY TIPS FROM THE FARMER

1. Cows with the right potential will adapt to the area.
2. Move the herd fast in the growing season and slower during the dry season. The daily focus must be on animal performance to ensure a good calving rate as well as good quantity and quality of meat for sale.
3. Losses to theft and predators must be minimised. In areas with game, herd livestock with dogs and use small mobile electric-fenced kraals at night.
4. Herders' needs must be met.
5. Daily, monthly and annual bonuses for the herders are important to ensure that the job is well done.
6. Diversify your income sources.
7. Follow your mission. Farm Krumhuk's mission is to transform the traditional Namibian way of farming into a modern community-based farming business with a strong focus on social development.
8. Get the people to know and trust your brand.

CASE STUDY SUMMARY

FARM TSUWANDES

The farm is situated 50km west of Outjo



Frank and Katrin Bockmühl run the family farm in the dry north western part of Namibia on a part-time basis. Farming here requires a determined mind-set, regenerating the soil landscape is the guiding principle, but when there is no rain, there is no growth.



FARM FACTS

Description: Mopane and thornveld savannah

Enterprise: Cattle and goats (3600 ha) and game (1400 ha).

Property size: 5001 ha

Functional classification of area: Dry north west with some bush encroachment.

Average annual rainfall and variability: Average (from 1934 to date): 290 mm; lowest: 87 mm; highest: 932 mm

Elevation: 1200 metres above sea level

Owned/rented: Owned; part-time management.

Motivation for change and approach: The dry and variable nature of the rainfall necessitated the adaptations.

Main innovation: To farm with small- to medium-frame farmadapted animals and to use high density fast moves during the rainfall season and slower moves during the dry season.

KEY RESULTS

- From 1993 to 2013, the stocking rate increased continuously from 3.2 kg/ha to 12 kg/ha (200 cattle, 120 sheep, 100 goats), before the 2013-2019 drought period began.
- The stocking rate decreased to 5 kg/ha during the 2013-2019 drought period. However, the core goat and cattle herds survived this five-year drought (the worst since 1930) and are recovering fast. Herd building is underway. In all previous extended droughts their stocking rate decreased to zero and a restart was needed.
- Bare patches have started to close over and perennial grasses (Bloubuffel and Anthephora spp.) are returning.
- Since 2000, a natural die-back of several encroaching woody species is occurring, including *Acacia reficiens*, *Terminalia prunioides* and *Dichrostachys cinerea*; however, *Colophospermum mopane* appears to remain unaffected.
- Predator issues have been addressed by herding small stock during the day and kraaling them every night. Calves are kraaled for four months every night.



Various encroaching bush species dying off naturally after the five-year drought. Bare patches are closing over and perennial grasses are slowly returning under this management.

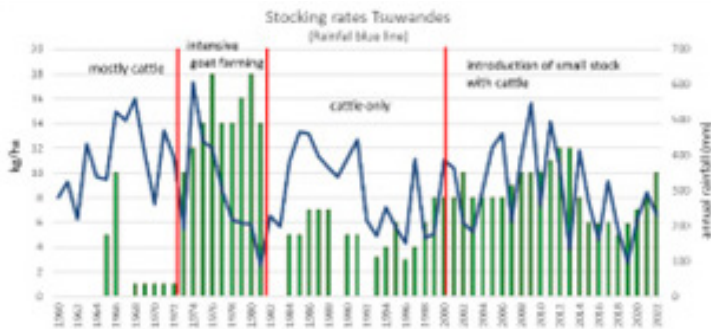


GRAZING MANAGEMENT APPROACH BEFORE AND AFTER THE 1996 FAST-ROTATION INNOVATION (CATTLE)

Description	Before innovation	After innovation
Number of Camps	25 camps (5001 ha)	20 camps (3600 ha); 5 camps allocated to game exclusively
Number of camps/herds	Unplanned, continuous or periodic use	7 camps (breeding herd) 13 camps (bulls, weaners, oxen)
Time spent in a camp	Unplanned, continuous or periodic use	Growing season: 10 days in a camp but moved directly after rainfall events; can remain for 4 days in a camp at high density. Dry season: Depends on forage production; basic guide is 2 weeks in a camp and then moved; 2 selections in the non-growing period.
Time spent out of a camp (for rest/recovery)	Unplanned, continuous or periodic use	50 or more days out of a camp during the growing season.

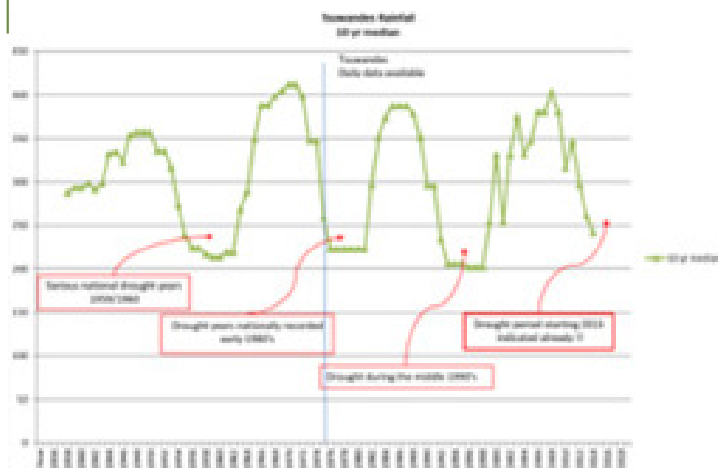
RESILIENCE OF THE FARM

The stocking rate increased to 12 kg/ha over time. However, during the seven year drought (2013-2019) the core adapted cattle and goat herds reduced to 6 kg/ha, and then rapidly rebuilt to 10 kg/ha by 2022. In previous extended droughts livestock numbers reduced to zero. If the actual area used after the 2021 fire is included, the stocking rates for 2021 and 2022 are 11.5 kg/ha and 13.7 kg/ha, respectively. Previous extended droughts resulted in the total destocking of the farm.



MONEY-MAKING POTENTIAL OF THE FARM

The rainfall patterns illustrate that extended droughts occur every 15 to 20 years. Fast de-stocking and welladapted animals are necessary requirements in order to survive these adverse conditions. The farm rainfall records demonstrate a 30 mm decline in average annual rainfall since the 1930s.



CHOICE OF ANIMAL/S:

In 1993, Frank took over the farm and brought in Bonsmara cows and bulls. Unfortunately, they did not perform well and the cost of lick was prohibitive. All the oxen were sold in 1996. In 2005, the Bonsmara cows were upgraded with Nguni and Sanga bulls of medium to small frame sizes; and in 2010, indigenous goats (Himba Appels) were introduced. These adaptations were crucial for the survival of his livestock during the recent drought. Bulls and rams run with the herd all year round, which allows for two main calving and lambing seasons. At times, rams are withheld to restrict lambing during dry conditions.



KEY TIPS FROM THE FARMER

1. To farm livestock in areas with extended drought periods and a highly variable rainfall, you must have extremely well-adapted animals of a small to medium frame that are able to utilise the existing browse.
2. Indigenous goats from north western Namibia are well adapted and well suited for this type of environment.
3. Expect droughts after several good years and react fast. Destock early in order to see the core herd through the drought. Plan mainly after the rainy season has ended. Constantly observe what is happening to the grass and the animals and interact with the people.
4. In high gradient areas, it is important to manage erosion to keep water on the farm and to grow more forage.
5. Manage predators by keeping herd-bound animals, kraaling small stock and calves at night, keeping dogs with the small stock, and appointing good herders.
6. Fire in these low and erratic rainfall areas with shallow soil zones is extremely damaging. The rock heats up and kills many established roots. The exposed ground after fire is rendered vulnerable and poor. When a fire breaks out, it needs to be extinguished as swiftly as possible and refrain from deliberate burning practices.

CASE STUDY SUMMARY

FARM DABIS

The farm is situated 10 km north of Helmeringhausen and 130 km south of Maltahöhe.



Jorg and Michelle's passion is to leave the farm in a better state than they received it. They are building on his father's efforts.



FARM FACTS

Description: Dry, mountainous southern Namibia shrubland.

Enterprise: Organic production of adapted sheep through high density grazing.

Property size: 18 716 ha

Functional classification of area: Very fertile, diverse geological landscapes; high biodiversity of plant growth.

Average annual rainfall and variability: Average: 150 mm; lowest: 25 mm; highest: 283 mm (average over last 10 years: 125 mm)

Elevation: 1 370 metres above sea level

Owned/rented: Owned; full-time management.

Motivation for change and approach: During the drought period in the 1980s, Jorg thought to himself: Should it really be like this? Or should it be easy, like it is described in the Bible? It was a stressful, depressing and heavy time.

Main innovation: Breeding highly adapted sheep; high density selective grazing based on rain independent dwarf shrubs and a two-year recovery period.



KEY RESULTS

- Between 2013 and 2021 the average rainfall was 106mm and yet the stocking rate remained above 7 kg/ha throughout the 9 year period and rose to 10 kg/ha by 2021.
- During the 9 year period live weight produced per annum increased from 4 kg/ha to 8 kg/ha.
- Initially, some small camps provided two to three days of grazing for 200 sheep; now, the same small camps support 300 sheep for three weeks.
- Since 1974, the farm's plant health and biodiversity are now in their best condition.
- Ewes weighing 45 kg produce 123% lambs per ewe per year; and lambs are slaughtered at 15 to 19 kg at 4-4.5 months old.
- During the recent ten-year dry cycle, the farm's resilience has improved: de-stocking was not needed and only a few very old sheep perished.
- Perennial grasses and shrubs increased during the drought.
- A lucrative additional income has been secured by selling veld rams from the farm.
- Lick is only used as an indicator for the grazing quality of the camps and to determine when to move from camps.
- No parasites, therefore no dosing required; no injections (except for 2 Brucella species; and no shepherds required).
- Farming is effective and peaceful.

GRAZING MANAGEMENT APPROACH BEFORE AND AFTER THE 2008 INNOVATION

Description	Before innovation	After innovation
Number of Camps	54	62
Number of camps/herds	4	20 (3 herds)
Time spent in a camp	6 weeks	3 weeks (drought) to 5 weeks (normal conditions). Move when lick consumption starts.
Time spent out of a camp (for rest/recovery)	24 weeks	2 years



Fully-recovered highly palatable shrubs ready for grazing and increased perennial grasses. The average amount of available grass and browse in kilograms per hectare is 571 and 296, respectively, giving a total of 867 kg/ha of available forage to the livestock. The average woody tree density per hectare is 2276, with half the sites above the point where bush control is required (1500 TTTE/ha); however; these bushes are required for production. The biodiversity of the grass and bush component is made up of 22 and 7 species, respectively. The Biodiversity Index of the farm is a medium value (0.5), which indicates that a few species are starting to dominate the grasses and shrubs growing on the farm.

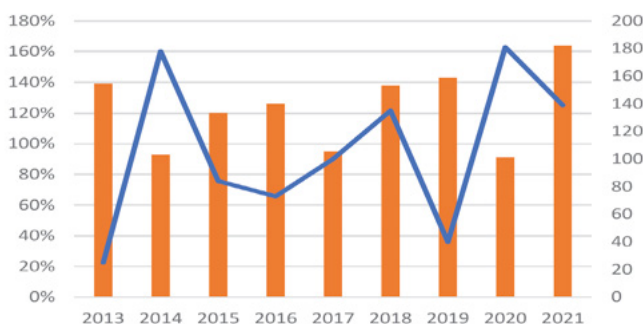
RESILIENCE OF THE FARM

Ecological and financial resilience was achieved during and after the 2019 drought. No destocking of the core sheep herds occurred and a minimum 7 kg/ha stocking rate was maintained throughout the drought and recovered well since the drought to 10 kg/ha in 2022.



MONEY-MAKING POTENTIAL OF THE FARM

An average of 123% lamb weaning was maintained throughout the nine-year period. This indicates a healthy, viable business.



CHOICE OF ANIMAL/S:

The farm has bred well-adapted, early-maturing animals that require limited input. The current herd is crossbred with approximately 40% Black-headed Persie. They have an easy temperament; do well in droughts; are more efficient eaters; and have a strong herd instinct (i.e. they graze openly during the day but form large groups at night, which helps to deter predators).



KEY TIPS FROM THE FARMER

If you farm in an area where shrubs are a major component, like in the south, then consider the following tips:

1. Secure your perimeter fence from predators; maintain it.
2. Control predator numbers inside the camps to reduce stock losses.
3. Reduce the number of herds as much as possible.
4. Apply a two-year, rain independent grazing recovery period, which is based on the shrub species.
5. Start with animals of quality genetic features (i.e. early maturing and herd-bound traits)
6. Remove lambs from the land as soon as possible to allow the ewes to recover. This enables ewes weighing 45 kg to produce 150% lambs per ewe per year; and lambs to be slaughtered at 15 to 19kg at 4-4.5 months old.
7. Take advantage of peak animal performance: Allow the rams to run with the ewes all year round. This results in approximately 60% of lambs falling in June and the rest through the year, and it affords good cash flow for the business.
8. Investigate landscape rehydration in order to keep the water on your land.



FIND OUT MORE ABOUT ORGANIC LIVESTOCK PRODUCTION!

Livestock farming in Namibia forms an important part of the country's agricultural sector and the economy. Namibian livestock has a reputation for exceptional quality on international markets especially because of the prohibition of growth hormones, strictly regulated use of antibiotics and mostly free-range production in the country.

Given that Namibia's livestock production is already aligned to organic standards, there is significant opportunity for farmers to convert to full organic livestock production to realise the potential of both local and international organic markets. Furthermore, livestock farmers have the potential to positively impact the state of the country's rangelands by converting to more ecologically sound management practices. The conversion to organic production involves adhering to specific organic standards along the entire value chain, from production to slaughtering and processing, and to accessing the market.

The Namibian Organic Association has developed a number of information documents for farmers and other stakeholders on the topic of organic livestock production:

Factsheets

The series of factsheets on organic livestock production (with a focus on beef and mutton) serves to inform interested farmers, consumers and other stakeholders on the various aspects of organic beef production with a focus on the following topics:

1. Organic Meat Production
2. Benefits of Organic (Grass Fed) Livestock
3. Organic Slaughter and Processing
4. Market Opportunities for Organic Livestock
5. Alternative Feed & Supplements for Organic Livestock
6. Organic Crop Production for Animal Feed

Organic livestock videos

The topics mentioned in the factsheets are also available as short videos.

Manual on Namibian Organic Production

NOA has a manual with several chapters focusing on organic livestock production:

- Chapter 7: Organic Livestock Production Principles
- Chapter 8: Organic and FanMeat Certification
- Chapter 9: Animal Welfare
- Chapter 10: Animal Nutrition and Veterinary Care
- Chapter 11: Namibian Specific Production Considerations

Get in touch with the Namibian Organic Association (info@noa.org.na) directly to receive the resources, or find them online www.noa.org.na/content/resources.

Gain access to NOA's extensive library by becoming a NOA member.





