

ProAgri

technology for the farmer

A F R I C A

No 113

Free



**Protect your farm
against wildfires**

p 21

**How does multi-species
rotational grazing work?**

**Building resilience
in Africa's agrifood
supply chains**

**How to keep your cattle in
shape throughout the winter**



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MASSEY FERGUSON



Dear readers,

As the seasons shift once more and many of us find ourselves reflecting on the harvest, whether plentiful or challenging - we are reminded again of agriculture's deepest truth: resilience is not just a trait; it's a lifestyle.

In this month's edition, we feature a powerful piece from Boston Consulting Group (BCG) and Quantis, highlighting the urgent need to build resilience in Africa's agrifood supply chains. The statistics certainly had me thinking ... climate change, geopolitical uncertainty, and trade disruptions are all converging to threaten the stability of food systems, especially for us here in Africa where agriculture is more than an industry ... it's our heartbeat.

For our continent, where over half the population depends on agriculture for survival and income, resilience goes far beyond weathering one bad season. It's about being ready for tomorrow. It's about making decisions today, big and small, that ensure our children, our communities, and our nations have food on the table and income in their pockets in the years to come.

What struck me most in this report is

the reality that without investment in things like climate-smart farming practices, resilient seed varieties, and access to financial tools, many African smallholder farmers could face a drop in profitability of up to 46%. That's nearly half of one's income gone. And let us be honest, most of our farmers do not have that kind of buffer.

At ProAgri, our mission has always been to inform, inspire, and equip you, our readers with what you need to succeed in the face of challenge.

Let this be a reminder: we are not powerless. With knowledge, collaboration, and the right support, Africa's farmers can lead the world in building food systems that are not only secure, but sustainable and competitive.

As always, thank you for being part of the ProAgri family. Let's keep moving forward together.

Until next time, warm greetings.
Bianca Henning
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As temperatures drop and grazing becomes scarce, winter presents unique challenges for livestock farmers. Read more on page 3 for expert tips on maintaining optimal cattle condition through the colder months.



Front cover image credit: Don McHardy, owner of Reeba Brahman.

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technology for the farmer

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POWER	Couples with 10 HP Diesel Engine.	


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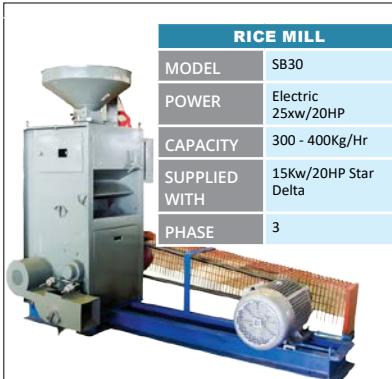

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PHASE	3


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CAPACITY	600kg/Hr


MINI RICE MILL

MODEL	YF-66
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CAPACITY	170F Gasoline Engine


GROUNDNUT SHELLER

MODEL	R180B
ENGINE	13.2HP ZS195
CAPACITY	800 - 1000Kg/Hr
SCREENS	3



How to keep your **cattle** in **top shape** throughout **winter**

Article supplied

As temperatures begin to drop across Southern Africa, it's time for livestock farmers to start thinking about winter readiness. Harsh conditions can take a toll on animal health and productivity, which is why proactivity is key. From ensuring adequate feed supply and shelter to adjusting nutrient intake, winter planning can make all the difference in maintaining herd health and profitability during the colder months.

"Whether your cattle grazes on cultivated pasture, hay or crop residue, it is important to evaluate your feed inventory during early autumn to establish whether you have enough feed to comfortably make it through the winter," says Jaco Liebenberg, Technical Manager (Feedlot) at Beefmaster Group.

"This is usually done during February and March, but if you have not yet done so, determine how much of your herd your feed stocks can carry into the calving season and adjust accordingly as soon as possible. Either buy more feed or reduce your herd size. Consult with a grazing expert if you are unsure whether you have sufficient reserves available."

Liebenberg urges farmers to wean calves based on pasture quality and quantity to ensure optimal use of resources.

"When pasture quality declines below levels that support calf growth, or feed quantities drop to a point where calves cannot compete with cows for available forage, calves will start losing body

weight. At this point it is both beneficial and economical to wean the calves, because it is easier and more economical to supplement the calves than the whole herd," Liebenberg says. "This step will also extend the grazing period for the cow herd, as well as reducing the extent of body weight loss in the cow herd, especially for first calf heifers."

Autumn is also the time to do pregnancy test on the cows and heifers, and to market those that are open or will calve late.

"Open cows are too expensive to maintain on limited and costly feed resources, as well as cows that will calf outside a 90-day calving window. Late calves will generally wean small calves and it will be difficult for them to reconceive in time for the next season."

Assess body condition and group animals with similar nutritional needs together to maintain condition efficiently.

"If possible, group thinner cows with first time pregnant heifers after weaning. Place them in the camps with the most abundant and best quality grass. This way, the higher nutritional requirements of growing heifers are met, and thin cows have the opportunity to gain weight and be in a better condition for calving," Jaco explains. He also emphasises the importance of ensuring optimal animal health, including vitamin and mineral supplementation, deworming and vaccinations.

"At weaning, treat cows for internal

and external parasites acquired during the summer and autumn grazing seasons, as these increase their feed requirements and disease susceptibility during winter.

"Autumn is also a good time for annual vaccinations; consult your local veterinarian to determine which vaccinations are necessary and which products are most effective in your area."

Liebenberg cautions that vaccinating pregnant cows can be a double-edged sword, as some vaccinations may endanger unborn calves. "However, vaccination is crucial to safeguard the pregnant cow against infection, as well as passing on some immunity to the calf through colostrum." Clostridial vaccine and vaccine for Bovine Respiratory Disease are among the most common vaccines given to pregnant cows. In order to address potential nutritional deficiencies during periods of reduced pasture quality and increased energy demand, Liebenberg urges farmers to consider a winter vitamin and mineral programme for cattle, as vitamins are crucial for immune function, reproduction and overall health.

"This typically includes supplemental vitamin A, D and E, along with minerals such as calcium, phosphorus and trace minerals. Macro minerals are essential for bone health, milk production and overall metabolic processes. Trace minerals are vital for various bodily functions and immune response," Liebenberg explains. He urges farmers to consult a local veterinarian or animal nutritionist to develop a tailored feeding programme, based on your location, feed sources and animal health status.

"You may need supplemental licks for each stage of production – post weaning (dry cows), the last month of gestation, calving and rebreeding, as well as supplemental nutrition for winter. Winter licks supplement nutritional deficiencies caused by less abundant and lower quality grazing. They typically provide protein, energy and minerals to stimulate rumen microbes and improve the utilisation of low-quality pastures.

"These are an effective solution when a cow's feed intake does not increase sufficiently to compensate for the drop in temperature to prevent loss in body weight and condition," Liebenberg concludes.



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Feeding Zambia's future:

The story behind Tiger Animal Feeds

by Bianca Henning



Inside Tiger Animal Feeds' modern feed mill – where cutting-edge technology and expert formulation come together to produce high-quality livestock feed.

Feed is just as important as breed. That is why animals thrive on the superb feed supplied by Tiger Animal Feeds.

Tiger Animal Feeds, together with Tiger Chicks, forms part of the Astrol Foods group, an extension of the well-known Meadow Feeds brand in South Africa. With a proud heritage rooted in technical excellence and a deep commitment to agricultural growth, Tiger Animal Feeds has become a trusted name among Zambian farmers.

Herman Nienaber, Chief Operating Officer of Tiger Animal Feeds and Tiger Chicks, tells more about the company's history, operations, and vision for the future.

A legacy of growth and innovation

"Tiger Animal Feeds was established in 1996, initially as a maize mill," Herman explains. "Our first feed production lines used equipment from Meadow Feeds in South Africa. Over time, we continuously upgraded our machinery, and three years ago, we began building a completely new, state-of-the-art feed mill."

This commitment to innovation is rooted in the group's relationship with Meadow Feeds-Africa's largest animal feed manufacturer. Through close collaboration with technical experts in South Africa and around the globe, Tiger Animal Feeds remains at the forefront of feed formulation and livestock nutrition.

World-class standards with local expertise

All feeds produced at Tiger Animal Feeds meets internationally recognised nutritional standards. Their team of

expert nutritionists works closely with Meadow Feeds' technical division, utilising advanced feed formulation software to create optimal blends for various livestock needs.

"Some feed on the market may seem cheaper, but when the protein and energy levels are substandard, animals consume more of it, ultimately increasing the farmer's cost," Herman notes.

"Our feeds may cost slightly more, but the nutritional value ensures faster growth and better conversion rates, meaning animals reach market weight sooner and generate more profit for the farmer."

A full range of products

While poultry feed remains the cornerstone of Tiger's business, the company manufactures a comprehensive range of feeds for various animals, including ducks, quail, cattle, and even pets. "Top Dog, our



Herman Nienaber, Chief Operating Officer of Tiger Animal Feeds and Tiger Chicks.



Top Dog, Tiger Animal Feeds' premium dog food brand, is a popular choice among pet owners in Zambia – available in supermarkets nationwide and trusted for its balanced, high-quality nutrition.



premium dog food, is also very popular and stocked in supermarkets across Zambia," Herman says.

In addition, Tiger Chicks supplies high-quality day-old broiler chicks to farmers, helping them kickstart successful poultry operations.

Beyond feed – technical support for farmers

What truly sets Tiger Animal Feeds apart is their commitment to customer support. Every feed purchase comes with access to the company's technical advisory services. "Our advisors are available to visit farms, assess broiler house setups, and guide farmers on matters such as proper feeder and drinker spacing," Herman says.

This personalised service extends beyond poultry. Whether it may be a dairy farm, a beef operation, or a backyard broiler setup, Tiger Animal Feeds is ready to support farmers with tailored advice and practical solutions.

Looking ahead

Herman sees a bright future for both Tiger Animal Feeds and the agricultural sector in Zambia: "Zambia is blessed with rich natural resources and fertile soils. The potential for agricultural growth is enormous, and we are excited to be part of that journey."

Whether you are in Zambia or anywhere in the Southern African region, Tiger Animal Feeds invites you to reach out for expert nutritional guidance and premium feed solutions.



The Tiger Animal Feeds team on their premises.

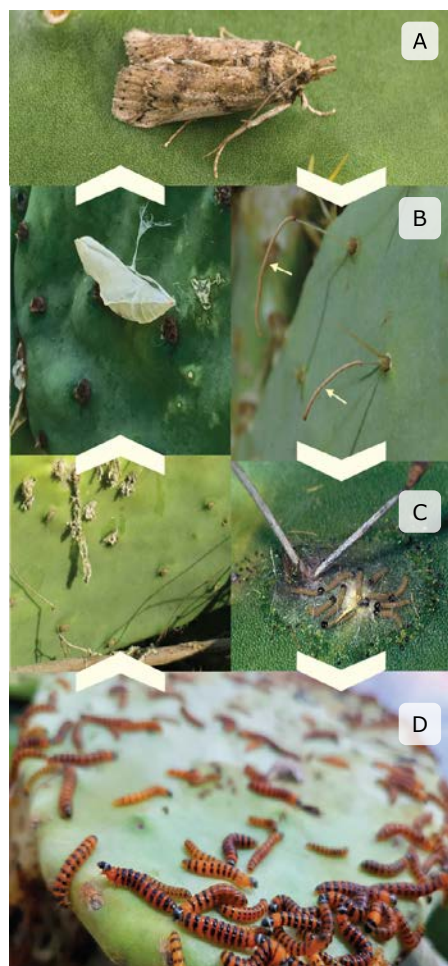
For more information, contact Tiger Animal Feeds by sending an e-mail to sales.office@tigerfeeds.co.zm or contact them on (+260)96-676-3650 or (+260)96-779-0404.

Cactus pear as livestock feed: Part 3

by Bianca Henning

Spineless prickly pear (*Opuntia* spp.) is quickly making a name for itself as a sustainable and cost-effective source of livestock fodder, especially in drier regions where traditional grazing is under pressure. In addition to its nutritional value and moisture retention capacity, the plant also offers economic opportunities for farmers looking to diversify their production systems.

However, successful prickly pear farming requires a thorough understanding of pests and diseases that threaten the plant, as well as proper management practices such as weed control and pruning. In this third instalment of our series, we look at key practices to enhance plant health and yield potential.



The lifecycle of the prickly pear moth: (a) adult moth, (b) egg sticks, (c) hatching eggs, (d) mature larvae, (e) leaf symptoms, and (f) cocoons.

Pest and disease control **Prickly pear moth (*Cactoblastis cactorum*)**

This moth primarily appears in two seasons: from September to October, and again from February to March. After emerging, the moths mate within two days, and females begin laying sticks of eggs on the plant's thorn tips the following day. The eggs hatch within hours, and the young larvae penetrate the cladodes, developing over a period of three to four months into fully grown, bright orange larvae with black stripes.

Control strategies include the timely removal of infected egg sticks and cladodes. This material must be immediately removed from the orchard and destroyed to prevent further spread of the pest.

Cochineal (*Dactylopius* spp.)

Cochineal insects typically form colonies on the leaves. The females cover themselves with a waxy layer that protects them from the environment, making them difficult to spot. Each female can lay up to 1 000 eggs, with the nymphs hatching quickly and spreading easily — especially on hot days when their tiny hairs allow them to be carried by the wind to other plants.

These insects feed on the plant's sap and secrete a toxic substance that eventually kills the cladodes. Specific insecticides can be effective, provided the wax layer is first broken, as it otherwise acts as a protective barrier. The use of knapsack sprayers is not effective

and therefore not recommended.

In severe infestations, systemic agents such as Kohinor or Bandit can be used. However, note that these products are not registered specifically for prickly pear and are used at the farmer's own risk.

Black rot and soft brown rot



Black rot and soft brown rot.

Watch for black or dark brown spots on the edges or surface of the cladodes — clear signs of black rot or soft brown rot. As soon as such symptoms are observed, the



affected leaves should be cut off immediately. Ensure that pruning tools are thoroughly disinfected after each plant. The removed cladodes can be used as livestock feed, but must be fed away from the orchard to prevent re-infection.

Weed control

Prickly pear has an extremely shallow root system — up to 80% of the roots lie less than 10 cm below the surface. This means weeds directly compete for available moisture, which can negatively affect growth potential. Weed control must therefore be applied with care.

Mechanical methods such as hoeing or using tine implements are not recommended as they can damage the root system. In areas where grasses become problematic, a grass herbicide like Agil can be used. As with pest control products, farmers should note that it is not specifically registered for prickly pear and is used at their own risk.

Irrigation

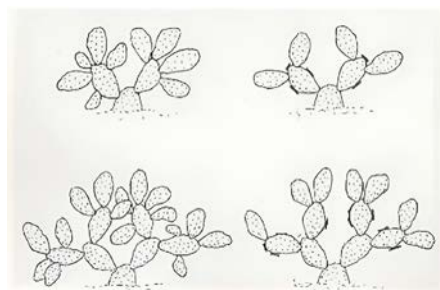
Although mature prickly pears can survive with as little as 200 mm of water per year, the optimal rainfall for fruit production is between 400 to 600 mm/year depending on soil type. Reasonable fruit yields can be achieved under dryland conditions in summer rainfall areas, but where rainfall during the fruit development period (September to February) is less than 300 mm, supplementary irrigation should be applied.

Drip irrigation on heavier soils and micro-sprinklers on sandy soils

are ideal where water is scarce. Approximately 20 to 25 mm of water/ha per irrigation is sufficient. Farmers should monitor the dissolved salt content of irrigation water, as prickly pears are sensitive to high salt levels.

Pruning

In orchards where sufficient water and nutrients are available, prickly pears grow vigorously. Annual pruning is therefore important — not only to control shape and size, but also to aid in pest control, particularly against cochineal, which prefers to hide in dense, overgrown areas.



Pruning guidelines during the second and third year after planting (Liguori *et al.*, 2015).

Pruning guidelines include:

- Retain only two daughter cladodes per mother cladode.
- Plants should not grow taller than 2 metres.
- Branches should not touch the ground.
- Avoid overlapping or contact

between leaves — this creates shelter for pests and limits spraying effectiveness.

- Remove and destroy all cladodes that show signs of disease or pest damage.
- All pruned material and plant debris under the trees must be removed from the orchard immediately.

By applying these practices, farmers can maintain healthy prickly pear plantations and unlock their maximum value as an alternative livestock feed. In part 4, we shall look at fodder production.

For any further enquiries, visit Witkraal Boerdery's website at

www.witkraal.co.za



Herd management: Part 4

Multi-species rotational grazing

by Tisha Steyn

In the previous article, we discussed the varying impacts that different types of livestock have on the quality of soil. We also mentioned that combining the livestock types can promote soil health by using the strengths of each type of animal.

For example, using cattle and sheep together can optimise pasture use while enhancing nutrient recycling and reducing weeds. Systematic rotation while maintaining a cover crop remains key to sustainable livestock management.

The aim of this series is to determine how managing livestock effectively ensures ongoing soil fertility, leads to improved water quality and prevents soil erosion, all factors that are crucial for sustainable agriculture, especially in the face of climate change due to earth warming.

In this article, we consider whether different species can graze together successfully, whether they will compete for the same food resources and in doing so end up sabotaging your grazing plan.

What is multi-species rotational grazing?

When practising multispecies grazing, two or more species of livestock graze on the same pastures at the same time during the same season. In diversified farming worldwide this is a popular method, even more so when smallholder farmers of Africa have limited land and must make the most of limited resources available to them in order to survive.

In short, when livestock species are combined, they help improve pasture quality and biodiversity, while also increasing farm production and profitability.

Livestock consists of grazers, browsers and intermediate feeders. In Africa, livestock that are essential to the survival of small-scale farmers, have to compete with or survive alongside game species that have occurred on the savannas of Africa since time immemorial. We shall consider grazing of livestock, especially cattle, along with wildlife in a future article.

Grazers

Grazing animals like cattle are herbivores that consume large amounts of low-quality forage because they have a limited capacity to choose high-quality forages due to their mouths.

Browsers

Herbivores like goats, that have small, narrow mouths with the ability to selectively consume plants and plant parts with greater nutritional value, are browsers.

Intermediate feeders

Herbivores like sheep are intermediate feeders. They have mouths that are small enough to select high-quality plants and plant tissues, but also a digestive system that enables them to eat low-quality forages.

Which animals are best to graze together?

Livestock species each has its own way of feeding and plants it prefers. To select a species for a multispecies grazing, it is important to consider the plant species on your farm. It is also important to make a note of the plants the livestock do not eat at present.

Consider the animals you already own and which ones would be ideal and easiest to allow to graze together.

Usually, cattle, goats, and sheep are the most frequent species to be grazed in a rotational paddock system. This works well because each of these animals has a distinct style of grazing.

- Cattle grab forage with the tongue and bite it off before putting it into their mouths.
- Goats eat from head height and prefer to chew on leaves and twigs.



Pigs and chickens may be included in the mix of multispecies grazing since they have different feeding requirements than cattle, sheep and goats.

- Sheep browse leaves as well as graze on grass.
- Chickens may also be included. Chickens are simple to combine with different animals as they are easy to move from paddock to paddock in their own mobile henhouse.
- Pigs may be included because they have different feeding habits.

Including pigs in multi-species grazing

Because of their dietary restrictions, pigs may be a good addition to multiple species grazing. Their monogastric digestive system cannot dissolve fibre, so there are a lot of forage nutrients in pastures that the pigs cannot eat. Pigs' diet is limited

because they eat only high-quality forages, such as clovers and young grass shoots, which have highly digestible nutrients.

If only pigs are kept, the low-quality forage will require frequent mowing to mechanically break down and remove mature plant material to restore plants to a growth stage that is suitable for pigs.

Cattle and sheep can eat low-quality forage, since they can consume fibre, which is transformed in the rumen into glucose, which they can absorb.

Rather than spending time and resources mowing extra forage, allowing cattle or sheep access to that same pasture or paddock with the pigs will result in better utilisation

of the forage. They are well suited to following cattle and sheep and may help rejuvenate tired, worn-out pastures.

Maintaining adequate ground cover is a concern for pasture-based pig producers, and if not controlled, pigs will strip a pasture clean, impacting soil and water quality.

Provide a diversified pasture mix of various legumes, forbs, and grasses to promote pasture growth. Raise pigs in appropriate numbers based on the size of your available land and rotate them, but make sure there is enough time for regrowth of the pasture.

Managing plant species

Farm grasslands can be grazed with species suited to the plants growing there.



Indigenous cattle like the Ankole breed is more suitable for African grassland conditions and more resilient against internal parasites and diseases. (Source: Pixabay)

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Grazing animals like cattle are herbivores that consume large amounts of low-quality forage because they have a limited capacity to choose high-quality forages because of their big mouths. (Source: Pixabay)

This minimises any one species' control of the area, which may lead to overutilisation of some plant species.

Knowledge of the growth habits of weeds as well as desirable plant species will allow the grazing manager to target-graze weeds and allow palatable plants enough rest to recover. By controlling the

amount and duration of grazing, the environment can be changed to a healthy, varied, high-quality pasture.

The rate of regrowth of forage will be determined by the lay of the land as well as the quality of the soil. Each species has its own preference: While goats and sheep can feed on rugged, rocky ground, cattle will do best on

flatter ground or gently sloping hills. Pigs prefer flat ground but can scale hilly terrain in search of food. However, keep in mind pigs do not eat tough forage that one might find on rugged land.

Mixing species to ward off predators

Multispecies grazing may help control predators. Small poultry, such as chickens, can be free-range farmed when larger animals are present to deter predators such as hawks.

Grazing sheep and goats together may also keep bigger predators at bay. When more than one species grazes together from a young age, they bond and help defend one another from dangers. In Africa, keeping a donkey with a herd of sheep can deter jackals and other larger predators.

Disadvantages of multispecies grazing

The biggest disadvantages include that you will have to plan and manage the livestock efficiently, which may be time consuming. It will also cost time and money to build infrastructure for watering and shelter in the different paddocks.



Herbivores like sheep are intermediate feeders. Their mouths are small enough to select high-quality plants and tissues, yet their digestive system allows them to process low-quality forages. (Source: Pixabay)

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	1 Aukam - Sheep, Goat, Cattle	2 Koës Weaner Auction	3 Leonardville - Sheep, Goat, Cattle	4 Mariental - Sheep, Goat, Cattle
7	8 Kentani - Sheep, Goat, Cattle Kalkrand	9 Gembokpan Wes - Sheep, Goat, Cattle Aranos	10 Nico Binneman Production Auction Dorpers Toekoms Aranós	11 Jan Blaauw Van Rooy/Boergoat Gochas Haruchas - Sheep, Goat, Cattle
14	15 Koës - Sheep, Goat, Cattle	16 Mariental Weaner Auction	17 Keetmanshoop - Sheep, Goat, Cattle	18 Kalahari Genetics Jimmy O'Kennedy Van Rooy/Dorper/Boergoats Wallace Theron Van Rooy/Wdorper Guest Seller Conradie & Kameelhoek M/Masters/Stampriet
21	22 Monica - Sheep, Goat, Cattle	23 Aranós Weaner Auction	24	25 Mariental - Sheep, Goat, Cattle Ng Church Auction
28	29	30 Geikous Weaner Auction	31	

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Agroforestry in Kenya: Part 8.3

Agroforestry

practices in different regions

by Tisha Steyn

Agroforestry, as we have learned from the two previous articles, is a dynamic, ecologically based, natural resource management system that, through the integration of trees in farm- and rangeland, diversifies and sustains smallholder production for increased social, economic, and environmental benefits.

Agroforestry seeks to optimise the interaction between woody (trees and shrubs) and non-woody (crops and pasture) components, and with the addition of livestock to achieve higher productivity, sustainability and a greater diversity of products from the land.

Agroforestry combines agriculture and forestry techniques to:

- improve resilience of farmers over time by mitigating deforestation and land degradation;
- address climate change and its variability;
- increase farm productivity;
- enhance households' access to diverse wood and non-wood products at different times of the year;
- diversify a household's livelihood sources and increasing their income;
- improve their food security situation; and thus
- alleviate poverty.



Bananas are a favourite crop for homestead planting, as the trees are easily available to all members of the family. (Source: Pixabay)

Agroforestry in three regions of Kenya

Agroforestry practices in three regions in Kenya, namely the humid highlands, humid lowlands and arid and semi-arid lands (ASALs).

Humid highlands

The humid highlands cover areas with a minimum altitude of 1 980 m above sea level and a minimum annual rainfall of 1 000 mm.

These areas include all humid agroclimatic zones in Mt Kenya region, the Rift valley region and western Kenya.

Diverse agroforestry practices are used in this region as an important source of livelihood for many households.

Woodlots

Areas designated for the planting of trees are known as woodlots. These are planted for timber, poles for electricity transmission and construction, as well as charcoal and fuelwood. Vegetables or crops are often intercropped in the woodlot when the trees are still small, but eventually the whole lot is used for wood production.

Woodlots are usually planted on land that is too poor for other crops. However, when the wood production is

profitable as a crop, the woodlots may be planted on better soil, especially if there is a need for timber, that is near settlements. If the woodlot is to provide fuelwood, it is suitable to have a small woodlot near the house.

Woodlots can be planted from seedlings or, in some species, by direct sowing of seed. Raising seedlings may be a better option. Initial spacing can be dense, as the trees will be used for thin poles, firewood or the making of masks. Gradual thinning will allow the trees to grow to the desired size, while smaller saplings can be harvested.

Woodlots with young trees must be protected from livestock and fire. Newly established woodlots can be intercropped with vegetables or other crops, which will help with weed control. Keeping a woodlot is labour-intensive as the trees must continually be thinned and pruned to provide good-quality poles and timber. A natural woodlot also requires maintenance through selective bush clearing and protection in the early stages. When woodlots are planted next to a crop field, a trench of 50 to 80 cm deep can keep the tree roots out of the rooting zone of the crop.

Fast-growing trees in woodlots, like eucalyptus, can be used since the land is used only for the trees, as nothing grows underneath them. A high level of wood production for domestic or cash income purposes can thus be achieved. Trees in woodlots can also be a good way of making some savings. The negative aspect is that already scarce land is taken out of agricultural production.

Boundary planting

Boundary planting with fodder shrubs used for livestock feeds, exotic timber species used for timber, poles and

fuelwood, and indigenous trees that are used to generate income.

Tree growing on farm boundaries is a common practice, but it requires agreement between the neighbours to avoid conflict. There are different ways of sharing trees planted on a boundary, like planting two rows of trees, but this takes up a lot of space on the already tiny farms. Neighbours can also agree to use every second tree, or a number of trees in a different section.

Care must be taken to prevent different tree types from outcompeting each other. Seedlings can be spaced close together and thinned out for poles or firewood later to allow each tree enough room. Seedlings are commonly used, or trees that grow wild can be transplanted.

Homestead planting

Homestead planting may include indigenous or alien trees planted for farm protection, livestock fodder and fuelwood.

Trees of different heights can be grown together in multi-storey systems to make maximum use of the little space available. Fruit trees are planted for their fruit and medicinal value. The trees are intercropped with vegetables. Waste water and chicken manure are used to invigorate growing.

The biggest advantage of homestead planting is that the produce of these trees is available at hand. All the products and services can be useful. Some species produce a lot of litter which may add to the work of keeping the homestead tidy. Some trees, like bamboo and mango trees, may attract snakes. Trees with brittle branches and a vigorous root system should not be planted close to homes.



Woodlots provide timber for building materials and fuelwood. (Source: Pixabay)

Alley cropping or strip planting along contours

Alley cropping or strip planting along contours are planted for soil protection and improvement, livestock feed, timber and fuelwood.

In alley cropping, crops are grown between lines of trees and or shrubs that are managed and spaced at regular intervals in cropland.

Hedgerows require many trees or shrubs, and a cheap propagation method is called for. Direct seeding or use of cuttings are ideal, but seedlings should be raised in on-farm nurseries.



Carrying water and fuelwood for long distances are equally hard work, so a woodlot on the homestead farm saves a lot of time and effort. (Source: Pixabay)

On flat land, hedgerows must be oriented in an east-west direction to reduce shading. On sloping land, hedgerows must be oriented along the contours.

Scattered trees in croplands and pasturelands

Mainly fruit trees and indigenous tree species are planted in cropland for their fruits for own consumption and selling the excess for extra income.

Woodlots are often planted on poor soil where nothing else will grow. (Source: Pixabay)





Coffee can be intercropped with large trees as they are tolerant of some shade. (Source: Pixabay)

Trees in pasturelands are planted for fuelwood, fodder and their medicinal value.

Riverbank, lakeshore or terrace planting

Mostly indigenous species and fruit trees are planted for stabilisation of riverbanks and lake shores and terraces, as well as for their fruit as food.

Context of agroforestry in humid highlands

The humid highlands are home to a thriving dairy sector. To counter the high cost of livestock feeds, farmers with a low income have to make use of low-cost agroforestry resources to boost milk production with fodder shrubs. Some fodder shrubs are known to increase milk production and butterfat percentages.

Tea and coffee are the main cash crops for smallholder farmers. Coffee performs well under partial shading of indigenous trees, among others,

Grevillea robusta planted within the farming system.

Deforestation, driven by a growing population's demand for fuelwood, construction materials and alternative sources of food and income, is increasing at an alarming rate. The depleted forests and loss of ecosystem functionality, as well as concerns about climate change, are eliciting a lot of effort from government, NGOs, and communities to restore forests by intensified tree planting campaigns.

The highlands have the highest population numbers. The average size of smallholder farms is 1,2 ha, but because of adequate rainfall, the land has good farming potential and farmers are willing to invest in high-value marketable crops.

However, some of these crops do not tolerate shade, which limits tree planting to low density planting on the farm boundary. Some areas, such as around Mt Kenya, have a good tree planting culture and more trees are included in croplands.

Fast urbanisation is changing land use from agriculture to real estate. For example, in Kiambu county, large tracts of coffee farms are turned into real estate developments. If poor farmers sell their land, it could lead to an increase in deforestation, unless value chain innovations lead to urban and peri-urban agroforestry.

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Fast-growing tees in woodlots, like eucalyptus, can be used on poor land, as nothing grows underneath them. (Source: Pixabay)



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18 countries, multitude of dishes

African cuisine: East Africa 1

by Tisha Steyn



Mandazi is a fried pastry that is typically served for breakfast with a cup of tea. (Source: <https://www.chefspencil.com/mandazi-african-donuts/>)

As in other countries on the African continent, the cuisine of East Africa reflects the food crops grown in the region, the different ethnic cultures and religions of the various countries, and their contact with the world, including their colonial heritage.

Facts and figures

East Africa is Africa's most populous subregion with a population of about 455 million people living in eighteen countries, including the islands Comoros and the Seychelles, and two French dependencies Mayotte and Reunion.

The subregion stretches from Eritrea in the north to Mozambique in the

south, with the Indian Ocean off the coast, central Africa to the west and Southern Africa to the southwest. Mauritius, Madagascar, and the Seychelles are independent island countries, while Mayotte and Reunion are French dependencies.

Nearly 70% of the population live in rural areas, but many also live in the capital cities, including Mogadishu in Somalia (2,1 million), Nairobi in Kenya (3,5 million), and Addis Ababa in Ethiopia (3,4 million). Dar es Salaam's 2024 population is estimated at 8 161 230. Dar es Salaam was replaced by Dodoma as the capital city of Tanzania in May 2023.

Ethnic groups

Like most of Africa, East Africa is multi-ethnic, multi-cultural, multi-lingual, and multi-religious. Swahili, primarily a Bantu language that contains elements

of Arabic, is a common vernacular among many people in the subregion. They also use European languages that stem from the colonial era to communicate, including English in Kenya, Uganda, Tanzania, Malawi, Zambia, and Zimbabwe, French in Rwanda and Burundi, and Portuguese in Mozambique.

Religion

Christianity and Islam are the two most prevalent religions in East Africa, with Islam being dominant in the Horn of Africa, specifically in Djibouti, Somalia, eastern Kenya, and the Ethiopian region of Ogaden, in which Somalis are the dominant population. About a third of Tanzania's population practices Islam. Christianity is the dominant religion in the rest of East Africa, and many people also practice traditional African religions.



Ugali is a porridge-like dish made from maize, millet, or sorghum mixed with water and boiled. (Source: <https://swahiligecko.com/blog/east-african-foods/>)

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Nyama choma is marinated meat on skewers and fried over a hot fire.
(Source: <https://swahiligecko.com/blog/east-african-foods>)

Agriculture

All of the countries in East Africa have developing economies which are mostly based on agriculture, but also tourism, and of late renewable energy and manufacturing.

Agriculture is the leading (80%) employer of the population in the subregion and accounts for 25% to 40% of the gross domestic product (GDP) of Kenya, Uganda, Tanzania, Rwanda, Burundi, and Republic of South Sudan.

More than 70% of the industries depend on agriculture as the main source of raw materials, and agricultural commodities make up about 65% of regional trade.

The sector is dominated by smallholder mixed farming of livestock, food crops, cash crops, fishing and aquaculture.

Major food crops are maize, rice, potatoes, bananas, cassava, vegetables, beans and other pulses, as well as wheat, sorghum and millet. Cash crops include tea, coffee, cotton, sugar cane, sisal, horticultural crops, oil-crops, cloves, tobacco, coconuts, cashew nuts and pyrethrum, a plant extract from African chrysanthemum flowers with insecticidal properties.

The livestock sub-sector consists of cattle, sheep, goats, and camels for meat and milk production, pigs, poultry for white meat and eggs, as well as hides and skins for export and industrial processing.

Fisheries products include both freshwater fish from rivers, dams and lakes, and marine fish from the Indian Ocean. Forestry products include fruits, honey, herbal medicine, timber and wood for fuel.

Tanzania: Where food cultures meet

Each East African country brings its own unique flavours to the table. In the next chapters, we shall learn more about the food of Tanzania, the food basket of East Africa, as well as Ethiopia, Kenya, Uganda, Rwanda and Burundi.

Tanzanian cuisine

Tanzanian food is a delightful blend of flavours with a coastal influence from the Swahili culture. Dishes like pilau, biryani, and seafood delicacies are popular along the coast, while staples like ugali and nyama choma are enjoyed nationwide.

Ugali or fufu

Ugali, known as posho in Tanzania, is the staple of East African cuisine. It's a porridge-like dish made from maize, millet, or sorghum mixed with water. It is rolled into a ball with the right hand and eaten with meat, vegetables and sauce.

Ugali is made using maize flour, water and salt, which is optional. Bring the water to boil, reduce the heat slightly and sprinkle a handful of flour into the boiling water, stirring briskly with a wooden spoon. Do not dump all the flour into the water at once as it will cause lumps. Keep adding and stirring until the ugali thickens and pulls away from the sides of the pot. Reduce the heat to low, cover the pot, and let it simmer for five to ten minutes to allow it to cook through. Stir once or twice to prevent it from sticking to the pot. Use a wooden spoon to loosen the ugali around the edges and place on a serving plate.

Nyama choma or grilled meat

To make nyama choma you need beef, chicken or goat, salt and black pepper, onion, garlic, ginger and cooking oil. Combine all the ingredients in a large bowl and toss well. Cover and refrigerate overnight or at least 2 hours. Put the pieces of meat onto skewers and grill over a hot fire to sear the outside of the meat. Flip and continue grilling until done. Rest the meat for about ten minutes and enjoy.

Wali na maharage, also called wali wa madodo

This simple dish consists of rice and kidney beans cooked in coconut milk and served with a meaty dish like nyama choma.

Soak the kidney beans overnight, then wash and rinse. Heat some oil in the pot, add onion and cook until soft, stir in garlic and cook another minute. Add cumin and turmeric and stir until fragrant. Stir in tomatoes and cook until softened. Add rice and kidney beans, pour in coconut milk and enough water to cover the rice by about an inch. Season with salt and pepper. Bring to the boil, then turn off heat and simmer for 15 to 20 minutes. Remove from heat and let stand for five minutes, then fluff the rice with a fork.

Kachumbari

This is a refreshing tomato and onion salad with fresh flavours of cilantro (fresh leaves of the coriander plant) and lime or lemon juice. Dice the tomatoes, onions, and cilantro and place in a bowl. Add juice and olive oil and flavour with salt and pepper. Refrigerate for 30 minutes and serve on the same day.

Mandazi

Mandazi, also known as maandazi or ndao and sometimes mahamri or mamri, is a slightly sweet snack sold as street food but are also available at local cafés and bakeries. These triangular fried pastries are typically served for breakfast with a cup of tea. Mandazi is made with flour and yeast and flavoured with cinnamon and cardamom before being deep-fried in hot oil.

Find the recipe here <https://www.chefspencil.com/mandazi-african-donuts/>



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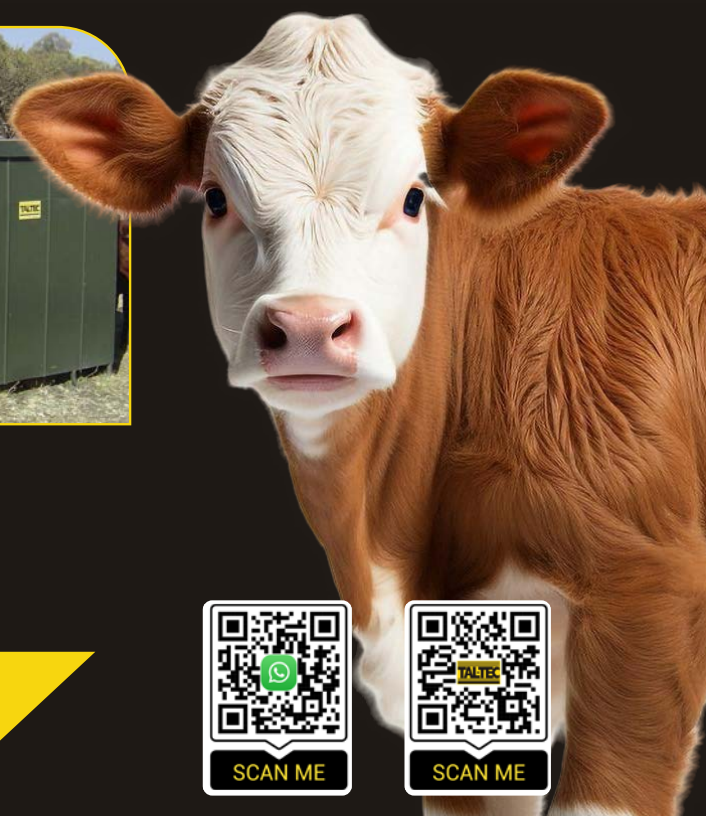
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Winter is fire season:

Protect your farm against wildfires with these preventative measures

Namibia Agricultural Union Newsletter May 2025

While Namibian farmers are extremely grateful for the good rains that fell over wide areas of the country, lush pastures may hold a risk once the grass is dry.

The Namibian Agricultural Union urged farmers to take timely precautionary measures to ensure the safety of their farms and animals against wildfires should the massive amount of flammable material catch fire.

The NAU offers suggestions on how to safeguard against runaway fires but cautions that not all options are universally suitable and that each area's unique characteristics should be taken into consideration before applying these measures. Let common sense prevail.

Be ready

First, get an overview of your farm and find the best way to curb or fight fires.

Have farm maps ready that indicate all your roads and water sources. Make sure all water points and dams are accessible for filling up water tanks.

Radio communication is of paramount importance and an appeal is made to all farmers to purchase two-way radios and become part of the existing farmers' association radio club.

Workers must be trained to fight fires and be equipped with adequate personal protective equipment.

Preventative measures

Start clearing the border roads of your camps.

Start cutting grass in road reserves along the main roads. Act yourself, don't wait for the authorities (Roads Authority) to do it.

Permission and permits

Mowing teams need written approval from the nearest RA office before tractors and mowers are allowed onto road reserves.

Before lighting fires, check with the local fire association, fire department or municipality for restrictions and obtain a permit, if necessary.

Before you apply prescribed burning activities to reduce combustible materials, you must obtain a fire permit from the local fire protection association.

Check the fire danger index and do not burn garbage on a hot, windy day.

Firebreaks

A landowner may not make a firebreak without a fire permit, nor during times when weather conditions are conducive to wildfires.

Landowners can join their local fire protection association to share knowledge and resources with other members.

When making firebreaks, landowners should ensure that the fire protection association in the area and their neighbours and are aware of it.

Prepare firebreaks around and through the farm before the grass is completely dry.

Firebreaks should preferably be made in the evening when winds are calmer and temperatures are lower.

Firefighting equipment

Fire extinguisher equipment should accompany the mowers making firebreaks if the grass is already starting to dry out.

Ensure that firefighting equipment such as water carts, a spare wheel, jack and wheel wrench and pumping equipment are in good working order.

Every vehicle should have an axe, shovel and a light chain. The axe and chain are for pulling branches and the shovel is handy if you get stuck in a hole.

Every vehicle must have wire cutters to cut yourself and animals out if you get caught in a fire, especially where there are game fences.

Every person must carry matches. If

you get caught in a fire, light the grass and follow your own fire to save yourself.

When a fire breaks out

Have emergency numbers ready and immediately report all wildfires to the fire protection agency and fire brigade as well as neighbours.

In the absence of the landowner, a responsible person must be on or near the property to fight fires.

Accessibility

If a fire breaks out on a farm, it is important to make the land accessible to firefighters and their vehicles. There must be someone who can open gates and switch off electric fences.

Fire trucks are approximately 4 m high. It is therefore necessary to ensure that these vehicles can easily drive under trees and electricity and telephone poles.

Safe spaces

You can reduce the risk of fire on your property by cutting long grass, pruning trees, removing leaves from gutters and pruning creeping vines and other plant material that can serve as 'fire ladders' on buildings.

Each farmer should divide his farm crosswise – four quarters surrounded by wide firebreaks. Then you can burn one quarter and save three.

Create a defensible space of approximately 20 metres between the buildings on your property.

The livestock resting spots and bare spots around feed troughs in camps can be enlarged to create safety zones in each camp.

Source reference

Namibia Agricultural Union
Newsletter 16 May 2025
Firefighting – preventative measures
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Building resilience in Africa's agrifood supply chains

Article supplied by Boston Consulting Group (BCG) and Quantis

Agrifood supply chain resilience is a rising business risk; the number of days with moderate or high food price volatility for rice and wheat has doubled or tripled between 2020 and 2024. Climate risks could cut global crop production by up to 35% by 2050, with staples critical for Africa's food security like rice, maize, and wheat particularly vulnerable.

A new analysis by Boston Consulting Group (BCG) and Quantis, *Building Resilience in Agrifood Supply Chains*, explores how rising climate risks, shifting trade dynamics, and evolving geopolitical conditions are colliding to make food supply disruptions more frequent, severe, and complex.

Food systems are already struggling: one-third of all food produced globally is lost or wasted, while the World Health Organisation estimates that one in eleven people globally face food insecurity. Disruptions in agricultural production intensify this situation, rippling across communities, economies and trade activity, and reducing access to essential food supplies.

As geopolitical instability intensifies, supplies of staple crops such as wheat can be disrupted; the war in Ukraine is a case in point. Meanwhile, as climate change exacerbates both rising temperatures and the frequency of extreme weather events, unpredictable growing seasons may cause further disruption in existing agrifood production regions.

Africa stands at a critical crossroads

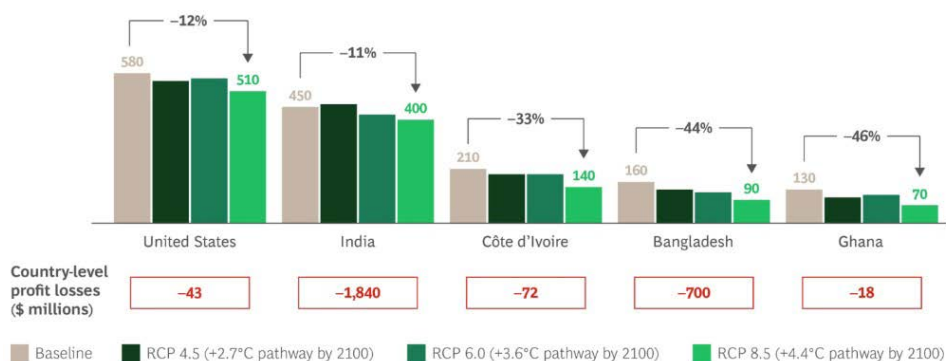
For Africa — where agriculture supports over half of the population's livelihoods — this is not just a global issue, but an urgent local one.

BCG's analysis indicates that due to climate-related yield losses, farmer profitability could drop by as much as 46%. This threatens the financial stability of African smallholders, who make up about 70% of the agricultural production on the continent and are often without access to credit,

Farmer Profitability to Decline by as Much as 46% Due to Climate-Related Yield Losses

Farmer profitability for rice production in \$/hectare

Illustrative example for rice



Sources: FAO; IPCC RCP Pathways; USDA (USA baseline profit); AESSRA (India baseline profit); *Journal of Agribusiness in Developing and Emerging Economies* (Côte d'Ivoire baseline profit); *Asian Journal of Crop Soil Science and Plant Nutrition* (Bangladesh baseline profit); Department of Ecological Agriculture (Ghana baseline profit); BCG analysis.

Farmer profitability for rice production in \$ hectare.

insurance, or modern farming inputs.

Rice, a staple in many African countries, is expected to see global production declines of 9% by 2050, with top producers like India seeing up to 18% reduction. Export bans — like those India implemented in 2022 and 2023 — could reduce global rice exports by 54% by 2050, posing a serious risk to African food imports.

"Rice production accounts for 22% of global caloric intake and production declines jeopardize food security for several importing nations in Africa," says Hamid Maher, Managing Director and Senior Partner at BCG, Casablanca. "Action from public and private sector stakeholders is critical to speed up farmer adaptation and promote investment in innovation."

The West African cocoa crisis
In West Africa, climate disruptions like erratic rainfall and diseases like swollen shoot and brown rot have severely impacted cocoa yields, pushing prices to nearly \$13 000 per ton in December 2024 — a staggering 400% increase over the 10 year average.

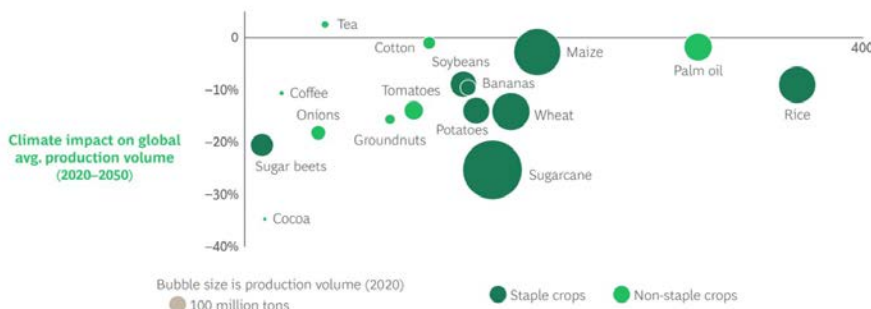
Although higher cocoa prices can potentially benefit African farmers as they may receive more money for their crops, possibly increasing their overall income, the benefits of higher prices do not always fully reach farmers due to complex supply chains and intermediaries. Additionally, cocoa prices can be volatile, making it difficult for farmers to plan long-term.

One of the main challenges faced by producers is that global markets are increasingly exploring alternatives to Africa's cocoa supply due to various factors. Markets are looking to Southeast Asian countries like Indonesia and Vietnam to increase cocoa production, while Latin American nations such as Ecuador and Brazil are also being considered for expanding cocoa cultivation with Brazil indicating ambitious plans to double domestic cocoa production by 2030.

The continent, which supplies over 60% of the world's cocoa, is at risk of both economic and food security shocks, impacting millions of African farmers.

Without Significant Efforts to Mitigate Climate Change, Scenarios Forecast Unprecedented Production Impacts for Major Crops by 2050

Global production value (\$ billions, 2020)



Sources: FAOSTAT AEZ projections; ECOMCROP; BCG analysis.

Note: RCPs (Representative Concentration Pathways) comprise four future climate scenarios. This exhibit assumes the RCP 8.5 scenario (+4.4°C) while considering only current agricultural production areas; that is, it does not account for the potential expansion of cultivation due to climate-induced shifts in arable land or the effects of CO₂ fertilization.

Global production value.

Pathways to resilience

As global supply chain volatility increases, companies can no longer afford to take a reactive approach to managing risks and addressing disruptions only as they emerge. For agrifood decision makers, building capabilities that can strengthen supply chain resilience is a priority.

"We believe this is a pivotal moment for agrifood decision makers to reimagine their approaches to create resilience, value and sustainability for their businesses and communities," says Zoë Karl-Waithaka, Managing Director and Partner at BCG, Nairobi.

The report emphasises several key resilience levers for African agrifood systems:

Investment in resilient seed varieties: Heavy reliance on a single crop variant exposes agriculture to pests, diseases, and climate challenges.

For example, the Cavendish banana, which is the dominant variety cultivated and commercially grown in several African countries, including South Africa, Kenya, Tanzania, Uganda, Cameroon, and Ghana and accounts for 95% of commercial bananas sold globally, is extremely vulnerable to disease because of its lack of genetic diversity. To offset this, ensure more diversity by commercialising variants that have been developed by research institutions and as needed, promote and fund further research and development on existing variants to help them adapt to diseases and climate challenges, enhancing resilience and economic security for farmers.

Use of predictive technologies such as AI and satellite imaging:

The combination of in-soil sensors, satellite imaging, AI, and machine learning enables farm-to-fork traceability and on-farm monitoring. These technologies also support predictive analytics and advisory such as early warning systems which can be critical for planning and risk mitigation given changing weather patterns as well as precision agriculture, which cuts costs through a more targeted application of inputs such as soil nutrients and other agrichemicals.

Crop and supply chain diversification:

Crop sourcing often relies on dominant regions, making diversification difficult. Expanding sourcing and adjusting strategies through new suppliers and alternative crops requires significant investments and time for maturity. One solution is to identify alternative or underrepresented crops such as sorghum and millet. Others include expanding supplier bases, identifying crops that can adapt to the climatic and soil conditions of alternative growing regions, and harnessing global trade networks to ensure supply continuity.

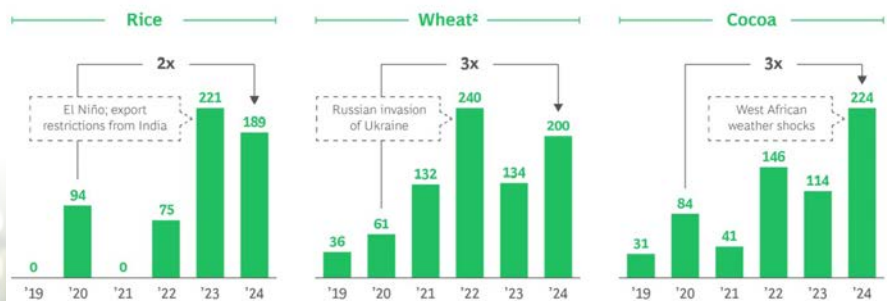
Access to climate finance for smallholder farmers:

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Volatility in Food Supply Chains Is at an All-time High

Number of days with moderate or high price variability¹



Sources: IFPRI Food Security Portal database; BCG analysis.

Note: As defined by the International Food Policy Research Institute, high volatility occurs when extreme price increases happen excessively (>2.5% probability), while moderate volatility indicates above-normal fluctuations (2.5%–5% probability).

¹Based on data available since 2001. Prior to the range shown, the most volatile years were: rice (105 days in 2010); wheat (196 days in 2008); and cocoa (190 days in 2018).

²Using "hard wheat" as a proxy.

Number of days with moderate or high price variability.



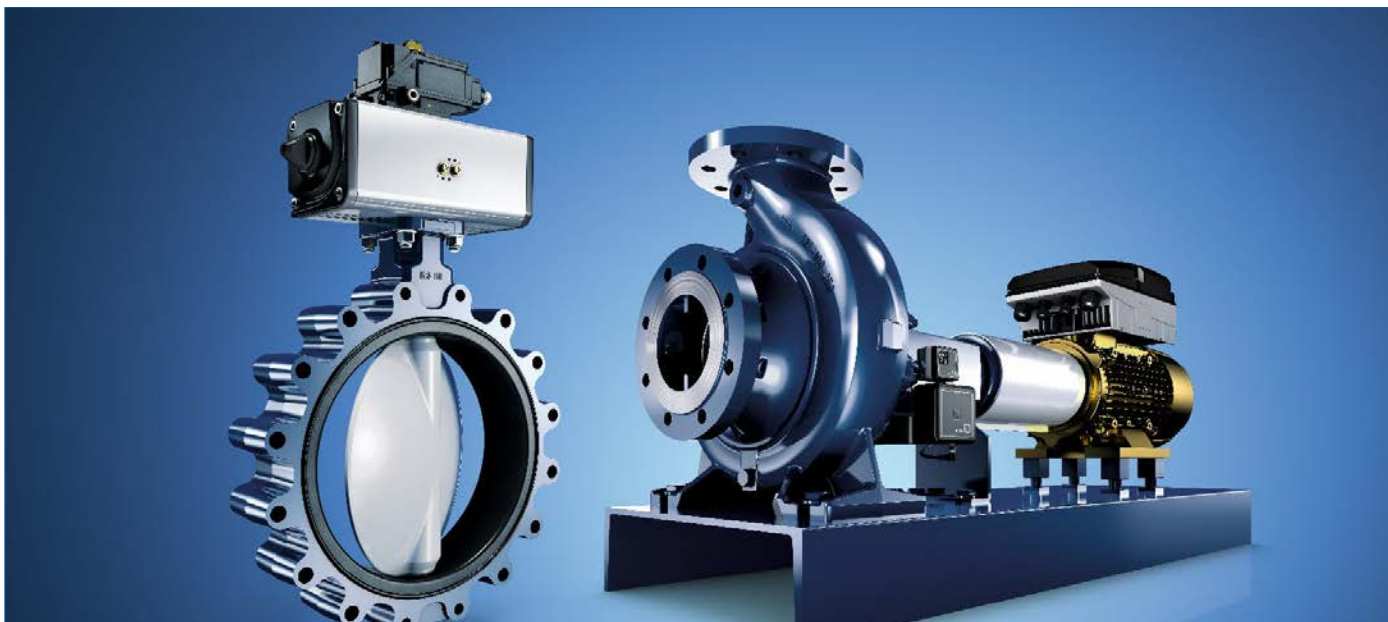
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	1	2	3	4
7	8	9	10	11
Rehoboth <i>Speenkalf</i>			Windhoek <i>Grootvee</i>	Gobabis <i>Speenkalf</i>
14	15	16	17	18
21	22	23	Nomtsas <i>Speenkalf</i>	25
	Rehoboth <i>Kleinvee</i>	Hochfeld <i>Speenkalf</i>	Windhoek <i>Speenkalf</i>	
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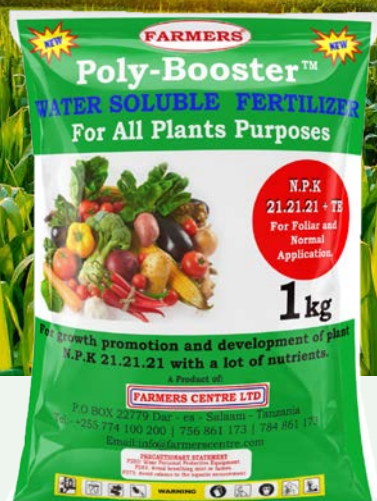


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