



# THE ORGANIC FARMER

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Your trusted indepth publication for sustainable agriculture in East Africa

Dear farmer,

January 2020 is here and farmers are looking forward to another successful year. Most parts of the country enjoyed above-average December rains. Our team is upbeat that despite the changing rain patterns and pest infestations, this year will be better.

This issue is rich with information on how to prevent post-harvest losses in mango farming, dealing with the dreaded tomato blight disease organically, and why you should avoid using firewood for cooking amongst other stories. The New Year began with a locust invasion in the country, and we had less preparedness, despite an earlier warning from the Food and Agriculture Organisation.

The attack is spreading from the northern parts of Kenya, and though there is a call for chemical control, what we need is an environmentally sustainable approach.

Last year, increased pesticides use by farmers flooded the media. TOF Magazine is here to help you grow crops and rear your animals free of pests and toxins. We look forward to showing you different, easy and affordable practices that can increase your yields in healthy and affordable ways.

*From the editor*



## Prepare now, normal rains expected during planting season, farmers advised

**March to May rains will be on schedule, based on current climate projections**

**By Organic Farmer writer**

The unexpected rains at the beginning of January 2020 surprised many farmers who were worried that the rains would interfere with their land preparation. The Kenya Meteorological Department has, however, assured them that most parts of the country will be dry by February. But, southern areas such as Narok and Kisii, will continue receiving episodic showers in the afternoons.

Farmers usually prepare for the new planting season from January, but many have been in a dilemma about what to

do following the unusual timing of the rain. However, the long rains are expected in March and farmers are advised to prepare their land for planting.

“According to projections for March to May 2020, the rains are expected to be normal, tending to above normal in most parts of the country,” said Mr Augustine Kiptum, the principal meteorologist, forecasting division, National Meteorological Centre.

He also advised pastoralists to stock animal feeds as February would be dry.

“The January showers have been occasioned by the continued warming of the Indian Ocean sea surface temperatures, which was the main cause of the enhanced October to December 2019 rains”, he added.

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## Controlling tomato blight

Tomatoes are tasty and succulent fruits rich in vitamin C, potassium, folate, and vitamin K. However, tomato plants are prone to pest diseases like tomato blight. **Pg. 4**



## Attributes of deadly locusts

Locusts can be identified by a large dark spot on the tip of their hind wings. Adults can either be grey, brown, pink, yellow or green, depending on the species.

A desert locust lays 95-158 eggs when operating alone. In a swarm, she will lay about 80 eggs, which hatch in about two weeks. They mature into adults in about two to four months, depending on the environmental conditions. Swarms can fly for long periods, traveling five to 130 kilometres a day, depending on wind speeds and direction.

According to the United States Department of Agriculture (USDA), a one-kilometre size swarm containing about 40 million locusts, will eat the same amount of food as about 35,000 people, 20 camels or six elephants daily.



## The battle is on as locust invasion spreads in Kenya

**The raging locust invasion is worrying, especially for farmers, whose food production is being derailed by the pests**

**By Susan Njugi**

They may look like other grasshoppers but that is where the similarity ends. Grasshoppers are often harmless but locusts pose a grave threat whenever they emerge. "They travel in swarms behaving as a deadly unit", says Mr Anil Sharma, a FAO-trained desert Locust master trainer for India, in a research paper on locust control management.

Updates from Food and Agriculture organisation (FAO), show that the locusts first swarmed to Yemen and Saudi Arabia in January 2019. Between February and June 2019, they moved from Yemen to northern Somalia and Ethiopia. In December, they made their way into northern Kenya.

Despite aerial spraying, the swarms have increased (as of January 22, 2020). Numerous swarms are spreading south

from Mandera County to Wajir and Garissa, west, along the Ethiopian border (Moyale and Marsabit counties), and southwest into central areas north of Mt Kenya (Isiolo, Samburu, Meru, and most recently Laikipia).

More swarms are expected to invade these areas, some of which are already moving north of Mt Kenya westwards to the Rift Valley, where they could continue northwest to Turkana County. Some swarms could move further south to Tana River County. In all these areas, there is an unprecedented threat to food security and livelihoods.

In the northeast, some swarms have begun maturing, which means that egg-laying in open areas of sandy moist soil could begin where eggs would hatch after about two weeks, giving rise to numerous hopper bands by February.

The situation remains under close supervision because an invasion of the food basket counties would drastically affect national food security, possibly for the next two years.



**Some swarms could move further south to Tana River County. In all these areas, there is an unprecedented threat to food security and livelihoods**

**A one-kilometre size swarm containing about 40 million locusts, will consume the same amount of food as about 35,000 people**

# Slender leaf, healthy vegetable for humans, plants, poultry and animals

## Benefits of this nutritious crop

It can be boiled or fried, or used as a potherb in stews and soups and is often used as an accompaniment for starchy foods such as ugali, potatoes or matoke



By Caroline Mwendwa

There is a good reason why you should set aside a section of your farm for growing indigenous vegetables. These edible plants are highly nutritious and cheaper to cultivate than conventional vegetables such as kales. Most of them are also beneficial as organic agents to farmers.

One such vegetable is slenderleaf (*Crotalaria brevidens*), which is found in western Kenya, Uganda, Tanzania, Ethiopia, Sudan, Morocco, and parts of West Africa.

Also known as Mitoo, it can be boiled or fried, or used as a potherb in stews and soups and is often used as an accompaniment for starchy foods such as ugali, potatoes or matoke.

Mitoo seeds are kidney-shaped, olive green or yellow-orange or brown. In some places, it grows spontaneously among bushes, in the forests (often near termite mounds), in pastures, and cultivated fields. It is occasionally cultivated on a small-scale and blossoms if sown during the rainy season.

### Health benefits

Mitoo has medicinal value and benefits such as improved blood flow, blood detoxification, and eye health. It strengthens bones, nourishes skin and boosts immunity.

### Farmers' benefits

The plant has multiple soil fertility benefits, as it has a symbiotic relationship with some soil bacteria.

It forms nodules on the roots by fixing atmospheric nitrogen, which aids the growing plant and the neighbouring ones.

To enjoy this benefit, farmers can intercrop it with finger millet. It also aids in soil erosion control by adding moisture and reducing soil temperature.

Mitoo has also been used in coffee plantations as a green manure and cover crop. Mitoo can also be used as fodder for cattle as fiber, silage or hay. The seeds are used to feed poultry, though only in low quantities.



15

Number of times a single Mitoo shoot can sprout before the plant is uprooted

15cm

Distance from the ground where Mitoo shoots should be cut. A new shoot will typically sprout in two weeks

## How to harvest Mitoo vegetables

Harvest takes place about eight weeks after the plant has sprouted and may continue for four months. Mitoo is mainly harvested by uprooting the whole plant.

Farmers can also cut the shoot about 15cm from the ground, and a new shoot will sprout in two weeks. This can be done up to 15 times before the plant is uprooted.

Mitoo seeds can be collected by letting the vegetable overgrow. The pods that hold the seeds appear green when young but should be left to mature and dry completely. They appear black when dry.



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# How to control tomato blight disease using natural methods

Tomatoes are tasty and succulent fruits rich in vitamin C, potassium, folate, and vitamin K. However, tomato plants are prone to pest diseases. The most common tomato disease is blight

By Emmanuel Atamba

## Tomato blight

There are two types of tomato blight: early and late tomato blight.

### I. Early blight

This is caused by a fungus called *Alternaria solani* and can affect the crop at all stages of growth. It thrives in humid and warm weather.

Symptoms of the disease include damping-off, formation of stem cankers, crown rot, leaf blight, and fruit rot.

### II. Late blight

This is caused by a fungi-like pathogen known as *Phytophthora infestans* that attacks the leaves, stem and fruits. Unlike the early blight pathogen, *Phytophthora infestans* thrives in cool and wet conditions.

## Symptoms

- Leaves initially show watery spots, which quickly enlarge into light green to brown spots that cover large areas of the leaf.
- White mouldy growth on the underside of leaves may develop in moist weather. The leaf then shrivels and dies. Infected stems also die and finally the whole plant dies.
- Fruit lesions are dark, greasy spots and may cover the whole fruit.
- The spots on fruits may be covered by white fungal mycelium in moist weather.

- Diseased fruits are usually followed by a soft rot that smells bad.

The following will reduce disease attacks and spreading of the disease-causing spores.

- Avoid working in your garden during wet conditions.
- Remove, bury or burn all infected plant parts.
- Space tomato plants to ensure optimum air circulation to keep leaves and stems dry.
- Water the plants early so that leaves dry before cooler night-time temperatures arrive. This especially controls the late blight.
- Control harmful insects in your garden to minimise plant injury and spread of spores caused by their feeding.

Treatment in already infected fields:

### I. Compost tea

This controls diseases while providing nutrients for the soil.

How do you make a great compost tea?

- Mix one part of well-aged compost (about four months old) and five to eight parts of water. Well composted materials do not introduce dangerous microorganisms such as E. coli to your tea.
- Place in a covered container and keep outside for 5 days. Stir daily.
- Pour through a sieve or gunny bag.
- Apply the solution (compost tea) to plants as a foliar spray.
- Do not spray on the fruit if you plan to harvest in the following two to three weeks.

### II. Use of baking powder

Baking powder fights both early and late tomato blight.

- Add one tablespoon of the powder into one litre of water.
- Add a few drops of liquid soap or vegetable cooking oil to make the solution stick on the plant leaves for better action.
- Pour the mixture into a spray bottle and shake thoroughly before spraying on the plant.
- Apply out of direct sunlight to avoid burning your plant. Do not make it too concentrated as this can damage your plants.





There are also home-made jikos that are equally good as long as they are made and used correctly. Other energy saving technologies include the fireless cooker or food warmer, an insulated basket, container or box that completes cooking that has been done partially

## Ditch three stone jikos for better health, save 30 per cent in fuel costs

**Adoption of these technologies would go a long way in ensuring sustainable use of forest resources, better health and savings for the farmer**

**By Pamela Okutoyi**

According to World Health Organisation, nearly two million people die prematurely due to illnesses caused by indoor air pollution arising from the use of household solid fuel, such as firewood and charcoal.

Since cooking is a task carried out mostly by women and children, they are the most affected by this pollution during food preparation. Despite these dangers, about 64 per cent of Kenyans use firewood for cooking, especially in rural areas.

Studies have also shown that on average rural families spend about 20

per cent of their income on wood or charcoal for cooking and in some communities, women and children spend a lot of time collecting biomass to use as fuel to make their meals.

Using more efficient energy saving stoves for cooking will not only cut down fuel use leading to environment preservation, but also allow farmers to save money spent on fuel and live healthy lives, free of respiratory illnesses caused by polluted air.

For greater impact on the environment, reducing the use of firewood for cooking is best complemented by planting more trees and practicing friendly farming techniques such as agroforestry.

Improved forest cover contributes to the ecosystem's capacity to reduce climate change in addition to other environmental benefits. Vegetation cover uses up the excess carbon dioxide, which is responsible for climate change. Farmers are, therefore, advised to shift from using the traditional three stone jikos that are wasteful and

pose a risk to human and environmental health, to energy efficient technologies. A number of such products suitable both for charcoal and firewood use, exist in the market today. They include jikos such as JikoKoa and Envirofit among others.

There are also home-made jikos that are equally good as long as they are made and used correctly. Other energy saving technologies include the fireless cooker or food warmer, an insulated basket, container or box that completes cooking that has been done partially.

It also keeps food hot for up to eight hours after cooking and saves the cook time and labour.

Cooking utensils used in the cooker do not wear out as rapidly as those used over a fire. The kitchen is neither hot nor with odours; hence no pollution, allowing farmers to breath clean and fresh air always.

Adoption of these technologies would go a long way in ensuring sustainable use of forest resources, better health for the farmer and savings, putting power at their fingertips.

*The writer is a sustainability researcher and writer at Impact Africa.*

Improved forest cover contributes to the ecosystem's capacity to reduce climate change in addition to other environmental benefits. Vegetation cover uses up the excess CO<sub>2</sub>, which is responsible for climate change.

## How to sun dry your mangoes the right way

- Ensure that the person drying the food washes their hands with soap before starting. He or she should also be free from infections such as colds.
- Pick moderately large good quality mangoes, as you will have to cut them into pieces.
- Taste your mango to ensure the product is satisfactory.
- Wash the fruit and soak in water with a bit of vinegar for 10 minutes to remove pesticide residues.
- Peel mangoes before cutting them into thin equally sized cubes. Keep them consistent in size so that they dry at more or less the same rate.



- Spread fruits on a clean surface and cover with a clean light net to protect insects and children from playing with them.
- Put on a table in direct sun or on your roof away from dust.
- Drying takes between two to four days.
- Store the drying fruit indoors and remove again the next day.
- When they are dry, they will appear wrinkled and have a leathery texture.
- Store in an airtight container or plastic bag to prevent entry of moisture.

## Harvesting and preserving your mangoes

### The mango value chain incurs up to 45 per cent loss of fruit due to poor harvesting and postharvest practices

Preserving food when in plenty ensures that you have supplies when there is scarcity. There are five common vegetable and fruit preservation methods: Cooling, refrigeration, syrumping, salting, and drying.

This article will focus on harvesting and drying of mangoes. The mango value chain incurs up to 45 per cent loss of fruit and resultant income, due to poor harvesting and postharvest practices.

### The right harvesting process for your mangoes:

Mango spoilage begins from point of detaching a fruit. Use skilled harvesters and proper tools to avoid bruising and breakage.

**Harvesting tool:** This tool helps you reach the mango and remove it without grazing the fruit. Avoid climbing trees to remove mangoes as this leads to broken branches and falling mangoes that get cracked and grazed.

**Check for maturity:** To check for maturity, cut your fruit and if the inside is yellowish, it is 70 per cent mature. A week later they will be at 80 per cent



*Women in Makueni carry the harvesting contraption which ensures their mangoes do not get damaged when harvesting. The tool is easy to assemble and when used by a skilled harvester, will minimise your losses. Remove with the tool quickly because of the sap.*

and will be ready for picking. Fruits are picked at different levels of maturity for different markets. For the export market, the green should be more than the purple, about 75 per cent. For the local market, it should be entirely green.

**Packing:** Once harvested, place the mango upside down inside a crate for the sap to drain out. The first layer should face down then the paper placed on top to absorb any sap from the ones on top. The second layer faces upwards.



**Mangoes do not ripen at the same time. The harvesting season begins with checking for maturity. Cut your fruit and if the inside is yellowish, it is 70 per cent mature**

**Weighing by the kilo:** Some people buy mangoes and pile them on the ground. Those mangoes can never get to the high-end market because they get bruised and diseased. Weigh mangoes in a crate then deduct the weight of the container.

### Fruit protection:

**Fruit fly traps:** Fruit flies cause major losses and attack the fruit about a month before harvesting. Trap them before they damage the mangoes.

**Mango cooler:** Cooling keeps the mangoes in good condition for three weeks compared to only three days when outside the cooler.



## How to manage Rift Valley Fever (RVF)

- Early detection is necessary to control the disease.
- Use natural insect and pest repellants in areas that harbour mosquitoes.
- Do not consume un-inspected home-slaughtered animals.
- Livestock farmers should report abortions in their herds to vets for quick follow-up.
- Health workers and individuals who get fever after interacting with infected animals should go to the nearest health facility.
- Do not drinking milk that is not boiled from animals infected with RVF.
- Immunise before an outbreak, otherwise doing it during outbreaks risks intensifying the situation.

### Where to get help

Dr Nderitu Nyaga, a veterinary officer and lecturer at Egerton University Njoro Campus, advises farmers to contact the nearest sub-county veterinary officer who will purchase the vaccine from government organisation, Kenya Veterinary Vaccines Production Institute (KEVEVAPI) and administer it to your animals.



## Rift Valley Fever (RVF) Symptoms

**Farmers should be extremely alert and on the lookout because heavy rains come with disease outbreaks**

With the above-average rains received since the last quarter of last year still pounding most parts of the country, livestock farmers still have a lot to worry about.

To particularly watch out for are outbreaks of the Rift Valley Fever (RVF), especially in disease-prone areas or places with a lot of livestock. RVF is a viral zoonotic disease, as it can be transmitted across animals and human beings.

Heavy rains create favourable conditions for the multiplication of mosquitoes, the main vector of the disease. Domesticated animals affected by RVF include cattle, sheep, camels and goats. Sheep and goats appear to be more

susceptible than cattle and camels. Age has also been shown to be a significant factor in susceptibility.

Most outbreaks lead to devastating economic loss following closure of livestock markets, animal and human deaths.

Symptoms in animals include massive abortions in sheep and death of young stock. In other species they include fever, foul-smelling bloody diarrhea and lack of appetite.



**Symptoms in animals include massive abortions in sheep and death of young stock. In other species they include fever, foul-smelling bloody diarrhea and lack of appetite**

Its incubation period from infection to onset of symptoms is two to six days. Transmission from animals to humans is through contact with body fluids of infected animals. In humans, symptoms include fever, headaches, weakness, nausea, stomach discomfort and headaches, and can result in death.

However, most human cases of the disease are relatively mild and of short duration.

No specific treatment is required for these patients. An inactivated vaccine has been developed for human use, but is not licensed or commercially available.



Location	Frequency
Taita	107.4
Narok	102.3
Nyeri	105.7
Machakos Makueni Kitui	93.8
Meru	105.1
Marsabit	88.3

Location	Frequency
Nakuru Gilgil	104.5
Kisii	91.3
Kisumu	105.3
Mombasa	105.1
Kericho	90.5
Eldoret	91.1

Location	Frequency
Nairobi	102.7
Kakamega Bungoma Busia	91.5
Malindi	106.3
Webuye	95.9
Garissa	88.7

Tune to Radio Maisha every Thursday at 7.30 PM through any of these Frequencies nearest to you to receive Kilimo Hai, The Organic Farmer Radio (TOF) Swahili farmer programs. You will be inspired and get tips and advice on agri-preneurship.

## TOF Radio signs strategic partnership pact with Standard Group Limited

By Musdalafa Lyaga

A new partnership agreement aimed at raising consumer awareness on harmful agricultural practices and providing millions of farmers with access to information on ecologically friendly farming practices has been signed between Biovision Africa Trust (BvAT) and the Standard Group Ltd.

Broadcasts from TOF Radio will be aired on Radio Maisha every Thursday from 7.30pm. The partnership will also see BvAT reaching additional audience through the group's well established platforms such as the Standard Newspaper, Farmers TV, and social media.

The signing ceremony was presided over by Prof. Onesmo ole-MoiYoi, BvAT board member, Dr David Amudavi, BvAT Executive Director, and Mr Tom Japanni, Head of Radio at Radio Maisha, on January 10, 2020. It is expected that over seven million farmers will get advice on various agricultural production practices, agri-preneurship, topical issues among others via the channels.

Since its inception in 2008, TOF Radio has produced more than 500 programmes in Kiswahili, Kamba, Kalenjin, and other local languages reaching over five million farmers with practice-oriented information on sustainable agriculture. Over 1,000 topics on human, animal, crop and environmental health themes have been covered. Thousands of farmers have also been linked to extension services and input dealers who have helped them increase their production and access better markets. Under the new partnership and other initiatives designed to bring engaging



TOF RADIO's Charles conducting interview on Tsetse in Kwale

and well-curated farming information to Kenyans, BvAT's pioneering work is set to add more value in addressing farmers' needs.

### The team behind the partnership

TOF Radio journalists Musdalafa Lyaga and Charles Kimani will work with their Standard Group radio counterparts to highlight experiences and challenges faced by farmers and extension workers, and provide possible solutions. They will also profile individual farmers and groups in the weekly broadcasts.

### Technological advancement

In 2013, Biovision launched an ultra-modern TOF studio to boost radio programmes. This has enabled quality post-production of programmes and studio interviews with experts and scientists. The radio has also combined mobile technology and broadcasting by designing and developing an integrated web-based application for gathering and analysing feedback from farmers via mobile phones known as *Tusemezane*, a Kiswahili word for "let's talk".

#### Partner organizations



#### TOF on the web:

- 🌐 [mkulimambunifu.org](http://mkulimambunifu.org)
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