

Dear Reader,

As you prepare land for planting, remember it is advantageous to plant early, at the onset of rains as this will lead to better yields. Crops planted early in the season, fully utilize the moisture received from the rains and mature in time for harvesting.

Employ techniques that do not leave room for soil compaction, as this can be a major cause of low yields in your farm. In this edition we tell you more

about soil compaction, its causes and how to reduce it.

One year since Covid19 pandemic hit the country and the world at large, everyone has had to adjust to the new normal. Masses have lost jobs and businesses, while others have sighted opportunities in the social changes and started businesses. We tell you about one such farmer, a 92-year-old, who was influenced by the conditions set by Covid19 pandemic to start a thriving

poultry business.

Are you a dairy farmer struggling with questions about the right feeds for a cow that is about to calf, or that has just calved? An expert sheds light on the delicate balance of transitioning a cow to ensure that its dietary needs are sufficiently met, without overdoing it, hence predisposing it to a condition called ketosis. Read on for these and much more.

How to Grow Brachiaria Grass for Your Livestock

By Brenda Okumu

Brachiaria is one of the most important tropical grasses and is widely distributed in eastern and central Africa. It is an emerging forage option for livestock production in Kenya and East Africa. Due to its high above ground biomass and nutritive quality than local grass it offers livestock farmers a viable option to complement existing grasses.

Where to grow Brachiaria grass

Brachiaria grass does well in a wide range of climatic conditions in Kenya. It is productive in areas with annual rainfall of above 700 mm and mean temperatures exceeding 19°C. It requires well-drained deep soils.

Seven Brachiaria varieties are grown in Kenya. These are, Mulato II, Cayman, Cobra, Piata, Xaraes, MG-4 and Basilisk. These varieties are relatively new forage to farmers and therefore, information on establishment and management is lacking.

Establishment

Brachiaria can be grown from seed or vegetatively propagated from root splits.

Seeds of Mulato II, Cayman and Cobra are available locally in the market. Buy viable seeds from reputable dealers. Many farmers have been conned by unscrupulous merchants who claim to produce seeds on their farms. Small quantities of seeds for Xaraes, Piata,



MG-4 and Basilisk can be obtained from Kenya Agricultural & Livestock Research Organization (KALRO). (Contact no. 0722 206 986/ 0722 206 988 for more information).

Seeds: For large quantity of seeds, plant directly in the field. Drill the seeds in a well-prepared land in furrows of about 1 cm deep at a spacing of 50 cm between the furrows. Cover the seeds lightly with soil using tree branches.

If only small quantity of seeds is available, establish a nursery to minimize loss. Prepare a nursery bed with good tilth. Raise the bed so that it is not waterlogged. Make furrows of about 1 cm deep and space at 5 cm from one furrow to the next. Plant the seeds evenly in the furrows and cover lightly with soil. Water regularly. Erect a shade or use mulch with dry grass to prevent direct sunlight on the bed and the

young seedlings. Remove the mulch after the seeds emerge from the soil. This is after 5-7 days.

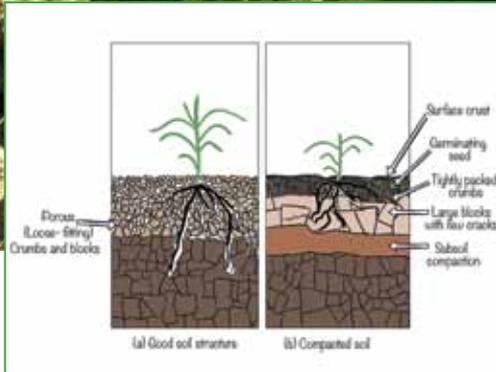
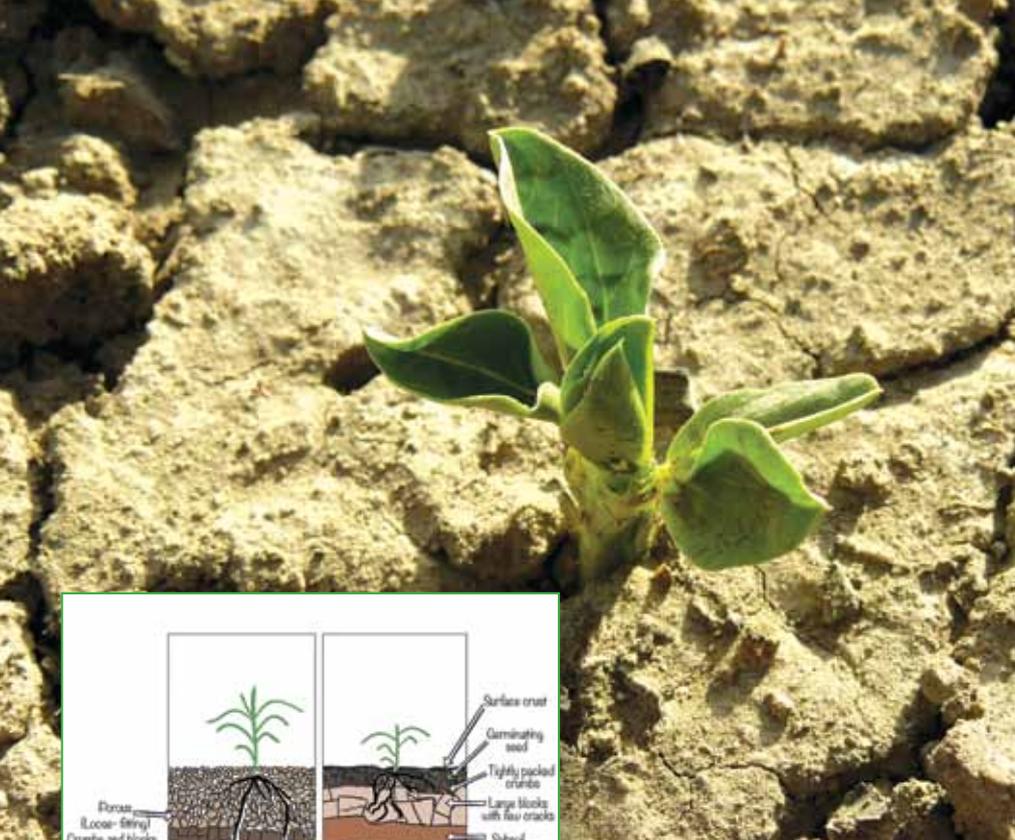
The seedlings are ready for transplanting after 8 - 10 weeks. Plough and harrow the land during the dry season and plant at the onset of rains.

Root splits: It is the best option to establish the grass when seeds are not available. Get the splits from an established Brachiaria stand. Make sure the splits have roots and the tillers are actively growing. Use a spacing of 20 -30 cm between plants and 50 cm between rows. Plant at the onset of rains or irrigate during the dry season.

Brachiaria can be planted either as pure-stand or intercropped with forage legumes such as *Desmodium* and Lucerne which contain high protein for livestock.

Continued on Page 2





Continued from Page 1

Brachiaria produces a lot of foliage, which suppresses weeds when well established. However, farmers should scout and control weeds manually during the establishment period and after every grass harvesting.

Harvest and utilization

Brachiaria takes about 3 - 4 months to be ready for first harvest after planting. Subsequent harvests can be made after every 8 - 10 weeks depending on climatic conditions and management. During harvesting the grass should be cut at about 5 cm above the ground using sickle or machete. This way, it will take a shorter time to regenerate. Ensure you weed, manure, and water adequately after every harvest. Feed *Brachiaria* to dairy and beef animals, sheep and goats as hay, and rabbits as fresh green forage.

Benefits of *Brachiaria* grass to livestock:

- Produces high forage biomass.
- Has high crude protein content.
- Is pest and disease resistant.
- It is drought tolerant.
- It establishes easily.
- Regenerates within a short time.

<https://infonet-biovision.org/fodder-production>

Reduce Soil Compaction to Harvest More

By Sharon Chebet

At least 50 percent of the total volume of a healthy soil should be made up of pore spaces that allow exchange of air and water.

When subjected to pressure, soil becomes compacted. When dry soil is compacted, it becomes so tightly packed and does not allow aeration and when water-saturated soil is compacted, it loses moisture, and water can no longer penetrate through.

How do I know my soil is compacted?

You can test how compacted your soil is by pushing a spade in, screwdriver or even digging. If this proves difficult, then you likely have compacted soil.

There are other ways that compaction may manifest in your farm: for example, absence of oxygen will lead to having unpleasant smell in some spots and crops wilting even with water supply.

What causes soil compaction?

A shift towards intensive agriculture to meet the ever-increasing demand for food is a major cause of compaction. This is characterized by mechanization, especially, use of tractors.

Monoculture also causes soil com-

paction. Currently, priority of many farmers is to have enough food and not diversifying on crops. Most farmers grow one type of crop season after season. The most grown crops among farmers in Kenya include maize, potatoes, wheat, etc.

The importance of crop diversification is that different crops have different rooting depths and absorb nutrients from the soil differently. This means that, if you have intercropped a variety of plants in your farm, some roots will be going deeper than others hence loosening the deeper layers of the soil.

Thirdly, intensive grazing contributes to compaction through trampling. The more the animals trample on the soil, the more it compacts.

Other causes of compaction include poor land preparation such as planting on soils with low organic matter, ploughing the same depth every season and tilling at the wrong moisture content. A quick way to determine whether the moisture content of soil is good for tilling, is to take a handful of soil and squeeze it into a ball in your hand. The moisture content is good for tilling if slight pressure from your fingertips causes the ball to crumble. It is advisable to till at least three days after the onset of rain. This will have allowed the excess water to be absorbed into the soil.

Why compaction is bad for your soil.

Compaction causes crops to experience nutrient deficiency, water stress and restriction of root penetration. This results to iron chlorosis (yellowing of leaves).

Because the water cannot go through the hard pans in the soil, then it runs off eroding the top fertile soil. As a result, the crops get very little nutrients and cannot yield much.

How can a farmer remedy soil compaction?

1. Balancing calcium and magnesium levels in the soil

The amount of calcium and magnesium minerals in the soil determines how easily it absorbs water and its stickiness. High magnesium percentage and low calcium percentage increases the probability of having compacted areas in your farm. To determine the level of these minerals, conduct a soil test. The solution is to ensure that your soil has sufficient organic matter. The more organic matter you have in your soil, the more your



Dos and Don'ts of Cow Transition Management before and after Calving

By Nelson Barasa

I got a call from Mrs. Zikame, a dairy farmer in western region with a herd of 30 cows, to treat her high milk producing cow that had recently come down due to a suspected case of milk fever and Ketosis. The farmer reported to have given it various concoctions to reestablish its stability, but all in vain. After undergoing treatment, the cow started to gain health but its production levels went down and its return to heat was delayed.

This is a clear case of challenges farmers face in transitioning their cows. Mrs. Zikame had been recording frequent cases of milk fever and ketosis and had lost several high producing cows to these conditions.

Milk fever or hypocalcaemia is a metabolic disorder caused by insufficient calcium in a cow's blood. It usually occurs within 24 hours post calving but can still occur two to three weeks post-calving. Cases of milk fever are very common, some cases may go unnoticed since the signs may be mild such as loss of appetite, excitability, nervousness and shuffling of the hind feet. Other cases can be severe with signs such as incoordination, animal's inability to stand and a progressive loss of consciousness leading to a coma. If left unattended, the animal

will die. It is important for farmers to closely monitor their calved cows and notify their vet in case they notice an abnormality.

Ketosis is also a metabolic disorder that occurs in cows when energy demands (e.g. high milk production) exceed energy intake resulting to a negative energy balance. Ketotic cows often have low blood glucose (blood sugar) concentrations. This disorder usually occurs in late pregnancy when the cow's appetite is at its lowest and the energy requirement of the growing calf nears its peak. The mismatch between input and output can also occur in the first few weeks of lactation, because the cow is not able to eat enough to match the energy lost in the milk. Over conditioning (too much fattening of pregnant cows) predisposes them to Ketosis.

These two conditions can be traced to the transition stage of a cow. Transition stage is a period between two months before calving and two months after calving. Two months before calving is called the dry cow period. Farmers are advised to dry off (stop milking) their cows when they are seven months pregnant. This gives the cow time to recover from intense lactation and build up reserves in preparation for safe calving and resumption of production. Well dried cows usually have higher production than their previous lactation.

How to dry your cows

- Start reducing frequency of milking two weeks to drying off, around six and a half months of pregnancy.
- Reduce concentrates feeding to zero

during the dry period. This will help reduce milk production to minimize stress when you dry off. Put the animal on medium energy and protein dried feeds e.g., good quality hay and silage.

- The day you completely stop milking the cow, insert a dry cow therapy medication in all the teats, this helps to clear any mastitis causing agent in the udder.
- Introduce good quality dry cow milk supplement, this will provide adequate balanced minerals to prevent milk fever.
- Start reintroducing concentrates three weeks to calving (steaming up).
- Observe body condition of the pregnant cows, let the cows not grow too fat or too thin. A body score of 3 is recommended. This will help prevent a metabolic condition called Ketosis.

Don'ts

- Do not feed dry cows high energy or high protein concentrates during the dry period, these will over condition the cows and predispose them to Ketosis.
- Do not feed dry cows too much calcium diet e.g. DCP, it will predispose them to milk fever.

How to take care of freshly calved cows

Ensure the cows calve in a clean dry environment.

Appetite for the cows is usually depressed at this period, yet the cow is expected to produce highly and peak its production within its first two months of lactation. Within the same period, it is expected to return to heat and be served. Demand for nutrients i.e. energy, protein and minerals (calcium) is very high. The farmer should provide a very high quality diet with high energy and protein to meet the requirement of the cows. Concentrates, high quality dairy meal and lactation mineral supplementation come in handy.

Feeding should be geared towards maintaining body score and preventing loss of more than 10% of the body weight. Good feeding will help prevent milk fever and Ketosis.

<https://infonet-biovision.org/AnimalHealth/Cattle> and <https://infonet-biovision.org/AnimalHealth/calf-life-worth-living>

Why You Should Include Legumes in Your Daily Meal

By Esther Kanja

Do you know the value of legumes? Often, we avoid the most nutritious sources of protein which are readily available thinking that they are just common foods that do not add much value to our diet. But the fact is most of these foods, especially legumes are rich in nutrients that play major roles in keeping our bodies healthy and strong.

Malnutrition, a condition that affects mostly children, is caused by not only unavailability of food but also consumption of poor diet. Hence parents need to ensure that they make use of various sources of nutrients when preparing meals for their families. Legumes are a good example of a source of protein and other nutrients required by the body.

What are legumes?

A legume is a type of food that comes from the family of Leguminosae. All legumes have one common trait that they grow in a pod according to their type. Legumes have very high nutrition value and including them in your daily meal will be of great health benefit.

There are beneficial fats in legumes as well as insoluble fiber which turns to gel on mixing with water in the digestive system and soluble fiber which can't dissolve into the digestive system. This escalates your healthy gut bacteria which keeps your immune system in check and promote your whole body's health.

The legumes commonly found in Kenya are most types of beans, lentils, peas and peanuts as explained below;

Ø Beans

Beans are the pod-borne seeds of leguminous plants. They contain amounts of zinc, copper, manganese, selenium, and vitamins B1, B6, E, and K. For vegetarians' beans have the highest source of proteins.

They're packed with fiber and are low in fat and calories. These are two components of nutrients needed for weight loss. They may also help in reducing heart disease, inflammation, and blood pressure.



Various types of beans include; rosecoco beans which if pureed can be eaten with ugali or rice. Yellow beans, nyayo bean and mwitemania beans can be mixed with maize to make *githeri*. Mung beans make the best stew with *chapattis*.

Kidney beans and red beans can make very nice mixed rice meal, and black beans also known as 'Njahi' make great stew with rice, or can be mashed with potatoes and green bananas to make a great meal.

Soybean can be used to make soy milk when cooked and soaked then ground. This is good for you if you're lactose intolerant.

Ø Lentils

Lentils are like the king in maintaining gut health since they help in bowel function and this helps with digestion and prevents spikes in blood sugar.



This could mean a low diabetic rate if you incorporate lentils in your diet often. There are various lentils in the Kenyan market like the green lentil or ndengu, the brown lentil or Kamande and the orange and yellow lentils.

Lentils are a good source of vegetarian protein and can make good stews, soups, curry, fritters, Lentil burgers, and samosa fillers.

Ø Peas

Pea fiber and protein can be used as supplements for those with weight-related issues. Eating peas can decrease insulin resistance and abdominal fat.



Consuming pea fiber and pea flour,

studies have shown that it reduces the increase of insulin and blood sugar after having a meal. Whereby reducing your blood triglycerides and makes you feel full for longer.

Peas can make beef pea stew, green pea stew, mashed peas with potatoes to make the famous mukimo and fillers for samosas.

Ø Peanuts

Peanuts are interestingly legumes and this sets them apart from other nuts. They're a very good source of, polyunsaturated fats, monounsaturated fats, B vitamins, and protein.



Eating peanuts can help you reduce the risk of stroke, diabetes, cancer, and even heart disease.

Peanuts can be ground to make porridge flour, can be roasted and eaten as a snack, ground peanut flour can make good matoke paste stew. Homemade peanut butter can be very easy to make with peanuts.

Readily Available for You

The bottom line is legumes are readily available to most farmers and are affordable. Legumes come in various colors, sizes, and shapes. The fact that they're eaten in their different forms that include split, dried or ground into flour, cooked, canned or frozen whole legumes, makes it easy to cook regularly and enjoy with different accompaniments. With all their health benefits it's paramount to include legumes in your daily diet.

https://infonet-biovision.org/healthy_food



Voices from Sellers of Organic Produce

The higher the demand for organic products, the more the organic market grows

By Wanjiku Kimani

Organic farming is gaining popularity as the demand for healthy foods increases. More people are recognizing the importance of the food they consume in their health. Markets are gradually opening up with some outlets already having sections for organic produce which complements very well the growing consumer awareness.

TOF team was out in the market to gather information on experiences of organic produce sellers.

Below are excerpts:

Elizabeth Ngugi is a small-scale greengrocer with a farm in Ngong Hills who sells at The Organic Market in Ngong Area.

1. What motivated you to venture into organic produce market?

Elizabeth: The fact that organic food is natural, which makes it safe for consumption.

2. Are consumers increasing or decreasing with time?

Elizabeth: The market is slowly increasing, but the rate is not enough to warrant enough suppliers to enter the field of organic farming and sell-

ing. The only way to have more sellers retailing organic produce, is by having more consumers who opt for it over conventionally produced food. Consumers have to take their health and that of their families seriously and start demanding for safe foods. That way, more suppliers of organic produce will join in.

3. What is your advice to organic producers struggling to find markets?

Elizabeth: Farmers need to work together in their localities and open organic markets. This will attract people within close proximity giving sellers an opportunity to display their produce, as well as educate the buyers on the importance of choosing organically produced food.

Social media can also be used as a good tool to reach untapped markets, as well as a way to educate consumers on the benefits and turn them into clients.

Another opportunity is to tap into the export market but this requires certification.

4. What is the most fulfilling part of retailing organic produce?

Elizabeth: I get satisfaction from gaining the confidence of my customers. By being consistent in providing freshly picked, quality organic produce, my customers' trust is built, and this translates to increased sales and profits.

5. What is your biggest wish/desire as a producer or businessperson dealing in organic produce?

Elizabeth: I am looking forward to seeing many more farmers turning to organic farming so we can win the fight on the deadly non-communicable diseases that have become so rampant in our society today and as a result have a healthy nation.

Kamande Njenga and his wife Els Breet established Mlango Farm, situated in Ngecha village in Limuru, where they grow organic fruits and vegetables. They do weekly baskets delivery to buyers in Nairobi. They also organise educational events around the farm for visitors, including children.

1. What do you grow at Mlango Farm?

Els: At Mlango Farm, we grow a variety of crops including: amaranth, arrow-roots, avocado, baby carrot, bananas, beetroot, borage, broccoli, cabbage, cauliflower, celery, Chinese cabbage, chives, chayote, courgette, cucumber, daikon, coriander, eggplant, fennel, green capsicum, kohlrabi, leek, lemongrass, lemon verbena, lettuce (12 different types), mint, mizuna, nasturtium, New Zealand spinach, pakchoi, parsley, peaches (only in November), radish, red cabbage, rucola, sage, savoy cabbage, spinach, spring onion, sukuma wiki, sweet potato, swiss chard, taragon, tatsoi, tree tomatoes and turnips.

We deliver fresh vegetables daily to hotels and restaurants in Nairobi and its environs, and farm share baskets with a variety of vegetables to indi-

Continued on Page 7

Continued from Page 2

soil will be strengthened hence taking in and holding more water and nutrients. You can increase the amount of organic matter in your soil by adding compost, aged animal manures, green manures (cover crops) and by mulching.

2. Controlling your soil PH

Soil pH is a measure of acidity or alkalinity of soil. The optimal PH value is 5.5 to 6.5 close to neutral. Liming and use of gypsum will tackle soil pH as well as balancing the calcium-magnesium ratio. Lime, which is calcium carbonate, is used to increase soil pH whereas gypsum (calcium sulfate dihydrate) will remedy sodic soil (soil with excess sodium) without affecting the pH of the soil.

The reason for controlling soil pH is to provide a conducive environment for soil microorganisms to grow. Microorganisms are responsible for loosening the compacted soil and decomposition of organic matter which contributes to good soil structure.

3. Tilling to different depths

Vary your tillage depth. For example, if your tillage depth is 20 centimetres frequently, what happens is, you end up having a hard pan at 20 centimetres. The top of the soil may give a good impression but on digging deeper below 20 centimetres, you will discover a hard pan. The best solution is, on small scale, hand tilling your soil using a jembe or the fork jembe and ox plough. On large scale, tractors are unavoidable. However, ensure that your service provider embraces the following: reducing tire pressure to minimal allowable pressures and using larger diameter tires to increase length of footprint to minimize compaction.

https://infonet-biovision.org/soil_management



Kitale farmer establishes a thriving poultry business spurred by Covid19 pandemic.

By Karanja Daniel

The occurrence of Covid19 has presented both challenges and opportunities for businesses. Some people have made positive changes and successfully tried out new ventures while others have had their long-standing ventures shaken.

When the pandemic hit the country exactly a year ago, lives were disrupted as children had to stay home following closure of schools, parents had to look for alternative sources of income and businesses changed their normal operations as people were discouraged from visiting crowded areas.

This affected even the small holder farmer in many ways. Many poultry keepers have cried foul that special occasions such as wedding celebrations and other events that offered markets were prohibited and so their sales became slow. But even as these challenges frustrated some poultry keepers, one Karanja Mung'ethu, 92 noticed a gap, as new entrants sought to join the poultry business, owing to the need to generate more income to cater for increasing household needs while making better use of time spent at home. He saw a great opportunity

and wittily set up a business to supply chicks, feeds, training, and vaccine programmes to farmers, including youth, looking to start rearing chickens.

Mr Mung'ethu partnered with Brenda Wavinya 24, and they established Blissful Birds Enterprise, in their home area in Kitale, TransNzoia County. The model farm was established with an aim to benefit all those interested in starting a poultry business in the area.

"When coronavirus started to affect the country in March 2020, many people were stuck at home," remarks Mr. Karanja. "Parents were in the company of teenagers and young adults and a source of income to sustain the increasing household needs was needed. There was a demand for chicks as more and more families utilized small spaces to keep chicken," says Karanja.

At the farm, the duo provides training on how to successfully keep chick-



en for profits; feeds for those already in the business and vaccines for the birds.

"We source ingredients from local stores and mix to make our own feeds to sell to farmers. A 50kgs bag sells at Ksh 1900 and a kilo at Ksh 50. We also sell packs of 5kgs, 10kgs and 25kgs. The feeds include chick mash, growers mash and kienyeji mash.

On average, Blissful Birds Enterprise sells 2 trays of 30 eggs each daily. The eggs for consumption range between Ksh 10 to Ksh 13 depending on market demand.

Approximately, 50 mature incubation eggs are sold weekly. An incubation egg costs between Ksh 25 and Ksh 30. On average, Blissful sells 100-200 day-old chicks at Ksh 100 to Ksh 120 per bird weekly and with good business, the enterprise can sell up to 500 chicks in a week. Recently, demand for 2 weeks old chicks has been on the rise and the enterprise sells approximately 80 -100 chicks after 2-3 weeks at Ksh 250 per bird.

"We also partner with local Agrovets and veterinary extension officers to help with supply and administration of poultry vaccines to our customers," says Karanja.

The business boasts a variety of birds including turkey, geese, Muscovy ducks and Guinea fowl. "Our vision is to have a variety of birds, including ornamental birds," says Wavinya the business co-owner pointing out that demand for bird pets has risen sharply in the recent past.

To ensure a sustained availability of chicks, the duo purchased electric-powered incubators with a hatching capacity of more than 560 eggs per cycle to complement some of the natural incubation approaches like using turkey to produce at least 70 chicks within 43 days.

Karanja observes that the improved kienyeji species is slowly gaining popularity in Kenya, whether at home or in the public, owing to its competitive attributes including the short time it takes to fully mature, a relatively lower feed expense and their rich nutritional value.

How has Covid19 influenced your bearing as a farmer? Did you sight new opportunities, or did the changes destabilize your enterprise? Let us inspire other farmers through your story. 0715 422 460.

Continued from Page 5

viduals who have sent orders.

In an isolated part of Mlango farm are bees, which play an integral part in the ecosystem and produce high quality honey. The honey is also sold to individual buyers.

Visiting children also get a chance to interact with a few farm animals like ducks, sheep, a horse, chickens and many more, which are kept specifically at Mlango Farm to entertain the children.

2. How are you finding the market?

Els: The organic market is quite slow but is steadily growing. The pioneers of selling organic produce have a stable customer base, and the increase in organic markets also helps small-scale greengrocers attract new clients.

3. What are the challenges?

Els: The market itself requires a lot of hard work for a seller to become known and trusted.

6. What is your biggest wish/desire as a producer or businessperson dealing in organic produce?

Els: As humanity we need to change our eating and consumption habits. If we want to give the next generations a chance to enjoy the beauty and the fruits of the earth, we must regenerate and use land sustainably.

By Wanjiku Kimani
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<https://infonet-biovision.org/EnvironmentalHealth/What-Organic-Agriculture>



TOF Radio answers farmers' questions



The Green Gold Rush: Farmers minting millions from Hass Avocados.

Musdalafa Lyaga

Which regions in Kenya are suitable for growing the Hass avocado, popularly known as the green money maker among farmers in Central Kenya and where can I get the seeds? - Felix from Kisumu.

Kenyan farmers are realizing how profitable avocados can get. At the peak of production, a single mature avocado tree can produce 70 to 100kg of fruits per year.

The Hass variety is particularly preferred mainly for export market as the prices and demand are higher. In 2019, Kenya exported 60,000 tonnes of avocados amounting to Ksh 14 billion (USD 127 million) with Holland being the chief importer hauling over 13,000 tonnes.



Tune to Radio Maisha every **Thursday at 7.30 PM** through any of these Frequencies to receive Kilimo Hai, TOF Radio Swahili farmer programs. TOF Radio and Radio Maisha partner to bring you these educational programs.

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

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

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

Tuko Mbele Pamoja!

Though native to the Americans, the avocado (*Persea americana*) is a great source of income for farmers as an important export crop. This is mainly due to its great health benefits and high protein and oil content. Avocados are rich in potassium dietary fibre and vitamin B6, C, D and E. They are consumed as fresh fruit, in salads, spread on bread both for fortification and flavor purposes, mixed in stew and are also used to make avocado oil.

Favourable conditions for Hass

The Hass grows well from altitudes of 800-2100 m above sea level in many different types of soil that are deep, hold water well with an optimum pH of 5.5-6.5.

Avocados flourish in temperatures between 16-24 degrees centigrade with the maximum temperature for avocado at 33 degrees centigrade.

Even though avocados are highly adapted to different rainfall conditions, a well distributed annual rainfall of up to 1600 mm is good for production.

The Hass variety does especially well in central Kenya, Eastern, Central Rift Valley, Lower Nyanza and all Western Kenya counties. These regions have the best climatic conditions for hass-avocado cultivation.

Certified Hass avocado seeds are easily available in Government research institutes such as Kenya Agricultural and Livestock Research Organisation (KALRO) or Kenya Forestry Research Institute (KEFRI) with offices across the country. The seedlings are also available from certified roadside tree nurseries and both international and local non-governmental and community based organisations. An acre of land can take an average of 150 seedlings at a good spacing.

The Hass avocado is mainly propagated through grafting. Grafting is done where rootstock is soft, and the scion should be dormant at the time of grafting and should match the size of the stock.

The grafting point is then wrapped tightly to exclude water from the union and to prevent it from drying out.

When ready for planting, holes of about 0.6m x 0.6m x 0.6m are prepared. The general spacing for pure stands of avocados is 9m x 9m.

Steps to follow when planting.

1. Fill the holes with topsoil mixed with manure.
2. Water the holes unless the soil is wet enough.
3. Plant the grafts in the holes, to the same depth as they were in the nursery. The bud union should be about

300mm above the ground.

4. Water the seedlings immediately after planting especially if you are planting during the dry season.
5. Shade the young plants, and if planted in a windy area, a windbreak is also necessary to protect the plants from leaning to one side and to help prevent leaf shedding and bruising.

In light soil, the spacing is 7.5 x 7.5m while in deep, rich soil, a spacing of 9-11m. is recommended.

If trees are planted so close that they ultimately touch each other, the branches will wither off.

During pruning, all suckers and dead branches are removed from main trunk branches. The canopy is then pruned to keep the tree to a height of 5-8 m and for ease of picking. Pruning should however be minimized because the tree is very susceptible to sunburn.

Avocados are ready for harvesting at 5-10 months after flowering. This depends on the ecological conditions of the region.

Clippers are used for low hanging fruits and for those higher up, a long handled picking pole with a sharp "V" on the metal rim is used to cut the stem and a strong cloth bag to catch the fruit. If allowed to remain too long on the tree, the fruits may be blown down by wind and they will be bruised or broken by the fall. Immature fruits do not ripen but become rubbery, shriveled, and discolored. Fully grown avocados ripen in 4-5 weeks at room temperature.



<https://infonet-biovision.org/PlantHealth/Crops/Avocados>

FARMERS FORUM

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I am looking for catfish fingerlings. If selling, call **0707 087 536 from Murang'a**

Chemutai from Eldoret is selling grafted avocado seedlings. To buy, call **0714 279 119**

Are you around Mwea selling hay? Contact **Shekinot Farm** at **0702 852 120**

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