

# The Organic Farmer

The magazine for sustainable agriculture in East Africa



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## Government unable to buy maize

**TOF** - The National Cereals and Produce Board (NCPB) may not buy the projected 8 million bags of maize for the Strategic Grain Reserve (SGR) due to a shortage of funds. The Ministry of Agriculture is encouraging maize farmers to store their maize with the board under the Cereal Warehousing System (CWRS). Most farmers are reluctant to store their maize using the system. Farmers were to use warehouse receipts to acquire loans from banks. Most banks have raised their lending rates by up to 25 per cent. This has discouraged farmers who fear that they will lose a big proportion of their earnings if they take loans.



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## Dear farmers,

With this January issue, we begin a new series on soils. You may ask why we are putting emphasis on soils. At least every farmer knows the importance of the soil in crop production. But not everybody knows how to maintain soil fertility. A farmer asked us this question: "Why should I do a lot of work and spend a lot of time preparing manure and compost when I can easily apply chemical fertilizer to enrich my soil?"

This farmer may not be an exemption. About seven out of ten questions we receive in The Organic Farmer are related to the soil. Farmers want to know how they can improve soil quality and fertility. This is a good start. It shows that farmers are beginning to realize the importance of soil improvement. At least they must have heard the slogan "feed the soil to feed the plant."

Dairy cattle management is one area where many farmers continue to face many problems. Milk prices are high at this time, guaranteeing farmers a reliable source of income. We have given farmers crucial information on breeding, feeding and housing of dairy cattle in past issues. In this issue we give additional information on proper use of Artificial Insemination (AI) services and the importance of selective breeding as one way of improving the quality of dairy cows (page 4).

In the coming year the prices for commodities will go up for sure. Unfortunately, agricultural products remain cheap – too cheap. The result is obvious: Farmers and especially small-scale farmers are the losers. So farmers have to be very careful in the choice of crops they grow. They should be able to make correct timing and sell together in groups to avoid middlemen who exploit them.

The huge demand for The Organic Farmer magazine has forced us to raise the copies to 24'500 per month; with this number of copies we will reach more than 220,000 readers. Unfortunately, we are not able to cope with the huge demand for the magazine; that is why we always encourage farmer groups who are receiving our magazine to share with fellow farmers. We wish our readers all the best for the New Year.

## Fleckvieh: Interest and complaints

Many small-scale farmers are greatly interested in improving their dairy herds with Fleckvieh genetics. It is encouraging to see that dairy farmers are working hard to improve the quality of their animals and milk production. But some small-scale farmers are not happy with the company providing Fleckvieh AI services due to unfulfilled promises. Pages 4 and 5



## Farmers beware of new cassava disease

**TOF** - The Cassava Brown Streak Disease is affecting large parts of East Africa. According to the UN Food and Agriculture Organization (FAO), the disease is on the verge of becoming epidemic; in Rwanda, a surveillance analysis conducted by the National Agricultural Research Institute in 2010 showed a 15.7 percent rate of infection on local varieties and 36.9 percent in improved varieties. "None of the cassava varieties currently being distributed to farmers seem to be tolerant to the effects of this disease", says Jan Helsen, one of FAO's leading Cassava Initiative experts.



One of the recommended measures is to harvest early, before symptoms appear and significant damage is done. KARI Katumani has published a leaflet about the Cassava Brown Streak Disease, and another general one about cassava planting.

### What you can do

- Scouting for diseases every week
- Uproot all diseased plants in your farm and advise neighbours to do so
  - Keep cassava crop and its environment free of weeds to reduce alternative hosts of the whiteflies.
  - Avoid growing of vegetables near the cassava crop.
  - Do not give out diseased cassava planting materials to friends and neighbours.
  - Use clean cassava planting materials as recommended.
- Practice crop rotation to reduce possible disease hosts.

### Download the leaflets

You can download the leaflets from the Internet: [www.kari.org](http://www.kari.org), go to **search**, type **cassava disease**, under the title Research result you will get KARI Katumani Brochures, there you will find the two mentioned leaflets.



# Good soil is key to successful farming

*Overuse of chemical fertilizers and poor soil management are to blame for decreased crop yields and income.*

## The Organic Farmer

When farmers talk about crop production, there is very little mention of soils. It seems farmers forget that soil health or fertility is the starting point in any farming enterprise. Soil is not just dirt that plants grow in. Soil is a complicated mixture of many elements. Soil is made up of organic matter, mineral particles from weathered rock, living organisms (plants, animals and micro-organisms), water and air.

### Farmers overusing fertilizers

One might ask: How come that farmers can be so ignorant of the relationship between crop production and soil fertility? One of the answers might be, that farmers still believe the same gospel that has been preached by the government for the past four decades that chemical fertilizers are the best way to produce crops. Farmers should know the following facts about chemical fertilizers:

- Chemical fertilizers only help the crop to grow, but they do not improve soil quality. What happens, when there is no more money to buy fertilizer? The soil is drained, exhausted, and infertile.
- Chemical fertilizers increase soil acidity; some crops such as maize cannot grow well in acidic soils;
- Chemical fertilizers do not improve the soil consistently, on the contrary, they cause leaching, that means they washing away most of the important soil nutrients such as minerals.

### Replace the nutrients

From our point of view, the way out of this dilemma should not be, as the government promotes, the increased use of chemical fertilizers. We should ask: How can we make the soil healthy and fertile? The answer is very simple. We need to add organic matter to the soils; organic matter attracts microorganisms, which help break down the organic matter to releases nutrients, which the soil needs for the plants to take up.

What all this means is that we need to add farmyard manure and compost;



we need to cover the soil with mulch, make it fertile with green manure legumes. There are so many ways to increase soil fertility – and to keep it fertile! Crop rotation for instance is an important, but often-neglected method, as you can read on page 3.

Of course, all these steps need more labour than the simple method of just spreading chemical fertilizers. Really, farmers are sometimes hard to understand. They spend millions of shillings buying chemical fertilizers while tonnes of farmyard manure that can make good compost and costs nothing goes to waste on their farms.

When we look back in past issues of *The Organic Farmer*, we have featured many articles and tips on how to improve soil fertility, and we repeat

it again. Not to annoy you! We are just convinced that this is the only way we can improve soil quality for Kenya to produce enough food for its people.

### Regular soil testing important

There is another important question. Do we know what the soil actually needs? Sure, we know that plants are mainly dependent on three major nutrients: calcium, magnesium; the main ones being sulphur, nitrogen, phosphorus and potassium. In addition plants need other nutrients but in small quantities. But all these is not enough. Farmers also need to test their soils to identify what nutrients the soil is lacking.

Up to now, very few farmers test their soils before applying fertilizers – which is akin to giving a patient medicine without knowing what they are suffering from. Soil tests are very important before planting any crop; this is because different crops take particular nutrients from the soil. Similarly different soils may have different nutrients. It is only a soil test that can guide the farmer by showing what is lacking in the soil. Soil should be tested after every two years.

All soil tests are done at KARI National Agricultural Laboratories (KARI-NARL) station in Nairobi. Farmers in any part of the country can send a sample by courier to the station. It takes only two weeks to get the results. A soil sample costs Ksh 1,000 to test (*See Box*).

## How to do a soil test

To take a soil sample a farmer should take the following steps:

1. Mark different parts of your shamba with the help of sticks, ensuring that every part of the farm is represented.
2. Dig a hole in each part of the farm that you have marked and take both the top and the sub-soil (at 20 cm and 50 cm respectively).
3. Mix all the soil and break the lumps to make sure it has no crumbs.
4. Dry the soil on a clean plastic sheet.
5. Put about 1kg of the soil sample into a clean plastic bag.
6. Label the soil sample clearly with your name and address. If you have

taken soil from different parcels or blocks of land in your farm, this should indicated and clearly labelled. 7. Ensure you indicate what crop you intend to grow on each block of land for the soil scientists to advise you accordingly.

*Farmers interested in having their soils tested can make contacts with KARI-NARL at the following address: KARI-NARL, P.O. Box 14733 00800, Nairobi, Tel 020 267 2 975 email: soilabs@yahoo.co.ke ask for Allan Chek or Dr. Gachini. You will be advised on how to make payments and send your soil samples for testing.*

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# Crop rotation is the secret to better harvests

*Crop rotation is fundamental for crop protection and bigger harvest, and is available at no cost for everyone.*

## The Organic Farmer

There are two leading principles in a successful agriculture:

1. Feed the soil and not the plants
2. Practise crop rotation.

The first one, "Feed the soil and not the plants", is easy understandable. The basic rule of feeding the soil is to put back what you take out, that means, to replenish what is harvested – in adding lots and lots of organic matter to the soil.

Organic matter is central to soil fertility: It binds and stabilizes nutrients, promotes biological activity, improves soil structure, regulates soil acidity, enhances water infiltration and drainage, and decreases erosion. Organic matter is especially important for very poor soils where mineral fertilizers are not efficient because of poor nutrient retention.

### Use your brain, not cash

The second principle, practise crop rotation, is not so easy to understand, and it is badly neglected by so many farmers. In their shamba, they plant maize or potatoes or tomatoes year for year at the same piece of land. They might have good reasons for this: The fields are near to the boma with the manure, or near to the water, or easy to dig etc. But the yield reduces year after year.

### Avoid damages ...

There are two main reasons why it is not wise to plant the same

crop on the same piece of land every year:

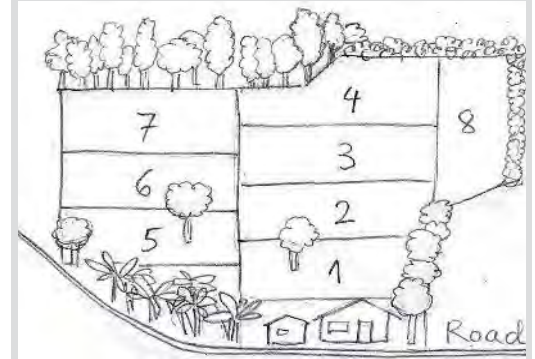
**1. More diseases:** Many diseases and pests, including weeds, are specifically associated with certain crops or plant families and can multiply only together with their host crop. They survive the dry or the cold season either in the soil or in crop residues left on the field. They are very happy if you plant their favourite crop again the next season! They will continue multiplying even more.

**2. Less harvests:** During the growing period, each crop requires a specific set of nutrients from the soil. If you plant the same crop on the same land season after season, this leads to soil depletion, poor growth, and weak plants which are attacked by pests and diseases.

### ... and enjoy the benefits

Different crops take different nutrients from the soil while others add nutrients to the soil. For example, when a farmer plants maize or potatoes this year, it will take away much of the nitrogen in the soil. If the maize or potato crop is followed by beans the following year, the beans will add nitrogen to the soil.

## Draw a sketch of your shamba



The easiest way to establish a good rotation with vegetables is to divide your land for seasonal crops into 8 plots of more or less equal size. These plots should remain the same in coming years. Since it is hard to remember all the crops they planted on each of the plots during the past years, buy a small booklet where you can note down what you planted every rainy season. Keep the booklet in a safe place where you will find it again before the beginning of the next planting season.

Good in the preceding season	Crop planted now	Good to plant afterwards
All crops are good	maize, sorghum, millet	all crops except carrots
All crops except wheat, barley, oats	wheat, barley, oats	all crops except wheat, barley, oats
Rotate rice with: maize and other grains, legumes, cotton, sweet potatoes	rice	cowpeas
Maize, grains, spinach, carrots, onions	beans	Irish potatoes, tomatoes, cabbage, onions, maize, grains
Maize, grains, grasses, legumes, spinach, onions, sunflowers	Irish potatoes	cabbages, spinach, onions, pumpkins, sunflowers, soybeans, maize, grains, lettuce
Legumes (and all families except night-shades and pumpkins)	tomatoes	cabbages, maize, grains, grasses
Maize, grains, grasses, legumes, tomatoes, irish potatoes, onions	cabbage family	only maize, grains, grasses, leeks
Pumpkins, onion family, spinach family, grains, grasses	carrots	maize, grains, grasses, beans
Pumpkins, spinach, lettuce, sunflowers	sweet potatoes	legumes, maize, rice, grains, grasses
Onion family, irish potatoes, carrots, peas, grains, grasses	spinach	groundnuts, soybeans, all crops except spinach family and lettuce
Grains, french beans, irish potatoes, spinach	onions	all crops except onion family
Irish potatoes, onion family, spinach, legumes, maize, grains, grasses	pumpkin, squashes	root crops (but not Irish potatoes): carrots, sweet potatoes, yam, cassava
Spinach, maize, grains, fodder grass	groundnuts	grasses, cotton
Maize, grains, rice, irish and sweet potatoes, sunflowers, spinach	legumes	Irish potatoes, tomatoes, cabbages, squashes, maize, grains, cotton
Maize, grains, spinach	sunflowers	Irish potatoes, maize, grains, legumes

In this table are planting sequences for different crops which are beneficial for crop health.



## Damaging fires

Burning of crop residue such as maize stalks and bean waste is one of the biggest mistakes a farmer can make. It destroys very important material that forms the soil structure and nutrients that even chemical fertilizers cannot provide.



# What farmers need to know about Fleckvieh

*Only the right choice of bull, care and good feed can enable farmers to get the best out of this breed.*

## **The Organic Farmer**

Our article on Fleckvieh (TOF No. 76, September 2011) elicited a huge feedback from farmers. Farmers are really interested to know more about this breed. At the same time, we include some of the farmers complaints regarding the services provided by Fleckvieh Genetics (EA) Ltd, the main service provider for Fleckvieh breed in Kenya and the region (see box on page 6). In this article, we express our opinion to some of the farmers' questions. We only mention the key issues raised by farmers.

### **An important remark**

One thing needs to be mentioned in advance, and this is exactly most small-scale farmers forget: Artificial Insemination (AI) companies, be it for Fleckvieh, Holstein or any other breed, make a sales pitch or propaganda for their breeds with of course the highest value of milk production, 40 litres per day or more being mentioned. Farmers sometimes do not take into consideration that these production targets can only be attained under optimal condition: A dairy cow has to be provided with the best feed, best shelter and the best care possible to give 40 litres of milk in a day.

A small-scale farmer with limited feed production, and who cannot raise enough money to buy the best concentrates and pay for veterinary services, can hardly expect to get that amount of milk from their dairy cows. Such high values are meant to attract the attention of farmers. They can only be said to be eye-catchers. It is important to mention here that breeding (or genetics) only contributes only 33 % per cent of an animals production potential, feeding and general management contributes another 66 per cent and entrepreneurship about 1 per cent.

### **Key issues about Fleckvieh**

**Fleckvieh character:** The breed is a dual-purpose cow that can be used for both dairy and beef production. Compared with the Holstein-Friesian, Fleckvieh produces less milk and is consistent in production; but it requires less feed to produce the same amount of milk as a Holstein-Friesian. Therefore it is an efficient cow. According to many comparison studies, done in Switzerland, Germany and also in South Africa, Fleckvieh gains faster weight than other breeds. It is less susceptible to diseases such as mastitis and even ECF. It has proved its qualities in the European lowlands as well in the mountains. These qualities



*A herd of Simmental-Fleckvieh crossbred dairy cows in a Swiss farm. (Photo: IN)*

explain why Fleckvieh is the second largest breed in the world, making it a popular breed among dairy farmers. **Semen:** Fleckvieh Semen is imported by Fleckvieh Genetics East Africa from Germany under supervision of the Director of Veterinary Services (DVS) through the Central Artificial Insemination Service (CAIS). According to the company's General Manager Anthony Gichohi, the company has sufficient semen in stock, which is enough to meet farmers' demand in the next one year. Fleckvieh semen cost between Ksh 800 and 4,000 per serving, depending on the quality of the bull from which the semen is obtained.

**Insemination:** One problem farmers need to avoid is to go for cheap and inexperienced AI service providers who may not store the semen properly or who even delay serving the cows on time leading to failure. Farmers can get a list of reliable inseminators in their region or contact Fleckvieh Genetics (EA) company.

**Improving milk production:** If one crosses a high yielding pedigree Friesian cow with a Fleckvieh bull, the result will be obvious: The calf will grow faster and have more meat, as a dairy cow, it will produce less milk. But the big majority of our small-scale farmers do not have high yielding dairy cows. Serving their dairy cows with the best Fleckvieh bulls will therefore improve their milk production.

Let us give an example. A farmer, Mr. Gitonga has a cow which gives 15 litres milk a day. He pays Ksh 4,000 for the semen of a Fleckvieh bull of the highest quality; the progeny (or daughter) of this bull has a milk production of 6591 litres per year (305 days at 21 litres per day). You add this amount to Gitonga's dairy cow production of 15 litres a day, and divide it by two ( $21 +$

$15 = 36 \div 2 = 18$ ). Under good management, Gitonga's dairy cow's heifer will produce 18 litres a day in its first lactation (milking period).

In the second lactation, Gitonga will serve the new heifer again with another top Fleckvieh bull. He adds 21 litres (the average production of daughters of the bull) with the 18 litres of his cow. The second generation heifer calf will therefore produce 19.5 litres a day. If the heifer of this cow will be served again with the best Fleckvieh bull, the farmers will get a daily milk production of 20.3 litres. That means: It will take about three or four generations before the farmer can see a big difference in milk production. Unfortunately, up to now there are no comparisons between the milk production of Fleckvieh bred in Kenya and other common breeds such as Holstein. So one has to rely on studies done in other countries.

**Improving milk quality:** The milk of Fleckvieh cattle is richer in butter fat and proteins. In Europe, farmers are not only paid per litre of milk they deliver to the dairies, but also for the content of butter fat and proteins in the milk. Up to now, no company in Kenya buys milk depending on quality. But from this year onwards, some big milk processors like Brookside dairy and KCC dairy plan to start buying milk depending on its quality. This will benefit farmers who cross-breed their animals with Fleckvieh.

**Get some knowledge:** Breeding is a science. Farmers need to know what they are doing; they need to keep records such as the name of the bull whose semen was used to serve their dairy cows the last time to avoid inbreeding (see TOF March 2007); they

*continued on page 5*



## Fleckvieh farmers complain about unfulfilled promises

Farmers calling TOF accused the Fleckvieh Genetics East Africa of poor service. Some farmers from Limuru complained to TOF that the company had promised to buy any Fleckvieh bull at Ksh 30'000 in case they buy Fleckvieh semen. But up to now, the company has not bought a single bull.

TOF has raised the issue with the company. "Farmers are not interested in selling us their bulls, since they can sell them for meat at a higher price", says director Anthony Gichohi. "We tried it, but farmers were not willing to sell." However, the same day a farmer called Fleckvieh Genetics East Africa, asking them if they would buy her bull. The lady was told, that the company was not buying bulls; Director Gichohi promised to give her addresses of farmers interested in bulls.

In 2009, the company promised farmers buying Fleckvieh semen that they would assist them with advice and do regular follow ups; but Alfred Karanja, who bought Fleckvieh semen then, told TOF they have not heard anything from the company since.

### We paid Ksh 500

The company had also promised farmers buying their semen that they would help them to form the Fleckvieh Breeders Society. Many farmers paid Ksh 500 as membership fee. But up to now, there is no such organisation. Gichohi confirmed this and argues, that the farmers who had paid the Ksh 500 are getting advice through SMS regular information. The farmers, however, deny getting this type of service. Karanja told TOF: "When I visited the company offices, I was told that the new directors do not have anything to do with the promises made by people who ran the company in 2009", he says, "we feel the company has let us down." TOF

need to know how to detect a cow on heat and the best time to serve it. They need to decide if it makes sense to improve a weak cow. Much more important is what farmers fail to do: They need to feed their animals much better than they do. Even if one serves the cow with the semen of the best bulls available, and they do not feed the animals well, their dairy cows will not improve. Dairy cows housed in dirty shelters and which are not taken well care of, cannot be productive.

Farmers interested in the secrets of cattle breeding can order the TOF module No 17. Send us Ksh 50 and your address to our Mpesa line (0717 444 405).



## Nettle has medicinal properties

*Many people may not like nettle because it "burns" the skin, but it is a plant with a high medicinal value.*

### Zipporah Ndulu

Nettle, (*Urtica dioica*), comes from the Latin root-word, "uro," meaning "I burn." This is most likely a direct reference to the stinging sensation when one touches the plant. The nettle plant has tiny little hairs on its leaves, and these hairs leave a stinging residue that affects human skin.

For hundreds of years, the root and leaves of this plant have been used as a medicinal herb and as a healthy vegetable for human consumption. The ancient Greeks used the plant for a variety of everyday ailments such as arthritis, troublesome coughs, tuberculosis, and as a hair-growth tonic.

### Rich in vitamins

Nettles grow best in a temperate environment, with partial shade and mineral-rich soil. The most useful and medicinal part of the plant is the smaller, younger leaves, which you can pick from the top of the stem. The best time for harvesting is just before the plant begins to flower. Collect them using work gloves, and wear a long-sleeved shirt. They come off most easily if you strip them from the top down.

During this time, the leaves are at their peak nutritive value. Active constituents in nettles leaf also include high levels of protein, calcium, phosphorus, iron, magnesium, and beta-carotene. The herb has high amounts of the vitamins A, C, D, and B complex. The leaves contain histamine, which causes the distinctive burning sensation, as well as sterols, boron and silicon compounds.

### Health benefits

It is used to treat arthritis and a range of skin diseases. Many herbalists and naturopaths say that the antihistamines in nettle make it an excellent treatment for hay fever. Nettle is also sometimes

used to loosen congestion and open the bronchial airways in people with asthma or allergies.

It is also said to be a natural diuretic, helping the body eliminate uric acid and bacteria that causes urinary tract infections (UTIs) and kidney stones. The diuretic action of nettle may also help lower blood pressure and relieve premenstrual bloating.

### Good for men

Nettle is known for its ability to relieve symptoms of Benign Prostatic Hypertrophy (BPH), a condition in which the prostate becomes enlarged and causes men to develop problems with urination. Nettle helps men to urinate more successfully during the day, and thus helps eliminate another annoying symptom of BPH—frequent nighttime urination. As an expectorant, it's recommended for asthma, mucus conditions of the lungs, and chronic coughs. Nettle solution is also used for flu, colds, bronchitis and pneumonia.

The infusion was also used internally to stop excessive menstruation, bleeding from hemorrhage, bloody coughs, nosebleeds, and bloody urine. It helps blood to clot, but major bleeding is dangerous and indicative of a serious underlying condition. Consult a competent practitioner in such cases. Nettles are usually used in combination with other herbs that target the affected organs. Eating nettles or drinking nettle tea is said to make the hair brighter, thicker and shinier and the skin clearer and healthier.

### For plants and animals

Nettle tea is applied on house plants to help them grow. It is also of great value to poultry keepers. Dried and powdered finely and put into chicken feed, it increases egg-production and is healthy and fattening. Nettle seeds are also said to fatten fowls, turkeys, as well as ordinary chickens, if fed when chopped small and mixed with their feed. Pigs also do well when fed with boiled nettles.





## Good business with sukumawiki

*Women from Ukambani turn vegetable production into a successful business.*

**Philomena Nyagilo**

Women in most rural areas of Kenya carry the heaviest burden – especially when it comes to the issue of food production for their household and the country as a whole. However, this has not deterred the Ukulu Matetani Self-Help Group in Isinga (Ukambani) from turning their farming into a business enterprise. Isinga is a low-lying area, subject to deep flooding whenever heavy rains pound the area.

Ukulu Matetani Self-Help group was formed in the late 2008, with 60 active members, women being the majority in the group. The aim of the group was to sell its produce as a group. In 2009 the group began its trainings in organic farming with the *i-TOF* information centre of *The Organic Farmer* in Kangundo. As a result, they agreed to start a sukuma wiki (kales) growing project; the aim of growing the vegetables as a group was to ensure uniform quality.

### Planting and selling together

According to the group leader, Ronah Mbula Nzuka, the group “chose kales due to the fact that it does well in this area of Isinga; even though majority of farmers grow the same product, we didn’t see it as a disadvantage”. Each member grows the vegetable on their one quarter-acre piece of land. In theory, this piece of land is “owned” by the group even though it’s the property of the member; what is to be planted on the land is determined by the group.

All members plant organically and at the same day. Members make sure that their kales are not destroyed by pests and diseases and are well cared for. After three weeks of planting, selected members make sure that they pay a visit to each member of the group to see how the kales are doing. In case they are infested, members are advised and helped by fellow members to prepare plant extract to spray on the kales. “This has worked well since the initiation of the project”, says Ronah. All members are fully involved in the

decision-making process in the group. This makes it easier to forge ahead with the project. Apart from growing kales, most group members are practicing animal husbandry and growing other types of crops like maize, beans, tomatoes, banana etc. They not only grow vegetables for home consumption but also for sale.

### Investing as a group

Collective marketing has made the group realize good savings, for example, each year, since they began, members have managed to harvest in two weeks, at least five sacks of kales; in a month every farmer harvests 4 times. A sack of kales goes for Ksh 900 at Kangundo Market. For individual members, this may not be much, but for a group of 60 members it is possible to hire a lorry and sell 600 bags at a higher price. Within a duration of three years, each member of Ukulu Matetani self-help group now owns a water tank, 10 egg-laying chickens and a dairy cow from the projects savings. They are now able to give loans to their members; the loans are repaid back with a little interest.

However, according to Ronah, farmers need information and capacity to improve production. “We get good information from the *i-TOF* centre”, Robah adds, “but we need more. For instance, it is not sufficient for farmers to access inputs and use them. What counts is to know how to use them in the right manner. A farmer may see the potential benefits of the technology, but for purely logistical difficulties they may not be able to utilise the acquired skills to develop”.

### Attract young farmers

There are so many hurdles dragging farmers behind in Kangundo, e.g., lack of water, bad road infrastructure etc.; and access to market is not easy for small-scale farmers. Rodah the group leader has foresight, she says: “We as small-scale farmers need to turn this unfortunate situation into success, we can get a higher income for all. Our young people would also be encouraged to stay and develop through improved agricultural production”.

## Answers in brief

### Why put ash in compost?

Why do we use ash during the making of compost?

Use of ash is very important in compost making. Ash is rich in potash and this is one reason why it is added into compost. Research has shown that most of the material used in compost lacks potash in adequate quantities that would provide the much-needed potassium – a major nutrient needed for healthy plant growth. Most of animal manure used in compost making has very little quantity of potassium; for example cow manure has 0.5% potassium, goat manure 0.2%, sheep manure 0.4%, pig manure 0.5 - 0.8% while poultry manure has between 0.5 to 2.7%. Plants with higher potassium content are sweet potato vines (6.63%) banana stalks (4.10%) coffee husks (4.45%) tithonia leaves (4.60%). Where possible it would be advisable for farmers to incorporate residues from the above plants.

### Using thermometer stick in compost

Should I use a dry stick or wet stick as a thermometer in my compost to test if the process is going on well?

The thermometer stick is mainly used to monitor temperatures and moisture levels in a compost pile. The only requirement is to ensure the stick is long enough to reach the bottom of the heap. Water should be added if the stick feels dry. If there is no moisture in the compost, the stick has a whitish substance (fungal mycelia) on it. At three weeks, farmers can use the stick to check the temperature of the compost. If the stick feels cool, the pile is ready for use.

### Use hands to test compost

Apart from the stick, what other method can we use to test whether the composting process is on or not?

If the farmers is not using the stick, the only other method of checking moisture levels is to turn the compost and observe if it is wet or dry. One can also use their hands to check if the compost has cooled down.

### Weight for baled hay

What is the standard weight in terms of kilograms for a bale of hay for people who want to sell hay?

A standard bale should be 15 kg of weight, this is mainly for farmers using simple wooden baling box and strings to bale their hay. Hay baled using mechanized tractor balers may be of different sizes and weight depending on the type of baler used.

### The right size for baling box

What are the measurement of a standard hay-baling box?

A standard baling box should be 3 ft long, 11/2 ft wide and 2 ft deep. The baling box should have no bottom to facilitate removal of baled hay.



## Banana stems are good for compost

Can banana stems be used for compost?

Of course! Banana specialists in Egypt have developed a method on how to make the best use of banana stems. The process involves chopping the stems into small pieces, and mixing it with farmyard manure, other plants, yeast and also EM. The compost is later spread back to crop plantations, thus improving the soil properties. According to researchers at Egypt's National Agricultural Research Centre near Cairo, Banana-based fertilizer could cut about 20 per cent of the water used in irrigating maize and beans, due to its high content of organic matter and the effect of mulching. "Using banana compost we get greater efficiency of nutrients and water in the soil compared with other fertilisers, good aeration associated with the relatively low application of irrigation water, and decreased nutrient losses by leaching,"



says Nesreen Abou-Baker, the scientist who undertook the study.

## Desmodium can be used in plant extracts

Why do farmers include desmodium in making plant extract?

The idea of plant extract making is to give the intended crop enough nutrients and to protect them from destructive pests. Therefore, when selecting plants for this purpose, a farmer should be eager to choose plants with high nitrogen content, and at the same time emphasize on those with medicinal properties. In case of desmodium, farmers can mix it with other plants for plant extracts, making good use of the extra nitrogen stored in the desmodium foliage.

Desmodium is a legume crop. Therefore it has the capacity to absorb nitrogen from the atmosphere, thanks to special bacteria that live inside its root nodules. They fix the nitrogen from the air inside the soil and produce nitrogen compounds that can be used by the plant. This enables the plant to take up nitrogen and to grow even in very poor soils. Desmodium can also be used as a green manure or in crop protection

against stem borers in maize through push-pull method.

## Some plants enrich compost

Why do farmers mix several types of plant leaves during compost making process?

Different plant leaves contain different nutrients and also play a great role towards facilitating the decomposition process. When making compost, one of the main objectives is to produce high quality compost that supplies a well-balanced nutrient cocktail to the crop. Two types of plant materials are essential:

- Woody, hard materials will act as a path-way of air in the pile. Without oxygen, the decomposition process will be disturbed.
- Green leafy materials will supply nitrogen. Without nitrogen, decomposition cannot take place. Good nitrogen providers are young and soft plant materials, and green material from leguminous plants and fodder trees.

## Goat milk is healthy and very nutritious

Is goat milk good for drinking?

Milk is an excellent source of calcium and proteins. It is also rich in B-vitamins and potassium, an essential mineral for maintaining normal blood pressure and heart function. Perhaps the greatest benefit of goat milk is that some people who cannot tolerate cow's milk are able to drink goat's milk without any problems. This is important especially for small children.

Allergies that have been associated with consumption of cow's milk have been related to conditions such as recurrent ear infections, asthma, eczema, and



even rheumatoid arthritis. Substituting cow's milk with goat's milk may help in reducing symptoms related to these conditions.

## Don't overcook vegetables

Why do people overcook large amounts of these indigenous vegetables and yet according to nutritionists it is not advisable?

One cause might be, that the majority of wananchi are not on familiar terms with the fact that vegetables should not cook for too long, thus losing their vitamins and minerals. The longer most vitamins are heated, the more they are destroyed. And water-soluble vitamins and minerals, such as vitamin C or the valuable potassium, dissolve easily into the water and are lost if the water is thrown away.

A further explanation might be: One can do other work while food is cooking in a pot with lot of water. By adding less water (as it would be good for the maintenance of the vitamins), one has to stand the pot and turn the vegetables, otherwise they will burn.

## Vegetables have vitamins

Is it true that most of these indigenous vegetables have medicinal properties within them?

Many plants have medicinal properties. Vegetables are generally rich in vitamins and minerals, which are both needed by the body to fight diseases and to stay healthy. *Sukumawiki* (like all cabbages) for example is a good remedy against high blood pressure. *Sukumawiki* is rich in potassium. Potassium is one of the most important minerals in the blood. Reducing sodium (salt) and increasing potassium intake by consuming vegetables and fruits is important for the reduction of high blood pressure. Amaranth leaves are rich in calcium, iron, potassium, and vitamin A and C. One reason why you should not overcook vegetables is that the longer you boil them, the more some vitamins are destroyed by the heat.



## Any harm?

Most of these vegetables grow on their own; are they wild? Can they cause any harm to human health?

No, on the contrary, they are very healthy. It is just important that you select them carefully and eat only the quantity that is adequate for you.

## Gestation period of a goat

What is the gestation period of a goat?

148-160 days. Once mating has taken place, the doe should be observed for 21 days and again at 42 days to check for return of heat. After 42 days she should be considered to be in kid.



## A devastating goat disease

*CLA is a highly contagious disease that can only be controlled by culling infected goats and sheep from the herd.*

### Val Corr\*

I have recently had an outbreak of CLA (*Caseous Lymphadenitis*) in my goats and would like to share my experience of this disease with fellow goat breeders in the country. CLA is a highly contagious disease that is not treatable. My advice to goat breeders is to cull (kill and dispose) all the infected goats in the herd. I attempted to treat my sick goat with no success. Symptoms of infected goats are easy to notice. They show symptoms of total anaemia, general weakness and lethargy, although they continue to eat and drink normally at the onset of the disease. Younger goats are more vulnerable to the disease than older ones, particularly if they are grazed on the same land that in most instances is grazed, by worm-infested animals and wildlife.

The CLA disease is spread through a goat herd by the contamination of the soil by infected goats, which has swellings (abscesses) which burst and release the bacteria into the environment. The disease-causing bacteria are then picked by other animals through mucus membranes or open wounds.

The bacteria can live in the soil for extended periods of time, sometimes years, possibly infecting other animals with open wound or newborns lambs and kids if the umbilical cords touches the ground picking up the bacteria. Does (female goats) and ewes (female sheep) can get infected if their teats are exposed when they lie on contaminated soil. Shearing (shaving to get wool) within sheep herds and Angora goat herds can spread the disease, if wool-shearing equipment is not sterilised before moving to the next animal while shearing.

There are two forms of CLA- Superficial (where swelling appear in lymph nodes) and Visceral (where swelling occur in the internal organs of the goat or sheep). Public health officials usually condemn carcasses if they notice swellings in the internal organs of an animal. Equally, swellings or abscesses on the skin of animals suf-



*If left untreated these nodules will grow until they burst releasing the disease causing bacteria into the environment.*



fering from the disease destroy the quality of the skins, which means that the skins cannot be used for leather production.

### Symptoms of superficial CLA

In the superficial form of CLA, the animal shows the follows signs: Clearly visible swellings just under the skin-usually near the lymph nodes-this is most typical in goats. The swollen lymph glands are filled with white pus, yellow or greenish colour with no smell. When the dried pus may appear like cheese. If left untreated, the nodule will grow larger until it bursts, releasing the bacteria into the environment, in the soil, goat shed floor or in feeding trough where other animals pick it either by inhaling it into their lungs and eventually into the bloodstream.

### Symptoms of visceral form of CLA

The animal shows the following signs: General weakness and thinness, frequent coughing, and general poor health. The internal organs that show signs of the disease are the lungs, kidneys and liver especially in sheep, but occasionally in goats.

General symptoms of infected animals (both superficial and visceral)

- The infected animal cannot keep up with the rest of the herd when moving, it therefore lags behind the others.
- The infected animal has difficult breathing.
- Weight loss, depression and loss of appetite.
- Swollen external and internal lymph nodes.
- Pneumonia

## Selling & buying

**Water melons for sale:** Water melons ready for sale. Call us for orders on +254 724 014 51 or email: rehema@rrinternational.co, waridirehema@gmail.com, waridirehema@hotmail.com

**Kenbro chicks for sale:** Once again we bring you the latest batch of Kenbro chicks from Alysaly Poultry. Also available are 1 week, 2 weeks up to 5 weeks. For more details check <http://alysalypoultry.kbo.co.ke/> or simply call us on 0723 619238

**Kenbro chicks and eggs for sale:** I have 2-3 weeks old Kenbro chicks for sale, at Ksh 100 per chick and Ksh 25 for eggs. Contact Francis Kuria 0722 401 139.

**Tilapia for sale:** Hello, I have tilapia for sale about 10,000 pieces. If you are interested call me on wamnetcybercafe@yahoo.com

**Egg incubator for sale:** Is selling an egg incubator for Ksh 165 but negotiable, fully computerised, automatic display, 90% delivery, low power consumption. Call Pauline Mwangi 0722 569 610.

**Poultry and fish for sale:** Kili enterprises based in Machakos have day and week old kienyeji and kenbro chicks, Turkey and fish fingerlings. Contact Lilian, Kili Enterprises kili.enterprises@gmail.com

**Incubators for sale:** We have both improved paraffin and automatic incubators for sale to interested farmers. The incubators have a capacity of between 120 to 2000 eggs. Free delivery, training and after sales service provided to farmers, interested buyers. Contact Kaki Incubators 0725 552 920, 0738 792 224.

**Ostriches, quails and chickens on sale:** We have three-month old Ostriches for sale to farmers, 2 to 6 month Kenbro chicks and chickens weighing between 1 and 3 ½ kg. Contact Kaki Incubators 0725 552 920, 0738 792 224 email: genkago@yahoo.com, www.facebook.com/kakiincubators

**Eucalyptus trees:** I have 1000 eucalyptus trees at our farm in sirikwa, molo which were planted in 2005.i would like to sell to sell them off to the highest bidder. Contact 0721 787 321.

**Mushrooms on sale:** I have fresh button mushrooms due to be ready in two weeks time. Kindly contact our farm using 0700 885 035 for further details!

Would you like to sell your farm produce, interact with other farmers and share new ideas on the latest farming technologies or products? Just visit *The Organic Farmer* magazine on facebook at [www.facebook.com/theorganicfarmer](http://www.facebook.com/theorganicfarmer)

\*Val Corr- Lake Breeze Toggenburg Dairy, Naivasha