

# The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 70 March 2011



Reforestation and conservation of forests needs proper planning.

Photo IN

## Selfish interests control forests



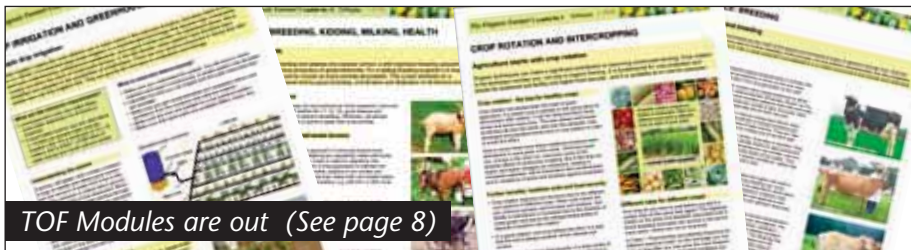
Huge demand for timber from the growing construction industry, inefficient use of firewood and politics are responsible for the pressure on the remaining forests in Kenya. In the gazetted forests, 38,000 hectares of mature trees in the industrial forest plantations are waiting to be harvested. Another 18,000 hectares of forest plantations between the age of 10 to 22 years are due for commercial thinning. However, a logging ban imposed in 1999 prohibits this. The ban was effected to save forests from further destruction.

### Unfair licencing

The main profiteers of the ban are three big timber companies owned by politically-influential families; they have licences to harvest trees in the gazetted forests and consume 75 percent of

wood harvested from State forests. More than 300 saw millers and thousands of timber traders who used to operate in all the major towns in the country have no formal source of trees for milling. Many of them have turned to illegal logging in the same government forests. Poorly paid foresters and forest rangers now sell trees to timber merchants who harvest trees indiscriminately, pay their way through police roadblocks and transport the same to millers.

The Kenya Forest Service (KFS) has advised the government to lift the ban on logging. It has already mapped out areas of harvesting, including felling plans. The problem can only be solved if the government has a clear strategy on how to balance individual interests and the conservation of forests for the common good of the country.



TOF Modules are out (See page 8)

## What you need to know about egg incubators

In this issue we inform you about various types of incubators available in the local market. Like all other investments one has to find out the best type that suits their needs. Ensure that you follow instructions to minimise loss of money and eggs. Page 4 and 5



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## Dear farmers,

Following our article on incubators in TOF (Nr.67, December 2010), we have received so many enquiries from farmers – a reason for us to inform you more about the various types of incubators (pages 4 & 5). This feedback is a positive development as it shows the strong will by farmers to improve their livelihoods. Right now, chicken rearing is one of the fastest growing agricultural sub-sectors in Kenya.

There is however only one problem: The most efficient incubators are those that run on electric power. Up to now, most rural areas are not connected to the national grid. The rural electrification program has nearly stopped. Imagine, only 10 per cent of Kenya's rural population has access to electricity!

This clearly illustrates the challenges that small-scale farmers face in this country. They cannot use simple tools on the farm that need power and make work easier, such as chaff-cutters, grain-grinding machines, or even keep their surplus milk for lack of coolers. In short, they cannot modernize their farming.

As if this is not enough, the road infrastructure in many regions is in a pathetic state. Because of this, small-scale farmers in remote areas have to pay dearly for the transport of their produce to the market. This diminishes their profit and discourages so many youths who would be willing to accept farming as a business, and to remain in the rural areas; they prefer any job in towns and cities. We could mention as well the education system; so many small-scale farmers use nearly all the proceeds from their farms to pay the ever-rising school fees. Little or no cash remains for investing back in their shambas.

NGOs and the Government promise donors that they want to put up information systems for farmers by installing computers in every corner of the country. In theory, this is a good trend – but it is window-dressing: Lack of electricity, poor infrastructure (roads and schools) and lack of finance (credits) remain the biggest hurdles for rural development. If we really want to better the livelihood of the small-scale farmers, we need to invest much more in these key areas – more than in anything else.

# Conservation agriculture builds soil fertility

*Apart from reducing labour, fuel costs and time, conservation agriculture improves soil fertility.*

## The Organic Farmer

Lack of proper management of the soil is responsible for the decrease of yield on many farms throughout the country. However, farmers can restore soil fertility if they can adopt sustainable soil management practices on their farms. In order to maintain soil fertility and reduce the ever-increasing cost of farm inputs, farmers can shift to conservation agriculture.

For farmers who have not prepared their land by this time, one of the best options they can take is to practice conservation agriculture with either of these two methods: No-till or minimum tillage. Farmers who use these two methods have managed to improve soil fertility and increase crop yield considerably.

### No-till method

The method involves planting crops into the soil that has not been ploughed or hoed since the last season's crop. A narrow opening or hole is made on the soil that is just enough for the seed to be placed into the soil. All the previous season's crop residue and any weeds are slashed and left undisturbed after planting. This method prevents soil erosion. It also prevents soil compaction, which leads to formation of hard pans. The soil structure is left intact, protecting soil organisms such as earthworms. It transfers organic matter into the soil, thus preventing loss of essential nutrients that crops need. Other benefits of this method include savings in terms of labour and fuel especially when land is ploughed using tractors. The no-till method works best where the crops remain in the field for more than one season (perennial crops).

### Minimum tillage method

Minimum tillage involves preparing land with minimum disturbance to the soil. Furrows or holes are made where seed is to be planted; the rest of the field remains undisturbed and crop residue is left on the surface. The method reduces soil erosion. It helps build organic matter in the soil,

## Planting pits (*tumbukiza*) for maize, sorghum and Napier



Some farmers have discovered that it is possible to plant maize in areas with inadequate rains using pits. The method involves digging pits of 60-120 cm in diameter, with a depth of 30-60 cm and a spacing of 75-100 cm from one pit to the next. Crop residues and a 20-litre bucket of composted manure are then put into each pit and mixed with the topsoil. About 10 to 15 maize seeds are then planted

into each pit and later thinned to 10 or 12 plants. For top dressing slurry from cow dung and urine are added frequently. Farmers using this method have managed to harvest up to 20 bags of maize in from acre.

*Farmers can order our module No. 7 that gives more details on Conservation Agriculture. Send us airtime worth Ksh. 50 to our mobile 0717 444 405. Give us your full name and address.*

improving the chemical and physical properties of the soil. The methods help reduce labour costs, energy and time.

In areas with stubborn weeds such as couch grass, farmers use herbicides such as round-up to kill the weeds (although this is not allowed in organic farming) seeds are then sown directly into the unploughed land. Fertilizer, farmyard manure or compost is then spread on the surface or put into the planting holes or furrows. The advantage of this method is that the soil remains covered with mulch, crop residue and stubble (stumps of previous crop)-this reduces loss of moisture and increases filtration of water when it rains. Other advantages of this method includes:

- Minimum destruction of the soil structure through crushing, compaction or formation of hardpans.
- Microorganisms and nutrients in the soil, including organic matter that contribute to soil fertility, are retained in the soil and protected.
- Circulation of the air (aeration) and water through the soil is enhanced.

NOTE: Farmers practicing conven-

tional agriculture spray selective herbicides which eradicate the weeds and leave the maize. Organically weeds may be removed manually combined with other weed control methods such as mulching.

### Cover the soil

In conventional farming, farmers remove or burn the crop residues or mix them into the soil with a plough or hoe. If the crop residue is burnt, the soil is left bare, and it is easily washed away by rain or blown by wind. In conservation agriculture, the crop residue is left in the field, where mulch and special cover crops offer extra protection to the soil from being washed away. In areas with termite problems, do not place the mulch too close to the plants.

### Rotate your crops

Crop rotation is an integral part of conservation agriculture. In conventional farming, the same crop is planted from season to season. This allows certain pests, diseases and weeds to survive and multiply, resulting in lower yields. In conservation agriculture crop rotation is practised with different crops being grown to from season to season.

*The Organic Farmer* is an independent magazine for the Kenyan farming community. It promotes organic farming and supports discussions on all aspects of sustainable development.

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of icipe.

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# Kenya not tapping her forestry resources

*The huge demand for timber cannot be met despite the country having a lot of trees ready for harvesting.*

## The Organic Farmer

Every rural household in Kenya needs an average of 7.4 tonnes of firewood and 125 kg charcoal per year. Households in urban areas consume less, 3.5 tonnes firewood and 56 kg of charcoals respectively because of substitution with gas or kerosene. Of course, these are average figures, but they illustrate quite well the problem we are faced with: Pressure on our forests. This high demand is caused by the population growth and the inefficient use of firewood and charcoal. Energy saving ovens

and cooking facilities could bring down the consumption; but a majority of rural households still rely on the three-stone cooking places, where 85 per cent of the heating energy disappears unused into the air.

### Demand outstrips supply

The demand for fuelwood in Kenya is around 2.5 million tonnes, the supply is 1.5 million tonnes. This massive deficit in fuelwood supply has led to high rates of deforestation of both exotic and indigenous trees, resulting in adverse environmental effects such as desertification, land degradation, destruction of water catchments, droughts and, as a last consequence, famine. Leave alone the rising prices for wood products used in construction and for furniture, which has gone up in the last ten years from Ksh 15 to Ksh 45 per foot.

### Unharvested timber

Kenya has 38'000 hectares over-mature forest industrial plantation valued at over Ksh 36 billion. At the same time, 18'000 hectares of forest plantations between ages 10 to 22 years are due for commercial thinning with a potential to generate KSh 3.5 billion. The total area for tree plantation in Kenya is 143,000 hectares; these are about 6 percent of the gazetted forests. More than 30,000 ha of these are unplanted, 19,000 ha is covered by unwanted bush of low economic value.

### Trees going to waste

These enormous reserves accumulated due to the Kenyan logging ban on plantation forest. The ban was imposed in October 1999 by the Ministry of Environment and in March of the following year, the ban was ratified by a cabinet decision. There were good reasons for this logging ban, largely due to the inefficiency of the Kenya Forest Service: 46,000 hectares had been harvested but not replanted; corruption and mismanagement contributed to the loss of revenues for the country. The same was the case with dubious licensing procedures which allowed the emergence of briefcase saw millers.

### Only a few benefitting

The only ones who have benefited from the ban are large-scale timber millers, which are associated with families of the political elite. Companies such as Raiplay, Timsales and Comply consume 75 percent of wood harvested from state forests, since they were exempted from the logging ban (*see page 1*).



## Trees can give you good income

Nobody can deny the imposing beauty of trees in our indigenous forests such as the podocarp or forest olive or *Prunus africana*. A *shamba* without trees is like food without salt. We like trees because of the shade, their fruits, their protection against wind and rain and, of course, they provide us with wood for cooking, for construction or for furniture. Trees have a multi-purpose value. The huge response to our series "our trees – our future" confirms that farmers are aware of these values.

### Tree planting needs a plan

Planting trees needs proper planning as planting crops – or even more. The fruits of the planting work cannot be seen in the following season, but in the next 10 or 20 years. So, one has to select carefully the type of the trees they are going to plant; a young eucalyptus might look lovely in the corner of your *shamba*, but in few years you will have problems with your neighbour because the tree sends its roots into their *shamba*, spoiling their crops. It makes a difference if you integrate a variety of indigenous trees and shrubs into your *shamba*, or if one invests in commercial tree-planting in areas which cannot be used for any other purpose.

### Trees give money

It is logical that commercial tree planting concentrates mainly on fast growing trees. The most common ones are the various types of eucalyptus. It grows very fast; one of the species, eucalyptus globulus, can even survive in semi-arid zones, where usually only acacias and other hardy trees grow. Compared to other trees, Eucalyptus gives the fastest return of the invested money. According to their age, they have many uses:

- Between 5-6 years old: Firewood; 1 cubic metre of firewood costs about Ksh 1,200; the demand, especially from tea factories is high.
- From 7 to 8 years, eucalyptus can be used for poles
- At the age of 10 years and above, they are commonly used for electrical poles; a farmer can get up to 3,000 from one tree.
- From 15 years and above, eucalyptus tree has a high value for production of timber, for construction; a tree can be sold for up to Ksh 6,000.

But eucalyptus should be avoided in small *shambas*. The tree roots can extend far, possibly to the *shamba* of your neighbour; when planted near the river or on a water catchment, they use a lot of water, and they do not allow other trees to grow near them.

### Grevillea

When we look at the speed of growth, grevillea can be compared to eucalyptus. It can grow fast and produces good wood which can be used for construction, furniture and even firewood. The tree has a double benefit: pruned branches can be used as firewood, the leaves are used as fodder for cattle and goats. A grevillea tree can fetch the same amount of money as a eucalyptus tree depending on its size.

### Pine and cypress trees

These high value trees are commonly used for furniture and construction, they need 25 to 30 years to reach maturity. But the waiting pays (you may plant it but you may not live long to use it!). For a pine tree one can get up to Ksh 30,000, for a cypress 40,000. Fruit trees such as mangoes or avocados can provide you with firewood – and at the same time with fruits; they also provide a shade under which one can rest or hold a meeting.

# Incubators improve poultry production

*Using incubators is efficient, but one has to understand, monitor and control the machines.*

## The Organic Farmer

More and more farmers are discovering the advantage of using egg incubators. They want to improve poultry keeping; some even try to commercialise this business. The venture is highly profitable as there is a big demand for chickens. If a farmer takes good care of the project, it takes on average five to seven months to pay the initial capital investment off.

The most important thing is to decide how many chicks you want to hatch per week. There are four factors to look for:

1. The availability of eggs for hatching; this is important for the size of the incubator
2. The opportunity to sell the day old chicks which means, one has to find the market.
3. Having in mind these two points, it might be advisable to buy a smaller incubator at the beginning and to add another one if the business picks up well, rather than to invest in one large unit. It is not only a question of the available cash. It is much easier to backup with smaller units (in cases of power cuts). In case of a viral outbreak you will only lose one unit's production.
4. Very important is the incubator's accuracy in measuring and maintaining temperatures and, as well a fundamental condition, in maintaining the appropriate humidity.

### Technical issues

Farmers are asking us which type to buy. We cannot give you an answer. It is up to the farmers to do some research, make comparisons and then buy the equipment.

Without going into the details, there are some technical factors one should take into consideration. They will assist you in the choice of an incubator.

*The forced air incubator* provides eggs with internal air circulation, thus preventing overheating and suffocation of developing chicks. It also cares for an even distribution of humidity in the chamber enabling the eggs to hatch at the same time.

*The still-air incubator* has no fan for ventilation. It can work well if it keeps the right temperature, humidity and ventilation. That means: It needs more attention and control than the forced air incubator. A paraffin incubator is a good example of a still air incubator.

*Egg turning system:* Eggs are turned automatically at set time intervals. Incubators without automatic egg turning system need more attention.

*Hatchery:* Where possible choose an incubator with both an incubator and a hatchery section, where eggs are set from day 18 to hatch.



## Poultry breeders need to acquire skills

In the past few weeks, TOF had contacts with some incubator producers. Asked for the main problems farmers are faced with, they comment as follows:

- Farmers do not read and follow the instructions.
- Farmers do not test the functioning of an empty incubator first, to become familiar with regulating of the temperature and the humidity, the two essential conditions for the proper working of an incubator. Before you load eggs into the incubator, you should let it run for at least one week so that you can understand how it works.
- Farmers do not control properly the quality of the eggs during setting, either with a candling light or a torch.
- Farmers forget to fill water in the water basin of the incubator, the eggs consequently dry out.
- Farmers forget to turn the eggs regularly if they have not bought an incubator with an automatic egg-turning-system; this causes frying of the eggs.

As a result, they suffer losses, become frustrated and complain about the incubator's quality.

### Tips for becoming professional

To make it clear once more: Which ever incubator a farmer chooses, the success of any hatching of eggs depends first on the quality and fertility of the eggs you incubate, and second, on the care and management of the incubator. The better you operate it, the more successful you are. You have invested quite a lot of money, so you have to become a professional, otherwise you have wasted both the investment and the eggs! An efficient use of a small incubator is achieved when 80 to 90 per cent of the eggs manage to hatch.

**Compare models:** Incubators cost money, so take your time, check various models, compare them and seek advice.

**Appropriate size:** Choose an incubator that you can adequately supply with eggs. Egg production should match a weekly setting plan.

**Look for market:** You need to sell the chicks, so think about how and where to market them.

**Place:** Incubators should be placed in a temperature-controlled room where the average temperature does not fluctuate more than five degrees.

**Read the instructions:** Incubators are machines, and before you use it, read the instructions well and try to understand the functions. Ask friends or experienced egg hatchery for advice.

**Test the incubator:** You need to become familiar with the incubator. Let it run for one week without eggs, control how it works in terms of humidity and temperature, write it down and gain some experience.

**Eggs:** Control the quality of the eggs. Eggs that are set in the incubator less

than 7 to 10 days after they are laid, yield the best hatchability results; if the eggs are stored for less than 10 days, they should be placed in

egg cartons with the large end up, if more than 10 days, with the large end down. Test the quality of the eggs by candling. In the next TOF issue we will show you how to do this.

**Keep record:** Write down the age of the eggs, the date of setting them into the incubator, the time of turning the eggs (if you do it by hand) etc. Proper record keeping is even more important, if several people are involved in managing the incubator.



# Incubators available in the local market

There are various types of incubators currently available in the market. We introduce to you two models of locally-made incubators (the oven incubator made by Ronald Nyagaka and the that

of Kaki Village Enterprises) and the imported incubators from companies with branches in Kenya (such as Surehatch and Petreshah). Farmers should select carefully.



## Petreshah Incubators

Petreshah began operations in Kenya in 2008. They currently specialize in small size incubators which carry 48 – 60 eggs. The 60 egg model is manual whereby farmers have to turn eggs and costs Ksh 16,000 (picture above). The 48 egg model turns the eggs automatically and cost Ksh 25,000. Both models are popular with local farmers and they boast of zero returns on faulty machines. They give farmers a 3 months warranty. For those outside the warranty period the company stocks parts locally and has technical staff to handle the repairs. Petreshah's incubators are economical because they consume minimum electricity, and are clean. Both models have a hatchery at the bottom part where farmers have to transfer eggs so that they can hatch.

Petreshah offers training and backup services to farmers. Their incubators come with a free egg candling light and a chart which shows the different characteristics in eggs. The incubators cost Ksh 25,000 for the 48 eggs model and Ksh 16,000 for the 60 egg one.

The main advantage of small machines according to Petreshah is that small scale farmers can set the eggs in the machines as they get laid. They should always remember to mark the eggs with setting dates for easy monitoring and eventual transfer to the hatchery.

*Petreshah General Suppliers,  
Mombasa Road.  
P.O. 494, 00606 Nairobi, Email: petreshah007@yahoo.com,  
Mobile 0734 750 750, 0701 333 755, 0733 342 010, 0727 531 909.*

## Surehatch incubators

The South African company, Surehatch has been manufacturing various sizes of incubators for the past 30 years. All Surehatch egg incubators have the following features:

**Electronic Thermostat:** It ensures accurate incubation temperature control.

**Egg Turning System:** The eggs are turned automatically. The Model 90 Deluxe semi-automatic egg incubator has the same egg turning system, but the setter (where the eggs are kept) has to be turned by hand using a handle outside of the box.

**Air Circulation System:** It ensures that air is circulated evenly in the incubator. The even distribution of air also ensures that most eggs hatch at the same time.

**Thermometer and hygrometer:** These two monitor the incubation temperature and humidity inside of the incubator respectively. The readings can be taken from the outside through the observation window.



*This Surehatch model 270 incubator is fully automatic and has a capacity of 180 in setter trays and 90 eggs in the hatcher. It costs Ksh 120,000. Surehatch offers small and large models.*

**Observation windows:** Allows observation of the eggs hatching inside the incubator without opening it.

**Cleaning:** Their incubators are easy to disinfect and clean – Incubators can even be rinsed out with water.

**Guarantee:** All Surehatch incubators carry a two-year warranty on all the spare parts.

**Information:** Surehatch provides buyers with all information that one needs in order to incubate successfully. All incubators also come with an instruction manual instructions where every step of the incubation process is explained. Their local representative provides more details on other available services that they offer to farmers.

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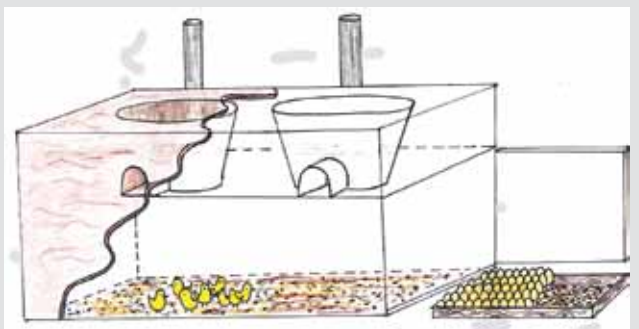
## Kaki Village Enterprises

In TOF February 2011 we introduced to you this company. Their common model is the automatic incubator with a capacity of 120 eggs (see picture on page 1); it goes for Ksh 35,000, the incubator comes complete with a hatching tray, thermostat and hygrometer to control humidity during egg hatching. Their incubators have a one-year warranty.

*Kaki Village Enterprises, P.O. Box 1053, Karen, Nairobi, Kenya, Mobile: 0725 552 920, 0738 792 224, Email: genkago@yahoo.com, Head office: Kikuyu. Branches: Laikipia Ostrich Farm, Eldoret: Bethsaida Guest House, Eldoret-Malaba Rd.*

## A simple home-made incubator

For farmers who have no access to electricity especially those in rural areas, a simple way to incubate their eggs is to improvise an incubator. Ronald Nyagaka, a farmer in Kisii has managed to make an incubator from his cooking oven (TOF Nr. 62 July 2011). Nyagaka has built a cooking oven with a chamber below it which



he uses as an incubator. When cooking, the heat from the oven is retained in the chamber where the eggs are placed. Out of 300 eggs he manages to get at least 150 to 180 to hatch. Such an incubator can be improved, for example if a thermometer is used to monitor the temperature; humidity can also be

regulated by placing some water next to the incubating eggs (see picture above). Such an incubator can hatch more eggs if farmers follow the tips we have given above. Farmers interested in making an oven incubator can get further advice from Nyagaka. He can be reached on 0720 063 399.

## Shameful state of food security

*Job Kiprotich, from Eldoret, a small scale farmer sent us this letter. The editors fully agree with his opinion.*

Reports that as many as 4 million people in the Northern part of Kenya are starving is scandalous. This is happening at a time when farmers in the North Rift grain basket are complaining of lack of market including low prices being offered for their maize.

This may not be surprising; but it is a big contradiction. It shows that the problem is not about the quantity of food in the country, but about distribution and also the poverty of people in the famine affected areas. They have no money to buy food.

The other problem is planning and preparedness by the government to deal with famine, floods and other disasters. The meteorological department forecast in October 2010 that there would be prolonged drought in 2011. Despite this early warning, gov-

ernment agencies took too long to put in place contingency measures to avert human and livestock deaths.

### It is a shame

This speaks of a perpetual state of unpreparedness that the country finds itself in every time there is famine. I say scandalous due to the fact that in a country where farmers are holding thousands of tonnes of maize, people are dying of hunger. It is even more scandalous if we take into account the fact that hunger is a big cash cow for some politicians, businessmen and well-connected individuals to import maize and sell to the government as relief food at inflated prices. At the same time, we are quick to give more millions to the commissions of inquiry and advisory boards while doing little to pursue long term solutions. Simply put, we are not able (or willing) to feed our fellow suffering Kenyans.

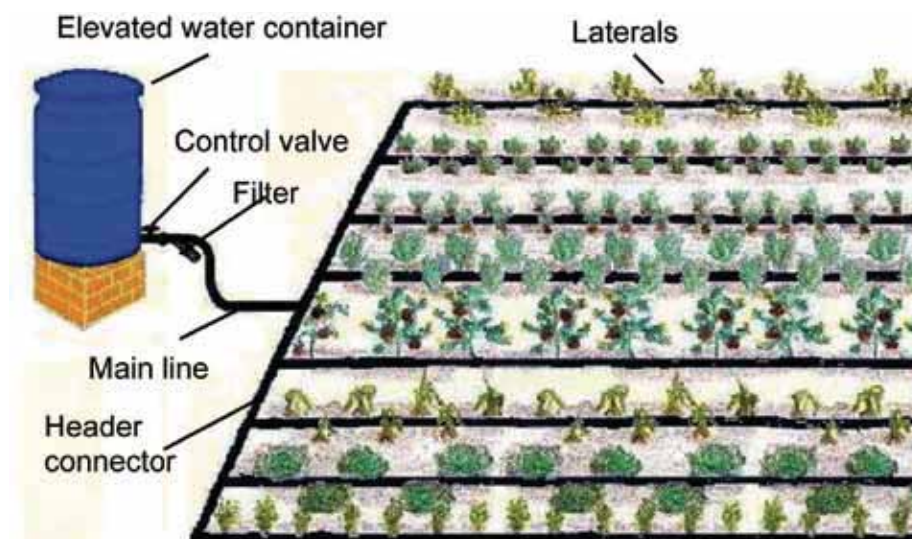
*Job Kiprotich, Eldoret, farmer, Eldoret*

## Do you have a problem with drip irrigation?

I would like to thank all farmers who have consulted me with regard to their drip irrigation problems. Unfortunately, I was not able to help many of you since I could not be able to see the types of drip irrigation that most of you are using. I would like to let all farmers know that I can only be able to visit

them if they meet my transport costs. I know that money is difficult to get but buying an irrigation system that does not work is equally costly to the farmers. This is because you cannot get the full benefit out of the system.

*David Smith, Mobile 0771 906 219, Email: davidsmith@gmail.com*



**i-TOF**

Information Centre of The Organic Farmer magazine

Following the increasing demand from farmers for our training and information services, we would like to inform farmers that we have expanded our i-TOF services. Farmers' groups can book for training in their areas of interest.

**i-TOF Centre Western Province**  
Location: Kamukuywa (near Kimilili)  
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## Answers in brief

### Using slurry on crops

Can I use urine and cow dung mixture on my crops?

Yes, this is a very good fertilizer, especially when it is prepared in form of a liquid manure and given time for the nutrients in the animal waste to get drained in water. Add some water to dilute the urine, the ammonia could be too high. The water used in washing a cow-shed can be harnessed in a hole somewhere behind the shed and later be used on plants.

### Tephrosia teas must be diluted

Since the white flowered tephrosia has less strength power effect as compared to the purple flowered Tephrosia. Can I dilute the concentration to a ratio of 1:1 instead of 1:2 to at least maintain its strength that is for the white flowered tephrosia alone?

All tephrosia extracts are poisonous if used in high concentration. It is therefore advisable that you be conscious of what you need to do with it, e.g. in tick control or when applying it as a top dressing on plants. A ratio of 1:2 is recommended even when using white flower extracts.

### How to prepare plant teas

Does the amount of materials used in making both liquid and plant tea affect the water level and even reduce the solution at the end of the process?

Plant teas are helpful. It is recommended that for every 40 kgs of materials used, you add 200 litres of water, at a ratio of 1:5, this applies to both the plant and manure teas.

### Buy certified desmodium seeds

Where can I get healthy desmodium seeds for planting?

It is always good to get not only healthy but also certified seeds for planting. KEPHIS has an information service on a variety of different certified seeds with instructions on how to go about planting.

### You can plant desmodium vines

Can desmodium germinate out of their vines? I have tried planting the seeds but they do not germinate.

Yes, desmodium can germinate out of their vines, especially if they are planted in a clean field that is weed free. May be your desmodium seeds were not good. Did you buy certified seeds from seed companies? The seeds you planted may have been immature, affected by pests or even expired. How did you prepare your soil for planting? Desmodium seeds are tiny in nature, the soil on which they are planted should be fine. Did you carry out seed treatment and dormancy breaking by soaking and boiling? All the above factors, if well incorporated, can lead to a successful seed germination.

## Sugar cane forage low in nutrients

I have made the following observation: If I feed the cow on sugar cane leaves, the milk production is reduced drastically. What is the reason for the reduction in milk? Can I make hay or silage out of the sugar cane leaves?

Sugar cane can be an important forage resource especially during the dry season; the sugar cane tops are softer than leaves. If sugar cane leaves and tops are used as cattle feed, it is important to recognise that they are low in nutritive value. Sugarcane is best when used as a low quality roughage. The low protein content of the sugar cane requires the addition of protein supplements. This is as well important if you use sugarcane leaves and tops for hay or silage (as farmers do it in many Asian countries).

### Use plant teas in sugar cane fields

Can I make a strong plant tea or liquid manure and apply on my ratoon (volunteer crop) stand canes immediately after the first harvest to make the upcoming suckers be strong?

Liquid manure (plant teas) is meant to provide the plant with adequate

### Handle geese and guinea fowl chicks carefully

I have a problem in raising goose and guinea fowl chicks, please advise.

Goose/guinea fowl chicks are prone to coldness that causes high death rates. Normally they are hatched with very low immunity. It is advisable that they are vaccinated as early as possible. It



natural nutrients during the growth season. In ratoon stand canes, the plant tea manure will add nitrogen which helps to boost the growth. However, it is recommended to make a shallow basin at the root zone where the tea is applied; then cover it with mulch to avoid loss of nitrogen.

can as well be that their mothers have very low mothering ability. Chicks can die if they are not provided with enough warmth, or if the mother steps on them regularly. It is good to separate the young and take care of them far from their mothers.

## The factors that determine sugarcane sweetness

What determines the sweetness of sugar cane to enable me harvest at the right time?

The factors affecting the cane sweetness fall into three categories: Management, genetic constitution of the crop, and climate management.

**Age of the cane:** Cane matures from the base upwards until it is uniformly mature. After maturity there is a process of inversion that begins where sucrose is converted into simple sugars and the quality declines (Sucrose = glucose + Fructose).

**Part of the cane:** The quality of the cane is highest at the base ( has high sucrose). If the cane becomes over mature, the case reverses i.e. inversion; green leafy top contains invertase enzyme which converts sucrose into mobile sugars for purpose of growth. You need to cut the top to reduce this from happening.

**Time between cutting/milling:** The time factor affects quality even if the leafy part is removed. Cane should be milled within the first 24 hours after which the inversion might occur, after 48 hours the quality will be adversely affected.

**Burning / Flaming:** This is a practice done to remove trash or dead leaves and clear the field making it easier to harvest. It has a disadvantage because it causes rapid inversion that affect the quality a great deal.

**Climate:** Cane require bright sunshine, low humidity, low night temperatures and low rainfall towards maturity. All these is necessary for high yield and quality.

**Flowering / arrowing:** at the arrowing stage, glucose and fructose are used in respiration rather than sucrose. Some cane variety like B41227 losses quality immediately after arrowing while others like N: Co 293 has a time allowance of up to one month.

**Variety:** Genetic make up affects sugar cane quality and the speed at which



## The right way to use farmyard manure

Why do some people keep on applying raw cow dung to their farms – but still the farm cannot produce?

Applying raw cow dung on your farm is not enough to make the *shamba* produce, it also depends on how the application is done. Broadcasting traces of animal waste haphazardly will not enable you know which area received more or less nutrients, hence imbalance in soil fertility in your *shamba*.

Some farmers just throw their organic manure or even fresh waste on the soil surface without mixing or covering it with the soil, this leads to loss of nutrients. During a hot sunny day, the nutrients will evaporate, leaving nothing but organic matter residue. This cannot enable you to get the desired crop yields.

One must also consider planting leguminous crops, those that helps the soil in adding nutrients, practice crop rotation with different crops like light feeders and heavy feeders and this will slowly by slowly improve the fertility of your soil.

You can start with one section of your farm and seriously work to improve the soil for a period of time; later move on to the other parts of the farm so that by the time you finish, the whole farm will be equally fertilized. One can then maintain the soil fertility levels by applying additional manure every year.

quality declines after maturity e.g. Co 421 maintains its quality for several months after maturing as compared to N: Co 331, deteriorate immediately after maturity.

### Agronomic factors

There are as well some other factors which have to be taken into consideration.

**Fertilizer type and application:** High application of nitrogenous fertilizer is responsible for vegetative growth at the expense of sucrose accumulation.

**Moisture supply:** Less moisture is needed towards maturity; for irrigated crop is recommended to reduce amount of water towards maturity.

**Drainage:** It is advisable to plant your cane in well-drained soils, to avoid too much water hence less sucrose accumulation.

**Pest and disease:** During the dry season termites may feed on the roots causing physiological drought and making plants unable to absorb water. This leads to early wilting. Some beetles (grubs) may eat part of the stem at ground level leaving an opening which will ooze off sucrose. The opening forms avenues for secondary infection.

# Rabbits are sensitive to wind

James Wathuge\*

In the February 2011 issue (Nr. 69), James Wathuge talked about rabbit breeding and marketing. In this issue he talks about the challenges of rabbit feeding, housing and general management.

Rabbits are prone to many infections and they need very close observation. This will help you detect stress and any other problems that might be affecting the rabbits. In Kenya currently we have few if any veterinarians who know much about rabbits.

## Feeding rabbits

**Pellets:** Feed manufacturers keep changing feed ingredients. Rabbits are affected by these changes, sometimes causing digestive problems, which lead to acute diarrhoea and eventual death even in mature rabbits. Ensure that you mix your feeds from different manufacturers so that any changes from their factories will not affect your rabbits. Good quality rabbit pellet should have at least 22% crude fibre, approximately 14% protein, about 1% fat and about 1% calcium.

**Hay:** Perhaps the single most important item in the rabbit diet is grass hay, and it should be fed in unlimited quantities to both adults and baby rabbits. A rabbit fed only on commercial rabbit pellets does not get enough fibre to keep the intestines in good working order. The long fibre in the hay pushes the movement of feed through the gut and keep the intestinal muscles in good condition.

**Water:** The importance of adequate water intake cannot be overstated. A rabbit which does not drink sufficient water will gradually begin to suffer desiccation of the intestinal contents. Skin tenting, a common method used by veterinarians to gauge the state of hydration in many animals, is not a good gauge of hydration in rabbits.

**Vegetables:** Fresh, moist greens are as important as hay in maintaining a healthy intestine. Try broccoli, dark leaf lettuces, kale, parsley, carrots (with tops!), basil, mint, spinach and tomato are good rabbit feed.



**Minerals:** Ensure that you have mineral salts, mix them with the animal feed. This is because rabbits lose minerals from their bodies through urine. The minerals also help does (female rabbits) that eat young ones. It helps in the development of the skeletal structure. Rabbits sometimes get spinal (hind quarter) disability if they do not get adequate minerals in their feed.

## Housing of rabbits

**Wind:** One major rabbit killer is respiratory infections. Protect your rabbits from direct wind. The rabbit cages should be properly shielded from wind. You have to use windbreakers such as old sacks or polythene sheeting to protect the rabbits from direct wind.

**Security:** Rabbits will get stress for many reasons, dogs, cats and other animals. Rabbit cages need to be secure above ground and built with strong materials so that dogs cannot attack them. Ensure the material does not leave spaces through which young ones can fall out of the cages. Use mesh wire, chicken wire and sticks to secure you animals or any other appropriate local materials.

## Stress

Ensure that rabbits feel safe, and that you have a solution to trigger appetite so that they can feed. Otherwise the rabbits can die due to stress.

\* James Mwangi is a rabbit breeder, based at Kangemi, Nairobi. He has been breeding rabbits for the last 3 years. He can be reached on 0733 893 300, email: [jwathuge@yahoo.com](mailto:jwathuge@yahoo.com)



Ear mite can cause infection and brain damage. It should be treated immediately with neem oil or liquid paraffin. (Photos jmw)



Eye infection can blind your rabbits. A good farmer observes their animals every day. Treat with recommended eye ointment.

## Modules are ready

The modules on various topics in organic agriculture are ready. They are easy to understand and explain every topic with a lot of pictures and graphic illustrations.

They contain all the basic information that farmers need to know. The 21 modules, packaged in a springfile and are a useful handbook for farmers. Interested farmers can send us Ksh 50/= for each module via SMS to the following mobile number 0717 444 405, or pay Ksh 700 for all 21 modules. Please do not forget your full names and postal address.

## Modules ready for dispatch

- No 1: Organic agriculture
- No 2: Crop rotation and intercropping
- No 3: Organic disease and pest management
- No 4: Organic crop nutrition
- No 5: Compost, manures and liquid manures
- No 6: Green manures, cover crops, mulching and weed management
- No 7: Conservation agriculture
- No 8: Water management
- No 9: Drip irrigation and greenhouses
- No 11: Fodder production and concentrates
- No 12: Dry season fodder
- No 13: Goats: Housing and feeding
- No 14: Goats: Breeding, milking, kidding, health
- No 15: Cattle: Housing and feeding management
- No 16: Cattle: Milking and calving
- No 17: Cattle: Breeding
- No 18: Cattle: Diseases
- No 19: Cattle: Parasites
- No 20: Chicken
- No 21: Sheep husbandry
- No 22: Agroforestry

## selling & buying

**Amaranth seeds for sale:** Alice Mayende of Matunda Jua Kazi organization, Agricultural office Nzoia has 90 kg of amaranth seeds. Interested farmers can call me on 0721 223 104.

**Heifer Wanted:** I want to buy a heifer that is not in-calf. I also need yellow maize seeds. Call 0732 820 474.

**Stinging nettle for sale:** Eunice Wambui from Nyahururu has 100 kg of organic semi-processed stinging nettle for sale. Contact 0723 848 399

**Nut cracking machine:** Mwimanyi Organic Farming S.H.G is in need of Macadamia cracking Machine, anyone selling theirs? Contact the group secretary, 0711 597 269, P.O. BOX 81 Kerugoya