

# The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 67 December 2010

## Improve indigenous chickens

TOF – It is important to concentrate on the quality of indigenous chickens through selective breeding. This is the only way to increase their egg and meat production. And if you do it the organic way, the better: Su Kahumbu says that the market demand for organic eggs in Nairobi outstrips the supply. In one of the next issues, she will write about the opportunities in the organic poultry sector.

The picture on the right shows an improved breed of indigenous chickens. Pages 4 & 5



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### You want TOF in 2011?

Return the questionnaires that we sent you in November 2010.

### Dear farmers,

Every week, we get an average of 60 questions, mostly from small-scale farmers. On analysing these questions, we have made a remarkable discovery that, compared to some years ago, farmers show a growing interest for any tips that would help them in income generation. A good example is the huge attention for articles on animal breeding; it seems that more and more farmers are beginning to realise the value of knowledge in the whole breeding process. In this issue we inform you about the importance of breeding indigenous chickens (pages 4 & 5).

The feedback is a good sign of the interactive relationship between the magazine and the farmers. But one question still remains: Do the farmers really follow our tips? This is not only in terms of breeding, but also in other important areas such as maintaining hygiene in the animals' shed or even mulching, compost making or crop rotation. In other words: Does The Organic Farmer magazine inspire change in the way our farmers do things?

This is exactly what we will try to find out in the next few months: We want to assess the impact, not only of the TOF magazine, but also TOFRadio. To do this, we will send out questionnaires to farmers in various parts of the country for this purpose. The Steadman group has offered to do for us a telephone survey.

Farmers should not be worried of the type of questions they will be asked. All the information they give will be treated with utmost confidentiality.

With the November issue of TOF, we have also sent you some questionnaires. We need to know if our magazine is reaching farmers who are our main target. We have so many applications from new farmers' groups. We do not want to disappoint them. So, please fill these forms and send them back to us; those who do not will not get TOF from January 2011 onwards.

The year 2010 was a good one for farmers because of the good rains. This is exactly what we wish you for 2011: Good rains, luck in the family and on the shamba!

## Think ahead, plant a tree

In cutting trees we destroy our future, we have to act: TOF will launch a tree planting campaign in 2011.

### The Organic Farmer

Kenya has lost 250,000 hectares of forest cover in the last 20 years. If we look at the importance of forests, this is not just a figure but a tragic happening in our environment. Deforestation has reached a critical level, and still more trees are being cut than are being replaced. This gives even more cause for concern as almost everybody by now knows about the benefits of forests to our water resources, the climate, the carbon levels and the biodiversity. Unfortunately, we only respect the economic benefits: Cutting trees means quick money.

Can farmers help in reversing deforestation? Yes, they can. About 77% of Kenya's population lives in the rural

Our trees Our future



areas; there, the cutting of trees is done in a bigger scale than anywhere else. If farmers embraced conservation of all trees, whether on the farm or gazetted forests near them, and if every farmer would plant 10 trees per year, the forest deterioration would be addressed in a short time.

### Come on, join us!

The United Nations has declared the year 2011 as the 'Year of Forests'. We support this efforts strongly. Under the slogan "Our trees our future" The Organic Farmer magazine will write about the importance of forests, give sources of tree-seedlings, advise you on how to plant trees and how to take care of them. We shall have a farmers' competition on the same theme. (Page 2)

### Prepare for the dry season

TOF - The period between January and March is usually a difficult times for farmers, except the ones with irrigation facilities and with sufficient water supply for their cattle. But the majority cannot grow anything due to lack of rains. However, if farmers plan ahead, they find ways in which they can manage to grow vegetables and fodder grass. It's all about a proper farm management. Page 3

# Kenya needs to increase its forest cover

*It is in the interest of farmers to plant trees, they are the main beneficiaries of forests.*

**John Cheburet**

Trees play a very important role in the lives of human beings. This role is exemplified in the day-to-day interactions of people. Think of yourself



walking along a village path on a hot sunny day. Then you met a friend or a neighbour. You stop to greet them and find out how they are doing. Will you stop in the middle

on the road where the sun is shining directly on you? Most likely, you will look for cool place and the most natural shade around will be under a tree.

But, as more and more trees in our farms are cut down for construction, firewood and charcoal, it is becoming difficult to find a place to take cover on such a hot day! Take a walk to the nearest river after a heavy downpour. You will notice that the water is brownish, almost muddy, because soil cover is greatly reduced and any little rain washes soil into streams and rivers, pushing it down to our lakes and water reservoirs.

## Trees protect our soils

The destruction of our environment shows itself in many ways. Kenya's forests cover is dwindling fast. While large-scale logging, the allocation of forest land for agricultural reasons, legal and illegal settlements are the greatest contributors to the disappearance of tree cover in our landscape, farmers also have their mark as they cut down trees in their farms or failing to plant any trees at all.

Yet, farmers are considered to be the major beneficiaries of well maintained landscapes. Trees and forests protect our soils from the elements such as rain and wind. Without soil cover, the top soil is swept away making the land



*Kakamega forest: Forests like this one are fast disappearing*

(Photo IN)

less fertile and unsuitable for farming. Farmers are forced to dig deeper into their pockets to purchase more fertilizers. As a result of depleted forest cover, the volume of water flowing in permanent rivers is greatly reduced while the seasonal rivers have dried up all together. This is negatively impacting on irrigation, which farmers see as a viable alternative to the erratic rainfall they depend on to water their farms. According to climate experts, this trend is expected to get worse in the coming years.

Farmers have a stake in environmental conservation and can play a big role in the restoration of our degraded landscape. Not only that: Planting trees on farms to supply firewood, feedstock for sustainable charcoal production, timber for construction, poles for

electricity distribution, has increased significantly in the last few years, further diversifying sources of farmer incomes. This reduces the stress put on indigenous forests as locals cut trees for firewood. Fodder trees are largely grown in combination with food crops to supplement the nutritional needs of dairy animals.

## Space for trees

Sometimes farmers say that they have no space to plant trees, that in most of the high potential areas farms are already too small and dedicating space for trees will jeopardize food production. Since, it is in the interest of farmers to plant trees, then farmers have to find ways to integrate trees with their crops within the farm. Otherwise, we are cutting the same tree branch we are sitting on!

## Join us and plant more trees

TOF recognizes the crucial role that farmers can play in increasing forest cover and making our landscape beautiful. That is why we would like to support you to plant trees in your farm. Throughout 2011, TOF will carry articles with information on how to plant and take good care of trees, stories of success from farmers as well as agro-forestry technologies that farmers can use in their farms.

As we begin this series of articles, TOF will team up with Synovate Kenya to conduct a survey that will look at how farmers understand and relate with trees and forests. This way we can write relevant articles that will address the real needs in your farms.

## Where to plant trees

- Private tree plantations. These are dedicated empty space for trees planted for commercial purposes, firewood and can also act as a bee-keeping site.
- Trees planted along the fence and hedges
- Fodder trees like Calliandra can be planted with sweet potatoes, beans, crops like sweet potatoes
- Diversify to growing fruit trees like mangoes, avocado
- Community spaces like cattle dips, schools, along the roads e.t.c. This will need mobilization of people and also provides opportunities for discussions and awareness creation.

*How many trees do you want to plant in 2011? Let us know, SMS 0715 916 136*

*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.

*The Organic Farmer* is published monthly by icipe and distributed free of charge to farmers. The reports in the *The Organic Farmer* do not necessarily reflect the views



of icipe.

*The Organic Farmer* is sponsored by BioVision, a Swiss-based foundation for the promotion of sustainable development.

[www.biovision.ch](http://www.biovision.ch)

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# Covering the soil keeps it moist

There are efficient methods of growing vegetables in the dry season – by water retention and soil care.

## The Organic Farmer

Dry season is a difficult time for farmer, but not for all small-scale farmers. So many of them earn quite a good income especially in the dry season. They take care of their soils and plan ahead to ensure crop production goes on during the dry season through irrigation. Most of these farmers go for crops that are in short supply during the dry season, vegetables such as *sukumawiki*, cabbages and even tomatoes. These farm commodities fetch good prices because only a few farmers can afford to grow them at this time.

Surviving the dry season is all about good management. Now, as you read this TOF issue, it is too late to store water in huge amounts, and it might as well be too late to prepare seedlings in your own nursery. But it is not too late to buy seedlings, to plant them and to take care of them; your products will earn good returns between January and April or even May. Of course, you need water and also some planning; quite a lot of work and time is required – and you need to be a creative farmer! So many farmers we have visited in the past five years can prove it: Initiative makes up for the lack of money.



### Tithonia

Tithonia provides excellent mulch. Where tithonia mulch is applied, plants show increased growth rates. Tithonia biomass decomposes quickly and releases its nutrients within a short time. It therefore acts as a very effective fertilizer. It increases yields and soil fertility in general by adding organic matter.

If you want to save money you usually spend on chemical fertilizer, invest some labour in planting tithonia along the hedges of your farm and using it as recommended above! The plant is easy to propagate from cuttings. You may prune tithonia several times a year about knee high above the ground. The shoots are best cut before flowering and when they are about 2 m high. Chop them and spread a layer of about two inches around the plants or all over the planting beds. You may apply a mulch layer every three to six weeks.



Mulching is a must: (Above) Farmers in the hot region of Dogon in Mali, use stones to confine water and cover the soil to grow onions. Here, temperatures rise upto 40° C. (Photo IN)

Try to conserve water whenever and wherever you can. Use it as efficiently as possible. The most economical way is drip irrigation, as it brings the water directly to the place where it can be taken up – to the roots of the plants. To share the costs, farmers' groups are advised to buy the drip lines in big rolls and divide it according to the individual needs of each farmer.

If there is no way (with respect to money) to install a drip irrigation system, farmers are advised to irrigate with cans, watering plant to plant – as you do in your kitchen garden. It is worth to invest in some work even for bigger plantations. Overhead irrigation is the most wasteful method for watering crops. In addition, some plants, especially vegetables, do not do well with overhead irrigation, as it encourages the spread of fungal diseases.

### Reduced tillage and mulching

We cannot talk about water conservation without linking it to soil conservation, especially to reduced tillage and mulching. These are the best agricultural methods to increase water infiltration into the soil and to improve water retention and availability to crops.

Tillage is restricted to the precise area where the crop is to be sown. In this way, only 10 to 20% of the field area is tilled. Tilling depth is about 20 cm or just sufficient to break through hard pans.

Mulch is a layer of any material, usually vegetative matter, spread on the soil surface. Mulch keeps moisture in the soil, increases water infiltration, protects the soil from erosion, provides nutrients, and suppresses weed growth. It increases water storage capacity and reduces irrigation water requirements. Mulching can be used universally. Young, quickly decomposing material provides nutrients for crops within a short time, while slowly decomposing, older material like crop residues gives longer lasting soil protection.

The mulch material is spread by

hand or with a rake in a layer 3 to 10 cm thick. In a wet climate, only thin layers should be used, while in a dry climate, thicker layers can be applied. Wet green material should be allowed to dry and wilt before application.

A variety of materials can be used as mulch:

**Vegetative matter:** cuttings from trees and shrubs (e.g. the well-known tithonia, see box), cover crops (green manures), crop residues.

### Plastic sheets

Polythene films can be used to cover the soil in crops that are planted in rows. The effects on the soil are similar to those of vegetative mulches, but no organic matter and no nutrients are provided, and drip irrigation is mandatory. It is also more difficult to fertilize crops grown under plastic. The sheets have to be laid on the crop bed and replaced every planting season.



### Comfrey

Freshly cut comfrey leaves make good mulch. It is rich in nitrogen, calcium and many other valuable plant nutrients. The high potassium content makes it especially beneficial for vegetables. Comfrey leaves break down rapidly and provide nutrients right at the roots. Comfrey is also used as a compost activator.

# How to improve indigenous chickens

*Indigenous poultry production can be increased through proper breeding and management.*

**Peter Kamau**

The majority of Kenyan farmers rear indigenous chickens. Out of the 29 million chickens in the country, 76 per cent are indigenous ones. 90 per cent of them are reared in rural households where the birds are allowed to roam free in the homesteads.

## Problems of inbreeding

There is a high probability of inbreeding whereby related chickens, for instance a father serves their daughters, or brother their sisters. Inbreeding causes a lot of problems like stunted growth, reduced egg production, weak offsprings that are prone to diseases and many other abnormalities.

Controlled free-range management is important to avoid inbreeding. Chickens can be separated into different bunches and only released at different times to avoid mixing and increasing chances of inbreeding.

A farmer who wants to succeed in indigenous chickens rearing has to combine both traditional and modern methods of indigenous chickens production. This involves the following practices:

## Selective breeding

Selective breeding means: High quality breeds of hens or cocks with certain qualities such as high egg or meat production are crossed with the farmer's own (and less quality) stock. There are three categories of chicken breeds:

- Light breeds are good for egg production,
- Heavy breeds for meat production,
- Mixed breeds are suitable for both meat and egg production.

If farmers want to rear indigenous chickens for egg production, then they can cross-breed their indigenous breeds with a light breed that has a history of good egg production. If farmers want to push for meat production, they can



*Apart from selecting good breeds, the quantity and quality of chicken feed matters.*

## A poultry breeder and incubator technician

For Geoffrey Kago Waweru, chicken rearing did not come as an accident. It is a passion he developed as a primary school pupil back in 1986 in his home village in Nyeri. However, he was not happy with the rate at which his chickens were hatching. "Out of ten or twelve eggs, the hen would hatch seven or eight eggs and abandon the rest", says Kago. "I started thinking of a way I could make an egg incubator which would replace the hens".

### Designed first incubator

His idea did not materialise until five years later when he joined Nyeri High school. Using the little knowledge he had gained in his physics lessons, he designed his first incubator which won him the first prize at the district and provincial level science congress. This invention fired his ambition of starting a cottage industry where he could make incubators on commercial basis.

In 2002 he started his own company, Kaki Incubators and moved to Kiserian where he started making egg incubators for farmers. By the year 2004, he had perfected his skills in incubator production and chicken breeding. His

look for a heavy breed. Farmers, who want a breed that is both good for egg and meat production, can cross-breed their stock with a mixed breed.

### Choose the breed carefully

The breeding should not stop there. Experienced breeders go a step further and continue improving their chickens by cross-breeding them with other breeds which have special qualities or traits such as disease resistance, particular shape, egg size or good feed conversion rates.

The following criteria allow the choice of the right breed:

- Any hen or cock between 1kg to 2 kg is classified as light breeds.
- All chickens above 3 kg in weight are considered as heavy breeds.
- Chickens weighing of 2 kg to 3 kg are mixed breeds.

A good breeding practice is to ensure that after every breeding cycle, the cock is either replaced, or the whole flock of chickens and eggs is sold off, and a new flock brought in to stop inbreeding. Allow only 1 cock for every 10



*Geoffrey Kago shows one of his egg incubators. We will write more about various types of incubators later. (Photo TOF)*

incubators could compete with any of the imported brands in the country. He moved to Kikuyu two years ago where he is now operating from.

### Expanded to other regions

Waweru has opened branches in Eldoret and Laikipia where he has set up hatcheries. From his hatcheries, he sells all types of birds including guinea fowls, ostriches, quails, crested cranes and peacocks under license from the Kenya Wildlife Service. He also buys indigenous chickens from farmers for sale in Nairobi and other towns. Farmers interested in incubators, breeding stock for upgrading indigenous chickens and even training on poultry production can contact him:

*Geoffrey Kago Waweru, P.O. Box 1053, 00502 Nairobi, Tel. 0725 552 920, 0738 792 224 E-mail: genkago@yahoo.com*

hens. Farmers can also reduce chances of inbreeding by keeping very simple records, for instance in marking breeding cages to ensure they know which chickens are in which cage at a particular period.

### Record keeping is important

For farmers who want to go into serious breeding of chickens, record keeping is a must. Records help farmers to trace the lineage of each of their chickens selected for breeding in a way that can help them to analyse each of the breeds they have in their flock, including their performance in terms of egg or meat production.

*A candling box is very useful as it helps to check the qualities of an egg e.g fertility, spoilage or progress of a chick during incubation.*



# Well-fed chickens bring you good income

*Indigenous chickens are in high demand. Farmers should rear them on commercial basis.*

**Peter Kamau**

There is a high potential for indigenous chickens production in Kenya. But the main problem is that the majority of farmers do not consider rearing indigenous chickens as a serious occupation. They do it to meet their home consumption needs and rarely on commercial basis. This is a missed chance. Looking at the current market prices for indigenous chickens and even eggs, there is a good reason why farmers should rear them in high numbers for the market.

To start with, indigenous chickens and eggs fetch a higher price in the market than hybrid ones. For example an indigenous chicken egg goes for a retail price of Ksh 15 while a hen



or cock can fetch as much as Ksh 500 especially during the festive season in December, when they are in short supply due to increased demand from consumers. Therefore, a farmer who

wants to get a good returns must do correct timing to ensure the chickens are ready at around the Christmas period.

Indeed, indigenous chickens are always in demand across the country. It is therefore easy for farmers to identify a market near them to which they can supply on a regular basis when they start production.

### Planning is important

To produce chickens in big volumes and with incubators, a farmer must have adequate knowledge of breeding (see page 4). Without breeding experience and management, it is very difficult to go into commercial production. If the farmer has identified the right breed of chickens to start with, the next stage is to count the number of eggs the chickens can lay, say in one week. With a rough estimate of eggs, a farmer can be able to know the size of incubator to buy.

## Feeding indigenous chickens is a big challenge

To be successful, the farmers have to identify the source of feeds for their chickens. The feed should be the right quantity and quality for breeders, laying hens and even chicks. With some training, farmers can be able to make their own feeds at home without having to buy from the shops.

Although production potential of indigenous chickens is lower than that of hybrid chickens, they are very good in converting feed into meat and eggs – even in areas with very little feed. It is very easy to increase their egg, meat production and growth through proper feeding.

### Feed for all stages of growth

The cheapest way to reduce the cost of feeding is to allow the chickens to go on free range, at the same time providing supplementary feeds that will keep them healthy and productive. Like other animals, poultry requires feeds that give them energy, protein as well as vitamins, minerals and water.

Good poultry production involves proper selection of feed for each of breeds we have mentioned above. For instance, feed for chickens meant for egg production is different in composition from feed for chickens used for meat production. In the same way, feed for chickens meant for breeding purposes is quite different from that meant for both egg and meat production.

If farmers want to rear improved breeds of indigenous chickens, then they have to provide adequate feed that is suitable at each growing stage. These are divided into three categories: **A starter diet or chick mash:** This is a high protein feed that is given to

chicks, from day old up to 8 weeks. Each chick should eat 2 kg in the 8 weeks.

**Growers mash:** This contains medium protein. It is offered from 9 weeks up to 18 weeks. Each grower consumes

about 18 kg during this period.

**Layers mash:** This is lower in proteins. It is offered to hens from 19 to 75 weeks. Allow 120 g of feed per bird per day. An egg-laying hen consumes about 45 kg of layers' mash in a year.

### Examples of home-made rations

Ingredients (%)	Chicks	Growers	Layers
Maize	30	25	35
Wheat	20	25	
Wheat bran	10	15	
Rice bran	10	10	35
Sunflower cake	10	5	
Cotton seed cake	5	10	
Soya cake			10
Fish meal	2	2	15
Beans	10	5	
Bone meal	1	1	
Limestone	0.5	0.5	2
Salt	0.5	0.5	0.5
Mineral premix	1	1	1
Ground dried legume leaves			0.5
	100	100	100

### Rations for supplementing local chicks

Ingredient	Quantity
1) Crushed maize/sorghum or millet	1 kg tin
2) Wheat/sorghum or millet bran	1 kg tin
3) Sunflower/ sesame /ground-nut cake	2 match boxes
4) Bonemeal/ salt mix	1 matchbox
5) Fishmeal (omena)	2 matchboxes
6) Sesbania/ leucaena leaves	2 matchboxes

### Feed at different ages

Age	Intake (g)
1 week	12-15
2 weeks	15-21
3 weeks	21- 35
4-6 weeks	35-50
7-8 weeks	55-60
16-27	68-80
28 weeks	100

## Farmers benefit from tephrosia extract

**TOF** - There are many useful plants in our surrounding; but most farmers do not know about their benefits. Farmers in Kakamega face the same problem, as our TOF extension worker, Alfred Amusibwa found out when training a farmers' group on pest control recently. He writes:

"The Bulala Self Help Group in Kakamega was trained on local plants that can be used to fight various types of pests. During this training, we also talked about tephrosia, which grows wildly all over the region. The farmers were very much surprised to hear that this very common plant can be used in pest control.

### The ticks died

Two farmers, Charles Sande Minayo and Phanice Osiako took part in the training. Some days after the training, they quickly prepared their own solution from the leaves of tephrosia. Both of them forgot to dilute the solution and applied it in its concentrated form, all the ticks died: As soon as they got in contact with the tephrosia solution, they dropped from the cow's skin and died.

So when the group came together for the second training, Sande Minayo and Phanice Osiako talked with lot of enthusiasm about the effect of tephrosia on tick control and other minor parasites affecting animals. Through various application trials later, they discovered that tephrosia with purple flowers was much more effective than the one with white flowers. However, I advised them to dilute the tephrosia solution since it is poisonous in high concentration.

### Training for farmers in i-TOF Centres

If a farmers' group is interested in training, they should get in contact with our i-TOF Centres directly. The following are the regions where they are located, including their contact addresses:

#### i-TOF Centre Western Province

Location: Majengo,  
Extensionist: Alfred Amusibwa,  
Contact: 0724 331 456  
Email: itof7@organickenya.org

#### i-TOF Central Province

Location: Gatuto/ Kagio  
Extensionist: Peter Murage  
Contact: 0724 331 375  
Email: itof2@organickenya.org

#### i-TOF Eastern Province

Location: Kangundo town  
Extensionist: Victoria Mutinda  
Contact: 0724 331 405  
Email: itof1@organickenya.org



The two innovative farmers now earn an additional income. They are using tephrosia extracts to spray other farmers' cows at a minimal fee of Ksh 10 per cow. The community has accepted this small 'business', especially after having seen its positive effects in killing parasites such as ticks. However, Sande and Phanice are not selfish: They train other farmers and individuals on the preparation and application of tephrosia solutions.

### Reduced cost of tick control

Farmers in the area are now going the 'tephrosia-way': They use a cheap, locally available and effective plant to control external parasites and save the money they usually spent in agrovet shops for acaricides. If you have any question, contact Bulala Self Help Group, Shikoti Kakamega Tel. 0716 123 430."

Alfred Amusibwa, i-TOF Majengol Buyangu

### Su Kahumbu wins innovation award

Su Kahumbu, well-known to TOF readers and farmers for her work in promotion of organic farming in Kenya, has won an international award for developing the i-Cow-service. This service enables dairy farmers to track the fertility cycle of their dairy cows using their mobile phones (See TOF Nr. 66 November 2010)

The innovation award, was launched to reward people who develop technologies that can help people in Africa.

Kahumbu beat a field of 20 participants drawn from Kenya, Uganda, Rwanda and Tanzania to win the iCow first prize of US \$ 5000.



## Answers in brief

### Contour lines

How can I make a contour line on my farm that is flat and does not give a topographical level? Farmer in Buyangu

Contour lines are made to break the erosive power of water that flows downward during heavy rains taking the soil away with it. If the farm is flat, you do not need contour lines. However, strips of vegetation or fodder-shrubs or lines of trees are always useful to give some structure to a farm.

### Foliar feed for onions

Can I use organic foliar feed on onion and how? 0727 467 917

Yes, it is possible, although it is difficult to get much liquid onto the onion leaves. But the solution will also trickle down into the soil and can then be absorbed by the roots.

### Use plant extracts immediately

How long should I store plant extract before it expires? Grace Nyambura, farmer in Gaturi

Plant extracts you prepared as pesticides should be used up immediately. They lose their efficiency quite quickly. If you prepared them for use as fertilizer, you may keep them longer. Make sure your storage container is tight. Still, it is advisable to use home made extracts as soon as possible, as some nutrients, especially nitrogen, tend so get lost.

### Liquid fertilizer

What will happen if I do not dilute my liquid fertilizers?

Liquid fertilizers that are prepared from animal manures or different plant materials contain dissolved nutrients. The concentrated solution can burn the plants. Therefore;

- Dilute the solution to a lighter brown colour.
- Be careful not to spill livestock manure tea over the plant leaves or any parts which will be eaten.
- Use diluted liquid fertilizers two or three times per week to water the crops.
- Teas made from plant materials can also be used as foliar feeds. Again, they should not be too strong and well diluted.

### FPE application

How many times should I apply my Fermented Plant Extracts (FPE)?

We recommend at least 3 times as some pest or pest stages (e.g. pest eggs) might not be killed in the first round. If you see that the solution prepared in the first place was not very effective, you may prepare a stronger solution during the 2nd and 3rd round. An interval of 3 or 4 days may be appropriate.

## Carrots need regular weeding

I have planted carrots but do not want to use chemicals to kill weeds apart from manually removing them, what organic material can I use to kill the weeds? Fred.

Weeds are a big problem in carrots, because they are a slow-growing crop and their foliage does not shade out competing plant pests. Uncontrolled weed growth will affect yields severely. Unfortunately, there is no organic herbicide. Any substance that kills plant pests is very likely to harm planted crops, too. Therefore, organic farmers remove weeds in carrots only mechanically and by hand-weeding.

But organic carrot management should even start before planting. Plant carrots only in the most weed-free fields that are not infested heavily with weeds such as thistles, nightshades, nutsedges, and perennial weeds like grasses. Practise a rotation and avoid planting carrots in fields last planted with cereals. Plant them in fields where you harvested cucurbits (e.g. pumpkins, cucumbers, melons), onions or spinach before. After harvest of the previous crop, cultivate the field and plant the carrot seeds into weed-free seed beds. Soils must be deeply loosened to disrupt any compact layers that will inhibit root growth. Carrots prefer deep, well-drained soils high in organic matter (dark soils). Organic soil management practices like green



manuring and mulching are very beneficial and increase soil fertility and soil organic matter. However, when planting carrots, the soil surface should be free of undecomposed plant residues, as they can affect seedling emergence. If herbicides (e.g. Roundup) are applied, this should be done before planting, because they will kill carrot seedlings, too.

Carrots need to grow rapidly and without restrictions in order to develop fast growing foliage and good roots. Early weed management is essential to prevent yield losses, and especially during the first 10 weeks after germination. Carrot growers use hoes between the carrot rows. But the weeds that grow within the carrot lines must be hand weeded. Be very careful and avoid injuries to the crop! Usually, hand weeding is done 3 times during the growth period.

## Vitamins are retained in dried vegetables

In TOF issue No. 53, you demonstrated on solar food drier. Does it mean the food will not lose the nutrients if they are dried? After drying, how are they prepared for cooking? Gathogh BK from Tetu Nyeri, 0731 403 303

It is true, most nutrients and vitamins are preserved in the drying process. Any dried food can be soaked in water for some hours and then be prepared like fresh foods. Because nutrients will dissolve into the soaking water, you should use as little water as possible and include it in your recipe (e.g. for a tomato sauce in the case of dried tomatoes).

## Chickens and eggs

How many eggs can a chicken lay?

This depends mainly on the chicken breed and on the farmer's management. Hybrid chicken can lay around 300 eggs during their first period of laying if they are managed well. Indigenous chicken may lay between 60 and 150 eggs per year. Good feeding is absolutely central. Chickens need a protein rich diet for a good laying performance. Hens that are well fed and provided with good hygiene and health care (vaccinations) do best.

## Infections can cause hair loss in dogs

I am a community development worker and am very much grateful for the work you do in enlightening farmers on the need of organic farming. However, I have a concern about a fungal infection that attacked my dog and cleared out its hair. Please, if there is any remedy to control this disease, assist me to save the dog. tobiasmcochola@yahoo.com

Hair loss in dogs can have a number of reasons besides fungal infections. Here are some of the most common ones:

### Fungal skin infections (Ringworm):

Hair loss appears usually in circular patches with centre that are dry and crusty. Ringworm usually affects the head and legs, but may spread over other parts of the dog's body if not treated. The dog does not scratch much. The disease can spread to humans, particularly children. Adults should wash their hands thoroughly after handling an infected dog. Treatment is done with fungicidal shampoos or rinses and may have to be repeated over 2-3 months.

**Bacterial infections:** The disease starts with itchy, yellow pustules and the skin may be reddened and ulcerated. Later, dry, crusted areas appear along with loss of hair and an unpleasant odour.

## Leeches and tumors: Consult a vet!

My cow seems to be having flukes for it constantly coughs. Advise me on the best measures to solve this problem. And what about leeches?

Constant coughing is more likely to be a sign of pneumonia, lung worms or tuberculosis. Liver flukes cause lack of blood, colic, loss of weight, reduced milk production, chronic diarrhoea and fertility problems. Leeches live in the water and attach to the skin of passing animals and humans. They suck blood for some time and drop off again without doing further damage.



In your case, the symptoms are just too unclear, so it is not possible for us to tell you which problem your cow is suffering from. We advise you to have a veterinarian examine the animal if it shows any signs of reduced health.

### Tumours

My cow is having tumours on the teats; this interferes with my milking. How can I solve this problem?

We are sorry, but without seeing the animal it is not possible to make a diagnosis and to recommend a treatment in this case. Let a veterinarian have a look at your cow.

Usually, the chin and trunk are affected most. The dog does not scratch. The disease is cured by applying antibiotic shampoos and by administering antibiotics orally for 3-4 weeks. Bacterial infections appear often in dogs that are affected by other diseases, e.g. parasites, allergies or disorders of the immune system, so the dog should be checked for these, too.

**Parasitic skin diseases:** Mange is caused by mites and leads to intense itching, loss of hair and crusting of the skin. A dog's ears, face, front legs, chest and abdomen are most often affected. The skin may be reddened and scaly, and hair loss may occur in round patches resembling 'ringworm.' Mange is treated by insecticidal dips, sprays, powders or shampoos to kill the mites and prevent infections.

**Allergic skin diseases:** The most common allergy dogs develop is caused by fleas.

The best thing would be to see a veterinarian. Diatomite or neem oil may help against external parasites (mites, fleas, ticks, lice), but not against bacteria or fungi. In any case, make sure your dog is not suffering from poor nutrition and internal or external parasites.

TOF gets at least two questions per week concerning compost; this is a good sign, it shows that farmers are eager to use this homemade fertilizer. Our agronomist Theresa Székely, who answers some of your questions, has written a

## CAN and compost

*Can we use farmyard or composite manure only if we don't top dress our crops with CAN?*

Compost and farmyard manure will make the soil more fertile because they contain high amounts of organic matter. Good farmyard manure contains more nutrients than compost and can even replace synthetic fertilizers such as CAN. The use of compost and CAN can be combined without problems. This combination is actually beneficial because compost is usually not very rich in nitrogen.

## Compost needs time

*By how many days does EM reduce the time taken for the organic matter to get decomposed? Farmer in Buyangu*

EM does not really reduce the time for decomposition. It only helps the process to start because it contains some helpful bacteria. However, these bacteria are usually present in natural environments anyway. Decomposition is a completely natural process that needs moisture, nitrogen, and air (oxygen). If the compost material is too dry, too wet, or if no air can enter it, the decomposition process is obstructed. The process is also faster if enough nitrogen is available (from fresh green plant material or fresh animal manure and urine), and in high temperatures. The best thing you can do is keeping your material moist and protecting it from too much rain. Depending on the climate in your region, compost will take between 3 to 5 months to mature.

## Use well composted manure

*During planting I normally use farmyard manure which is not fully rotten. Can I apply EM1 at this very stage? Can EM1 pose any effect to my seeds? Margaret Wanja, farmer in Gaturi, 0724 004 081*

The problem may rather be the manure than EM1. You should use only well composted manure for planting. Fresh manure contains substances (ammonia) that are harmful for seedlings and may burn plants. Use fresh manure only for plants that are well established (e.g. for Napier grass after cutting it).

## Turning compost

*What if I do not turn my compost manure?*

Turning of your compost allows uniform



## All about compost

four page module "Compost, manures and liquid manures". It will be published soon. Farmers who are interested can get a copy immediately. Send us an SMS with your address and the Keyword: Compost module.

mix up of different layers and material. Turn and mix the compost at least one time, usually three weeks after you have set up the heap. This is also the best way

to see whether your compost is too dry or too wet, allowing you to correct this. If you do not turn the compost, you risk a delay of the decomposition process and your compost may take more time to get ready. This may interfere with the time frame of a farmer in relation to season of planting.

## Use organic matter only

*Some of the compositing wastes have been sprayed with inorganic substances during production, e.g the coffee crop. Will the compost contain organic manure? UIMI MUSEO S.H.G - 0721 547 338 Kangundo*

Depending on what was sprayed, it could in fact be a problem. Substances that do not break down easily will stay in the compost. They may even accumulate in the compost and in the soil of your *shamba* if they are used frequently. This is why organic farmers avoid such chemicals. Also copper preparations that are allowed in organic production belong to this category of substances and should be used as little as possible. Make sure to mix and "dilute" the contaminated material with a lot of uncontaminated material.

## Do not spread fresh manure

*How long does animal manure take to cool down before it can be taken to the farm?*

*Kansokea Twone Mbee Womens Group*

We recommend composting fresh manure in a protected heap for at least two months. Nutrients are stabilized and more available to plants after composting, and pathogens and parasites will be reduced. Composted manure will also have a more pleasant smell and is easier to apply due to its finer texture.

Fresh manure can be used for crops that have high nitrogen requirements, but it may burn plants due to high ammonium content. To avoid this, apply moderate amounts only and work it superficially into the moist soil. The plants should already be vigorous when using fresh manure. Make sure there are still at least two months ahead before the crop is harvested for human consumption.

## We need your opinion

Farmers are usually very cautious people. If they are interested in a new product, they do not buy in big quantities; first, they buy a small amount and test it, if it works. If it produces the desired effect, then they buy more, otherwise they will ignore it and go for what they have tried and tested.

## Impact of magazine

To some extent, we will do something similar to this; we are a cautious people too. We spend a lot of money for publishing *The Organic Farmer* and in distributing it for free. After five years, we would like to know more about the impact our magazine has had among the farmers. Of course, we cannot walk from village to village checking if the farmers are practicing the different ideas we provide in organic farming. Soon we shall send out some questionnaires to farmers' groups and active individual farmers, we shall talk with the big distributors, and with some teachers in both primary and secondary schools who are using our magazine in teaching.

## Talking to farmers by phone

Another method we are going to use is the "Voice of the Farmer". This is a research method that collects feedback from farmers by calling them on phone, instead of visiting them in person. The goal is to make it faster and cheaper to get information, so that agriculture organizations can adapt their activities to the needs of the farmers. The "Voice of the Farmer" service will be undertaken by a team from the Synovate company. *The Organic Farmer* will be using the research agency for the first time to get feedback from our readers. You might get a phone call in January or February, and someone will ask you a few questions related to your farming activities and to your use of *The Organic Farmer*. Your support in answering these questions will help us to know if we are meeting your needs.

## Beware of Jatropha

Researchers have warned farmers against rushing into *Jatropha* production. The crop has little economic value when grown as a single cash crop or in plantations. Kenya Forestry Research Institute (KEFRI) and the World Agroforestry Centre (ICRAF) have advised the Kenya government to stop the promotion of *Jatropha*. Studies have established that the tree cannot do well in arid areas as it requires large amounts of fertilizers and water to grow.