

# The Organic Farmer

The newspaper for sustainable agriculture in Kenya



Nr. 23 April 2007

## Mushrooms get popular

Mushrooms are becoming a popular crop among small scale farmers in the country due to favourable prices and the increasing demand from consumers. Growing mushrooms is easy because the farmer only requires crop residues which are plenty on the farm. A number of institutions in the country are currently producing seeds (spawn) for farmers.

See page 4 and 5



## Conserving soil increases yields

*Simple prevention measures can stop soil erosion and increase land productivity.*

### The Organic Farmer

Soil conservation is a very important activity in a farm, but it is also one of the areas ignored by many small-scale farmers. The topsoil is so valuable because it contains some of the most important nutrients that contribute to healthy plant growth. Soil erosion usually takes place at this time of the year because the topsoil becomes loose after ploughing. When it rains, the topsoil is often carried away to the lower slopes and into rivers. Soil erosion also takes away the organic matter that contains essential microorganisms and nutrients that the plants need. The land becomes less productive and its ability to retain water is also greatly reduced. Whenever you notice small channels of water in your

farm after the rains, this is a danger signal that you are losing your fertile soil to erosion. For farmers in areas with land on a slope, the problem is usually severe.

Making terraces and planting Napier grass strips across the slopes can save your soil (see TOF, November 2006). The problem of soil erosion is very serious in Kenya and is to blame for poor soils in all farming areas

### TOF goes on air!



On Thursday evenings, you can hear *The Organic Farmer* in the Kiswahili Service of KBC Radio, from 8.30 to 8.45 pm. We share the programme with the Agricultural Information Resource Centre. Become organic! Listen to TOF on Radio! We start on April 18, 8.30 pm

throughout the country. The Ministry of Agriculture has a Soil Conservation Department, but very little is being done to educate farmers on soil conservation these days. This means that farmers have to do a lot on their own to ensure they prevent soil erosion in their farms. A lot of money used in purchasing fertilizers could be saved if farmers adopted simple soil conservation measures that maintain soil fertility. ■

## Dear farmers,

The Organic Farmer is exactly 2 years old this month, as we celebrate the second anniversary; we bring you a story on the production of mushrooms, which have become a hot product in the Kenyan market. Apart from the fact that they are organically produced, demand is high. They are also easy to grow and do not require a lot of investment. The story clearly illustrates the opportunities available for local farmers that are largely unexploited. Mushroom growing can drastically improve farmers' income, but only if the production is done with the market in mind.

Before starting, farmers should do a small market survey to identify where they can sell the mushrooms, especially to the nearest market. If the market is far from their farms, they can dry mushrooms in order to prolong their shelf life. It is not wise to produce a particular crop just because your neighbour is doing it as it only leads to a glut and poor prices. Market information is available from the radio, newspapers and even mobile phones. Some farmers have even used the Marketplace column in our newspaper and managed to move their products. Farmers with various products need for sale can send an SMS on the telephone numbers provided (see page 7).

The second lesson farmers need to learn from this article is the need to diversify. If a farmer has various products on the farm, they cannot suffer huge losses when the price for any one of the products is low. Most of our farmers grow sukumawiki (kale), cabbages or tomatoes. Whenever the prices go down, as they usually do, they find themselves in a difficult financial situation. This is largely to blame for the frustration and lack of interest in farming.

Right now there is a huge pork shortage in the country. If you look around your area, you will find that almost all farmers keep cattle, sheep and goats. Very few farmers keep pigs or chickens for commercial purposes. A clever farmer would have made very good sales from pork and poultry if they had them at this time. It is only when farmers learn to produce for the market that farming will truly become a rewarding venture. Farming is a serious business, fellow farmers—it is not a hobby!

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It is easy to prepare liquid manure to feed the plants at home.	

**MY OPINION**

No doubt, the only way to spur Africa's development is to support rural agriculture. But the big question is, again, will such a theory transform into reality? Will the rural African population be able to actually make this theory a reality? And: do they want to? Africa has so many cultures and peoples - will one strategy work for all of them? There are many questions and concerns. But without trying it out we will never know what will really work!

*Contribution in an Internet-discussion about agriculture in Africa and the development of the continent.*

**The Organic Farmer**

The Organic Farmer is an independent newspaper for the Kenya 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 to farmers. The reports of The Organic Farmer do not necessarily reflect the views of ICIPE.



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**Layout**

In-A-Vision Systems (k)

**Avocado root rot can be controlled**

*Various preventive methods can save an avocado orchard from infection with avocado root rot without using chemicals.*

**Philomena Nyagilo**

George Gatheca has a problem with his avocado trees. "They are affected by avocado root rot. What can I do as an organic farmer?" he writes. He can do a lot. Root rot in avocados can be controlled without the use of chemicals. Avocado root rot disease, known as *Phytophthora cinnamomi*, is the most serious infection in nearly all avocado-producing countries. It attacks all varieties of avocado through rotting of feeder roots, which can result in death of the tree.

In the last years, many control strategies have been discovered which will reduce the impact of avocado root rot. A well managed package of all these control measures allow the continued economical production of avocados, even in the presence of the disease.

**Clean seedlings**

The best control for avocado root rot is to prevent introduction of the fungus into the orchard. Because diseased nursery stock has been mainly responsible for the wide distribution of the fungus, clean nursery practice helps prevent avocado root rot from infesting the nursery.

Seeds used to propagate avocados should be picked from the tree, not taken from the ground. Or, the seedlings should be bought at a respectable tree nursery. Alternatively, treat the seeds with hot water to kill the fungus. If you immerse the seeds in water at 49 to 50° C for 30 minutes and then you cool them quickly, the seeds will be free of the fungus.

**Site selection**

Before you decide on the site for your avocado farm, you should know that avocado root rot is severe in soils with poor drainage, high clay content and high water tables, where water pools after irrigation or rainfall. All water should be prevented from movement from diseased groves into healthy ones.

**Grove sanitation**

The fungus is easily moved from grove to grove on soil through cultivation equipment. Groves should be fenced to protect them from human and animal traffic.



It is advisable to use equipment (jembes, shovels, shoes, etc.) in the healthy groves before using it in a diseased grove. After use, you should wash the equipment properly and rub alcohol on it and make sure it is dried. If a diseased tree exists near healthy trees, a diversion furrow should be dug to divert rainwater that passes through the diseased groves.

**Irrigation management**

It is not easy to manage irrigation of avocado to benefit the avocado and not the fungus; avocado roots are very shallow and sensitive to drying. But if it is a must to use irrigation, then be careful: you should use water from deep wells, since surface water from rivers and reservoirs is often contaminated with the fungus. Do not over-water because it will invite more fungus.

**Mulches**

Organic material in soil acts like a trap to the fungus and reduces avocado root rot by releasing degrading compounds like carbon dioxide, ammonia, nitrates or enzymes that are toxic to fungus. It also helps improve the soil drainage and gives the trees more strength to develop defense mechanisms.

Research in the USA has shown that these integrated management methods are helping to fight avocado root rot. If not, there are various chemical control methods for treatment which a farmer may use to save their affected avocado trees. But be careful in using chemicals, because this is not recommended in organic farming. Rapid soil degradation may take place in some soils if chemicals are used for disease control.

• Would you like to know more about avocados? Read the very informative Book: *Avocado Growing in Kenya*, by Jürgen Griesbach, World Agroforestry Centre, P.O.Box 30677 00100 Nairobi, Tel: 020 722 4000 ■

# Learn simple methods of weed control

*The longer you leave weeds to grow, the harder it becomes to control them.*

## The Organic Farmer

After planting, weeding is an important activity that a farmer needs to perform in the right way to increase crop production. Kenyan farmers lose between 15 and 90 percent of their crops every year to weeds. One of the major reasons why farmers fail to control weeds is lack of labour. However proper land preparation can reduce this problem by ensuring that few weeds are allowed to grow and compete for nutrients with crops. In organic farming a number of methods are employed to ensure that as few weeds as possible get a chance to grow. If a farmer manages to control weeds, it becomes cheaper for them in terms of labour. If a farmer can give the crops an advantage over weeds by weeding early enough, later weeding becomes easy and labour costs will be drastically reduced. As we mentioned last year, many farmers only start weeding after the weeds have completely covered their crops, taking away essential nutrients.

It is important to use a combination of methods to control weeds. Organic farming promotes the use of sustainable methods of weed control that do not damage or pollute the environment. Below are some of the methods that farmers can adopt to ensure weeds do not become a threat to their crops. Poor weeding methods



*Overgrown weeds always reduce crop yields*

(TOF)

are also to blame for persistent weeds on the farm. The methods used in weeding can promote the spread of weeds rather than reduce them. Controlling weeds also prevents pests and diseases.

### **Early weeding is important**

Farmers should know that removal of weeds and ensuring that they do not set seed makes it easier for them to control them in the following year or subsequent seasons. The first plants to grow or occupy space in the soil tend to dominate and make it difficult for other plants to grow. For example if a farmer manages to control weeds in the first three weeks after planting their maize or beans, these crops will occupy all the space and in the process utilise the light, water and other nutrients in the soil. This suppresses the weeds.

Weeds can be controlled using cover crops and other forms of soil cover. Good cover crops spread over the soil quickly and suppress weeds before

they can grow. Farmers can select cover crops that have many uses, such as for food, fodder or firewood, and which produce a lot of green matter that covers the surface rapidly. Useful crops such as lablab can cover the soil completely in 2 months after planting.

### **Cover crop after main crop**

A farmer may need to weed once in order to give the cover crop a chance to become established. If the rainy season is long enough, it is advisable to plant the cover crop after the main crop has been harvested. The crops will spread over the soil and suppress any weeds before they grow. Some crops such as the black oat control weeds by producing chemicals that prevent weeds from growing.

### **Cover crops increase infiltration**

Research undertaken by KARI among farmers in Machakos last year, showed that the use of cover crops can reduce the labour for land preparation and weed control by 80 and 75 percent, respectively. Cover crops also increase water infiltration and accumulation of organic matter in the soil, which help to improve maize yields.

### **Hand weeding is better**

A farmer can pull out weeds or slash them with a slasher or a panga. A hoe can also be used, although it disturbs the soil surface. Uprooting weeds by hand disturbs the soil less than using most types of equipment. Farmers should avoid disturbing the soil too much while using a hoe or any other implement. The use of tractors and ox ploughs has been found to spread weeds, as the ploughs cut down the weeds and pull them along, spreading the weeds into parts of the farm which were previously weed-free. Burning crop residues also promotes the growth of certain types of seeds. ■

## Other organic methods of weed control

- Ensure that the land is not disturbed too much during cultivation. Cultivation tends to bring buried weed seeds to the surface.
- Mulching can reduce weeds by denying them space and light. Mulching also helps reduce soil temperatures and conserve moisture.
- Planting a different crop than the one grown previously can break the life cycle of weeds.
- Intercropping helps to cover the soil and suppress the weeds that grow between the rows of the main crop.
- After the first rains have fallen, allow the weeds to grow or new weeds to emerge. Then weed them out before planting.
- Check the weeds every week and control them by pulling them out by hand or scraping the soil surface.



*An intercrop of maize and beans*

(TOF)

- Never allow weeds to flower and produce seed. Pull them out before they set seed.
- It takes 3 to 5 years for the number of weeds in a plot to be reduced to a minimum. The farmer should be persistent in controlling them.
- Do not throw away weeds when weeding. This can transfer weeds from one place to another on the farm. Dig a hole and bury them or put them in a compost heap.

# It is not difficult to grow mushrooms

*All a farmer needs to grow mushrooms is recycled agricultural waste that requires a simple procedure to prepare.*

## Peter Kamau

Mushroom are grown organically. Their popularity among farmers is due to the fact they do not require a huge capital outlay, which many small-scale farmers can ill afford. They do not need much space; even a disused house, a garage or a godown can be converted into a mushroom production unit. Most farmers currently growing mushrooms are using grass-thatched mud houses reinforced with polythene sheeting. The emphasis on the use of cheap and readily available material is to encourage resource-poor farmers, especially in rural areas, to start mushroom production and improve their income. All a farmer needs to grow this crop is recycled agricultural waste such as banana leaves, maize stalks, beans, millet, barley or wheat straw, water hyacinth, maize cobs, bagasse (sugar cane waste), coffee pulp, sawdust, cotton husks, paper or even tea waste. Below is the procedure farmers have to follow in the production of mushrooms:

### Production of mushrooms

**Seeds:** Mushroom seeds are called spawn- these are very small cells or spores that develop into the mushroom when put in the right environment for germination. Spawn was previously imported from developed countries, but a number of local institutions are currently producing it. The JKUAT produces high quality spawn because they have the latest equipment in their spawn laboratory.

**Production structure:** The farmer can make a thatched mud-brick room of any size, depending on the amount of mushrooms they intend to produce. In order to keep the costs down, it is advisable to use local material that can make an ideal structure. Shelves should be constructed on the walls of



A ganoderma mushroom

the room on which to place the mushroom bags. Mushrooms should grow in a clean environment to ensure they are disease free. Workers have to disinfect their hands, feet and even tools used in the mushroom house.

**Material preparation:** The material to be used such as the maize stalks or bean leaves (also called substrate), is cut or chopped into very small pieces and put into polythene bags (enough to hold about 2 kg of substrate) after mixing and applying water to make it wet. The bags are then dipped in boiling water for 3 to 4 hours to kill any bacteria or other disease-causing organisms. The substrate is allowed to stay overnight in order to cool down (to around 27°C) after boiling.

**Spawning and harvesting:** After cooling, the mushroom spawns are introduced into the bags containing the substrate, this is done in a sterile way to ensure the substrate is not contaminated. The substrate is kept in an incubation room to allow the mushroom fungus to establish itself in the substrate. This process takes about 15 days, when the first mushroom shoots (also called pinheads) emerge from the bags. The mushroom bags are then transferred into the fruiting room. The mushrooms will be ready for harvest after 28 to 30 days. Harvesting can go on for two months, after which the farmer can dispose of the substrate and use it as compost to grow other crops of their choice.

### Many varieties

Below are a few of the various varieties available for production:

#### Button mushrooms (*Agaricus*)

This is a popular mushroom that is grown using straw from wheat, barley or rice as the main ingredient in substrate preparation. A compost from these materials is made by mixing the ingredients with water and letting it stand for a month.

The compost can then be enriched with bran, molasses, chicken manure, cotton seeds or even sunflower to give more nitrogen to the substrate for increased yields. Sterilization using steam is done before adding the spawn. Home made drum boilers are used to generate steam for sterilization.

The spawn establishes itself in the substrate for two months and the harvest starts in the third month. Harvesting can take one or two months before the substrate is exhausted. A



kilogram of spawn for button mushroom production costs Ksh 600 (1000 bags of substrate require 20 to 30 Kilograms of spawn).

### Oyster mushrooms

This variety is gaining popularity in Kenya because of its good flavour. It is also a simple mushroom to grow since it does not require pasteurization using steam. It can be harvested in a month's time as does not require composting like other varieties. A kilogram of oyster seeds (spawns) costs Ksh 600.

### Shiitake and ganoderma

These two varieties can be grown in the same ways as oyster mushrooms but they are highly medicinal and expensive. The mushrooms are dried, ground and can be used as herbal tea or put in capsules for ease of consumption. A kilogram of shiitake or ganoderma spawn costs Ksh 1000. ■

### Medicinal and nutritional value of mushrooms

Mushrooms are full of B vitamins necessary for good health and many varieties have a protein content gram for gram equivalent to meat. They make a tasty addition to the diet and can be added to eggs, vegetables, stew to boost their flavour and nutritional value. Button mushrooms can be eaten raw when very fresh, fried or boiled.

#### Oyster mushrooms:

*Nutritional value:* (1 cup= 200 g) calories: 17.5, protein: 2.0 g, carbohydrates: 2.8 g, total fat: 0.23 g, fibre: 0.84 g.

#### Shiitake:

*Nutritional value:* Protein: 13-18%, Niacin: 55 mg/100 g, Thiamin: 7.8 mg/100 g, Riboflavin: 5.0 mg/100 g, Fibre: 6-15%.

**Note: Some wild mushrooms are very poisonous. Avoid them!**

# The new cash crop for Kenyan farmers

*Increased awareness of the health benefits of eating mushrooms has created a big demand in the country.*

**Peter Kamau, Juja**

Very few Kenyans used to grow mushrooms, let alone eat them; this is because most consumers did not know of the health benefits of eating this fungus. Lack of mushroom seed or spores (also called spawn) has been another major problem for local farmers, as no institution was producing spawn. Research indicates that there is a huge shortage of mushrooms to meet the demand for mushrooms in the country following increased awareness. As a result, mushrooms are becoming a real money spinner for a growing section of farmers who have discovered this new crop. Damaris Nyambura, a resident of Githurai Kimbo, is one of them. Nyambura, who doubles as a school teacher at Githurai Primary School, had tried dairy cattle, pig and poultry keeping on her ½ acre plot and given up on all. But when she read a report in a local newspaper about a lady in Nyanza who had changed her fortunes through mushroom growing, she decided to give it a try. "This lady had converted her main house into a mushroom production unit and moved to the servant's quarters. She was producing 30 kg of mushrooms per week. I was so moved by this story and decided to learn more about mushroom production", she says.

## Enrolled for a course

In December last year, she enrolled for a course in mushroom production at the Ngong Farmers Training College and got further training from the Juja Pledge Centre. On completion she immediately went into mushroom production. The two houses she had used for fodder storage were prepared for both incubation and fruiting of mushrooms. She harvested 15



Damaris Nyambura inspects mushrooms in her fruiting room

(TOF)

kg of mushrooms on February 15. During our visit to her compound she was already putting up additional structures where her pigsty once stood, "I have been selling the mushrooms to my fellow teachers, neighbours and even construction workers in the estate. The demand is so high that I cannot supply all those who need mushrooms. That is why I plan to grow more. I think it is a good enterprise", she says. She sells a kilogram for Ksh 500. She says it is not possible to get supplies from other farmers because they also do not have enough. Recently when customers shunned beef for fear of the Rift Valley Fever, mushroom prices went up to Ksh 600 a kilogram, but there were not enough from the few

farmers who are currently growing them.

## Farmers lack marketing skills

With the increasing demand for mushrooms in the country, there is urgent need to educate farmers on all aspects of production and marketing. This will enable them to get maximum benefit from the emerging market opportunities for mushrooms. Jane Gathenya is the managing director of Honey Dew, a marketing consultancy company that specialises in mushroom and honey production. She says that one of the main problems facing farmers in the country is that they are not able to link mushroom production to the available markets. "I visited one of the mushroom farmers recently whose fruiting room was full of mushrooms ready for the market, but the farmer had no idea on where to sell them," she says. She advises farmers to plan their production in such a way that they produce only the amount they are able to sell. They can divide their production units into four sections such that each section has mushrooms at different stages of growth at any one time. This way, she says, the farmer will maintain a consistent supply to the market.

## University trains on production

A mushroom consultant at the Jomo Kenyatta University of Agriculture and Technology Mr. Patrick Kanyi, says the institution has a training programme for individual farmers and groups. "Here we teach all aspects of production and marketing. One thing we emphasise to farmers is to take mushroom production as a business in order to benefit from their

*continues on page 7*

## How to cook mushrooms

- Slice mushrooms into thin stripes including the stem (the stem is rich in fibre).
  - Fry your onion or garlic and capsicum, dhania, tomato, etc. with oil, preferably corn oil (which has no cholesterol)
  - Fry the onion until brown.
  - Put your sliced mushrooms into the fried onion.
  - Continue stirring your mushrooms until all the water is evaporated (use medium heat)
- Take care: Prevent mushrooms from sticking on the cooking vessel.
- Add salt to taste plus any other ingredient of your choice.
  - Continue stirring until the mushrooms are brown in colour. Do not add water. If you need soup, add milk to the mushrooms instead.
  - Serve with ugali, chapati or rice.



Mushroom spawn in a lab

## Arrowroots like well fed soil

A farmers' group on a tour to Nairobi saw and bought big smooth rounded arrowroots (nduma) at a shop. Would TOF give tips on how to improve on their declining production? J.G.Njoroge, 3N Harvest

Hi J G Njoroge! Unfortunately I do not have much experience with arrowroots but can offer the fol-



lowing suggestions: All plants need feeding. Make sure when cultivating that there is adequate feed in the soil, in the form of well matured compost. Healthy plants will deter insects and are more resistant to disease. Arrowroot grow in moist conditions, therefore make sure to cultivate them in an area where there is adequate water.

Declines in production could be for many reasons. Uproot an entire plant and look at the root. Is there evidence of insects or nematode damage? Is the root stunted? (This would be evident if the leaves are also small). If this is the case, it could be due to lack of nutrients, and also due to pollutants in the water.

### Not too near the river

Many farmers grow arrowroot close to the river sides, without considering the possible pollutants coming from upstream. If the arrowroots are grown continually in the same spot year after year without replenishing the nutrients they take up, then inevitably the yield will decline. ■

## Double digging is good, but a lot of work

Can I plant maize using double digging? Do I put dry material or manure in the trenches? Allan

Allan, you can put both dry material and manure in the trenches: The wider the diversity of the mix of any biodegradable material, the better. If I were you I would also add some green plant manure (i.e. healthy crop waste – banana peels, maize stalks, etc.)

Double digging is very labour intensive, however the result is a long-term solution and depending on the area

size, it can be very advantageous. Double digging requires digging through the hard pan in the soil and results in better drainage as well as better root penetration.

When done properly, double-dug beds can be productive for up to 3 years before such intensive tilling is required again. It is vital that plants are continually fed, especially if they are heavy feeders. Rotation of crops is also highly recommended in order prevent disease and pest buildup. ■

## Chilies need time for germination

I am a volunteer in Kilifi and I have enabled many farmers to get connected to you. Many of them are planting African bird's eye chili, but it takes up to 6 weeks to germinate. Can they soak them for faster germination? What is the preferred method? Soren Green, 0723 100 809

Hi Soren. Yes, you can soak the seeds for 24 hours before planting. Soaking them in warm water is more effective

than cold water. Be careful not to leave them longer than 24 hours as they may rot. Also, when planting in the seedbed, drench the bed first with water. Chilies do take a few weeks to germinate, so do not give up on them midway.

Make sure the seedbed is always kept moist. If after 8 weeks you have no germination, there could be other factors involved. This could range from poor seed, nematodes, soil-borne disease and even temperatures that are too cold. ■

### Su Kahumbu answers your questions



Write to

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e-mail: info@organickenya.com

### Desmodium good for fodder and seed production



"How do I harvest desmodium and when?" This is one of the many questions we received in the last month on the use of desmodium.

Desmodium is a very helpful plant. If it is planted in rows between the maize, it pushes out the stemborers and at the same time it avoids the growing of striga, a terrible plant that kills the maize. After harvesting the maize crop, desmodium can either be harvested as forage for livestock or left to produce seed before it is harvested for forage.

#### Desmodium for forage

- When you are harvesting desmodium for forage, always cut desmodium vines so as to leave out a 6-cm stem above the ground. It is a perennial plant. With the first rains it will start sprouting and will give a new crop.



- Chop the harvested desmodium and mix with Napier grass to reduce the wastage when feeding it to livestock.

- When forage is in short supply, particularly during the dry season, chop the desmodium, Napier grass and maize stalks and mix them before feeding to your livestock.

#### Desmodium for seed production

- If desmodium is flowering and podding, you may leave it for seed production.

- After harvesting the seed, you can harvest desmodium forage for livestock feed (see above).

- One acre (0.4 ha) of well-managed and properly harvested desmodium seed crop can yield 50 – 80 kg of seed. This can earn a farmer between Ksh 30,000 to 50,000 when sold at the current market price of Ksh 600 to 800 per kg of seed.

- There is an informative booklet: "A Primer on Planting and Managing 'Push-Pull' Fields for Stemborer and Striga Weed Control in Maize", published by ICIPE, P.O.Box 30772 00100 Nairobi, Tel 020 863 2000

Tips from Dr. Zeyaur R. Khan, a principal research scientist at ICIPE



# Letters to the editor

## We need assistance

First and foremost I would like to congratulate you for your tireless efforts to make us knowledgeable in organic farming. We are a community based organization at Kiminini. Our objectives are: Agricultural based activities for alleviation of poverty and hunger in the community. We plan to start a loan scheme. We are therefore requesting you to supply to us with copies of *The Organic Farmer* because this will provide us with materials and help us to advance in agriculture. We are active members willing to engage in collection of garbage and processing of waste papers and use it for our nurseries to plant tree seedlings. So please help us with advice. We are still young and want to change from conventional to organic farming. Our youth are ready to help you carry out information dissemination to the community and teach organic farming, if you are ready to train us. Thank you in advance.

Emmanuel Sirengo, P.O. Box 120, Kitale

*Thank for your interest in organic farming. The only form of training we can offer your organization is through the newspaper. We have already featured many areas in past issues which we hope your group can use to train the community on sustainable agriculture and especially organic farming. We hope you will make full use of the newspaper to educate farmers in your area to improve on their farming practices. Editors*

## Mushroom, new cash crop

*continues from page 5*

production. Farmers' groups of up to 30 farmers pay Ksh 100,000 (about Ksh 3,333 for every farmer) for a three-day training workshop on site. Individual farmers pay Ksh 15,000 for a three day training course at the university. The training is exclusive of meals and accommodation. Writing material, spawns for practicals and an attendance certificate are provided. The institution also links farmers with buyers of mushrooms. Farmers with mushrooms, those who need seeds (spawn) or training can contact the university at the following address:

Business Manager, JKUAT Enterprises LTD,  
P.O. Box 62000, 00200, 0722 728815, 067-52420, Nairobi.

## A good newspaper

We thank you for the magazines that you send to us monthly. The farmers welcomed your information and appreciated your humble advice to farmers countrywide. As the chairman of the group wish to thank you also for your advice and still request you to send us more copies of your informative magazine, enough for all the 31 farmers in our group. I thank you in advance for your assistance to farmers groups in the country.

Joseph Muigai, Murigani Farmers Group, P.O. Box 44, Solai

## We need more copies

Thank you for the newspapers you sent us. We have given to a few of our staff to read and they appreciate. Please give us another 60 to give to our farmers in the common interest groups. They are 20 in each of our 3 divisions. We will really appreciate if can supply us regularly.

Odoyo Bittar, District Agricultural Officer, P.O. Box 381, Turbo

## We received copies

We are in receipt of your newsletter "The Organic Farmer" and take this opportunity to express our heartfelt appreciation for the same. This has come to us at the opportune time and the right time it is required by our farmers and staff. This is therefore is to ask you to send us more copies for distribution to both farmers and staff. All information will reach the target group.

Francis Muthami Tel. 041-522006  
Mobile 0723-747422  
daokilifi@yahoo.com

## Good reference material

I take this opportunity first of all to congratulate and commend you for your excellent publication. I came across the newspaper recently through a friend and found it has good reference material for small-scale farmers like me. I have a lot of interest in farming and am sure I will benefit a lot by reading *The Organic Farmer* regularly. I intend also to share the information with other members of my group. I would be very grateful if you could include me in your mailing list. Thank you.

Stephen Kageche, PO Box 791, Githunguri



## Dear farmers,

*We have found copies of The Organic Farmer sent to farmers groups and other organizations lying at the Securicor Courier Company offices even up to two weeks after we had sent them out. This practice denies farmers important information, we cannot afford this wastage. There are hundreds of farmers waiting to receive the newspaper at the beginning of every month. To deny them the opportunity to read the newspaper goes against the spirit of this newspaper. We have decided to remove from our mailing list any organization or farmers group that does not distribute the newspaper promptly. We also request farmers to write to us or SMS their complaints whenever they fail to get their monthly copies or when they are delayed. The newspaper should be available to all farmers by 15th day of every month. We would also like to remind farmers that the newspaper can only be sent to groups and not individuals. This is due to the fact that demand for the newspaper is so huge while our capacity is limited. We can only print 14,000 copies every month. That is why we encourage farmers to share copies within their groups. It is only through sharing that farmers can be able to learn, improve their farming practices and income. Editors*

## Dear Farmers,

If you have any questions or ideas for articles, or if you would like us to publish experiences about your shamba or within your farmers' group, please contact us. We shall get back to you!  
**SMS ONLY**

Tuma maoni yako! Asante.



## tips and bits

from farmers for farmers

# Make your own liquid manures

Liquid feeds provide plants with nutrients in a readily available form. Although organic agriculture promotes the principle of feeding the soil, there are times when a liquid feed can be necessary in an organic garden. Suitable liquid feeds are made from manures, plants, animal wastes and rock minerals. These are basically the same materials that are used in feeding the soil, but in a different form, and they are subject to the same constraints as to the source of supply.

Suitable organic feeds can be bought or made at home. It is easy to make organic feeds at home. Liquid feeds are suitable for potted plants but they should only be used as a short-term measure in gardens where the soils are poor or where root damage prevents the plants from taking up enough nutrients for proper growth. However it is important to note that organic liquid feeds should never be used as an alternative to good soil care and management.

Liquid feeds can be made using comfrey or nettle leaves. Comfrey leaves are rich in plant nutrients. The leaves decay rapidly, releasing the goodness they contain. They can also be used as a mulch or compost activator. The leaves are slightly alkaline, so the feed should not be used on acid-tolerant plants. Comfrey liquid is high in potash and has reasonable levels of nitrogen and phosphate. It is



*Comfrey at the edge of a garden*

good for fruiting plants, although the nitrogen levels may not be enough for proper plant growth.

Nettles make a general liquid feed that is a little low on phosphate, but supplies magnesium, sulphur, and iron. Young nettles cut in spring contain the highest levels of major nutrients.

### Recipe for liquid feeds

#### Comfrey

- Steep 3 kg of comfrey leaves in 45 litres of water.
- Cover with a lid and let stand.
- Use undiluted after 4 weeks.

#### Nettles

- Steep 1 kg leaves in 10 litres of water.
- Cover with a lid and let stand.
- Use after two weeks.

# Mountain pawpaw is difficult to get

A farmer from Karen/Nairobi is interested in getting mountain pawpaw seeds. We would advise him to enquire at the nearest Prison nursery, since they do a lot of tree planting. If you do not find them, maybe a fellow farmer can help. Otherwise, check and let us know the outcome. A friend of one of the editors has a mountain pawpaw in his garden, but the fruits are not yet ripe. There is little information on mountain pawpaw. Additional information can be obtained from the book "A Guide to Propagation and Cultivation of Fruit Trees in Kenya". By courtesy of the author, Jürgen Griesbach, we publish this short note out of this book:

"The mountain pawpaw (*Carica damarcensis*) is a native plant of Colombia and Ecuador. In Kenya it performs well from 1500 m to 2200 m. Propagation by seed is easy, but since the seedlings develop into either male or female plants, this has to be considered when planting an orchard. Spacing, crop husbandry measures and plant development are similar to the ordinary pawpaw.

### "Perfumed" flavour

The only remarkable difference is in the fruit itself, which only grows to a length of up to 10 cm. It develops a deep golden colour and has an acidic and 'perfumed' flavour."

## Marketplace



**Beeswax:** I am a young bee keeper and I have 500 g of propolis. Any one interested in buying it may get in touch with me at the following address: Benard Kirono Marisin P.O. Box 245 Molo Tel. 0726 736250 0736 617 134.

**Tissue culture bananas:** I would like to buy 500 tissue culture bananas for planting. Those interested in selling should get in touch with me. Please indicate prices. Call Tel. 0721 311 541

**Rabbits:** I am a farmer from Gatundu and would like to know where I can get Californian rabbits. If you have any for sale, please get in touch with me on Tel. 0724 873 347

**Organic vegetables:** I have organically grown capsicums, butternut, carrots and courgettes. Interested buyers can get in touch with me at the following address: Joseph Njoroge P.O. Box 52542 Nairobi, 00100 Tel. 0721647 618.

**Articles wanted:** Do you have something interesting you would like to share with fellow farmers? From now on a grateful TOF will award gift items for every article published.



Farmers, listen to TOF on KBC, thursday April 18, 8.30pm.

