

# The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 40 September 2008

## To plough or not to plough?



Conservation agriculture aims at producing high crop yields while reducing production costs, maintaining soil fertility and conserving water. It is a way of achieving sustainable agriculture and improving livelihoods. See page 4 & 5 (Photo TOF)

## Long wait for promised inputs

*Urgent measures are needed to cope with the expected food shortage.*

### The Organic Farmer

At the moment, Kenya's food security situation is critical. From the many calls we are receiving from farmers, it appears very little is being done to help them. A large proportion of farmers was displaced and farming operations disrupted when violence hit the country at the beginning of the year. The most affected were the country's major food producing zones.

The government, through the ongoing resettlement programme, had pledged to support displaced farmers. They were promised agricultural inputs such as seeds and fertilizer. But the inputs are inadequate, and as we hear, much of the aid is being diverted by corrupt provincial administrators and sold in black

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market. Although fertilizer prices have gone down, most farmers still lack adequate resources to buy it.

The situation for many farmers is thus desperate. The long rains, which would have corrected the food deficit have not been enough in most of the farming areas. With the recent upward surge in food prices, the general outlook is very scaring. Importing food is not a solution because many people may not be able to buy it. What is required are urgent measures to help farmers with affordable inputs to enable them utilise the current short rains to produce adequate quality food. This should be done urgently. (See page 6)



You want to improve your knowledge on farming? Buy a copy of the Infonet-BioVision CD. For details, see page 8.

### More about dairy goats

Do we need to separate the male goat (buck) from the herd? See page 3



## Dear farmers,

Agricultural practices are on the change every day. The benefits of some of the technologies being developed are debatable because of their impact on the environment; others have immediate benefits for farmers. They therefore need to know these new methods of farming, and be able to adopt them if they are sustainable, environmental friendly, and if they help boost their crop yields, including improving their income.

The increase in demand for food has led to a sudden hike in food prices worldwide. In Africa, the situation is critical given our low capacity for food production. This state of affairs, in future, will affect mostly the poor because, if the trend continues, they may not be able to afford food that is costly. Farmers have to find a way out of this vicious cycle; new research findings now show that there are many ways in which farmers can produce more food without the use of expensive inputs. Across the world, research is coming up with new technologies that are cost effective and which – if practiced by farmers – could double or even triple their average yields. Of course, we have to be careful not to believe in all that we are told; but we should at least have a look at all these options and carefully evaluate them with an open mind.

One method that is dominating debate in agriculture and that is of interest to us is minimum or zero tillage, which many farmers in Latin America and Asia are using with very good results. In this method, the soil is regarded as a living entity that should not be disturbed so much through ploughing, harrowing or hand hoeing. This practice ensures that the living organisms living on the surface of the soil and which help promote growth are protected. Furthermore, important nutrients that sustain plant life are also preserved and by the way, you save a lot of money since you reduce the costs for land preparation.

Some farmers may find it difficult to believe this, because they have adored ploughing as the only way to prepare land for growing crops. The call "do not disturb the soil!" may sound strange and a challenge to many farmers. But they should remember: It is not how hard you work in your shamba, that assures you of a good harvest. It depends on how smart – or wise – you do it!

# Couch grass is difficult to remove

*Controlling couch grass is not an easy job. You may dig it out or use chemicals.*

## The Organic Farmer

Many farmers find it hard to control couch grass. They are fed up with this monster that is a problem to their crops. Of course, one can understand their complaints.

Couch Grass (*Elymus repens*) is a very common species of grass. Its other names include twitch, quick grass, quitch grass, dog grass, and quackgrass. As these names may suggest, couch grass has been used in herbal medicine since the classical Greek period. Sick dogs are known to dig up and eat the root. A hundred years ago, herbalists used it to treat inflamed bladders, painful urination and for water retention.

### A fast growing weed

Couch grass is a common and invasive garden weed. It rapidly spreads by rhizomes (underground stems) and grows extremely quickly. From the tips of the rhizomes, new shoots are produced that quickly produce tufts of leaves and more rhizomes. These

become entangled in clumps of herbaceous perennials, among shrubs and fruit bushes causing great problems.

The roots of couch grass are dense and bind even the lightest soil. Once these roots intermingle with ornamental plants they can smother the plants and become difficult to remove and to eradicate.

Digging out couch grass is possible, but this is likely to leave behind small sections of rhizomes in the soil. These quickly re-grow and need to be removed before they form a new network of underground stems and therefore perpetuating the problem.

### Chemical control

An easier way of removal is chemical control. Do not remove couch grass with chemicals in the dry season. Weedkillers such as Round-up are quite effective and, if correctly applied, should kill out even heavy infestations of couch grass in one application. But as these products are not selective, care is needed to prevent spray landing or drifting on to other cultivated plants and causing damage. Protect them with polythene while spraying and remove only once it has dried. The grass should die within three weeks; but treat any re-growth as soon as possible. Do not cultivate the soil until the grass has been completely eradicated. ■



Stubborn grass: If a small piece of the grass remains in the soil during weeding, it will grow again. Underground stems (below).



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## My struggle with couch grass

Couch grass is perhaps one of the most stubborn grass weeds I have had to deal with on my tea farm. Wherever I noticed a patch of couch grass in the tea bushes, my first instinct was to work on it there and then and ensure every piece of the grass was removed however deep it had dug its way into the soil. I only stopped digging after turning the soil over and over again and satisfied myself that the offending grass was done away with.

But you can imagine my frustration whenever I came back after only a few weeks to find the grass I had weeded out shooting out again! Finally it dawned on me that I was fighting a losing battle. However careful one is in removing couch grass, an odd piece of the grass that remains in the soil will sprout especially during the wet

season and re-establish itself spreading like a bushfire fanned by strong winds. But what really shocked me most is the extent to which this weed can go to nourish itself. I had uprooted a tea seedling that had dried up. What I found out stopped me in my tracks: Right inside the stem was a piece of couch grass, that had worked its way right through the root system into the stem! The grass had taken away most of the nutrients that were fed to the plant, and in the process interfered with its normal growth.

A colleague then advised me that the best way to reduce the couch grass menace was to weed it out during the dry season, then use a paint brush to apply the Round-Up herbicide on the few patches that regenerated. Somehow, it worked. **Peter Kamau**

# With enough milk, young goats grow fast

*The first months are important for young goats. They do better if allowed to suckle milk from their mothers.*

## **Val Corr \***

In my last article (TOF Nr. 39, August 08) I talked about the feeding and proper housing of goats, which are some of the conditions for healthy animals; in this article we are going to look at how to deal with the young ones. According to our experience, birth weight is insignificant. Small kids (the young one of a goat), if fed properly and allowed to exercise freely will, almost certainly, catch up with their siblings by the age of three months, be of a generally uniform size and weight. The average birth weight of our kids is 3.5 Kg in the case of twins although we have had twins weighing 5 kg each!

### **Feed the kids**

We consider a 2 kg birth weight a very small animal but, we have always found that these small kids soon catch up if looked after properly. In September last year we had two sets of triplets (our first experience of this) in 10 days! The first set were all of average weight and two of the second set were also average but the third one of this set only weighed 900 g at birth. We fed her every two hours for the first 10 days and then every four hours (last feed at 9 p.m.) and, by two months she was almost as big as her siblings.

### **Weaning**

From experience we have noted that it is of long term benefit to young stock that they should be allowed to get milk from their mothers by suckling for the first month. At the end of this month, they should be separated at night in a pen close to their mothers. At the end of two months they can be separated completely. This practice is especially beneficial to small kids. If they are bucket-fed they will almost certainly not do as well and may not catch up with their siblings.

Although this might mean less milk is available to the 'household' in that first month, it will mean a much stronger, healthier kid. We have proved this ourselves when we have reared orphans – they did not thrive in the same way that kids left with their

*\*Val Corr, Lake Breeze Farm & Toggenburg Dairy Goats, Naivasha. If you wish to contact her for further advice, please call her on Tel. 0734 913 049.*

## **Do not separate bucks**

It is very possible to keep a buck (male goat) with the herd. If you plan your breeding, which you should, then fasten an 'apron' to the buck prior to running him with the does. It is important to lodge a piece of sheepskin under the tie on top of his back as, otherwise, a sore will develop and these are very difficult to clear up.

We have proved that the buck is a much happier, healthier animal when run with the herd. It was our experience that, when the buck was tethered, he spent most of his day calling for the herd and not grazing which had a very obviously damaging effect on his general condition.

### **House the buck alone**

There is a myth that if you allow the buck to stay with the herd that this will cause the milk to be tainted. We have proved that this is not true. What is true is that bucks have a very strong smell – we have solved this problem by housing the buck separately from the does. What certainly

mothers did. By leaving them with their mother, you not only ensure a much better healthy kid, you will also find that it is a less stressed animal and the mother, at the end of the second month is very happy to wean her offspring whereas, if you separate them after a few days, the mother is very stressed by losing her kid and will not eat properly, often for several days, because she spends all day making noise to get the kid back.

### **Molasses**

Molasses is a cheap source of vitamins and minerals and goats love it. It can be added to the concentrated feed to add flavour and/or be mixed with water in a drum and the goats allowed to drink it freely once a day.

Molasses is especially beneficial to ruminants as it causes fermentation in the rumen. About 75 percent of a goat's weight is concentrated in the stomach region, and fermentation helps to keep the animal warm. This



does taint the milk is if the does are not housed off the ground which means that they are lying in their own dirt. This means that the udders become dirty which in turn taints the milk. You must maintain hygiene.



is vital as dairy goats have very little body fat.

### **Hay is needed**

Hay is a very important part of a ruminant's diet, especially in a zero grazing situation, as it would be the only source of roughage available in the diet. Without hay your goats will tend to become either have indigestion or suffer from bloat. ■

# Soil fertility is the starting point in farming

*A healthy soil should contain all essential nutrients. Organic and conservation agriculture are sound foundations towards achieving this goal.*

## The Organic Farmer

A recent report on the Rice-Wheat Consortium for the Indo-Gangetic Plains, a joint program involving Bangladesh, India, Nepal, and Pakistan as well as the international agricultural research centres, states as follows: "Results of on-farm trials show that reduced or zero tillage generally results in wheat yields that are higher than, or at least equal to, yields obtained using conventional practices. The simplest approach is surface seeding, already common in parts of eastern India and Bangladesh, where farmers broadcast wheat seed in the rice fields before the mature rice crop is harvested."

These farmers in Asia are not unique. Hundreds of thousands of small scale-farmers in Latin America and even big farmers in the US are practising reduced or zero tillage, which aims at enhancing and sustaining farm production by conserving and improving

soil, water and biological resources. Agriculture can become much more efficient, ecologically sound and sustainable if farmers adopted minimum tillage.

### New ways

It is not so easy to adapt new methods of farming. When it comes to land preparation, we are so much fixated at the idea of ploughing or digging. Leaving a protective blanket of leaves, stems and stalks from the previous crop on the surface is, in the eyes of many farmers, a sign of a laziness. On the contrary zero or minimum tillage is very important for conserving soil moisture, retaining essential plant nutrients and preventing loss of top soil through water and wind erosion. Moreover, farmers ask if they can practise the simple technique of drilling seeds into the soil with little or no prior land preparation. This is possible, as one can read on these two pages. It is always challenging to try new production methods, especially in agriculture, where farmers are wary of losing their precious crops. Nevertheless it is a worthwhile try.



Farmers need to overcome another hurdle. Most of them take fertilizers as the final solution to solve soil fertility problems. That is why they spend a lot of money to buy fertilizers with nitrogen (N), phosphorus (P) and potassium (K) to feed their crops. Nitrogen in particular is highly valued as it shows immediate results with healthy leaves and rapid crop development. But farmers do not realize that too much nitrogen can interfere with fruit formation in a plant; it also pulls water into the plant diluting plant sugars and making the plants "soft" and hence vulnerable to diseases and pests.

### Manure retains soil nutrients

To some extent, the promotion of NPK is done by scientists who concentrated on the NPK category of soil nutrients at the expense of other essential soil nutrients. They assumed that the other soil nutrients were already there in sufficient quantities. However, prolonged use of land for farming, poor fertilizer usage and even rainfall has been found to reduce other important nutrients in the soil. This causes an imbalance that locks up many micronutrients, making them unavailable to plants. Organic manure and compost help bind together all these micronutrients namely phosphate, sulphur and boron in the soil.

Conservation agriculture is a good solution to the problem of declining soil fertility as it creates the right balance in soil nutrients. By conserving organic matter content in the soil, this method improves the condition of the soil. However as mentioned earlier, all this depends on the willingness of farmers to change and to use any methods that improve their soil fertility while at the same time increasing their crop yields and income. Already many farmers across the country are slowly abandoning ploughing of land. Instead, they have opted to use 'Round Up' herbicide to eradicate weeds after which they dig holes and plant maize and other crops. This is a good beginning that may lead to eventual adoption of minimum tillage.

## Disturb the soil as little as possible



**In conservation agriculture,** tillage is reduced to ripping planting lines or making holes for planting with a hoe. The ideal is to plant direct into the soil, without ploughing. This protects the soil structure.

**In conventional farming,** farmers plough and hoe to improve the soil structure and control weeds. But in the long term, they actually destroy the soil structure and contribute to declining soil fertility.

## Keep the soil covered as much as possible



**In conservation agriculture,** crop residues left on the field, mulch and special cover crops protect the soil from erosion and limit weed growth throughout the year.

**In conventional farming,** farmers remove or burn the crop residues or mix them into the soil with a plough or hoe. The soil is left bare, so it is easily washed away by rain.

## Mix and rotate crops to improve soil fertility



**In conservation agriculture,** this is minimized by planting the right mix of crops in the same field, and rotating crops from season to season. This also helps to maintain soil fertility.

**In conventional farming,** the same crop is sometimes planted each season. That allows certain pests, diseases and weeds to survive and multiply, resulting in lower yields in the next harvest season.

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## Incentives lacking for farmers

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Let us encourage our children to venture into farming and we can be sure to have a future generation of farmers. We call upon organizations involved in agriculture to develop incentive schemes to nurture our energetic youth. "A bad example" ..energy used to fight and destroy property during the post-election period could have helped till over 20,000 hectares of farmland, plant and weed and half of it used to harvest using manual labour or even build over 200 km of roads that we dearly need in our country. Just imagine. TFC

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## Farmer's Diary

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### Courses & Training

### Shows & Exhibitions

**19 - 21 Sep:** Kenya Trade Fair and Conference, Sandton Convention Centre, South Africa. email: [ktrade@mweb.co.za](mailto:ktrade@mweb.co.za) or [judy@kenyatradefair.com](mailto:judy@kenyatradefair.com) or [info@kenya.org.za](mailto:info@kenya.org.za)

### General

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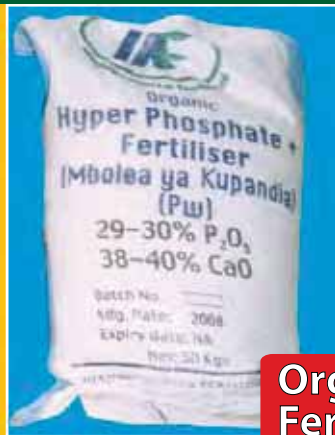
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1. It does throb a lot. It's worth it.
2. Don't get nervous about the black color, the wart has to die first.
3. Keep at it! Don't worry about the skin around the wart. It'll be fine. It may get all wrinkly and pruned but it'll be fine!

**Other Methods**

- Apply fresh cut pineapple to affected areas several times daily.
- For planter's warts cover in duct tape until gone.

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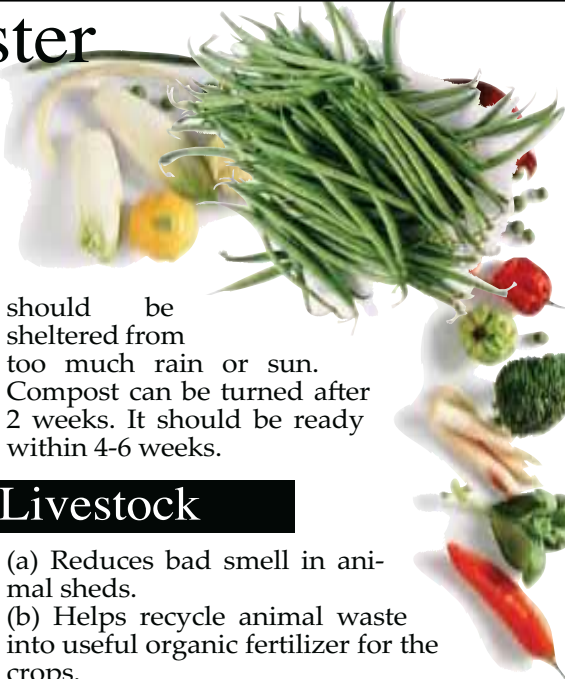


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## A challenge for farmers

As we have seen on page 4, conservation agriculture has three basic principles: disturb the soil as little as possible, keep the soil covered as much as possible, mix and rotate the crops. To gain the full benefit of conservation agriculture, all the three principles have to be applied at the same time. This is the case with ideal practice: direct planting through a soil cover.

This ideal is not possible everywhere. But farmers should try to go in that direction as far as possible. Because each farmer faces a different situation, this may mean different things. Some farmers may find it best to introduce a cover crop first. Others might gain by reducing their tillage to "ripping" (using a narrow plough-like implement that creates a small furrow without turning the soil over) or "pitting" (digging planting holes with a hoe) as a first step towards conservation agriculture. In a second step, these farmers can leave crop residues in the field and start planting cover crops.

Practicing conservation agriculture can be a challenge. It means a different way of farming. Farmers may be reluctant to make the switch, and they need to learn new skills. It also means a new mindset: for example, they have to learn that a "clean" field is not the best.

But the benefits are real. Farmers quickly find that by applying these principles, they can save labour, reduce costs, and improve their soil's fertility and ability to hold water. That means higher crop yields. They can use the time they have saved to expand the area they cultivate, or even to start other enterprises that earn more money. Conservation agriculture may at last give them a chance to break out of the vicious circle that binds them in poverty.

*Ref: Conservation Agriculture - A manual for farmers and extension workers in Africa (IIRR)*

# Farmer uses 75 percent less diesel

**Su Kahumbu**

A few weeks ago I visited a farm in Thika which is owned by PierLuigi Maggioni. The farm produces three main crops for export: Baby corn, French beans and Baby courgettes. Production is along conventional lines, following the European requirements.

PierLuigi is the chief agronomist in the farm, Italian by birth but pretty Kenyan now after residing here for the last twenty years. His interests span beyond conventional methods of production, and he has been at the forefront of Integrated Pest Management (IPM) of production locally. He is ever experimenting in new systems, a firm believer in trial and error and has more patience than I will ever have. Of late, he has been doing trials on 'Zero Tillage' on maize and has managed to produce three crops with astonishing results!

### The big change ...

French beans are first grown using fertilizers which, after harvest, are dried by use of chemical Roundup(1). The bean waste is left in the field and maize is planted directly into the same area, using a seeder(2). The maize does not get any additional fertilizer(3). After the baby corn harvest, this maize crop (4) is chopped above the ground level and beans are planted once more, this time also with fertilizer(5).

Considering this process to be one cycle, after three cycles, the soil is aerated from beneath using a special implement. As shown in the photos, the top soil is covered with maize and bean mulch, which improves the soil condition and quality over time. Also shown in the photos is the uniformity of the growing blocks.

### ... saves a lot of money

The savings realised from this system are incredible. According to PierLuigi's calculations, he uses 75 per cent less diesel, since he simply does not use his tractors as much. Considering that he used to spend 1000 litres with the system there before, this is an incredible saving. Most surprisingly, he has brought his pesticide use to zero. He no longer uses any pesticides on the crops, as pest damage is at negligible levels. Equally important, he has increased his yields by up to 70 percent. This, PierLuigi says, is due to better germination realised by this new planting method – minimal tillage.

"This is a huge eye opener for me. Why aren't other exporters and small-scale farmers doing the same?" quizzes PierLuigi. He is now experimenting with zero tillage on other crops. "I'm fascinated and would love to see this approach adopted by more and more large-scale exporters," he concludes.



## Food prices widen rich-poor gap

*They poor can no longer afford the increasing food prices.*

For the first time since 1973, the world has been hit by a combination of a record high food and fuel prices. The price of oilseeds and grains, such as wheat and maize, has doubled since January 2006, with over 60 percent of the hike taking place since January 2008, according to a World Bank report. The cost of rice more than tripled between January and May 2008.

### Africa is becoming poorer

Since 2001, oil has gone up from US\$ 20 a barrel to an unprecedented \$140. Oil prices are now higher than any time in the last century, not only pushing up the price of food in poor countries importing staple grains and fuel, but also eroding their capacity to buy food. According to a recent World Bank study, at least another 105 million people across the world will become poor. Simulations in this study suggest that in Africa alone, nearly another 30 million people will fall into poverty

Last year, the global grain harvest was a record 2.3 billion tonnes, 4 percent more than in 2006. Since 1961 the worldwide production of cereals has tripled, but the world population has also doubled. It is absurd because even if the production goes up, around one billion people cannot afford to pay for their food. At the same time about a half of the grains produced in the world are used for feeding cattle and for producing fuel.

### Who benefits?

Logically, small-scale farmers should benefit. But very few subsistence farmers in Africa produce surplus food, and are mostly net buyers. The World Bank has also found that although farmers who produce surplus food might be better protected, they might not benefit from the better food prices because the cost of agricultural inputs such as fuel, fertilizer and transportation is much higher than the prices offered in the market.

The big winners are the grain trading companies. The profit of the world's biggest trading company, Cargill, went up by 86 percent in the first three months of this year. Last year, the trading companies made record profits: Cargill's profit went up by 36 percent to 2.34 billion US dollars. ADM upped theirs by 67 percent to 2.2 billion US Dollars while Conagra's rose by 30 percent to 754 million US dollars. (TOF) ■



## farmers forum

### More information on drip irrigation



Thank you very much for your dedication to organic farmers in our country through *The Organic Farmer* magazine. We have been receiving these magazines through Kaimbaga Dairy Self-Help Group and we have benefited a lot through it. I would like to know more about drip irrigation farming that could benefit me especially during the dry season, where to buy these

accessories and how much it would cost for an acre of land. I would also request to know about vanilla crop farming; where to get seeds, how to grow them and their market.

Peter Mwangi, P.O. Box 162, Homa-Bay

*We will send you a copy of TOF that has details on drip irrigation. To buy drip irrigation pipes you can get in touch with the following institutions for advice: Call Esther Muriuki (KARI-NARL) Tel. 0722 397 750. KARI has drip irrigation kits that cater for various land sizes and requirements. They can distribute the kits to farmers through their stations in various parts of the country. Alternatively you can get in touch with the manufacturers, Shade Nets Ltd, P.O. Box 2127, Thika Tel. 067 31051/6 or email: shadenet@wananchi.com*

### New tool that improves soil

I have been developing a copper alloy coating for farming tools (grub hoe) which act as a "slow release fertilizer" when worked in the soil. I believe this technology has the promise to provide an inexpensive solution to improving poor soil for African farmers. Please see my website <http://www.kopperking.com> for more information. I am looking for funding to start a research garden using this technology. Regards, David Prokop

### We want it in Zambia

I received several nice copies of *The Organic Farmer* magazine Nos 33, 34 and 35, sent to me by my Kenyan pen friend that I read with much interest. I wish to receive these helpful and educative magazines on regular basis because I am also an organic farmer, here in Mpika Zambia. I would be very appreciative if you could add my name and address to your mailing list. Once again I am very thankful to you for printing such a wonderful magazine.

Fort Hares' Flori-Organic Gardens, P.O. Box 450114, Mpika - Zambia, Andrew Bwalya

### My employees need it

I have seen a copy of *The Organic Farmer* magazine. I understand that it is given free to farmers and I hereby ask you to send me back copies and to include me in your mailing list. I ask for four copies as some of our employ-

ees have their own small holdings and would benefit from it. We have small farms and we mostly grow mangoes, apples, guavas, pomegranates, coconuts and we also have a casuarina tree plantation. We expect to hear from you.

Foster partner, Sand Island beach, P.O. Box 5516, Diani Beach Tel. 040 3300042, 0721 425 716

### Dear Farmers,

As we have mentioned many times, *The Organic Farmer* magazine is distributed free of charge, but only to farmers' groups. Why? For two reasons. First, our objective is that as many farmers as possible get access to the magazine. This means that if we sent the magazine to a farmers' group, we can be sure that one copy will be read by other farmers in the group. And what we have also seen is that when farmers share TOF, they always discuss the articles and share their experiences. Secondly, for us, it is much cheaper to send to groups than individuals. To send one copy of the magazine to every farmer would cost Ksh 30. Now we pay only Ksh 5 when we post the magazines to groups. So if you would like to be in our mailing list, please form a group of about 10 people and write to us. You will get a copy of TOF every month!

Questions? Ideas?

Complaints?

SMS us, and we shall get back to you.

**0721 541 590 / 0738 390 715**



# Hot water treatment of seeds

How can I treat my farm stored seeds to control seed-borne diseases?

Many farmers are using their own seeds in their shambas. This makes sense, but it would be good to treat the seeds with hot water to prevent seed borne diseases such as black rot, black leg, black spot and ring spot. This treatment helps reduce the seedborne pathogens (a bacterium or a virus, or other microorganism that can cause disease).

But you have to be careful. Specified temperature and time interval must be strictly followed in order to maintain seed viability. What you need is a good thermometer. A thermometer for this purpose costs Ksh 800.

## How to treat the seeds

1. In a large pot put plenty of water, heat the water following the required temperature.
2. Place the seeds in a loose cotton bag and submerge it in water. Strictly follow the recommended temperature and the time required (See box

Heat treatment recommendations  
Spinach, cabbage, pepper, tomato, eggplant: 50°C: 30 minutes  
Broccoli, cauliflower, carrot, kale, kohlrabi, turnip: 50°C: 20 minutes  
Mustard, cress, radish: 50°C: 15 minutes  
Lettuce, celery: 47°C: 30 minutes

below!). It is important that the water is maintained at a uniform temperature throughout the container. Constantly stir the water while soaking the bag. Suspend the bag and do not let it touch the bottom of the pot.

3. Remove the bag after the indicated time and cool it in clean water to stop the heating.
4. Spread the seeds on a clean dry paper to cool and dry.
5. Preferably do not store treated seeds. Sow them immediately on well-prepared seedbeds.

## Storing seeds:

If treated seeds cannot be sown immediately, store them carefully. Use a totally dry jar, pot or bottle and close it properly. Spread about 2 mm layer of grease or vaseline over the plastic or cork so that the edges are covered to prevent moisture getting into the container. Check regularly if mould has formed on the seeds. If the seeds were dried well, the chance that mould would develop is very small. However, should you see mould, dry them again.

*(In non-organic culture it is advisable that dry seeds be additionally treated with a mixture of fungicide and insecticide before storage. In this case use only registered products and duly comply with the instructions on the label) (TOF)*



## The correct size of a chicken house

I would like to rear 100 chicken. What is the measurement of the chicken house? 0724 104326

On the model poultry house in TOF Nr. 31, how many chicks are supposed to be raised on that house? Thank you 0723 866274

The brooding house for 100 chickens can start off 1.5m by 1m as the chicks are very small. As they grow the spacing needs to be increased to accommodate their increasing size. It is wise to start off with a room that is over sized and contain the chicks in a small area with partitions which can easily be removed and resized as the chicks grow.

When the 100 birds are adult size they will require a laying and roosting house of approximately 5m x 2.5m, on condition that they have ample outdoor access during the day time. **Su Kahumbu**

## Information on beekeeping

I need more information on beekeeping, where can I get the right training material? Maina, Nyeri

Many farmers have sent various questions on beekeeping. We cannot

be able to answer all the questions on this subject due to



lack of space. However we would request any farmer interested in getting information on beekeeping to send us their full address. We will send them past issues of *The Organic Farmer* which they can use for reference on this subject. Alternatively, there is a very useful book on beekeeping titled: *A Beginner's Guide to Beekeeping in Kenya* by Thomas Carroll. It is available at Legacy Bookshop, Yaya Centre Nairobi.

( [www.legacybookshop.com](http://www.legacybookshop.com) )



## With proper care, carrots grow well

What diseases affect carrots?

0725 652290

Carrots suffer from a few diseases when growing under the right conditions. Most diseases are of bacterial and fungal nature, resulting in rotting of the carrot roots (bacterial), or infection of the green leafy carrot tops (fungal). Canker and sclerotinia rot affect carrots mostly after harvest, causing sunken wet spots as well as white fungal growth on the roots. To avoid these diseases, it is imperative to lift mature carrots and store in cool dry condition. Remove any roots with disease as they will cause a spread of the same.

Fungal diseases affect the green leafy

growth of the carrots, and can cause stunting of the roots. Carrot diseases can be avoided with good rotation, healthy soils and proper storage of the roots. Other problems to look out for in carrots are root splitting, caused by sudden onset of too much rain after a long dry spell, forked carrots, caused by growing carrots in soil that has not been well prepared and is stony and hard, nematodes, These cause damage and stunting to the root resulting in small cysts attached to the carrot hairs. If nematodes are present, rotation is recommended, as well as a growing (even intercropping) of African marigold in the effected areas.

**Su Kahumbu**

## tips and bits

from farmers for farmers

# Soil fertility: The bottom line for better yield

*Interesting comparative results of long-term farming systems in Thika and Chuka.*

### The Organic Farmer

"How can I earn a better living as a small scale farmer, with organic or conventional agriculture?" This is a question that we hear very often when visiting farmers' groups throughout the country. It is not so easy to give a definite answer, since there are many elements that have to be taken into consideration: The soil for instance, or the weather, or the seed, or the availability of credit. This explains why field trials, which compare the yields of organic and conventional agriculture over a long period of time, are of great importance. For a year now, various institutions have been working together in field trials (see TOF No. 30 of November 2007). The trials on two sites, in Thika and in Chuka, have now delivered their first results.

### Diverse trial sites

At the trial site in Chuka (Meru South District), which is located in a high potential area, the organic maize yields of the long rainy season 2007 were the same as the yields of the conventional maize. Maize yields of both the conventional and the organic systems could have been increased if the amounts of organic manures and fertilizers were doubled.

In contrast, at the trial site in Thika (Maragua District), which lies in a zone with medium to marginal potential, organic maize yields were less than half of the conventional maize yields. Doubling of the organic manure and fertilizer amounts did not result in higher yields, neither in the conventional nor in the organic system.

What then is the reason for this difference? It is assumed that, on the rich soils of Chuka, the crop from the organic system benefited from nutrients that were readily available in the soil. The soil in Thika, on the other hand, is much less fertile. On these poorer soils the crop had to depend on the easily soluble fertilizers that were applied only in the conventional system.

### Fertilizers not a cure for poor soils

This first year's example also showed that high levels of fertilizers only pay under ideal conditions. Under less favourable conditions, high doses of fertilizers may not generate higher yields, and the farmers risk losing the money so invested. Can higher doses of compost, tithonia mulch and rock phosphate, together with mucuna as an intercrop, increase soil fertility and thus maize yields of marginal sites in the long term?

This is one of the objectives of this study. The partner institutions intend to continue these trials over the next



Martha Musyoka (trial coordinator, icipe) discusses with a field assistant in Chuka. (Photo: Christine Zundel, FiBL)

ten years. Only then will it be possible to make a conclusion on the performance of organic farming compared to conventional agriculture, since it takes time for the soils to build fertility in the organic system.

### Trials in India and Bolivia

Similar trials were also carried out in India and Bolivia. In India, where a crop rotation with cotton, soya and wheat was studied, the organic yields of the first year were considerably lower in cotton and wheat. Due to lower production costs and the price premium for organic cotton, the gross margin for organic cotton reached the level of the gross margin for conventional cotton. In wheat, where no price premium is paid, the gross margin for the organic crop remained low, despite the lower production costs. Yields and gross margins of conventional and organic soya were similar. This was expected, since soya is a leguminous crop that can fix its own nitrogen without need for the use of any fertilizer. ■

Long-term comparative farming systems in Kenya are being researched on by the following institutions:

FiBL	Research Institute of Organic Agriculture, Switzerland
icipe	African Insect Science for Food and Health
KARI	Kenyan Agricultural Research Institute
KU	Kenyatta University
TSBF-CIAT	Tropical Soil Biology and Fertility Institute of the International Centre of Tropical Agriculture

## How to order Infonet-Biovision CD

Do you have a problem with pests in your shamba? Would you like to know how to fight spidermite? Then you should order the Infonet-Biovision CD which we have talked much about. The CD contains all the information that a farmer may need. However, information on human and animal health requires much more work, it will included when the final CD is ready early next year. We are offering the CD for Ksh 200. This amount caters for both the package and the postage charges. Farmers who buy the



first edition of the CD will get the final version free of charge. Using the CD

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