

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 38 July 2008

TOF put to task on feeds

Farmers are pressing TOF to mention the companies making poor quality animal feeds so that they can choose the right ones.

The Organic Farmer

Since *The Organic Farmer* in the April 2008 issue highlighted the problem of animal feeds in the country, we have received numerous calls from farmers wanting to



know where they can buy quality feeds. Many of them are not happy with the quality of most feeds in the market. They want us to name the companies that produce low quality feeds. "If you do not name these companies, then you are party to the exploitation of the farmers", they say.

For us this is a difficult situation. As we told you in our April issue, naming these companies will invite a string of legal suits

against *The Organic Farmer* magazine for tarnishing their names. It is very unfortunate that Kenya does not have strong consumer organisations that can speak on behalf of farmers. During our survey well-known companies such as Unga feeds and Sigma Feeds were found to have feeds that met all the requirements. But most farmers prefer buying cheaper feeds, therefore compromising on quality.

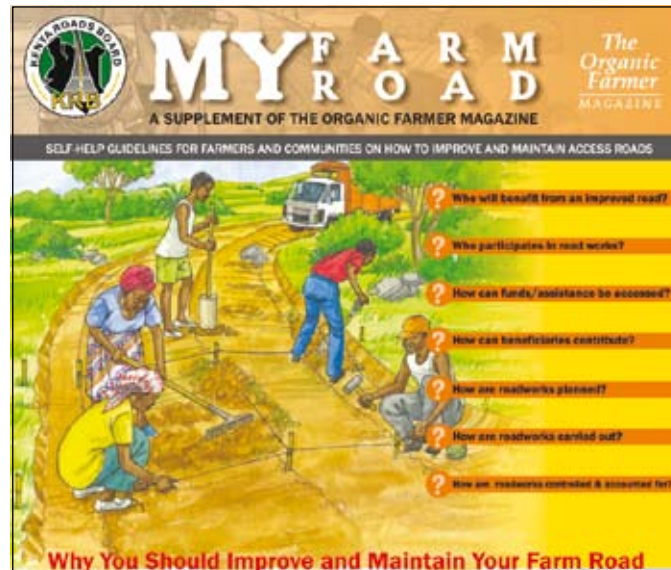
Sugar syrup as poultry feed

With the current scarcity of cereals, their prices and that of their by-products, which are used in the manufacture of animal feeds is set to go up. Farmers will therefore be forced to pay more for animal feeds. Many small-scale farmers will find it difficult to buy supplementary feed for their livestock due to the increased prices. At least for poultry, there is a cheaper alternative – in sugar syrup. One reason is that chickens can easily digest it and get more energy to increase their egg and meat production than from cereals. Local feed manufacturers can explore the possibility of using it to make poultry and pig feed. See page 4

Do not neglect your animals



Despite relying on animals for food, labour and various other products, many farmers neglect them through poor feeding, shelter and general care. This is not only unfair, it is not wise to neglect the source of your income. Pg 2 & 3



Dear farmers,

Most of the roads in farming areas of the country are in a pathetic condition. Transportation of farm produce to the market is very difficult, especially during the rainy season. Cars and trucks using these roads break down quite often, forcing transporters to spend so much money on repairs. They in turn hike transportation charges so as to equalize on maintenance costs and maximise on profits, eventually passing on these costs to the farmers.

A good road network is very important for any developing economy such as Kenya's. Why should farmers work so hard to produce food if a large portion of their earnings only ends up in paying for transport?

A lot of money is now being disbursed to all parts of the country through the Constituency Development Fund and the Local Authority Transfer Fund. A large proportion of this money is set aside for construction and maintenance of rural access roads. Farmers should ensure that this money is properly utilised for the improvement of the roads in their areas. Even without these funds, they can still come together and repair bad sections of the road which become impassable, sometimes only due to a blocked drainage system or even a pothole that needs refilling. Inside this issue, *The Organic Farmer*, together with the Kenya Roads Board, has brought you a very practical guide on how to construct and maintain your rural access roads. We are thankful to the Roads Board who financed this insert.

The problem with the Kenyan roads is, we emphasise, poor maintenance. Farmers should not sit back and wait for the government to repair the roads. They should take the initiative and repair the roads themselves, because it is them that suffer when these roads are bad.

Donkeys, a valuable asset on the farm

Despite their use for transport and work on the farm, donkeys are often neglected and mistreated.

Anja Bengelstorff

If you are a farmer who owns one or more donkeys for work, make sure

Kwaheri...

We would like to inform our dear readers that Dr. Fritz Schulthess and Dr. Bernard Loehr have left ICIPE and are no longer members of The Organic Farmer Advisory Board. We are grateful to both scientists for their kind contribution to the magazine since it was initiated in April 2005. Whenever we sought answers to various scientific questions they would offer solutions promptly. We wish them all the best in their future endeavours. Asanteni sana!

...karibuni

At the same time, we would like to welcome the new members to the board, Dr. Henry Kiara, a livestock expert at the International Livestock Research Institute (ILRI), Dr. Sunday Ekesi, a plant pathologist at ICIPE, and Prof. Christian Borgemeister, Scientist and Director-General ICIPE. Karibuni sana!

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you treat them well. Because if you do not, you not only harm the animals, but you also lose a lot. Your donkeys are assets: The great wealth of the Egyptians, for example, was due to the precious metals carried from Africa by donkeys.

600,000 donkeys

The Kenya Network for Dissemination of Agricultural Technologies (KENDAT) estimates that there are more than 600,000 donkeys in Kenya. About half of them are used for work in transport and tillage. The organisation believes that around 210,000 donkeys are in a poor condition due to human abuse and misuse, based on myths, in-humane traditional practises, and malnutrition. They are whipped profusely, denied food, water and shelter, have to carry heavy loads and pull overloaded carts.

In pastoralist areas, donkeys may not undergo major and typical suffering, but abuse from traditional practices like branding, ear notching and nose piercing, poor watering and feeding are common. In addition, many donkeys in drought-prone areas of Northern and Eastern Provinces and the coastal region starve to death due to lack of water and pasture. In times of flooding, donkeys may suffer from disease outbreaks such as Rift Valley Fever.



Abusing and misusing your donkey is an offense of cruelty under "The Prevention of Cruelty to Animals Act" of Kenya. In part VIII, this legal document describes precisely how, according to the law, donkeys used for various purposes should be treated. Violation of this Act is subject to prosecution.

From an economic point of view, well-treated and cared for donkeys are able to work more efficiently. This includes proper treatment for diseases and, if possible, a regular check-up by a veterinarian to maintain animal health.

As human beings, we should express basic principles of compassion and humane practice towards animals, and particularly those which work for us. Improving the welfare of working donkey calls for a behaviour and attitude change among animal owners and users.

How to take care of your donkeys

- Provide adequate feed for the animal, especially grass, grains and grain by-products, as well as adequate water and salt. Draught animals (animals that carry heavy loads) need to replace water and minerals lost through sweating during work.
- Allow it adequate rest. Work the donkey in the morning, let it rest for at least 4 hours and feed it during midday, then it can work again in the afternoon for 3 more hours. Do not overwork the animal, it may kick or become stubborn.
- Provide adequate shelter, keep it well groomed in a healthy and clean environment.
- Trim the hooves regularly (at least twice during rainy season). Do not trim during dry season!
- Treat diseases and wounds promptly. Deworm the donkey regularly every 3 months.
- Ensure proper harnessing to avoid health problems such as galls, wounds and burns which can reduce the donkey's performance. Do not mistreat it when harnessing, it needs to feel comfortable if it has to perform its duties well.
- Use a cart rather than transporting loads on the donkey's back. This can harm the animal.
- Do not work pregnant donkeys for 3 months before and 3 months after they have given birth. This "maternity leave" allows proper nutrition for the foal (a young donkey).

All animals need tender, loving care

If animals' needs are not met, their development, health and productivity declines.

Michael Waweru

Farmers should strive to have as many types of livestock in their holdings as each type furnishes different benefits at the household level. Special attention should be accorded to poultry and rabbits as the cash they generate goes directly to women and children. Their droppings are also used to make nitrogen-rich liquid manure that increases vegetable production in the kitchen gardens thus improving the family diet. The donkey is very useful in easing the labour burden on women especially, in carrying heavy loads.

Respect the nature

Animals, just like human beings, have their needs. If these needs are not met, then their development, health and productivity declines. Only by paying close attention to little details and lovingly sorting out problems and challenges can productivity be increased. Exploitation and mistreatment of animals never pays.

Farm animals should be kept according to their nature and therefore allowed to express their basic behavioral needs.

Chickens for example like perching at night therefore perching rails should be provided in the chicken house. They also naturally like scratching in search for ants and worms. They therefore should have access to an open ground, which also encourages

dust-bathing. Ready compost can also be provided for their scratching needs. Green vegetables should be hanged 0.5 m off the ground so that chicken can exercise as they jump to reach the vegetables. Dark secluded nests should be provided for laying.

Pigs like rooting and so they should have access to an open ground. A heap of ready compost can be provided. Hanging chains or tyres act as good playing gadgets.

Goats, being browsers, like their fodder suspended high enough so that they can attain an upright posture.

Poor living conditions

Although animals are an important asset in many Kenyan households, their living conditions including feeding, housing and general care is very poor. When visiting farmers, we get surprised. We find nice planted fields, and the area between the houses is as clean as a bald head.

This ideal pictures changes when we are invited to see the cattle shed. It is common to find more than 5 cows cramped in a small muddy zero-grazing unit with little or no space for



Clean and healthy animals are the pride of any farmer Photos TOF

movement, rest or even play. Most dairy cows, goats and even pigs are forced to lie on a bed of their own droppings, urine and mud. Animals kept in such condition are susceptible to all kind of diseases. - It is more economical to remove the manure and change the beddings daily. These can later be made into good compost for use on the farm as fertilizer.

Housing of animals is a big challenge to many farmers. The housing environment should have:

- Space enough for sufficient free movement
- Sufficient fresh air and day-light
- Enough lying and/or resting area according to the size of the animal
- Natural bedding material for large animals (cattle, sheep, goats and pigs)
- Fresh water and feed should always be provided

The problem with zero-grazing

Due to the small land sizes as a result of subdivision, farmers are forced to practise zero-grazing. No doubt, it has its advantages: Less energy is spent looking for food; grasses, legumes and by-products in the farm are more efficiently used. The grass is not trampled upon by cows. Manure can be collected easily and there is decreased risk of diseases, tick infestation and even theft.

However, zero-grazing means that animals have to be kept in small spaces where movement is restricted. This is totally against the natural behaviour of cattle. Zero-grazing without adequate space for cattle to move around does not take care of the animal. It is therefore unwise: Confinement of animals without adequate space creates stress

and discomfort and reduces milk production, and less milk means less income.

In so many nice shambas, the structures for cows are dark, dirty makeshift holes, a lovely home for flies and insects – and a breeding place for diseases. The cows are covered with mud



Badly fed animals in a poor shelter

all over the body, which attract flies and even contaminates milk. How can milk from such a farmer be clean? A responsible and a focused farmer provides their cattle with good shelter and with adequate space where they can rest at night and continue feeding, watering and licking mineral salts. The zero-grazing structure should have sufficient space for air-circulation and natural daylight. The unit should protect the animals against excessive sunlight, heat, rain and wind. The structure should be able to house all the animals without crowding. The floor should be made of rough surface and slanted to allow for drainage of rainwater or urine. A slippery floor is dangerous for animals as it may cause injury. (mw)

Sugar syrup: A nutritious feed for poultry

The increase in prices of cereal grains may force farmers to look for alternative feeds, like sugar syrup.

William Ayako

Due to the recent global increase in price of cereal grains, poultry and pig farmers are faced with a serious feeding challenge, in Kenya as well as in other countries. Feed quality deterioration due to lack of quality control standards is another impediment to growth and development of the industry. Feed manufacturers depend mainly on locally grown grain cereals whose production is often affected by changing weather. Imported raw material may not meet the required nutritional standards, which in the process affects the quality of animal feeds. The recent pronouncement by the government of Kenya that there is looming hunger due to maize shortage meant that the available maize would be used for human consumption and not for animal feed manufacture.

In the Middle East where the cost of grain is continuously hiking, the prospects of sugar syrup as energy feed for poultry feed manufacturing is being adopted. Kenya is endowed with more than six sugar processing companies: Mumias, Muhoroni, Chemelil, Nzoia, and Sony-Awendo being the major processors. These factories can venture into processing of sugar syrup purposely for feeding of livestock. Until recently, the use of molasses as energy source in animal feed was not considered, although as a binder, dust reducer and sweetener at low inclusion rate. Molasses is highly viscous syrup with 48% sugar and 20 % ash. Sugar syrup is a high

Comparative analysis

Analysis of corn and sugar syrup based on set parameters:

Particulars	Corn	Sugar syrup
Dry matter (%)	89	80
Crude protein (%)	9.6	4.6
Fibre (%)	2.5	0
Fat (%)	4.1	0.2
Ash (%)	1.5	6
Starch (%)	75	0
Sugars (%)	0	70
Metabolisable energy MJ/kg	13	14
Calcium (%)	0.1	0.92
Phosphorous (%)	0.3	0.2
Magnesium (%)	0.1	0.17
Potassium (%)	0.4	0.85
Sodium (%)	0.1	0.1
Lysine (%)	0.8	0.02
Glucose+Fructose	0	65



Sugar syrup is a good alternative to grains quality molasses with 70% sugar and 6 % ash.

Easy to digest

Sugar syrup is easily absorbed by the enzymes in the digestive tract of chickens. The digestion of most carbohydrates takes place in the small intestine of chickens; the end products are mainly, glucose and galactose (both being forms of sugar). The digestion is enhanced by enzymes. Sugars have been accepted as better energy givers than starch in the animal system. The energy a chicken manages to extract from sugar syrup is often higher (98 %) than that of starch from cereals (78- 90%).

Sucrose is converted into glucose and galactose which are essential energy units in poultry digestion. Birds require significant levels of glucose in the diet for growth, egg production and maintenance: 2 kg feed cater for 1 kg meat (or 2 grams feed for 1 gram meat) and 4 kg feed cater for a dozen eggs or 105 grams of feed for 1 egg of 52 grams.

Grains are expensive

In commercial poultry feed formulation, grains constitute nearly 80 percent by weight of the compounded feed. 1 kilogram of grain (maize) is currently costing Ksh 20-30. The factory price of 1 litre of molasses is between Ksh 5-10, the middlemen charge Ksh 30-50 per litre. In absolute terms and based on the dry matter, grain can be substituted by same proportion of sugar syrup. This means that to formulate 1 kg of feed, one requires about 800 grams of sugar syrup and 200 grams of other protein rich ingredients. Therefore for one layer bird, 1 kg of compounded feed is enough for 9 to 10 days and this feed can produce up to 10 eggs. For a farmer to feed 50 chickens for 30 days, they require 126 kg of sugar syrup

(Photos P Luthi)

and 32 kg of protein rich ingredients to formulate 158 kg feed.

Advantages of sugar syrup

Based on the above measures and other observations, use of sugar syrup in poultry feed has many advantages. One of these is that it is easy for chicken to feed on sugar syrup. The syrup helps improve the digestion of dry matter in the chicken's stomach. As a result of its sticky nature, sugar syrup reduces dustiness of feed as the dust particles get stuck on the feed. Unlike cereals, it is difficult for mould to form on sugar syrup; therefore there is no danger of the feed being contaminated by aflatoxins.

It is also not prone to insect infestation during storage. Sugar syrup is used as a binder in feed pelleting. Its taste makes it possible for the chickens to feed on ingredients that are less appealing due to their taste. Sugar syrup improves digestion when added to other feed formulars and facilitates the gradual movement of digested feed through the intestines of the chickens to allow for absorption of the nutrients. Although the use of sugar syrup as an alternative to grain in poultry feed formulation is suitable, the technology require the right advice on how to make the correct formulation for specific birds before farmers can use it. ■



The protein that kills dangerous worms

Bacillus thuringiensis (*Bt*) is a proven remedy against a number of insect pests, especially worms.

Paul Gitau

Whenever my neighbour Maina detected some armyworms or any types of loopers attacking his crops, he went for marigold and garlic. He cut them into small pieces, put them in 20 litres of water, added some soap and sprayed nearly every day. However two years ago, he heard of a product made from *Bacillus thuringiensis* (*Bt*). When he tried it, all the pests were gone. To him and his neighbours, the marigold and garlic are things of the past. Whenever they have a pest problem, in order to share the costs, they often buy the *Bt* together in wholesale. "All of us rely on this effective remedy for pest control", he says. *Bt* is a naturally occurring soil bacterium whose mode of action is to cause disease on insect pests. It is accepted as an alternative in organic farming and is considered ideal for pest management because of the following qualities:

- It is host specific (it only kills target pests)
- It is high virulent and very efficient,
- It is easy to apply, and
- *Bt* is environmentally friendly with no toxic effects on natural enemies and humans.

Bt is commercially available in most agro-veterinary shops. It is sold in various formulations (spray, dust, and granule) and brands (*Bt tenebrionis*, *Bt kurstaki*, *Bt israelensis* etc.). The products have an excellent safety record and can be used on the crop until the when it is about to be harvested. *Bt* products in Kenya are sold under the following commercial names: Dipel, Javelin, Thuricide and Xentari. Unfortunately, the use of *Bt* is not very well known in Kenya, and TOF-research in various agrovet shops has shown that the personnel in these shops is ill-informed about the product.

How does *Bt* work?

Bt can be applied using conventional spray equipment. Good spray coverage is essential, since the bacteria must be eaten by the insect pest to be effective. When insect larvae feed on leaves sprayed with *Bt*, it produces a protein in the stomach of the pest. The proteins poison and paralyze the insect's digestive system; the insects stops feeding within hours. The *Bt*-infested insect



Cutworm



Bean pod borer



Cabbage looper

will live for several days but will cause no further damage to the plant. They will eventually die from starvation.

Various *Bt* formulations target different types of pests. Buy the right *Bt* strain for the insect pest you want to control. Some commercial products may even mix varieties or contain additional varieties. Read the label and follow the instructions carefully. Ask for advice from your local agricultural officer or the shop where you buy the product when using *Bt* for the first time.

Bt kurstaki is used for the control of many caterpillar pests including imported cabbageworm, cabbage looper, hornworms, European corn borer, cutworms, some armyworms, diamondback moth, spruce budworm, bagworms, tent caterpillars, gypsy moth caterpillars and other forest caterpillars.

Bt israelensis is used for control of mosquitoes. It is probably more effective to eliminate mosquito larvae in standing water.

Bt tenebrionis controls beetles.

Effective against tuber moth

In TOF Nr. 36 of May 2008 we reported about the potato tuber moth and the damages this insect can have in stored potatoes. More than 10 years ago, the German Scientist and potato-specialist Juergen Kroschel researched on various methods of keeping stored potatoes healthy. He compared the use of Neem, Garlic and *Bt*. The best protection was the mixture of the product

Dipel, which contains *Bt kurstaki*, with fine sand, and spread over the stored potatoes. 40 g of *Bt* plus 960 g sand (well mixed) and spread over 1,000 kg potatoes was a 100 percent effective control method.

How to spray *Bt*

Successful use of *Bt* formulations requires application to the correct target species at the right stage of development, in the right concentration and at the correct temperature (warm enough for the insects to be actively feeding). Application is effective before the insect pests drill their way into the crop plant or fruit from which they are protected. Young larvae are usually most susceptible. Caterpillar growth may be retarded even if a small dose is given. Determining when most of the pest population is at a susceptible stage is key to optimizing the use of this microbial insecticide.

1. Spray thoroughly, covering all the plant surfaces.
2. Apply when larvae are less than 5 mm long or when the eggs begin to hatch. *Bt* works best on young larvae.
3. In the hot tropics, it is more effective to spray *Bt* in the late afternoon as there are longer and cooler hours ahead. This enables *Bt* to remain longer on the leaves' surfaces. *Bt* survives better in cooler temperature. Spraying in the morning provides for a shorter and hotter environment. Do not spray *Bt* on wet days or when rain is expected.

Other methods for caterpillar worm control

Apart from using *Bacillus thuringiensis* (*Bt*, see on this page), there are other methods to fight the damaging worms:

Neem

- Grind 500 grams (g) of neem seed kernels in a mill or pound in a mortar.
 - Mix crushed neem seed with 10 litres of water. It is necessary to use a lot of water because the active ingredients do not dissolve easily. Stir the mixture well. Leave it to stand for at least 5 hours in a shady area.
- Spray the neem water directly onto vegetables.



About 20 to 30 kg of neem seed (an average yield from 2 trees), prepared as neem water can treat one hectare of crop.

Pyrethrum powder

Grind dried pyrethrum flowers to a dust. Sprinkle over infested plants.

Pyrethrum liquid

Mix 20 g of Pyrethrum powder with 10 of litres of water. Soap can be added to make the substance more effective; apply immediately as a spray.



Good market for leeks

Farmers looking out for new crops should think about leeks.

Leeks is a hardy bulb of the onion family which can be grown twice a year. The lower portion of the leaves is used as a flavouring in soups and stews or as a raw vegetable. Leeks are tolerant to many diseases.

Climatic requirements

The crop is grown in a wide range of climatic conditions and fertile soils. It is a cool season crop and grows well at an altitude of 1500 m and above.

Varieties: There are three varieties which currently include broad flat, Italian giant and Mussel burg.

Propagation: The young seedlings are grown on nursery beds or seed boxes. Nursery management is similar to that of onions.

The seedlings are transplanted in trenches or raised seedbeds of any

length which should be about 1 m wide. On trenches the plants are spaced 20 cm apart. On raised seedbeds, they should be



transplanted in rows at spacing of 30-38 cm apart and 15-23 cm between the plants. Planting should be done in holes that are 15 cm deep and watered after planting.

Fertilizer requirements: Well-composted manure should be applied at land preparation stage.

Weed control: The plants should be kept weed-free. Watering is essential during dry weather. The bulb should be well covered with soil.

Harvesting: The plants mature in 16-20 weeks after planting. Harvesting should be done after the shoots are well-developed and have attained a diameter of 5 cms and are 25-30 cm long. The whole plant is lifted and the soil washed off. The roots and the upper leaves are trimmed and the crop tied in bunches for marketing. Leeks can be sold to top hotels, urban markets and can even be exported.

Nutritional value: The leaves contain 85 percent water, 2 percent protein, 11 percent carbohydrates, 1-2 percent fibre, and 50 mg calcium and a little fat. (TOF)



farmers forum

Magazine helping us improve farming

We are a group of farmers called Karanya Farmers Self-Help Group. We came across *The Organic Farmer* magazine and learnt a lot on organic farming. We learnt a lot about sweet potatoes, damage caused by nematodes, rules for better soil, beekeeping and other issues. We have already introduced a bee keeping project in

our group and we are practicing organic farming in our area. We are thankful to you and we shall be grateful if you would send us past and future copies of the magazine to help us improve our knowledge and skills in organic farming.

John Kiruka Njau, P.O Box 453, Naivasha

Information will reduce poverty

I happen to come across *The Organic Farmer* magazine and I found a lot of information which when put into practice, can help alleviate poverty among small-scale farmers across the country. I am very interested in improving the quality of my dairy cows as I have the problem of poor quality breeds. Please put me on your mailing list. I don't want to lose the opportunity to read it as it will improve my life and that of other farmers in our village. Joseph K Chepkwony, P.O Box 149, Longisa

Helpful to small-scale farmers

We are a farmers' group in Timau. We are interested in small-scale farming. We discovered that your magazine, *The Organic Farmer* has a lot of useful information to enable small-scale farmers like us to get maximum production by using the latest information you provide in your articles. We would be very glad if you could send us copies so as to update us with the new trends in farming otherwise we have been borrowing a copy each month from friends. Thanking you in advance. James Mwaura, Kuramata Group, P.O Box 202, Timau

Send us magazine

I hereby request kindly for *The Organic Farmer* magazine. I have other farmers who are also interested in reading it. Please kindly be sending us 6 copies monthly. Jacob Nyongesa, Kisabo Retirees CBO, P.O Box 79 30209, Kimini

Impressed by magazine

Having read TOF Nr. 33, I was much impressed with the information. Therefore, I would like you to send me 4 copies every end of the month. Kindly send me issue Nr. 32, 31 and 30. Thank you. Jonathan Khayumbi, P.O Box 3293, Kitale

The future is organic

Thank you very much for your magazine. I am the chairman of Kibaryaki Fruit Growers. I have come across your magazine and read it. I have discovered our future in farming especially organic farming, which was proved to be of good potential in food production as well as money generating enterprises. I kindly request for monthly issues for my members. I am a farmer in Githongo location, Central Imenti Division in Central Meru district. We shall be very grateful if you grant. Ashton Mwongera Magiri, P.O Box 62 60205, Githongo Meru

Issue was very useful

I represent a registered group of farmers in Kangundo district. We are engaged mainly in dairy and poultry farming. We also deal in coffee farming. We came across your magazine *The Organic Farmer* and we would like to continue to receive copies every month. Sabina M Mulwa, Tisa Tisa Self-Help Group, P.O Box 1268, Kangundo

It is simple to understand

I am a small-scale farmer and I would like to be on the mailing list. The magazine is self explanatory to whoever reads it. I have seen two copies of your magazine and have found it to be very useful for me and other farmers. Also please you can supply me with the former copy of blight resistant tomato which is suitable for organic farming. Christopher C.G.Kariuki, Mirangine F.C Scheme, P.O Box 8, Mirangine

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.



Prepare your land well before planting

Please advice me on which steps to follow in order to produce 15 bags of maize from a half acre of land. James Kinyua Tel. 0728 212 261

To attain good yield from your maize crop, you need to prepare your land early enough before the onset of the rains, preferably when the soil is still moist. Good land preparation ensures the soil is fine enough and all the weeds allowed to die on the surface under dry conditions. Seed selection is also very important. You should buy the seed variety suitable for your area. You are advised to buy seeds only from established seed companies or their approved agents. If you are growing maize organically, ensure you use well-composited manure, a half an acre of land requires 2.5 tonnes of manure . For best results it is advisable to build soil fertility first by applying the manure one year before the planting season to ensure the nutrients are broken down



Good compost boosts yield

Thanks for your frequent educative magazine you have send to our epanja wakulima youth group. How can we make organic manure using EM? How long will it take? 0721 908 675

The requirement for composting is organic material such as animal manure, crop remains, kitchen and household waste and hedge cuttings, but not seeding weeds. It is useful to include some plants with a lot of nutrients. All kinds of legume leaves (for example crotalaria, desmodium, soybean, lablab etc.) add lots of nitrogen to the compost. Coffee husks, banana stalks, sweet potato vines, etc. are important as sources of potassium. Excellent ingredients for the compost are leaves of tithonia and comfrey, since they add not only nitrogen and potassium but also help speed up the process of breaking down organic materials of plant and animal origin to produce humus

After making each layer of compost with the required material, you can sprinkle 2 kg of rock phosphate and

spray with a diluted solution of Effective Microorganisms (EM1) mixed with molasses (follow the prescription on the EM-bottle). The addition of rock phosphate is helpful because most organic material has only small quantities of phosphates. The EM solution has many beneficial microorganisms that help break down the compost faster. When EM is used, the compost will be ready for use after four to five weeks.

One should make a compost pile every week so that eventually you will have a continuous supply of this nutritious mix full of microorganisms to feed your soil. Compost must be turned to aerate, mix the materials at least three times over a period of 6 weeks. High temperatures in your compost heap will help to kill pathogens and weed seeds. After the third week your compost will progressively cool down over time until it is completely cool and ready to use. Make sure to moisten the pile during each turning, y can add more EM1. (TOF)



Healthy soil produces good harvest

and readily made available to your maize when you plant. Ensure no weeds grow because these will take away essential nutrients. A handful of compost can be added in each hole at planting time. Planting early before the rains start ensures good germination and vigorous growth. Do not plant closely; correct spacing should be 2 ft between one hole and the next. Rows should be 75 cm apart. Ensure two seeds are planted in each hole. You can top dress the maize with plant teas from tithonia, comfrey or any organic fertilizers available in your area. Ensure weeds are controlled throughout the season and you will get the desired yield – or even more. (TOF)

There are alternatives to DAP/Urea

Can I use TwinN on my sugarcane farm instead of DAP/ UREA? What quantity can I use? Tel. 0712 490 869

Yes, TwinN can be used in place of nitrogen fertilizers, such as CAN or Urea for top dressing of all types of crops (maize, beans, tea, sukumawiki, fruit trees etc.). TwinN provides the plant with all their nitrogen requirements throughout the growing period, when applied only once at the usual time farmers apply CAN or Urea. Sugarcane takes up to 18 months to matures, so you can spray TwinN when the crop is 1 ft high and then after every six months.

To get better crop yields, farmers can mix the TwinN with Turbo Top, another new foliar spray containing phosphorus (39%) Potassium (25%) Zinc (1%) copper (0.75%) and Manganese (0.5%); Turbo Top can be applied at the rate of 5 kg per hectare (2.5 acres).

The application rate is 100g TwinN pack for every 2.5 acres. Farmers can ask for both TwinN and Turbo Top directly by calling Lachlan Ltd. on Tel. 020 2073912/3/4, 0722 209 474. The company has agents who sell their products in agrovet shops all over the country. (TOF)

tips and bits

from farmers for farmers

Can Jatropha bring solutions?

The seeds of the Jatropha tree could be used for the diesel-production and fuel for your stove.

The Organic Farmer

Jatropha is a hardy, fast growing shrub or tree. Because of its high levels of oil in the seeds, many countries are planning to explore the seeds for production of biofuels. This gives Jatropha the nickname "biodiesel tree". Some countries in Africa including Zimbabwe, Zambia and Mozambique are already developing projects for large-scale production of Jatropha as an alternative renewable source of energy and income source for the rural poor. But very little is known about the risks that Jatropha could pose when put under cultivation.

Many uses

Jatropha curca, also known as 'Physic nut' or "Purging nut", has many uses. The plant grows wild in areas with poor soils to a height of 5 to 10 metres under favourable conditions. The plant is easy to establish as it does not require fertile soils, extensive irrigation or much fertilisation. It is not susceptible to frost and takes about 2 years to bear fruit. Research has shown that some plants can produce fruits even after 18 months.

Biodiesel producers prefer Jatropha because it has a higher oil yield compared to such plants as sunflower, soya, peanut or even rapeseed. It can be harvested up to three times in a year, giving more than 1600 litres of non-edible oil per hectare every year. Since the oil from Jatropha-seeds is a non-edible oil, planting these trees will not affect food security. Diesel produced from Jatropha-oil emits about 70 percent less carbon dioxide than normal fossil fuel, lower sulphur dioxide and reduced exhaust smoke. From the processing of Jatropha-seeds result numerous by-products, such as nitrogen-rich press cakes and glycerol for fertilizer, soap and cosmetic production. However, the seed cake



Jatropha plant in fruit

cannot be used for animal feeds as it contains poisonous chemicals.

Many questions

A lot about *Jatropha curcas* is not yet known. Farmers therefore need to be careful before they go into large scale commercial production of this crop. According to the experience with coffee or tea, jatropha as a new cash crop would be in the hands of the big biodiesel-producer companies. What would be its benefit to the small-scale farmers?

On the other hand, Jatropha raises some hope for wananchi as an alternative to firewood and kerosene. At the German Hohenheim University a new pressure cooking stove was developed, which can be operated on different pure plant oils like Jatropha oil or Canola oil. This was also quite successful in Mali. According to the chemical, physical and combustion properties of plant oils, a new vaporizer, a new burner head and a new tank as well as a novel start-up device were designed. Jatropha – the new energy-source for small scale farmers?

A desert landscape before and after introduction of Jatropha crop (below).



Food miles debate unfair to Africa

Kenya's horticultural producers and exporters have strongly voiced their concern over the food miles debate that seeks to ban airfreighting of organic produce from Africa to European markets to reduce carbon emissions. The debate, they claimed, was initiated by interest groups in Europe which want to protect European farmers who are facing competition from producers in developing countries.

"No facts"

"The contradictions in this debate shows that it is not based on any facts other than to exclude producers in developing countries from accessing the European markets", said Dr. Stephen Mbithi, the chief Executive of Fresh Produce Exporters Association.

He was speaking during a consultative meeting between the Soil Association and local organic producers and exporters which was held in Nairobi last month. He said that at the height of the food miles debate, consumption of local horticultural products in the European markets increased by more than 20 percent despite the labeling of all airfreighted products, which clearly showed that the pressure for a ban did not come from consumers but groups with vested interest in protecting their share of the organic market.

New markets

If effected, the ban would deny local small-scale producers from future access to the European export market. This would go against the stated policy of helping to fight poverty in developing countries. Mr. Tiku Shah, the Interim chairman of the Kenya Horticultural Council said local producers were already exporting organic produce to emerging markets in South Africa, the Middle East and Russia. Participants complained that the many certification schemes were costly and out of reach of local farmers'.

Anna Bradley, a standards expert at the Soil association said the food miles debate was initiated by European consumers who were becoming increasingly concerned with the source of organic food in the market and how it was produced. There was need for regular consultations between local producers and consumers in UK to create awareness of the importance of trade in organic produce between Europe and Africa, she added. ■