

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 57 February 2010

Choose the right seed variety

Poor seed selection can lead to a poor harvest or total crop failure.

With the planting season just about to start next month, one problem that farmers are likely to face is the selection of seed. The majority are still unaware of the importance of selecting seeds that can do well. So many farmers have fallen prey to fake seed merchants and companies selling seeds of unknown quality.

This is not the only problem. Each seed variety has been developed for a particular climatic region in the country. If you buy seeds without verifying if it is suitable to your area, you risk the failure of your crop. Farmers nowadays have the opportunity to find out about suitable seed varieties via SMS. *Page 8 TOF*



In April 2005, we started *The Organic Farmer* magazine (TOF). We use this 5 year anniversary as an opportunity to launch a competition within the TOF readers' community. *Page 6*

More maize in rotation with soya

Maize planted in rotation with soya beans produces markedly higher yields, compared to a maize-on-maize system. This is the result of research done by the South African University of KwaZulu Natal; the results have been published by the South African magazine *Farmers Weekly*. Even at a nitrogen application of as much as 180 kg/ha, maize-on-maize yields were lower than the second maize crop which followed the soya beans.

The university relies on figures collected by Dries Cronje, a soya bean producer from Kriel in Mpumalanga. He studied 16 minimum or no-till farmers who practice a maize-soya bean rotation. Cronje found that on lands planted with soya bean the previous season, dryland-maize yields of 11t/ha were harvested. Maize on-maize lands only yielded 5,5t/ha, with more root and stem rot and other diseases.

Where maize was planted for two consecutive seasons after soya beans, 8t/ha were harvested in the second season. – Soya has extremely high nitrogen-fixing benefits.

An intelligent crop rotation practice does not only improve soil quality; it is the strongest weapon against diseases and pests. We highlight crop rotation systems and give you a list of beneficial cropping sequences. *Page 3 & 4*



Crop rotation has many benefits

Dear farmers,

Farming is a challenging business. Apart from the fragile economic situation that Kenya is now facing, there are no other professionals in such a difficult situation as farmers: They are the only ones who rely on rainfall whose occurrence they cannot influence. We do not know what the future holds in terms of climate; but it is evident that the weather patterns are becoming more and more unpredictable.

However, there are challenges which can easily be tackled by the farmers themselves. In this issue, we highlight two very important problems which we have featured many times before: The choice of the maize seed varieties and improvement of crop yields by practicing crop rotation.

Each year, farmers blame seed quality for their poor harvest. However, to some extent, they are to blame. Before committing their money, they have to inspect the item carefully. Why are farmers so careless when buying maize seed, on which they rely for their own food security and income?

Farmers have many options now on how they can verify the quality of seed varieties in the market; they can simply use their mobile phones to send a simple SMS to a seed company (as shown on page 8) to confirm the right seed variety for their area. It is common knowledge that many shopkeepers selling seeds are just ordinary business people out to make money. They can sell anything as long as it posts a profit.

The deteriorating soil fertility on the farms, including pests and diseases, is another example. Farmers know that growing the same crop on the same piece of land every year is bad for the soil. A change of crops through crop rotation replenishes soil fertility as well as reduces disease and pest pressure. In the same way, pests and diseases only attack particular crops while avoiding others. Rotating crops therefore reduces pests and diseases.

Farming is a business. Businessmen look for proper information, calculate and weigh up their options before they act. So many small-scale farmers would be better off if they acted like businessmen. This does not require a lot of money but rather an open mind, persistence, courage and a strong will to make the best out of their limited resources to succeed.

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Healthy pigs need good feeding and housing

Pigs not only need good shelter; they are better off if they have an open-air ground for exercise.

William Ayako

Without doubt, the returns from rearing pigs are far much higher than those from most livestock. However, such attractive income comes with a price.

Swines have to be taken good care of and made comfortable at all times.

The major practice in an

intensive pig keeping system is that pigs are kept in a complete confinement in a building/housing provided to keep all categories of pigs

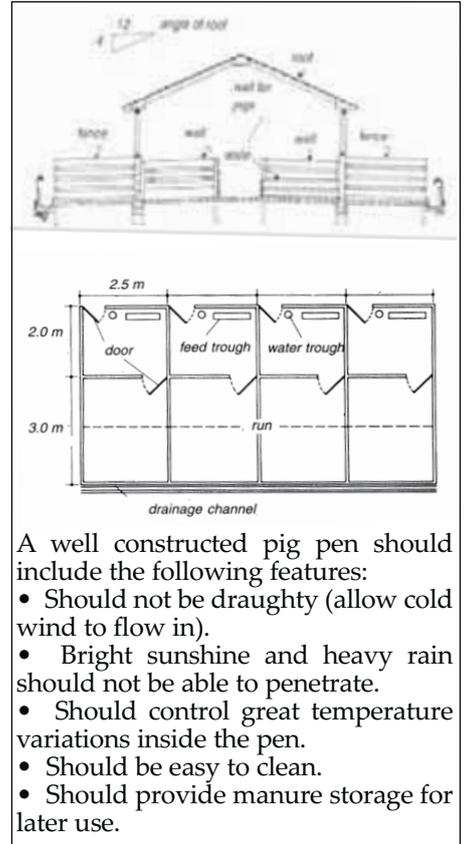
separately (fatteners, boars, dry sows and lactating sows with piglets). In pig farming, housing should be much more than a simple shelter. There is no simple clear design of such a housing unit. However, the design should incorporate some technical hints as indicated in figures 1-4. The unit can be modified to fit the flock number which each individual farmer would wish to keep.

Pigs need an outdoor run

In organic farming, intensive pig keeping is not allowed. According to the set standards, all animals shall have access to pasture or an open-air exercise area or run, whenever the physiological condition of the animal, the weather and the state of the ground permit. Animals which have space for free movement are healthier. It is also recommended that all livestock has access to drinking water at all times.

Figure 2: Design and dimensions for feeding and water troughs

Whenever possible, feeding should be done outdoors. The feed trough may be made of cemented concrete, iron, or hardwood. It should be long enough to cater for all the animals in the pen.



A well constructed pig pen should include the following features:

- Should not be draughty (allow cold wind to flow in).
- Bright sunshine and heavy rain should not be able to penetrate.
- Should control great temperature variations inside the pen.
- Should be easy to clean.
- Should provide manure storage for later use.

Use a variety of feed ingredients

Many farmers seek to know the right formula of pig finisher, weaner and pig starter. There is no single pig feed formulation which could be applied universally by all farmers or produc-

ers. However, the principle of formulation using special programs is standard depending on the feed type to be mixed and the production objective of different farmers. Other factors determining feed formulation include the available feed resources and the production system employed on different farms. A variety of feed ingredients can be used but correct formulation is the key to satisfying nutritional requirements.

It is also important to note that feed ingredients may vary somehow in nutrient levels and therefore it is important to sample and analyse the available ingredients prior to formulation from a reputable animal nutrition laboratory like the one at KARI, Naivasha. Nutritional requirements of pigs will vary according to genetic make up, environment and phase of growth and age.

Note: Organic diets may reduce performance compared to traditional diets due to difficulties in meeting all nutrient needs of pigs.

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

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

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

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Ingredient as (%) of dry matter	Pig starter	Sow & weaner	Finisher
Peas	-	10	-
Barley	-	57.05	-
Maize grain (%)	54	-	75
Maize and cob meal (%)	-	-	-
Soya bean (full fat) (%)	42.4	29	25
Dicalcium phosphate (%)	1.4	2.05	0.75
Limestone (%)	0.8	0.9	0.95
Salt (%)	0.5	0.5	0.5
Vitamin/mineral premix (%)	0.5	0.5	0.5
Nutritive value			
Metabolisable energy(kcal/kg)	3417	3045	3388
Crude protein (%)	19.4	18.5	14.8
Lysine (%)	1.08	1.0	0.74
Calcium (%)	0.73	0.9	0.61
Phosphorous (%)	0.66	0.79	0.49

Organic feed formulation for different pig categories

The most powerful weapon against diseases

Rotating crops is good agricultural practice all over the world. Crop health and yields suffer if crops are not rotated.

Theresa Székely

There is a way of controlling diseases and pests that is more powerful than the strongest pesticide. You cannot buy it. But you can practise it: It is crop rotation.

Growing the same crop on the same field again and again leads to increased disease and pest levels, reduced yields and crop failure. Especially vegetables are heavily attacked by diseases and pests if they are not rotated systematically.

All seasonal crops need rotation!

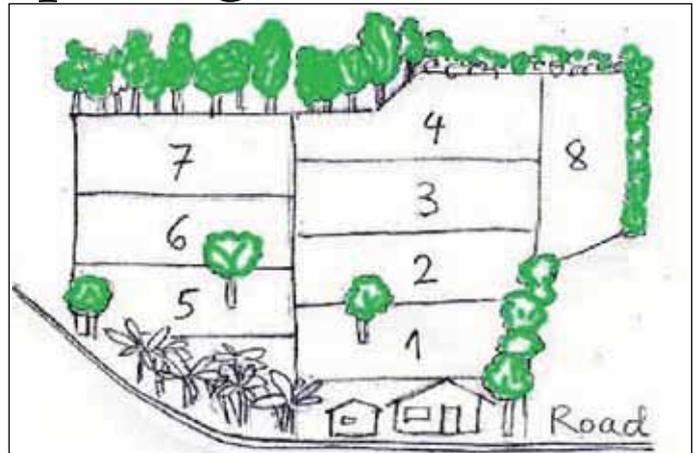
There are two main reasons why crop rotation is so essential:

1. Many diseases and pests, including weeds, are specifically associated with certain crops or plant families and can develop only together with their host. They survive the dry or the cold season in the soil or in crop residues left on the field. If the same crop is planted again in the next season, they will immediately start multiplying even more. But if another crop is planted, they will just starve and die after some time.
2. Each crop requires a specific set of nutrients from the soil. If you plant the same crop on the same piece of land season after season, this leads to nutrient depletion, poor growth, and weak plants which are easily attacked by pests and diseases.

Rotated crops are healthier crops

Different root systems of different crops improve soil health and enhance aeration and soil structure. Soil fertility is maintained or increased. The more different crops you grow, the better! In addition, soil borne diseases and crop specific pests and weeds are reduced by rotation, and crops will show a healthier growth.

Crop rotation increases food security: If a wider variety of crops is grown, the failure of one crop will have a much



Rotating your crops neither requires more work nor any investments. The only thing you need is a minimum documentation, because nobody can remember which crops were planted on which plots during the last four years. First, buy a small booklet and draw a sketch of all your plots. Give them a number or a name. Just write down on which plot you have planted which crop in the current season. Keep the booklet in a safe place to have it at hand at the beginning of the next planting season.

smaller impact than if only a few crops are grown.

What are the minimum rotational intervals?

How long do you have to wait before you can plant the same crop on the same field again? This depends mainly on the plant family of a crop and its susceptibility to associated soil-borne diseases. In Table 1 on page 4 you find a guideline for the different plant families and the most common crops grown in Kenya.

How do you go about it?

The easiest way to establish a good rotation is to divide land for seasonal crops into eight plots of more or less equal size. These plots should be permanent in subsequent years. Eight plots are ideal for a four-year-rotation and two growing seasons per year.

Crop rotation cycle Page 4

Most vegetables should be grown only once in four years. In a climate with only one growing season, you need at least 4 plots. You can start on only a part of your land, preferably where you grow vegetables. Plot size does not matter.

Reserve up to two thirds of the area for maize, and on the remaining plots you can plant vegetables and fodder grasses. Then for each plot, follow a cropping sequence which meets your needs and keeps the necessary planting intervals. In Table 2 you find the most favourable crop sequences to choose from.

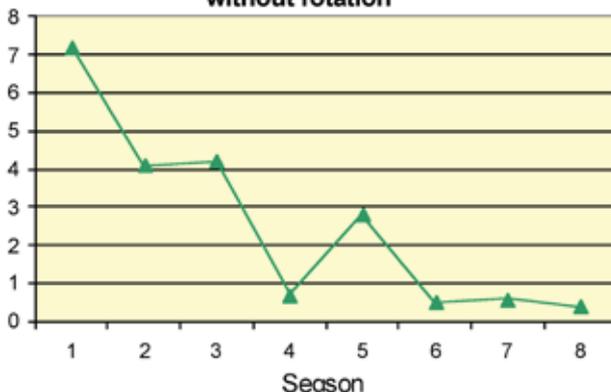
Can all diseases be prevented?

Crop rotation protects your crops from the most common diseases and pests which survive in the field. This is especially important for susceptible crops like the cabbage and the nightshade family. In cabbage, anthracnose and fusarium wilt is controlled. In potatoes and tomatoes, early blight, late blight, wilts and bacterial diseases can be prevented or reduced. Various fungal, viral and bacterial diseases, root rots, weevils and nematodes are controlled in other crops. Unfortunately, on some fungi which persist very long time in the soil like Fusarium wilt, or on rusts or smuts, rotation has only a limited effect. Crop rotation is therefore not a complete protection - but it will reduce occurrence of diseases to a manageable level.

Higher yields with crop rotation

Healthier crops produce higher yields. In the diagram below you can see what happened to a cabbage farmer who planted cabbage in the same field for 8 consecutive seasons. In the first season, he harvested 7 kg cabbage per square meter. Then the yields dropped, and in 4 out of 8 seasons, he had not a single cabbage to sell. The problem in this case was root rot. Of course he could have sprayed high amounts of fungicides. But he could also have just shifted his cabbage to another plot to harvest 7 kg again - without any spraying.

Yields of cabbage grown during 8 seasons without rotation



Crop rotation cycles

Table 1: Plant families and planting frequencies

Family	Crop	Plant on one plot
Grasses	Napier, Boma, Kikuyu, Sudan, Rhodes, etc.	for 3 or more years
Grains	Maize, sorghum, millet	2 out of 3 years
	rice	continuously, but rotation is better
	wheat, barley	once in 2 years
	oats	once in 4 years
Legumes	Dry beans, French beans, soybeans, groundnuts, cowpeas, pigeon peas, grams	once in 4 years
	Garden peas, snow peas, sugar snaps, chickpeas	once in 6 years
Nightshades	Irish potatoes, tomatoes, peppers, chillies, eggplants, African nightshade	once in 4 years
Cabbage family	kales, cabbages, broccoli, cauliflower, radish, rape, turnips, collards	once in 4 years
Apiaceae	carrots, celeries, fennels	once in 4 years
Roots different families	sweet potatoes	once in 4 years
	cassava	once in 2 years
Beet family	spinach, beetroots	once in 4 years
Onion family	onions, garlic / leeks	once in 5 years / once in 4 years
Asteraceae	Sunflowers / lettuces	once in 5 / once in 4 years
Cucumber family	pumpkins, squashes, gourds	once in 4 years
	cucumbers, zucchini, melons	once in 5 years
Mallow family	okra, cotton	once in 3 years

Table 2: A guide to a good crop rotation sequence for some common crops

Good in the preceding season	Planted crop	Good to plant afterwards
All crops are good	maize, sorghum, millet	all crops except carrots
All crops except wheat, barley, oats	wheat, barley, oats	all crops except wheat, barley, oats
Legumes, maize and other grains, cotton, sweet potatoes	rice	cowpeas
Maize, grains, rice, irish and sweet potatoes, sunflowers, spinach	legumes	Irish potatoes, tomatoes, cabbages, squashes, maize, grains, cotton
Maize, grains, spinach, carrots, onions	beans	Irish potatoes, tomatoes, cabbage, onions, maize, grains
Spinach, maize, grains, fodder grass	groundnuts	grasses, cotton
Maize, grains, grasses, legumes, spinach, onions, sunflowers	Irish potatoes	cabbages, spinach, onions, pumpkins and squashes, sunflowers, soybeans, maize, grains, lettuce
Legumes (and all families except nightshades and the cucumber family)	tomatoes	cabbages, maize, grains, grasses
Maize, grains, grasses, legumes, tomatoes, irish potatoes, onions	cabbage family	only maize, grains, grasses, leeks
Irish potatoes, onion family, spinach, legumes, maize, grains, grasses	pumpkin, squashes	root crops (but not Irish potatoes): carrots, sweet potatoes, yam, cassava
Cucumber family, onion family, beet family, grains, grasses	carrots	maize, grains, grasses, beans
Grains, french beans, irish potatoes, spinach	onions	all crops except onion family
Cucurbits, spinach, lettuce, sunflowers	sweet potatoes	legumes, maize, rice, grains, grasses
Onion family, irish potatoes, carrots, peas, grains, grasses	spinach	groundnuts, soybeans, all crops except the beet family and lettuce
Maize, grains, spinach	sunflowers	Irish potatoes, maize, grains, legumes

Integrating trees and shrubs into cropland

Agroforestry aims at reducing the destructive impact of deforestation and overuse of land resources.

The Organic Farmer

Natural vegetation, if not interfered with by human activities, is a mirror of the regional water balance. Trees and shrubs are good indicators of local rainfall patterns. In humid tropical regions with high rainfall, rainforests with high biomass production are predominant. In regions with seasonal rains, trees shed their leaves during the dry season, and plant productivity declines. With diminishing rainfall, trees become scarcer while savannahs and rangelands become dominant.

Trees are an important part of the water balance: they store water in their root zone, protect the soil from drying out by shading and improve soil struc-



Planting selected trees in your farm is a good farming practice. (Photo AO)

ture as well as water holding capacity. A tree canopy catches and stores rain drops temporarily, preventing soil erosion and releasing water slowly to infiltrate into the ground.

Trees release water back into the atmosphere through evaporation and transpiration, contributing to the formation of rain clouds. If forests are removed, most rainwater will run off on the surface and disappear from the regional water cycle, carrying the often thin soil layer and nutrients with it.

Agro-forestry research and development of methods for re-integration of trees and shrubs into the farmland have thus become important tools to stop the ongoing land degradation. Some elements have already been described in TOF No. 55 (Dec. 2009): Windbreaks, planting on terraces, and contour vegetation strips.

Below are some further approaches – all farmers are welcome to try them out and to make use of their numerous benefits!

Water

With this article we come to the end of our water series. Interested farmers can order them as a module.



Well spaced trees on your shamba

Trees in cropland improve the microclimate, reduce run-off, conserve soil and water, and provide organic matter and protective shade for crops. They also provide food, fodder, fuelwood, and poles. Depending on the type of tree and crop grown, they are usually

planted at 8 to 10 or more meters apart to reduce competition. Deep rooting, nitrogen-fixing trees are preferred. Besides *Leucaena leucocephala* which does not do very well in drier areas, *Sesbania sesban*, *Crotalaria grahamiana*, *Tephrosia vogelii*, and *Gliricidia sepium* are recommended, but also fruit or nut trees are beneficial. Good examples are:

- Fruit trees in home gardens
- Shade trees in Arabica coffee plantations are especially advantageous. They prevent alternate bearing only every second year by reducing flowering and die-back from overbearing. This can double the productive lifespan of coffee trees! On sloping land, soil erosion is also controlled.
- *Grevillea robusta* is a very good shade tree in tea.

Dispersed trees in rangelands

In this traditional agroforestry system, trees are preserved for livestock browsing, shade and sometimes for other products. The high protein content of leguminous species enables animals to benefit more from low quality forage during the dry season and supports milk production.

Grevillea robusta in a tea plantation



Alley cropping of *Leucaena* and maize

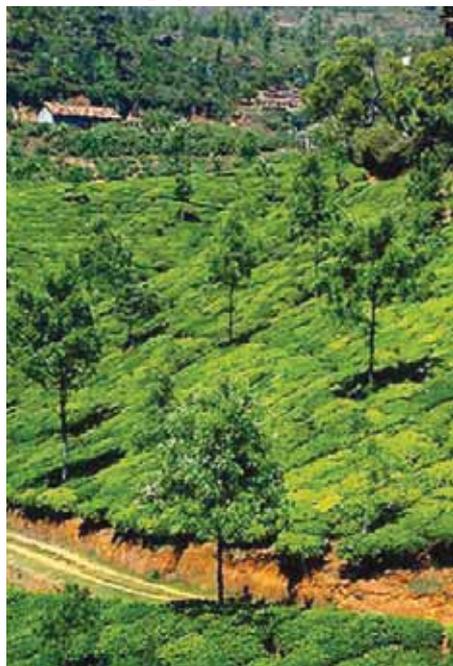
Alley cropping

In alley farming or hedgerow intercropping, rows of woody species are grown with annual crops. This system works best in humid climates with soil fertility problems. In Kakamega, *Sesbania sesban* trees grown in corn fields improved maize yields. The trees must be managed well and need to be pruned regularly. The prunings are used as fodder for livestock, as mulch in crops to improve soil fertility and to suppress weeds, and for fuelwood or poles. Unfortunately, there is too much competition between woody species and crops in dry areas.

Living fence

Lines of trees or shrubs are planted along farm and field boundaries. This is actually an old tradition, and a wide

Continued on page 6



>>> > from page 5
Agroforestry



variety of plants may be used. If they are planted densely enough, they can serve to keep animals away from crops. Sticks or dead branches can be twisted between them, or wire can be attached using them as living fence-posts. They provide fuelwood, fodder, shade for crops and livestock, act as windbreaks, and cuttings can be used to replenish the fence. Good examples: *Gliricidia sepium* is often used for live fence posts. A few large (1.5 - 2 m) stakes can be planted into existing wire fences. They normally take root quickly and can be cut back after 6 to 10 months.



Living fence with *Gliricidia sepium*
Subsequent pruning and staking can be carried out every 6 to 8 months. *Gliricidia* can be used as forage, as green manure and as a rat poison. *Tithonia diversifolia* is another very useful species. *Tithonia* hedges should be cut back often. Young shoots used as mulch increase crop yields effectively (see page 7). As a protein rich fodder supplement and for browsing it is especially liked by goats.

Fodder Banks

Tree foliage helps overcome the shortage of high quality feed during the dry season. Feed supplements of *Calliandra calothyrsus*, *Leucaena diversifolia*, *Gliricidia sepium*, mulberry and others increase both the quantity and quality of milk produced by dairy animals and reduces dairy meal costs. Feed leaves from fodder trees at only 30% of the ration.



farmers forum

020 445 03 98 0717 551 129 0738 390 715

Win a watertank worth Ksh 18,000

To mark 5 years of TOF, we invite our readers to take part in a farmers' competition.

The Organic Farmer

In April this year, *The Organic Farmer* (TOF) will be 5 years old. The magazine for sustainable agriculture and Kenya's most resourceful agricultural paper, has grown from strength to strength since the first edition was published in April 2005. TOF has managed to give farmers in Kenya, Uganda and Tanzania practical information on crop and animal production using sustainable and ecologically sound methods that have helped them improve their yields and income. TOF's circulation has moved from the initial 10,000 copies to 20,000 reaching approximately 160,000 farmers.

To celebrate 5 years of enriching farmer information and communication, TOF is pleased to invite you to a farmers competition. We are looking for farmers who have found an innovative idea in *The Organic Farmer* magazine, and which has made a big difference to their lives. That means: The competition is meant for TOF readers who have adopted technologies that contribute to improving food security, increasing incomes and which include good environmentally friendly farming.

Who can participate?

The competition is open to individual small-scale farmers and farmers' groups that have been in existence before 1st January 2009. These two categories can make entries in any one of the following areas: Agro-forestry, soil fertility management, plant varieties, food production and processing, water conservation, energy conservation, animal production and breeding, storage and post-harvest handling (including livestock and fisheries), marketing and small-scale technology etc.

Categories and Awards

Five entries that demonstrate creativity will be picked and awarded.

1st Prize: 3000 litres plastic water tank, worth Kshs 18,000

2nd Prize: Family drip Irrigation Kit

from KARI, worth KShs 9,000

3rd Prize: 50-litres milk can, worth KShs 7,500

4th Prize: Knapsack sprayer, worth KShs 6,000

5th Prize: Money Maker irrigation pump, worth KShs 4000.

In addition to the above prizes, we shall publish the ideas from the five top winners in the April, May and June 2010 editions of the TOF Magazine and also air them in our TOFRadio programmes.

Terms and conditions

- All ideas implemented by farmers must originate from an article read in any issue of TOF magazine
- You can send any number of ideas you may have tried and which have changed your

farming experience or income.

- No entries will be accepted later than 31st February 2010

- TOF will not accept liability for late or lost entries

- The judges' decisions are FINAL.

Our questions

In this letter you should answer the following five questions:

- Which idea did you get from TOF?
- When and how did you put it into practice?
- Any problems at the beginning?
- What benefits has this new farming method given you?
- Did other farmers imitate you? What makes it more successful than other methods you were using before?

Submissions must include:

- Name, age, gender, phone number/e-mail, postal address, village, district.
- A brief letter of not more than two pages (you can use your own handwriting).

Judging

The panel of judges is composed of 3 experts in the field of agriculture.

Send your entries to:

The Organic Farmer
P.O Box 14352, 00800 Nairobi, Kenya
or info@organickenya.org. Your entry should reach us by 31st February 2010.

5 years of TOF



Use good fodder to make silage

I would like to know the right fodder materials for ensiling. Can I cut any grass along the road? Caroline Waithera, Farmer in Thumaita

To prepare silage, the most essential thing is good fodder quality. Actually most grasses are suitable if they are cut at a young and nutritious stage, before flowering. If you want to use grass along the road, it should be clean, and the risk that it contains parasites from roadside grazing is high.

Napier and Bana grass are very good grasses for silage. Cut them when they are about three feet high. Spread them in the sun to wilt for one day, this will also reduce parasite infestation. Chop all bulky fodders into pieces of about one inch before you ensile them. Adding up to 30% of leguminous fodder like desmodium, cowpea or lablab vines, chopped calliandra or leucaena shoots to the mixture will increase protein content and silage quality, and dairy animals will give more milk! If possible, sprinkle some molasses mixed with water over the chopped fodder (up to 10% of the fodder weight) to ensure a good fermentation process.

Information modules

The *Organic Farmer* magazine has prepared about 20 information modules on organic farming. One of them is Nr. 12 which features dry season fodder. It contains advice on how to prepare fodder for the dry season including silage.

Interested farmers should send us an SMS with their request and their address to the following Mobile number 0715 916 136

Can I use flat ground to make silage?

I want to ensile my maize on flat ground, please advise. (David Chege Ndungu, Farmer in Elburgon)

Maize or sorghum (cereal forages) are actually excellent plants to ensile, as they contain high amounts of sugar. You can ensile your maize on flat ground without any problem, provided you make sure that rainwater can drain from the place. You may prepare the silage in the usual way. The most important thing is to compact and wrap the fodder well to ensure no air and water can get inside.



Lablab

Preparing plant extract from Tithonia

I would like to make plant extract from Tithonia in large quantity, but my main concern is its shelf life. Please advise (Johnson Waweru, Farmer in Kianjai)

Tithonia certainly deserves to be used by as many farmers as possible. It has wonderful properties and can serve as green manure, as mulch, as liquid manure, as fodder (especially for goats), and it has some fungicidal effects as well. If you are thinking of manufacturing a marketable product, it would have to be bottled and sterilized to prolong shelf life. The other concern is concentration: A product should have a certain concentration; otherwise efficiency and transport are a problem.

How to make the extract

We suggest you try and experiment yourself to solve these problems. Nutrient content of tithonia leaves is highest when the shoots are cut before flowering. It can be slashed near the ground level, and several harvests are possible per year. Usually, the plant material is chopped, put into a container, covered with water, sealed, and then left to stand for two to three weeks. Sealing the container is necessary to prevent nitrogen from escaping.

In your case, to obtain a relatively concentrated extract, you might mix 1 litre of molasses with 1 litre EM1 (both can be found in Agrovet shops) and pour it on 10 -20 kg of chopped and compacted Tithonia. This will improve fermentation. Add just enough water to allow the material to soak.

Shelf life and nutrient content

Unfortunately, we are not able to advise



you on the shelf life of the extract. It is usually used immediately. The liquid may be boiled and the bottles sterilized; but you would have to test yourself whether and within which period the product deteriorates. We also suggest to have the product tested for its nutrient content by a laboratory in order to be able to make recommendations about application dosages. They will most probably be quite high (around 11 litre of the undiluted solution for 1 to 2 square meters) to have the desired fertilizing effect.

Note: Tithonia extract should not be used as a medicine (e.g. against malaria), as it seems to have a toxic effect on kidneys and liver! **THS**

Napier does very well in pits

I want to plant Napier grass. Please advise me on the right system and the right spacing. (Margaret Wambui, Farmer in Kihuti)

A good method of planting Napier grass is planting in pits, as this conserves water. Pit size and spacing depend on the climate, your soil type, and on the scale of labour you are able to invest. Good soil and enough rain will support denser planting. A common recommendation is to dig pits one to two feet deep, or just enough to break a hard pan. The pits can be one foot wide and up to two feet long. The distance between the pits may be one to two metres, and the rows can be one to two metres apart.

Mix 1 *debe* of top soil with 1 to 2 *debes* of farm yard manure and refill this mixture into each pit. Leave about 10 to 15 cm of unfilled space at the top

of the pits. Plant 4 - 10 cane cuttings or single root splits into each pit.

If you interplant leguminous forage like desmodium, leucaena or even sweet potatoes (which is highly recommended), leave enough space between the Napier rows and dig pits for the intercrop. It will suppress weeds and improve forage quality if mixed with the Napier grass.

Napier grass should also be planted along the contours or in any unused spaces to prevent soil erosion!

Add manure or slurry

Napier grass needs good fertilization, and some farmyard manure or slurry (manure with high urine and water content) should be applied preferably after every harvest. The best time for harvesting Napier is when it is about three feet high, as it is most nutritious for dairy animals at this stage.

Buy certified seeds, suitable for your area

Farmers should select seed varieties carefully in order to improved the quantity and quality of the yield

The Organic Farmer

Seed selection remains a big challenge for local farmers. Every year, *The Organic Farmer* takes the trouble to remind farmers about the importance of proper seed selection. The reason for our emphasis is simple: The choice of seed can determine if the farmer will get a good harvest or a poor one. Seeds are developed according to climatic regions, soils and other factors; if a farmer plants the wrong type of seeds in a given climatic region, they cannot do well. The overall crop yield therefore will be less than expected.

It is a pity that even wise farmers do not select their seeds carefully. Last year, wrong seeds combined with prolonged drought led to total crop failure in most parts of the country.

Lack of proper information

The last few years have witnessed an increase in the number of companies producing and importing seed into the country. Many farmers are going for these varieties hoping to increase their yields. But only few of these are suitable for the areas in which they are being marketed.

These new seed varieties pose serious problems to farmers: There is very little research done to determine their quality. Due to lack of agricultural extension services, most farmers there-

Confirm first, buy later

To help farmers, some seed companies such as the Kenya Seed Company and the Kenya Plant Health Inspectorate Service (KEPHIS) have launched an information service. Farmers can use their mobile phones to get information on which seed varieties can do well in various agro-ecological zones in the country. Farmers can access this information using the following steps:

Kenya Seed Company varieties

Go to messages → Write the word MAIZE * YOUR DIVISION → Send to 3000. You will get a reply on varieties suitable to your division, their qualities and how long they take to mature. Farmers can also call the company on Telephone numbers 0716 647 693 or 0733 854 713

KEPHIS Information Service

Write the message: maize/name of your division, SMS to 2964 using your Safaricom, Zain or Telkom lines. If you cannot get the information you need, you can call KEPHIS personnel on Tel. 0722 516 221 or 0733 874 274.



Good and certified quality seeds bring a good yield

(Photos AO)

fore rely on advice given by agrovet shops, where they buy their inputs. What farmers do not realise is that the traders are driven by profit maximisation, not by the interest to help farmers. New seed varieties are also to blame for the increase in diseases that farmers find difficult to control.

Beware of fake seed

Sale of fake seeds, also called "Dubai" seeds is very common during the planting season. Aware that most Kenyan farmers cannot afford genuine seed, unscrupulous farmers contracted by seed companies sell condemned seed as genuine seed, often at a lower price. Farmers will buy it believing it is of good quality only to end up with a poor yield. Others acquire seed packages from genuine companies, then treat ordinary commercial maize with the chemicals used for seed preparation and offer it for sale to farmers. To avoid this cheating, farmers should be extra cautious when buying seed.

A reliable maize variety

During the prolonged drought last year, one variety that withstood the harsh dry spell is H614. Although the variety is recommended for high altitude areas with annual rainfall of above 1000mm, most farmers who planted this variety



Poor quality seeds give a poor yield

in medium altitude areas managed to get some harvest. All other varieties recorded poor yields or total crop failure. H614 can withstand sudden climatic changes and does well, even with poor management.

Some tips for seed buyers

The following tips will assist farmers to get quality seed that can help improve their crop yields:

- Farmers should only buy tried and tested varieties suitable for their areas (see box "Call first, buy later"). In case a farmer wants to try another variety, it is advisable to plant it in a small portion of land. They can then observe all the characteristics of the variety during every stage of growth and finally the quality of its grain and yield before going into large-scale production.
- Buy certified seed only from stockists licensed by seed companies and the Kenya Plant Health Inspectorate Service (KEPHIS). When buying the seed from an unknown stockists, insist to be shown the licence before buying.
- All genuine seeds have company tags and labels of KEPHIS tucked inside the package. Farmers should verify that the tags and labels are present when they open the seed bags.
- Buy your seeds early before the planting season starts to avoid last minute rush. Popular maize varieties are in short supply during the planting season. This is the time when fake seed peddlers go into business to cash in on the shortage.
- All seeds should be stored in a cool dry place.
- Maize seed is treated with dangerous chemicals to kill pests and control diseases. It should thus not be eaten.