

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 34 March 2008

Food prices up over crisis

Insecurity in food producing areas pushed up the prices; middlemen have taken advantage of the situation.

The Organic Farmer

The current political crisis had far-reaching implications on the overall food security situation in the country. According to the Ministry of Agriculture estimates, more than 3 million bags of maize were destroyed during the skirmishes in parts of Rift Valley province. This is quite a significant loss especially taking into account the fact that many of the affected farmers may not be able to go back to their land in time for the planting season, which is supposed to start this month. Food prices all over the country have gone up for various reasons, many of which have to do with the current crisis. The middlemen as usual, have taken advantage of the situation to hike prices and make hefty profits at the expense of the consumers, some of them citing increased transport costs and unavailability of supplies.

Areas hit by the clashes are mainly the high potential food producing regions where most of the agricultural commodities are produced. This



Food prices have gone up locally, (TOF)

makes it very difficult for the farmers to harvest their vegetables and fruits for fear of attacks. Transporters are also wary of going to insecure areas for fear of their vehicles being destroyed. Those who manage to go to these areas therefore naturally hike the prices citing the risks they have to take in order to bring the commodities to the market. Matters are worsened by the fact that we are now in the dry season when scarcity of the various food commodities tends to push up the prices. We hope that the politicians will find a solution to the conflict and save the country from an all-out famine.

Farmers go for organic manure

Exorbitant fertilizer prices have forced farmers in the Rift valley to go for farmyard manure. The price of one bag of DAP fertilizer has shot up from Ksh 1700 to Ksh 3500 in the maize growing areas of Uasin Gishu and Trans-Nzoia districts. Most farmers are reportedly visiting Agricultural Development Corporation farms and other large-scale farms in Trans-Nzoia in search of farmyard manure for use in planting. This is after realising that they cannot be able to afford chemical fertilizers due to the high prices.

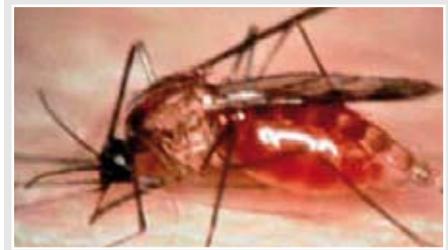
Since we started *The Organic Farmer* magazine, we have always emphasised the need to use sustainable methods of production, first to reduce costs to the farmer and secondly, to help build soil fertility and increase yields. Chemical fertilizers can increase yields in the short term but they have an adverse effect on the soil when used for a long time. The use of compost on the other hand reduces soil acidity while increasing organic matter and releasing essential nutrients to the soil and in this way feeding the plants. See pages 4, 5&6

Do not ignore mastitis

Mastitis remains the most common infectious disease of dairy cattle and the most costly disease affecting the dairy industry. Despite decades of research focused on mastitis, no effective control measures have been established upto this time, proper treatment of the disease remains controversial. See page 3

Cowpeas is healthy fodder

Cowpeas was domesticated in Africa over 4000 years ago. Research conducted in South Africa reveals that cowpeas has high energy value for livestock. See page 8



Eradicate malaria

Malaria is not fate, we can fight it. Its transmission can be reduced by preventing mosquito bites. Read more about this deadly disease in *The Organic Farmer* special insert!

Use mosquito-nets



Plant insect repellants



Avoid stagnant water



Dear farmers,

For the last two months, farmers in some parts of the country have lost relatives, land, property and their livelihoods. We are deeply saddened by the fact that this has happened in Kenya which, in the past, has remained to be an island of peace in a region full of conflicts. We only hope that this animosity and hatred between various communities that broke out after the disputed elections can be brought to an end and people continue to live in peace and harmony as they did before.

Of course, our big concern is agriculture. We strongly feel that it is time that we begin to rethink about the issue of land ownership. The government should have a clear policy on land which in the future will help reduce conflicts. Our only fear at this time is that the displaced people may not be resettled in time to begin preparing their land in readiness for the planting season which starts this month. The violence started just when most of the farmers were harvesting their crops. A lot of stored food was also destroyed since most the victims abandoned it as they fled their homes in fear of attacks. It is sad to imagine that farmers who were just preparing to harvest or sell their farm produce are now threatened with famine. Our political leaders should resolve the post-election conflict so that farmers can resume their activities.

Kikuyu grass suitable for big farms

Kikuyu grass controls soil erosion and can withstand heavy grazing. But it requires intensive management.

The Organic Farmer

Kikuyu grass is common in many farming areas in the country. Most farmers rely on this grass to provide pasture for their animals. Kikuyu grass is palatable and easy to digest especially when young, a reason why animals like it (farmers are advised to feed their animals with some little hay after grazing on young kikuyu grass as it causes bloat).

The grass does well in most climatic zones. Although it tolerates low fertility soils, it tends to grow better in fertile soils. However, overgrazing and poor management of this grass is evident in many farms. For good establishment as a pasture, Kikuyu grass requires intensive management. Unless by using specialised harvesters, it is difficult to harvest its seed for planting because its flowering stems are very short. Farmers are advised to use cuttings when they want to plant the grass.

Research shows that dry matter and crude protein content in kikuyu grass is higher than that of Boma Rhodes



Kikuyu grass (Whittet), this is an improved variety popular with many farmers. (TOF)

grass especially when the grass is eight weeks old. The grass is also an excellent source of riboflavin and provitamins in the animal diet. It helps to control soil erosion and can withstand heavy grazing. It can grow naturally even with little mineral supplementation.

The right size is important

Well managed Kikuyu grass can produce very good pasture for farmers. Many farmers make the mistake of grazing their animals on kikuyu grass before it has attained the right size. Pasture specialists recommend grazing when the grass has grown to an average of 4 to 5 leaves. Experienced dairy farmers in developed countries have been able to raise dry matter production of between 16 and 24 tonnes per hectare, especially when improved Kikuyu grass (whittet) is grown with other grasses such as rye grass. However under the local production systems where the land sizes are small, it is difficult to obtain this yield. Production of Kikuyu grass is more successful in commercial large-scale dairy farming systems where land is not a limitation.

There are three major Kikuyu grass varieties in Kenya— Rongai, Molo, Kabete, Whittet and Breakwell: **Rongai:** The variety has rough, broad leaves and thick stems which develop rapidly after cutting.

Molo: A finer grass with narrow leaves and more slender stems which produce shoots from the centre after cutting. Its pollen is sterile.

Kabete: This is a medium size variety that has longer stamen that produces pollen.

Whittet: This is a taller and rougher variety. It has more broad leaves than the Kabete variety. It survives better than other varieties under less fertile conditions. The variety is becoming popular with local farmers as it produces more pasture compared to the other varieties.

Kikuyu grass needs management

Kikuyu grass does well under the following conditions:

Rainfall requirements: In its natural habitat the grass requires 1000-1600 mm of rainfall either falling in one season or two seasons.

Soil requirements: Kikuyu grass grows naturally in soils with good fertility, but it also adapts well to other soils such as alluvial or moist sandy soils which are fertilised with farmyard manure or even mineral fertilizers.

Land preparation: A well-prepared seed-bed is necessary for good establishment where seeds are used. For stem and root cuttings, a rougher seed-bed is necessary.

Sowing: Hand planting of vegetative stem and root cuttings is recommended. Cuttings containing two or three nodes planted at a spacing of 1 m are planted. When using seed, sowing at approximately 5 mm depth is ideal. The whittet variety can germinate at a depth of 6 cm.

Fodder grasses

With this article, we close our series on fodder grasses. The series featured the following fodder grasses: December 2007: Napier grass, January 2008: Boma Rhodes grass, February 2008: Lucerne, March 2008: Kikuyu grass.

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Know about mastitis and how to control it

Farmers should observe cleanliness while milking to prevent their cows from getting infected with mastitis.

William Ayako

Despite the progress that has been made in the Kenya's dairy industry, mastitis remains one of the diseases of economic consequences to the Kenyan dairy farmer. Mastitis is an inflammation of udder caused by bacterial micro-organisms mainly of the streptococci and the staphylococci family, which are common in animals and their environment. The infection occurs when the micro-organisms gain access to the udder through the teat canal. The infections in the udder affect the quantity and quality of the secreted milk. The disease is known to cause economic losses of up to 40 % of the herd's productivity. The disease occurs wherever dairy cows are bred, fed and managed for milk production. There are high chances of the occurrence of the disease, unless very strict control measures are continuously put in place. The animal is predisposed to the disease by several factors such as age, state of lactation, milk yield, hereditary factors, trauma and lack of hygiene.

Clinical signs of mastitis

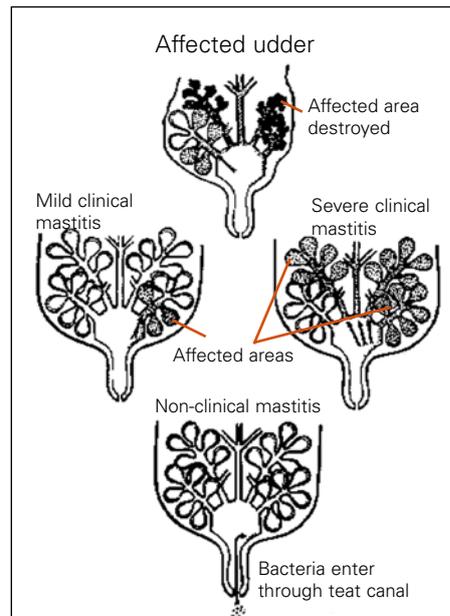
There are 3 clinical forms of mastitis:

Sub-clinical mastitis: This type can only be detected by a laboratory examination of milk drawn from the

udder of an infected cow. This form of mastitis is mainly caused by *streptococcus agalactiae* which is found in the animal. Where production of milk is meant for export market, this form of mastitis is known to contribute to a bigger proportion of rejected milk.

Mild-clinical mastitis: In this form of mastitis the animal shows distinct changes in the udder, sometimes detectable by palpation. The udder becomes firm to the touch in one or more quarters. The changes in milk are, however more definite. This form of mastitis can be examined using the black plate in the strip-cup. Milk can be seen to be of watery consistency and of abnormal colour, which often could be pinkish, or yellowish due to blood staining. Flakes or clots in milk can be noticed by the strip-cup test.

Acute or severe clinical mastitis: The milk changes are more definite with the udder having typical inflamed signs. Such changes consist of yellow sediments at times with blood clots. The milk may also appear green or yellow-green and even with a foul smell especially when the infection is caused by the *Corynebacterium pyogenes* (pus forming bacteria). The udder is swollen and painful to touch. At a closer observation, the teats may reveal signs of injury. As the disease progresses, the udder becomes hard, the milk yield decreases and also becomes thin, watery or grey in color.



Diagnostic kits

Since the dairy industry is showing a steady growth going by the numbers of the revived Kenya Cooperative Creameries (KCC) factory and processing plants, better milk price (Ksh 18-20 / kg) and increased local and international demand for milk (EAC, COMESA and the Middle East countries), farmers are advised to carry out regular milk sampling for bacteriological and chemical analysis in well-equipped laboratories to guarantee quality and ensure safety. These analyses can be done by the Department of Veterinary Services.

Continued on page 6

Measures farmers can take to control mastitis

Since mastitis is a management disease in a dairy farm, the disease can persist even with utmost hygiene in the farm. With this in mind, dairy farmers are advised to adhere to the following seven control measures.

1. Infected cows should be milked last.
2. Milkers should thoroughly wash their hands before and after milking each cow.
3. Hot water mixed with a dairy disinfectant should always be available in the dairy.
4. A separate clean udder cloth or a disposable tissue paper should be at hand for cleaning of the udder.
5. First streams of milk from each quarter of the udder used to test for mastitis should not be dropped on the floor but should be directed into a separate container with a dairy disinfectant.



6. Where machine milking is practiced, footbath with disinfectant should always be provided.
7. Normal milk room hygiene including washing of containers and equipment should be continuous.
8. Always change cow beddings to keep the udder clean.

It is worthwhile for farmers to note that the most essential prerequisite for developing any control program is an accurate determination of the extent of the disease in the herd. A suitable control program can be achieved if farmers carefully and frequently use the tests described above. Furthermore, if the above control measures were followed by the farmers, the veterinary costs of treating the disease would be minimized.

A veterinarian attends an infected teat of a cow.



Plant early and increase your harvest

Farmers should start practising crop rotation and adopt sustainable methods of production to increase maize yields.

The Organic Farmer

The planting season is a very important period for the farmer; any decision made at this time shall determine the amount of harvest a farmer will get at the end of the year. Timeliness in planting is a very important aspect of farming. Any delays in planting can cause great losses in both yield and income. One of the causes of delayed planting is lack of early preparation – early planting therefore calls for proper planning. Planning involves

making timely decisions on required inputs.

One problem is that popular maize seed varieties tend to be in short supply during the planting season which may force farmers to go for varieties that are not suitable for their agricultural zones. The sale of expired maize seeds is also a common malpractice in the seed market at the time of planting. Some seed stockists sell expired maize seeds! Unless stored in a cool and dry facility, maize seed exposed to sunlight for a long period becomes weak and cannot grow well. This can be avoided if farmers are able to plan and buy seeds early enough.

The first rains often start in mid-

March, at this time farmers should be ready for planting. Any delay in planting will lead to reduced yields. Maize planted after the onset of the rains cannot germinate well because the soil temperatures tend to go down as the rainfall increases. Dry planting (planting when the rains have not started) is especially advisable because germination tends to be vigorous. Researchers have proved that a farmer loses an average of 2 ½ bags of maize per acre every week if they plant after the rains have started. Maize planted early also benefits from nitrogen flash- this is a process where the new maize plants are able to utilise nitrogen in the soil before it is lost through leaching when the rains come. Farmers should also observe the following guidelines to increase their maize yield.

Land preparation

Hand digging is particularly recommended in small-holder farms because it does not disturb the soil much. Tractor ploughing compacts the soil, reducing air circulation and killing important soil organisms that help promote plant growth.

Seeds

Some farmers use farm stored maize as seed, but this is wrong because hybrid seed cannot be re-planted; for hybrid seed, the farmer has to buy new seeds every year.

Spacing

Most farmers plant their maize very closely in the belief that when the maize is crowded, the yield will be higher. When the plants are crowded, growth is poor because the seedlings compete for sunlight, water and nutrients thus becoming weak. The correct spacing should be 60 cm (2 ft) between one hole and the next. Spacing between rows should be 75 cm (2 ½ ft). It is important to plant only two seeds per hole. ■

Reduce use of chemical fertilizers

One the biggest problems facing farmers in the country is the declining soil fertility. Maize as a crop is a heavy feeder; it takes away a lot of minerals and nutrients from the soil.

Farmers who have planted maize in the same field for the last 20 or more years is a common occurrence these days. To increase their yields therefore, they are forced to use more fertilizer. As they use more fertilizers, soil acidity increases. The eventual result of this practice is that whatever amount of fertilizer or seed variety the farmer may use, the yield cannot increase. The use of chemical fertilizers such as DAP is to blame for this problem. Too much acid causes available nutrients to dissolve too fast while too little acid may reduce nutrient intake by plants.

The amount of acidity is measured on a mathematical scale called pH. The highest acidity level in soil has a pH of 1. The highest alkaline level in the soil has a pH of 14. At pH 7, the soil is said to be neutral. Most healthy soils have a pH of between 5.5 and 7.5. A good uptake of minerals and other

essential nutrients can only take place within this neutral range of acidity and alkalinity. Any serious farmer should be able to know the pH level of their soil before planting any crop; to know the state of their soils, farmers can take several soil samples from different parts of the farm and have the soil tested at an agricultural research station near them. Some agricultural extension personnel have access to pH metres which can test the soil and give instant results.

Another way in which farmers can improve the condition of their soils, is by ensuring continuous use of organic manures. Every year, the farmer should incorporate crop residue back into the soil instead of burning it as is the practise with most farmers. Soil fertility can be replenished by application of well-composited farmyard manure at the rate of 4 tonnes per acre (8 tonnes/ha). Planting a different crop in the same field every year will not only reduce the problem of pests and diseases but will also help build soil fertility and increase your maize yield in subsequent years. (TOF)

Conservation agriculture protects the soil

Farmers have concentrated more on food production and forgotten to take care of the soils. Minimum tillage restores soil fertility.

The Organic Farmer

Farming as practiced by many local farmers is very destructive to the soils. Farmers rarely use sustainable methods of soil cultivation that can protect its structure and fertility. If they cared to look after the soils, they would not only be able to increase production but also they would improve on their income. Rapid population growth has forced many farmers to over-cultivate land. They have consequently abandoned traditional methods of land cultivation that helped to protect the soil. Careful soil cultivation can improve its capacity to retain water, allow movement of air (aeration), infiltration, warming up and even minimize evaporation.

Soil over-cultivation can harm soil fertility as it accelerates soil erosion and the decomposition of humus. Any soil cultivation activity has one or more destructive effect on the soil structure. In Africa and other tropical countries, regular ploughing has accelerated the decomposition of organic matter which has led to tremendous nutrient loss. The mixing of soil layers through tractor ploughing can severely harm some soil organisms. After ploughing, uncovered soil is prone to erosion when it rains heavily.

It can save costs

Minimum tillage systems help to build up natural soil structures with a crumbly top soil rich in organic matter and full of soil organisms. Nutrient losses are reduced to a minimum as there is no sudden decomposition of organic matter. If the soil is not disturbed much, nutrients in the soil are retained by a dense network of plant roots. In such a case soil erosion cannot be a problem because there is a permanent plant cover and enough organic matter. In addition to this the farmer also saves on labour costs which they cannot afford.

Maintain the soil structure

Conservation agriculture (or minimum tillage) has three basic principles: Maintaining the soil structure through minimum tillage (land preparation), keeping the soil covered as much as possible and practising crop rotation. The main aim of encouraging conser-



Do not disturb the soil too much...



... do not burn plant residue. (Photos TOF)
vation agriculture is to ensure that the farmer gets a high crop yield while at the same time maintaining soil fertility and also conserving water.

In conventional farming, farmers plough or use hoes to improve the soil structure and control weeds. By ploughing, they actually destroy the soil structure and contribute to soil infertility. In conservation agriculture, ripping the soil to make planting lines is practiced. Ripping helps break the hard pan which forms on the top soil when the soil is compacted. Alternatively, holes are dug into the soils and the seeds planted. The idea is to plant directly into the soil without ploughing it.

Provide soil cover

In conventional farming, farmers remove or burn the crop residues such as maize stocks and bean residue or incorporate them into the soil with a plough or a hoe leaving the soil bare. When it rains therefore, all the top soil is washed away by rain or blown away by wind during the dry season. Farmers who practise conservation agriculture leave crop residue in the field. The residue is used for mulching to cover the soil to prevent

soil and wind erosion. Farmers who practice conservation agriculture also plant cover crops to protect the soil from erosion and limit the growth of weeds throughout the year.

Practise crop rotation

In conventional farming, the same crop is sometimes planted each season on the same piece of land. This practice allows certain pests, diseases and weeds to survive and multiply, resulting in lower crop yields. In conservation agriculture, farmers choose various crops that are planted in the same field but rotated from season to season, a practice that helps maintain soil fertility.

To gain the full benefits of conservation agriculture, the three principles discussed here above have to be applied at the same time. Practising conservation agriculture can be a challenge for a farmer who is not used to it, but it is important to change the way farmers have practised farming before in order to increase their yields and income. For example, many farmers are used to clearing their land of all the residue and leaving it "clean" but they do not know that they are denying their soil essential organic matter that can help enrich it.

By switching to conservation farming, farmers may save on labour, reduce costs, improve their soils' fertility and ability to hold water. Minimum tillage can enable them get higher crop yields and income. The time and resources saved by adopting this sustainable farming method can be used to cultivate more land or even start other enterprises to diversify their sources of income. ■

Tips on minimum tillage

- If there are crop residues near your shamba, carry them to your field and spread them on the soil surface as mulch.
- Plant a cover crop during the first season. Choose a cover crop such as lablab which has deep roots to improve soil fertility and structure. A cover crop can be grown on a separate field then cut and spread on the soil at the beginning of the second season.

The cover crop can give you seeds for your future use and can also be sold to your neighbours. At harvest, leave the crop residue in the field to cover the soil during the dry season; this helps retain soil moisture.

>>> from page 3: **control mastitis**

ment of Veterinary services in the Veterinary Investigation Laboratories (VIL) of the Ministry of Livestock and Fisheries Development.

In cases where highly sophisticated testing equipment and techniques are not available, the use of a strip-cup when milking is strongly recommended as a means of giving a first indication of the presence of mastitis in the herd. A strip-cup is cup-shaped metal container of a quarter – litre capacity with a ledge about 3 cm down from the rim on which a disc of fine gauze or shiny black top plate sits. The gauze allows milk to pass through but flakes and clots are held while the black plate shows discolorations as well as other abnormalities in milk. ■



A strip-cup

Food prices increasing worldwide

As global food prices continue to soar to new highs despite a record world harvest last season, governments in poor countries have begun exploring export bans, subsidies and price controls, among other measures to help the poor cope.

High food prices have been triggered by various factors, including dwindling stocks and a continuing strong demand for cereals, according to the latest Crop Prospects and Food Situation report by the Food and Agriculture Organisation (FAO). International wheat prices in January 2008 were 83 percent higher than a year earlier, said Lilianna Balbi, senior economist at FAO.

According to the FAO, there are several factors behind the crisis: More intense weather events as result of climate change, the global economic crisis, fuel prices and the pressures brought on by biofuel. This is fuel produced from sugarcane, maize, wheat and a variety of other crops.

Example of Swaziland

Forty percent of the population of Swaziland is in acute danger of starvation. A long dry period has led to one of the poorest maize harvests ever. At the same time, the Government of Swaziland has decided to make land available to a private enterprise to cultivate cassava for biofuel production. This example clearly illustrates the dilemma faced by many developing countries in their struggle to achieve food security for their populations. (FAO)



farmers forum

Resolve the land issue immediately

The problem of land is at the heart of current unrest in parts of the country. Despite the efforts by successive governments to sweep the matter under the carpet, it keeps recurring every time we have elections. Since independence, successive governments have not solved the problem of landlessness. They wish it would just go away. The Kenyatta and Moi regimes did little to resolve the problem; during their time in power, land was dished out to favoured groups which supported their stay in power. Thousands of Kenyans remain landless with no hope of ever owning a small

parcel of land they can call their own; at the same time, well-connected people who walked the corridors of power now own thousands of acres which lie unused. Nobody talks about these issues; instead people's anger is being directed at fellow poor people who happen to come from particular communities. Killing our fellow poor Kenyans and burning their houses will not solve the problem. It is time all of us came together to explore the root cause of the problems we face. We cannot do this when we are fighting.

Mike Kibowen, Moiben

We are all Kenyans

I feel very sorry for fellow Kenyans who have been declared "foreigners" and thrown out of their land. Some of the victims of the current violence are the second generation of land owners who were born in those areas; they even talk the local language and do not even know the so called ancestral lands. After 40 years of independence, why should we call fellow Kenyans "foreigners" in their own country? I think something must be very wrong with our society. We badly need to re-examine ourselves and stop the country from self-destruction.

George Kegoro, Nyamira

Consider my request

I wish to apply for the magazine because I am very much interested in organic farming. I am a small-scale farmer in Nakuru district. I will appreciate if you consider me.

Z. Maina, P.O Box 3863, Nakuru

Magazine for training

I am an agricultural extension worker. I have read a number of TOF magazines and found them very useful in my work with farmers. I am kindly requesting you to be sending a copy every month.

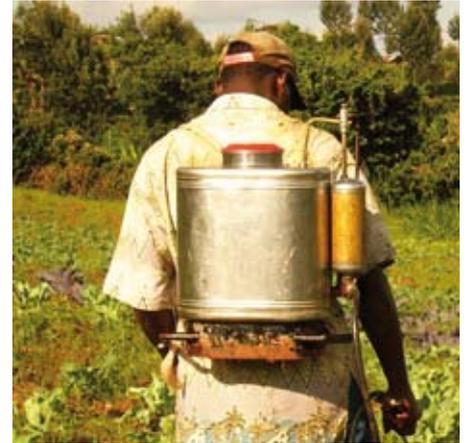
Cheruiyot K S., P.O Box 1236, Kitale

Share the knowledge

First I want to commend you an excellent magazine. I happened to have received your Nr. 20 2007 copy through the Diocese of Nakuru. I have a group of 20 farmers promoting the upgrading of dairy cows and your magazine will assist us in sharing ideas with other farmers. M. K Yego, P.O Box 2 - 20209, Fort Ternan

No chemical pesticides

The information I have received have made it possible for me to eliminate synthetic pesticides completely. I am now in the process of producing good quality compost to enrich the soil and



Chemicals are harmful to humans and the environment. (TOF) avoid synthetic fertilizers by the end of March this year. I would be glad to receive a copy of plant extracts special. This will serve as a plant extract production manual for the various pest and diseases encountered on the farm. I never thought synthetic pesticides could be avoided.

J. Mithamo P.O. Box 901 Kerugoya

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.



The best way to plant tomatoes

What are the right measurements for planting tomatoes? Carl J. Michael, Kapenguria.

The right spacing for planting tomatoes depends on the type of tomatoes being grown. There are three types of tomatoes, determinate, semi-determinate and indeterminate.

Determinate varieties

This type of plants grow to about 3 feet high and produce medium size fruit. They are easy to manage and thus can be grown slightly closer together. They are still best staked (mostly salad types) to avoid touching the ground and also to allow good aeration. These can be spaced at 2.5 feet. The fruits on determinate plants all ripen around the same time. In this category we also have the cal J types that are more hardy and do not require staking. These tomatoes are mainly for processing and grow best on a bedding of dry mulching. They usually do better with wider transplant spacing, of approximately 3 feet.

Indeterminate types

If tomatoes are of the indeterminate type, they will continue to grow up to a height of more than 7 feet. This type needs to be supported and grown on stakes or up vines, strings or fences. They are also quite difficult to desucker. The best way to grow them is to form a structure and frame using poles above the plants. As the plants grow, you should support them with strings. The harvest of fruits should be from the lower trusses first as indeterminate tomatoes ripen up the plant stem at different stages. As this is done, the lower leaves and trusses can be removed and the supporting string lowered allowing the tomato main stem to form a coil on the ground. This allows you to manage your plants

without having to try harvesting them on a ladder. Due to the vigorous growth of this type of tomatoes, it is advisable that they have good, wide spacing. Spacing of 3.5 feet is suitable. This spacing also



allows for better aeration and less humidity build up, which discourage pest and fungal diseases.

Semi-determinate varieties.

As the name implies, these varieties are taller than the determinate type and not as tall as the indeterminate variety. Their spacing is best done at around 3 feet.

It is important to remember that tomatoes are very fragile and extremely difficult to grow organically. Thus, all precautions necessary must be taken to avoid loss of crop. Spacing at transplant is very important. Know your variety well before planting.

In my experience, some of the hardest tomatoes are the little cherry variety that grows wild around most homesteads. These plants seem to be fairly resistant to many problems that affect our hybrids.

In my recent visit to Switzerland, I was very impressed to see extremely successful tomatoes being grown in a green house half way up the mountains! It apparently became clear that the differences between the very cold winter and warm summer allow for the total eradication of pests and disease. They cannot affect consequent plantings. We in Africa do not have such big weather differences. Here, pest and disease cycles are continuous in many areas.

Su Kahumbu



Tamarillo What is the right spacing, economic span and productivity per tree of tree tomato or tamarillo? Anne, Nanyuki, 0725 210'160

It depends on soil fertility and the location of your farm. The trees are planted 2.5-3 m apart in paired rows 2.5 m apart with 4.25 m between each pair. If the soil is very rich, a spacing of 2.75 m is allowed between the rows and 5 m between the pairs. Closer planting is recommended in windy, unprotected locations, for instance 1.5-1.8 m between the plants and 2.5-3 m between the rows. The trees may be staked to prevent swaying and disturbing the roots.

The tree usually begins to bear fruits when 1 ½ to 2 years old and continues to be productive for 5 to 6 years. If it is adequately nourished, it may keep on fruiting for 11 to 12 years. On average, each tree is expected to yield 15-20 of fruit annually.

TOF

Credit I was once a poultry farmer and I still maintain a 50ft by 20ft and well-cemented timber house. How can I get credit and start afresh? Francis M K., Nyeri, Tel. 0720 100 447

We are getting so many questions from farmers in need of credit. Some even apply to us directly. We do understand this quest for finances since we know that many farmers would like to improve their livelihood. That is the reason why we publish this magazine to help farmers improve. We are a small organisation with no resources to offer any form of credit. We know that there are many SACCOs and micro-credit-organizations all over the country that can offer credit. If you get the loan, ensure that you repay it in order to be considered for loans in future.

TOF

Trees We have a tree planting project in Turi and would like to do organic farming. Do you organize seminars? Mary Tel. 0721 985324

No Mary, we do not organize seminars. The only way we can assist you is to give you the addresses of institutions where you can get training in organic farming and tree planting.

- Baraka Agricultural College P.O. Box 52, Molo, Tel. 051 721 091, 0725 777 421
e-mail: baraka@sustainableag.org
- The Kenya Institute of Organic Farming, P.O. Box 34972-00100, Nairobi, Tel. 067 524 66/ 25009, Tel. 0733 799 072 , 0733 817 240.

It would also be useful to get in contact The World Agro-Forestry Centre P.O.Box 30677-00100, Nairobi, Kenya, Tel. 020 722 4000

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TOF

tips and bits

from farmers for farmers

Cowpeas: good food and fodder

Research done in South Africa established the importance of cowpeas as a high value fodder for animals.

The Organic Farmer

Our magazine has often highlighted cowpeas as important legumes for improving soil quality. All farmers know that cowpeas is nutritious food for people. But they are not well-known as fodder for animals; that's why a farmer asked us this question: "Can I use cowpeas to feed my animals?" Yes, indeed he can; in the South-African farmers' magazine, the Farmers Weekly, we found an interesting article about cowpeas. It shows that cowpeas are one of the fodder crops with a high nutritional value for animals.

The sheep gained weight

According to a research conducted by the Department of Agriculture at Kwa Zulu Natal region (South Africa), about 200 Merino sheep were allowed to graze on a 15 ha cowpea field for a period of 43 days. The cowpeas produced 5.8 tons of dry matter per hectare. This study showed that cowpeas had a high energy value and it was easy for the sheep to digest. The crude protein value was especially high at a time when the plants had produced pods. The cowpeas were found to have adequate calcium and phosphorus. The leaves also exhibited high levels of iron, selenium, and vitamins A, C and E. These minerals and vitamins contributed to the high performance of the animals, thanks to cowpeas.

The research further established that the dry sheep gained an average of 115.8 g per day over the period of 43 days. Lambs grew at an average rate of 278.9g per day for the entire duration of the experiment. Although they were lactating (suckling the

young ones), the ewes (female sheep) managed to gain weight at the rate of 36.6 g per day, which positively contributed to their health. These figures are an indication of the advantages of using cowpeas as fodder.

Cowpeas are a well-adapted and reliable fodder crop in Southern Africa as well as in Kenya. They do well in areas with a marginal rainfall (200-400mm) because they can tolerate a dry climate and are suitable for a variety of inter-cropping systems since they are nitrogen fixing, thus improving soil quality.



A flowering cowpeas plant

Cowpeas grow on a wide range of soils and are well-adapted to light. Well-drained sandy soils are ideal for growth. On heavy fertile soils, they show a vigorous vegetative growth. For them to do well, the land should be prepared early. It

is advisable to plough immediately after harvesting the previous crop. Early planting is recommended preferably at the onset of the rains. Plant 2-3 seeds per hill and thin after emergence to one seedling per hole. Seedlings should be planted at a depth of between 4 and 5 cm.

Usually grown for their leaves and seeds, cowpeas are also nutritious food for people. Seeds can be cooked for soup, stew or boiled together with maize. The leaves may be crushed and fried or boiled and sometimes dried and stored.

Cowpeas varieties

Locally, there are four different varieties:

Machakos 66 (M66): M66 is a dual purpose type, reddish in colour and good for intercropping. It is suitable for higher altitudes of between 1200-1500 metres above sea level. It gives a yield of 5-7 bags of seed an acre.

Katumani 80 (K80): K80 is a dual purpose variety which is erect, improved and good for intercropping. It is recommended for drier areas below 1500 metres above sea level. It produces 5-7 bags an acre.

Market Place



Training: Baraka Agricultural College is offering the following short courses on sustainable agriculture for interested farmers: Dairy goat keeping: April 13-19, Processing of bee products: April 20-26, ICT for rural development: May 4-10, Introduction to beekeeping: May 4-10, Poultry production: May 11-17, Sustainable agriculture: May 18-24, Introduction to beekeeping: May 25-31, Mushroom-growing: June 8-14, Small-scale food processing: June 15-21, Bee multiplication and breeding: June 22-28. The Principal Baraka Agricultural College P.O. 52 Molo, Tel. 051 721 091, 0725 777 421. email: baraka@sustainableag.org

Training: I give training on EM technology and would like it to reach potential organic farmers in the South Rift Valley. I promote this technology in the region by demonstration, training and extension. Call Harrison K. Byegon Tel. 0722 938 423

Strawberry seeds: I would like to grow strawberry. Where can I get seeds? Wellington Njeru Tel. 0720 996 322

Breeding rabbits needed: I have more than 30 rabbits ready to be served. I am interested in buying good quality males for breeding purposes. I would prefer the following breeds: New Zealand White, California White or Flemish Giant. Please call me on Tel. 0733 719 377.

Rabbits wanted: Godfrey Gichuhi, the pioneer rabbit farmer has received export orders for rabbits from China. He would like to get in touch with all rabbit farmers in the country to buy rabbits for supply to the new market. Godfrey Gichuhi P.O. Box 137, Karatina Tel. 0720 406 195

KVU 419: This variety has smaller seed than both M66 and K80 and produces more grains than leaves. It has a shorter growing period. It is recommended for planting in areas below 1200 m above sea level and receiving less than 200 mm of rainfall per season.

KVU 27-1: The variety has more vegetable than grain. It does well in the same agro-ecological zones as Machakos 66.

Farmers can buy cowpeas seeds from KARI and Kenya Seed Company. ■