

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 44 January 2009



Milk from a cow in this dirty condition will always be contaminated. Unfortunately, the bare eye cannot detect unhealthy milk. (Photos TOF)

Quality of milk worrying

Milk produced under unhygienic conditions is being sold to unsuspecting consumers.

The Organic Farmer

In a bid to get information about milk, *The Organic Farmer* collected, in mid-November 2008, nine samples of milk; four from milk processing companies and five from farmers and milk bars around Nairobi. The results of the analysed milk samples will shock many milk consumers. None of the samples passed the standards as specified by the Kenya Bureau of Standards (KEBS) and were therefore unfit for human consumption. One problem facing the dairy industry is the lack of a regulatory framework that can enforce quality controls to ensure that farmers, milk traders and processors maintained the set standards of quality. The Dairy Act as it is now cannot serve

the interest of farmers and protect the consumers unless it is overhauled.

Lack of hygiene

The biggest problem is the lack of hygiene, not only on the side of the farmers, but also on the hawkers and even processors. If they would observe the basic requirements of hygiene, at least the quality of milk reaching the market would be slightly better than the samples show. In some of the samples, the amount of bacteria was 281 times higher than the minimum allowed! Adding of water, flour, Blue Band margarine and other additives is a common practice as boiling the milk (see page 4). Some milk processors, however use Hydrogen peroxide and even formalin to prolong the milk's shelf-life. Formalin is especially harmful to both people and animals.

Hydrogen peroxide

In most countries, hydrogen peroxide is allowed for use as a preservative in raw milk, according to a decision made by the UN Food and Agriculture Organisation and the World Health Organisation in 1991. The argument behind this decision was that hydrogen peroxide would assist small scale farmers in developing countries, who do not have refrigeration facilities. However it is banned in Kenya. One reason for the ban is that farmers, milk traders and processors are supposed to ensure milk is delivered to consumers while still fresh. Strange enough, only the tested milk samples of the processing companies contained the banned hydrogen peroxide, the five raw milk samples did not. See pages 4 & 5

Dear farmers,

Something is seriously wrong with Kenya's dairy sector. Although the sector has witnessed tremendous growth in the last six years, employing over 2 million Kenyans directly or indirectly, quality standards have considerably declined to the point of endangering the lives of consumers. As the samples we analysed from milk bars and processed milk show, milk sold in both the informal and formal market contains a high bacterial load and is therefore unfit for human consumption. Adulteration of milk is also common with some of the processors even adding water and hydrogen peroxide to increase the milk quality and lengthen its shelf-life. Since the milk industry was liberalised, and more milk processors allowed to operate, quality standards are no longer observed.

Although the Kenya Dairy Board is trying to enforce quality controls among farmers and processors through spot checks and even training programmes in a few regions, our investigations show that they lack the capacity to streamline and improve the quality of milk in a way that can protect consumers from unscrupulous players in the industry. Illegal taxation of milk traders by police, municipal authorities and criminal gangs has also compromised quality as it forces them to adulterate milk to maintain their profit margins. What is even more confusing is that the figures we received from KDB show that milk exports from Kenya have increased from 2.5 million to 22 million in the last five years. How come that the same processors selling poor quality locally are able to meet the stringent quality standards in the export market? One possible explanation for this is that the processors are able to produce two sets of milk consignments; the adulterated milk is sold in the local market while the unadulterated one is exported.

One solution to this problem is to amend the Dairy Act. The 1958 act was meant to protect the colonial dairy farmers. Since independence in 1963, successive Kenyan Governments have done little to change the act, which has allowed a few players to control the sector at the expense of the majority of dairy farmers. The government should enforce quality standards across the board and ensure consumers get value for their money. In this case we really have to ask ourselves: how can big milk processors sell their milk even without fulfilling the requirements of the Kenya Bureau of Standards?

in this issue

A valuable tree Page 2

Do you know of a tree which can feed both humans and animals, and protect them against diseases? Plant a Moringa tree!



Expensive fertilizers Page 3

Feed the soil to feed the plants: Use compost to boost your crop yield.

Growing pawpaws Page 7

Moringa can feed both people and animals

Each part of a Moringa tree, from top to the roots, is useful to the farmers.

The Organic Farmer

Even though it is an exceptionally resourceful plant, the Moringa tree has, to date, received little attention in our country. You might know it as *mrongo* or *mzunze* or under the English names Horseradish tree or Drumstick tree. Other times it is even called "mothers best friend". Names aside, it may well have the potential to become your best friend in future!

Rich in all types of vitamins

Almost every part of the Moringa tree is edible. The leaves are the most essential product of the tree. You can eat them fresh or cooked like spinach, or you can store the leaves as dried powder for many months to supplement soups and sauces. And, of course, the leaves provide great forage for your livestock.

Scientific research confirms that the leaves are of high nutritional value. They contain seven times the vitamin C in oranges; four times the calcium and two times the protein in milk, four times the vitamin A in carrots and three times the potassium in bananas (see the graphic below).

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The moringa tree is identifiable by its long pods.

Photos: www.treesforlife.org

The flowers, rich in calcium and potassium, are not only a good source of nectar for bees but can also be boiled and eaten as a vegetable. Further, dried flowers provide you with a nice tea. Finally, the pods can be cooked like green beans; the seeds from more mature pods can be eaten like peas or roasted like nuts.

An organic fertilizer

Moringa trees are very useful especially for organic farmers. Apart from providing a live fence around homesteads or serving as a windbreak, they produce a lot of biomass, since they grow very fast and can be planted close to each other. The high protein content in the foliage serves as an organic fertilizer for the surrounding food crops. The deep roots without extended shallow, lateral branching do not compete with nearby crops, and its loose canopy prevents excessive crop shading.

The Moringa tree is well known in the traditional medical practice, especially in India. The leaves, flowers and pods have been claimed to function as a natural medicine with anti-bacterial and anti-inflammatory effect. Finally, you can purify water by adding pounded Moringa seeds to dirty or even muddy water. The solid matter will then sink to the bottom and the surface water can be used after boiling.

How to grow Moringa

Although the Moringa is originally considered a tree of hot semi-arid regions, it has also proven to be well adapted to wet conditions. Water logging should be avoided as it can cause root rot, the only common disease that threatens Moringa. The tree does best in well drained and sandy or loamy soils. Nevertheless, the tree also tolerates heavy clay soils.

Moringa trees can be grown from seeds, stem cuttings and even from roots. Soak the mature seeds in water for one day and then plant them one inch deep. Keep the soil moist after

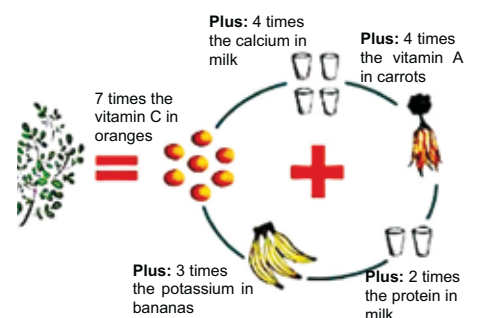
planting. The seeds should germinate within 15 days. The best time for sowing is at the beginning of the wet season.

Cuttings of healthy branches with hard wood (1 m to 1,5 m long) should be taken in the rainy season. Let the cuttings' ends dry in a shady place for 3 days, then place one third of each cutting length in the soil. If you keep the soil moist but not over watered, the branches will take root readily in just a few months. Within three years of planting, a single tree may produce 300-1000 pods annually. Frequent pruning following harvesting is recommended as it promotes branching and increases leaf growth. And your animals will benefit from this healthy fodder!

Increasing demand

Earthoil Kenya is at the moment the biggest buyer of moringa seeds in the country (Earthoil Kenya PTY EPZ Ltd, Langata South Road, Nairobi, Tel: 020 891 13 46, 0728 023 240). The farm gate price for Moringa seeds shot up to Kshs 40/kg in early 2008. By now, the farming of Moringa for commercial purposes has taken root in Nyanza province, where 71 farmers' groups deliver Moringa seeds and leaves twice a year and generate additional income from the recently rediscovered multi-purpose tree.

You can buy Moringa seeds from: Kenya Forestry Research Institute. Call John Obango, 0722 763 016



Mature compost boosts your crops

Compost can be used effectively in many ways. Nevertheless it has to be mature compost.

The Organic Farmer

Many farmers still doubt the effectiveness of compost as a source of plant food and a soil conditioner. In fact, compost is not high in the essential nutrients (N-P-K and Ca). But the most beneficial aspect in the use of compost is its capability to develop the soil and to improve, in the long term, the quality of the soil; humus' acids pass through the soil and free the nutrients naturally present in it. Of course, considering the local soil conditions, there may still be need for a supplementary soil boost. (see box).

How much compost?

It depends on the quality of the garden. If the garden has been treated organically for years, then the soils microbial life will be existing in large quantities; the levels of humus in the soil from previous applications of compost will be high. On the other hand, if the soil has not been organically maintained and has a low level of humus and organic material in it, then the levels of compost must be greatly increased for several years. This is because the soil's microbial life will be so depleted that the organisms that decompose and release the nutrients and elements cannot adequately perform their work fast or immediately. Besides, the organ-



A farmer adds rock phosphate to improve the quality of his compost (Photo TOF)

isms present in the soil are greatly influenced by factors such as temperature, PH, soil texture, and moisture.

On the other hand, starting a virgin garden in a soil which has not had applications of soil destructive chemicals, one will notice a very quick assimilation of the compost into the soil. It may be noticed that such a soil is darker, evidence of high carbon content. Further, the workability of the soil may be easy, an indication that the humus has worked its way into the soil structure; opening up the clay soil, or binding the sandy soil.

There is a cumulative benefit of using compost from season to season and year to year. After several years there

begins to be a net gain in the levels of humus as well as beneficial organisms including worms and insects. It is at this time that addition of new compost may be reduced to a certain extent. The high levels of soil quality will at that time be easily maintained by addition of compost or other bulk organic matter at regular intervals.

The more the better

The principles of organic agriculture are based on a simple premise: "Feed the soil, not the plants". The addition of compost will not only help the plant roots to absorb the natural elements available in the soil; it converts these elements into a form that is easily taken up by the roots. The humus that the compost will decay into will serve as a buffer against PH, temperature, moisture and airflow changes. To a certain degree we can say: the more the better. A six inch layer of compost, well turned into the soil, will do no harm to any soil; so one can easily add plenty and improve the soil faster.

How to add compost

It is important to let the compost to mature fully before use, then work it into the soil to a depth of 12 cm to 20 cm. Using compost which has fully matured will reduce any problems from weed seeds, pathogens and also "nitrogen stealing" from the coming crops roots by the decomposing material.

In fact, to till any half finished compost or crop residues directly into the soil causes "nitrogen-draft". What does this mean? The micro-organisms which accelerate decomposition may "steal" some nitrogen from the surrounding soil, because they need sufficient food energy to generate the decomposition process. This leads to a temporary deficit of nitrogen at the cost of the plants which will be put

Use compost to cut down fertilizer costs

Farmers will continue to pay more for farm inputs this year. With the present tendency for speculation on all essential commodities that are in short supply in the country, fertilizer prices may not come down even though oil prices have reduced. This means that most of the farmers may not be able to afford fertilizer especially at this time of the year when many rural households have just spent a sizable portion of their earnings to pay for school fees and other financial commitments that come with the new year.

Several times, we have shown farmers how to prepare compost for use during the planting season. Well-prepared compost will build fertility in the soils in the long term and can help cut the cost of using fertilizer for crop production. But one point farmers should not forget is that compost releases nutrients slowly, so plants may not benefit immediately compost is applied. Studies conducted in various parts of the world show that a little fertilizer mixed with compost can solve this

problem. Fertilizer, when applied, goes directly into the plants while compost builds up soil fertility over time. Trials done by scientists showed crops yields almost doubled when a little fertilizer (about 10 percent) was mixed with the compost at the time of planting. For financial reasons, farmers can even share one bag of fertilizer.

Of course, farmers should know that this production system is not organic but it can at least boost their yield in the short term and also reduce their input costs. Continued use of compost however will have the same effect on crops. (TOF)

We have received complaints from several farmers that most of the organic inputs we often recommend to them are not available in any agro-veterinary shops near them. We understand the problem. Farmers interested in buying these products can order them from Lachlan Kenya Ltd P.O.Box 49470 Nairobi, 00100 Tel 020 207391.2/3/4 or Hygrotech East Africa Ltd P.O.Box 41446 Nairobi, 00100 Tel.066 73567/8/9

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Milk contamination begins on the farm

Poor hygiene, dirty milking equipment, added water and fats reduce milk quality.

The Organic Farmer

Milk is an important item in human nutrition. To make it safe for consumption, it has to be handled carefully from the time of milking, transport and processing to ensure it is not contaminated in a way that poses a risk to the consumer's health. This is by far not the case, as the analysis of the nine milks samples shows, which TOF collected from 4 milk processors and 5 farmers and milk bars. None of the samples passed the quality control standards as specified by the Kenya Bureau of Standards (Kebs). The samples show that most of the milk not only has a high bacterial load; it contains additives such as hydrogen peroxide which are prohibited by the Kenya Dairy Board.

Big processing companies as well as farmers and hawkers add water to increase the quantity of milk. A sample from one company added 8.3 percent water to the milk. Hawkers are especially in a very unfortunate situation

Feed can spoil milk

The most common practice among farmers is to sort maize after harvesting. The good maize is stored for consumption and sale, while the rotten maize is preserved as animal feed (maozo). When maize is exposed to wet conditions, mould grows on it. If mould development continues, it produces toxins (also known as mycotoxins). Aflatoxins is one type of toxins that occurs in rotten maize which is dangerous to animals and even human beings. When animals are fed on rotten maize that has already developed mycotoxins, the mycotoxins are stored in the cow's liver. But small amounts of the mycotoxins are transferred to the milk, contained in fat cells. When people consume the milk, these mycotoxins are retained in the liver, where continuous accumulation can lead to serious diseases such as liver and pancreatic cancers.

The type of feed given to a cow before milking is another factor that contributes to milk spoilage. Many farmers feed silage mixed with molasses to the cows just before milking. This transfers the taste of the feed to the milk. In the same way, if a cow is allowed to graze on such crops as onions, Mexican marigold or is fed with dairy meal containing omena, the taste of these feeds goes into the milk and spoils its quality. (TOF)



Many cow sheds especially in zero grazing units are terribly dirty, and the animals live in bad conditions.

No wonder the milk from these cows is contaminated with millions of harmful bacteria.

because those without milk trading licenses have to bribe the police, municipal authorities and criminal gangs to be allowed to transport and sell their milk in towns. So they then add water to maintain their profit margins. "This adulteration is bad", one milk specialist told TOF. "What makes the issue even worse, they do not adulterate it in a hygienic way. They just add any water they find along the road or add flour or Blue band margarine to make it appear creamy", he says.

Milking in dirty sheds

In some places the milk is so much contaminated with antibiotics and hydrogen peroxide that it can not even be used for yoghurt production; antibiotics and hydrogen peroxide kill the bacterial culture which is needed for fermented products manufacture. Hardly any farmer is willing to pour away the milk from an animal on treatment with antibiotics, which remain in the milk. Instead, they sell it to consumers exposing them to the risk of developing resistance against antibiotic drugs.

About 80 percent of the milk in the country comes from small-scale farmers. But the conditions under which the milk is produced are very unhygienic. The typical milking shed is a structure full of mud, cow dung and urine. In the last years we have seen so many zero grazing units that look like a manure pit rather than like a proper and safe cow shed! When milking, dairy cows splash this dirt on the milk, contaminating it. Farmers should know that any milk from the cow's udder is usually clean and sterile and has no bacteria. Contamination only occurs during milking and later handling of



the milk, storage for instance and at the point of trade.

Only a minority of small scale farmers do have any proper cooling storage facilities. If milk stays for more than 4 hours, the bacterial load multiplies very fast and the milk goes bad. This is especially the case, when the containers used in milking are not washed with hot and clean water. Since detergents are rarely applied, the containers are therefore a major cause of milk contamination at the farm level. Moreover, since it takes a lot of time for milk traders to deliver the commodity to the market from the rural areas to the nearest town, milk traders often improvise preservation methods such as the use of hydrogen peroxide.

The problem with the use of plastic jerry cans is that it has a small opening, which makes it very difficult to clean. Continued use of the same jerry can for milk storage and transport leads to accumulation of dirt which the farmer cannot be able to wash away; fat sticks more in plastic. So the jerry cans are a major cause of milk contamination but farmers find them most ideal because they are cheap to buy and maintain.



An ideal cowshed with clean beddings

Millions of bacteria

Quick multiplication of bacteria spoils the milk within hours.



The Organic Farmer

Milk is very rich in nutrients. This is the best breeding ground for bacteria. They can develop very fast in milk, multiplying into millions within one hour. This process is even faster when the milk is not stored cold. The milk industry uses the term "Total Viable Count", (TVC) to determine the bacterial load in milk. According to Duncan Ndegwa, a scientist at Analabs in Nairobi, that analysed our samples, the Kenya Bureau of Standards (KEBS) allows 1 million bacteria per millilitre (Colony forming Units, CFU/ml) for best quality raw milk, and less than 30,000 for processed milk.

In the four tested samples of processed milk (which you buy in tetra packs or plastic bags) the bacteria contained an average of between 250 up to around 30,000 TVC, which is more or less within the KEBS standards; through pasteurization most of the bacteria are killed. All the processed samples failed the test because the processors added Hydrogen peroxide which prolongs the milk's shelf-life. This is not permitted by the law. The samples of farmers and milk bars did not contain Hydrogen peroxide; the reason may be the short distance they have to cover to reach the market in Nairobi.

A grim picture

However, in terms of bacteria, the five samples of raw milk from farmers and milk bars paint a grim picture. The sum of all bacteria per millilitre ranged between 3.5 million and 281 million! KEBS allows 1 million. That is the reason why all raw milk samples failed to pass the KEBS-standards. This huge amount is a clear indication of the unhygienic handling of milk (dirty milking sheds, unclean storage and careless distribution of the milk), see page 4. The only good thing is that most of these bacteria disappear when the milk is boiled to least at 70° Celsius.

If this is not done, the dangerous Coliform bacteria remain in the milk. Coliforms are bacteria resulting from dirty hands and unclean cans, buckets and jerry cans. The KEBS-standards allow less than 500,000 cfu/ml (Coliform units per millilitre). Only two of the five raw milk samples passed the tests; the others had between 3.5 and 26.5 million. Serious enough, one sample of processed milk contained more coliforms than the KEBS-standards allows for pasteurized milk.

Tuberculosis and mastitis

Similarly, a cow with tuberculosis can pass the TB-causing bacillus into the milk. If the milk is not properly boiled, anyone taking it has a high chance of contracting TB. The same happens when an animal has brucella infection. These bacteria are transferred to the milk. People drinking the milk face the risk of contracting brucellosis which causes bad fever and takes a long time to cure. A farmer should not sell or drink this milk until seven days after the withdrawal of the antibiotics.

Mastitis is an inflammation of the mammary glands in the udder caused by infection with disease-causing bacteria. These bacteria can also end up in the milk and results in illness and fever in milk drinkers. For this reason, milk from cows suffering from mastitis should not be sold or drunk.



All you need is hygiene

If a cow is contented, well-fed, cared-for in a clean environment, she will produce quality milk. Clean bedding is also important.

The Organic Farmer

A dairy farmer should be a professional and an expert in the care of cows. He must know that milk is a natural product and hygiene is therefore extremely important. Good hygiene begins long before milking starts. The predominant sources of coliforms and environmental streptococci are manure and bedding materials. The cleaner we can keep the cows, the fewer problems we will have in the milk (and the less money you spend for the veterinary!)

Hygiene is important

Whether the cows are kept outdoors or in stalls, there may be dirt on the udders that should be cleaned before milking.

- After washing your hands with soap, clean the udder and teats. Wash them with a clean cloth and warm water, dry the udder with a clean dry cloth.

- The teats should be thoroughly dried; water on teats helps in transporting bacteria and concentrating them at the opening of the teat canal.

- Cloth towels are more effective than paper at removing pathogens. Cloth towels should be disinfected by washing with bleach or very hot water.

- Now wash your hands again properly with soap.

- After cleaning the udder, the teats are fore stripped. Make the first draw into a strip cup to check for mastitis and other abnormalities and throw it away from the milking area even if the milk appears clean.

- After milking, sieve the milk through a strainer or muslin cloth to remove solid particles that may have fallen in during milking.

- Cover the milk to avoid contamination.

- Move the milk to a clean and cool area.

- Always handle milk in clean metal containers.

- When transferring milk between containers, pour the milk instead of scooping. Scooping may introduce spoilage bacteria.

Storage

- Store milk at a cool place. Cooling milk will slow down the growth of harmful bacteria and prolong the milk's shelf life.

- Keep the milk in easy to clean and sterilize aluminium containers, NOT in plastic jerry cans; plastic containers can not be cleaned in the same way and are breeding grounds for bacteria.

- At any rate, do not store milk in plastic jerry cans that previously contained paint, herbicides and other chemicals because traces of these substances can taint your milk.

- Use cleaning and sanitation detergents specially designed to clean and disinfect milk-handling equipment carefully.

- Always rinse your equipment with clean (boiled) water properly after cleaning to prevent detergent residues from contaminating the milk.

- Good milk quality means more profit for your farm.



Farmers should clean the udder before milking. To transport milk, one should use aluminium cans and not any metal or plastic containers, to avoid contamination.





>>> from page 3: Compost



into the soil. It can be argued that the nitrogen uptake by the organisms will be released upon the 'finishing' of the compost, when the organisms die; but still, the temporary problem can be a big one to growing plants that require sufficient supply of nutrients. So it is advisable to spread some mature compost around such plants.

Raw manure and half finished compost also have a reputation for 'burning' plant roots. This is as a result of the heat generated during the decomposition process. This heat can also affect many of the soil organisms that cannot endure hot conditions. Therefore one should not spread raw manures or half finished compost directly on or into the soil.

Compost as a mulch

When compost is used as a mulch, it has all of the good attributes normally ascribed to other mulches. It also has a higher nutrient content than most mulch material. But again: It is strongly recommended to use finished, mature compost.

Compost is generally kept damp to increase the chance of survival of the life it maintains. In Africa, the strong sunrays may damage and dry good quality compost, rendering it less effective if used as a mulch. It may be used more effectively in damp conditions like around fruit trees, vanilla, etc., where there is a shaded canopy of foliage above the compost.

In areas where rainfall and humidity are high, mulching with compost also reduces the work of digging the compost into the soil. It will simply wash down to the plant roots with each rain shower. (Much like the fallen leaves and other material, on a forest floor.) With this in mind, a good time to apply compost as mulch around your vegetable crops would be when the crop foliage is large enough to create cover, and when overhead watering is available, rain or sprinkler.

Another easy application where compost can be used without too much labour is as a layer upon the soil around the crop bases that is then mulched with grass, banana leaves etc. to protect the compost from drying.

Source: *Rivenrock Gardens Organic Philosophy*

Low cost maize flour not a solution

As a small-scale farmer who is a low income earner, I seize the opportunity to applaud the Kenyan government for its positive intervention in the price of maize flour that in the past few months had skyrocketed. Now, at least a majority of Kenyans can afford a smile as their staple food item is now retailing at an average of Ksh 72. In addition, there is a cheaper brand of flour that is retailing at Ksh. 130 per 5kg bag. This translates into Ksh.26 a kilo, a great reprieve to the low income earners like me!

In the midst of this celebration however, one cannot stop to think whether the reduction in the cost of maize flour is a long term solution to this particular problem in general, and in particular, the high cost of living that is experienced in this country. To me, the low cost maize flour is not a solution to the looming food shortage as the distribution of this commodity is very poor. It does not reach the target group – that is the low income earners. Additionally, this cheap commodity might be abused by unscrupulous businessmen who might repackage it and make high profits. Another question arising from this maize flour saga is; does the reduction in the price of maize flour mean reduction in the cost of living? Of course not. If we address the issue of maize flour today, what other commodity or service do we address tomorrow? Is it the cost of sugar that now is on the rise, or cooking fat, which is following the same trend, or is it electricity? Clearly there are imminent economic hardships coming and the government should not wait for pressure from the public to act. If one does not repair a crack on the wall, then eventually he shall build it whole; so goes a Kiswahili saying.

Jeremiah Kimemia, Thika

Beware of GMOs

The Biosafety Bill 2008 has now been passed and is now awaiting presidential assent. As with any other laws and policy documents that affect agriculture in this country, we the farmers know very little about the consequences of this new law that allows the introduction of Genetically Modified Organisms (GMOs) into the country. According to what we hear, the bill makes it possible for companies that manufacture genetically modified seedlings to sell them in the country. But our fear is that

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nobody really knows the side effect these GMOs are going to have on our health or the environment. What about our local maize varieties for example? Are they going to disappear because of cross-pollination with GMO seeds? Nobody is answering these questions to enlighten farmers.

The common practice among our farmers is to use farm stored maize as seed when they are unable to buy certified seed. Now we are told that the GMO seeds cannot be replanted again and if this is done, it might produce varieties of maize that may have dangerous traits that can have negative effects on consumers, the environment and even other crops. I would like to warn other farmers to be wary of using any of the so called GMO seeds until we are sure that they cannot bring any harm to us.

George Makau, Kangundo.

Can farmers afford GMOs?

Now the government has allowed the use of GMO. Fine, apart from the problems with GMO, let me ask you: How will small-scale farmers pay for these expensive seeds? So many farmer do not even have the money to buy hybrid maize or the drought resistant Katumani maize. This is strange. We run behind the Americans to get the GMO and feed to provide their companies with a market for their seeds; at the same time we neglect seed varieties made by our own scientists which are well-adapted to our climate.

Mary Awuor, Siaya

Papayas need male and female

What can I do to a papaya when it produces flowers and they drop off? Which chemical can I apply? Gitau, 0723 729 495

Papaya plants are quite funny. They can be male, female or both (hermaphroditic). A female plant will need a male plant in close vicinity in order for pollination to take place. If a male plant is not available, female plants will produce flowers that will eventually shrivel up and drop off.

This could be your problem, Gitau. You can recognise the difference between male and female papaya plants by the flowers. Male plants have clusters of small white flowers on branched tentacles, sometimes as much as 18 inches long. Female plants have a larger single white flower sitting on the head of a tiny fruit close to the stem in a leaf axil. The flower petals are normally straight. As the female plant bears the fruit.



When planting papaya it is advisable to plant several seedlings and then to thin them out transplanting approximately seven females to one male. This should ensure adequate pollination for good fruiting. **Su Kahumbu**

Manure from bats is good fertilizer

I am Edwin from Kagio, Kirinyaga. The bat dung I found when cleaning my ceiling is more efficient than any fertilizer, as I have evidence in my farm. Can they be raised? 0727 066 250

It might not be so easy to keep bats as domestic animals, Edwin, even if they are very helpful in eating a lot of insects and pests. But you are right, the droppings of bats, called guano, is a very good fertilizer. Today guano is harvested from many caves in South East Asia, the USA, Cuba and South America. Large populations of bats live since thousands of years in these big caves, the guano piles (manure piles) can be many metres deep. In Niah Caves, Sarawak, it is estimated that



birds and bats have been producing guano for at least 100,000 years, and that 7-9m depth of guano has accumulated over that time.

Cave guano is rich in nutrients as inside the cave there is no sunlight, wind or rain, and so the components don't break down as quickly as they would outside (that means Edwin, the guano on your ceilings has the same quality as the cave guano!). As Guano is rich in nitrogen and phosphates, it is good for crops. When manmade chemical fertilizers became readily available, guano was used less. However, it has now regained its popularity as an organic fertilizer.

Today scientists are turning their attention to guano for other reasons. This guano is now being studied to determine climatic changes over the past 10,000, even maybe 30,000 years.

Felix Mbitu Murimi

Fed-up with black ants? Remove the aphids!

How can I control black ants in yams? 0722 499 813

My name is Dan Ngure, a coffee farmer. I would like to get advice on how to control ants that infest the trees (*muthigiriri*) without spraying. 0723 746 103

Black ants usually farm aphids form the sweet honey dew the aphids extract from plants. They are therefore not interested in yams and coffee. Getting rid of the aphids is your solution to getting rid of the ants. You can do this by spraying the aphids with biopesticides such as the juice extracted from pyrethrum, neem, Sodom apple, African marigold etc. You can also sprinkle either diatomite or ashes on the aphids. **SK**



... answers in brief

Marigold: Can marigold extract also be used to protect tree seedlings? Charles, 0738 711 117

Marigold extract can protect tree seedlings from some insects.

Lachlan: Are those products from Lachlan, for instance TwinN organic?

To ensure products are organic, look for organic certification symbols on the packaging. If they are absent, request the dealer to get you written approval for the product from a recognised organic certification body. Lachlan's TwinN- nitrogen fertilizer is declared organic by the British certification company Soil Association.

Tithonia: Hi! Is it advisable to apply tithonia on sukuma wiki and managu? 0724 757 780

We are assuming the tithonia is being applied as a liquid feed. In this case, yes, it can be applied on both those crops.

Contact: Hi, thanks for the organic farmer magazine. It has helped me a lot. How can I contact Madam Su Kahumbu?

Mburu Gabriel. 0722 128 398

Su can be contacted on the following email: info@organic.co.ke

Bean waste: Can I use bean waste as mulching cum compost? 0722 580 626

Yes, it is ok as long as the bean waste was not infected with any diseases or carrying pests that might damage the crop that it is mulching. A good rule of thumb is like that of planting, mulch with waste from different family groups. That way you reduce the risk of spreading pests and diseases.

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tips and bits

from farmers for farmers

Farmers adopt push-pull method

More farmers in parts of central province are taking up the push-pull technology which is aimed at controlling the stemborer through planting desmodium between the maize; the smell of this plant expels the stemborer. Looking around for a place to drop the eggs, the stemborer flies to the Napier grass which is planted around the maize field. The project is being implemented by KARI and funded by the Swiss foundation BioVision, that also sponsors *The Organic Farmer* magazine.



During a farmers field day at Kandani sub-location Maragwa, division, Muranga South district most farmers were full of praise for the new method of stemborer control. "I have already seen a significant reduction of stemborer damage on my maize," said James Kinuthia. "Although the rains are not very good this year, the maize yield will no doubt be higher because of this new method."

According to Florence Gichuru, the

Maragwa division crops officer, the Ministry of Agriculture had already started seed nurseries all over the project area to supply the desmodium seedling to interested farmers. For Samuel Njihia, the push-pull project coordinator, the growing demand for desmodium a clear indication that the project would achieve the desired objective of controlling stemborer and producing additional fodder for livestock.

Cost of water to go up

Charges for water meant for domestic, irrigation and industrial use is likely to go up in this year. This follows new rates set to be announced by the Water Regulatory Board this month. The newly proposed rates which sources at the board indicate will be much higher than what consumers are paying at the moment, have met with stiff opposition from water users who argue Kenyans cannot afford "I think the move to increase the rates at this point in time is ill-advised," says a water expert at the ministry of Agriculture.

The new rates are expected to face a stiff opposition from farmers and other water users. Large water users including manufacturing companies may find the cost of production going up which may force them to increase the price of various goods and services. Similarly companies that use large amounts of water such as flower companies may be forced to incur increased costs which may force some of them to relocate to other countries that give better incentives.

Issue 7, January 2009

THE Farmers Classified

To advertise contact: James Wathuge 020 356 4106, 0720 419 584, 0733 893 300, email: thefarmersclassified@mailnew.com



BURNS:

Milk it. "Milk is an excellent compress for minor burns," says Stephen M. Purcell, D.O., chairman of the Department of Dermatology at Philadelphia College of Osteopathic Medicine and assistant clinical professor at Hahnemann University School of Medicine in Philadelphia. "Simply soak the burned area in milk for 15 minutes or so, or apply a milk-soaked washcloth to the area." Whole milk is effective: Its fat content soothes burns and promotes healing. But make sure to rinse your skin and the washcloth in cool water afterward, because the milk will smell.

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Interviews in progress for January 2009. For more information contact:

Principal

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