

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 35 April 2008

Doubts about feed quality

The composition of many dairy meals farmers are buying does not meet the required standards.

The Organic Farmer

In the last few months we have been getting some letters from farmers complaining about the low quality of animal feeds (dairy meal) they were buying. That's why TOF decided to undertake some research of the available feeds in the market. We bought six samples of various types of feeds in different agrovet shops, from each feed we took ½ kg for analysis. We gave each sample a code number (DM 1 to DM 6) and sent them to KARI Naivasha; for each of the samples we paid Ksh 1,000 as laboratory fee. KARI Naivasha is the National Animal Husbandry Research Centre. This institution is specialized on animal nutrition



With this Infra-Red test machine, experts at KARI Naivasha can test feed quality.

and has modern facilities to test all kinds of feeds.

Big differences

According to the results we got from Naivasha we have to state:

- Some samples contain too much fibre which the dairy cows are getting anyway through the fodder the farmer is provided on the farm.
- Some samples do not have the required amount of the nutrients they should have.

- Some feed manufacturers after failing to get required raw materials for feed formulation simply add normal fodder to the feed, a reason why many feeds have a high crude fibre content. This is mainly done for the feed to attain the required weight, but this is a loss to the farmer.

Planting sufficient fodder

We advise the farmers to do two things:

1. If you buy dairy meal, go to well known and reputable companies.
2. Plant as much valuable fodder for the dairy cows as possible: grass, legumes, fodder trees etc. This needs some planning, but at the end of the day, it pays off if the cows increase the milk yield. See pages 3, 4 & 5



Some feed manufacturers are cheating farmers with poor quality feeds. (TOF)

Dear farmers,

The devastating political violence in the country at the beginning of the year seems to be finally over; the situation is slowly going back to normal, after the government at last agreed to share power with the opposition. It is our hope that the two sides will keep to the agreement to enable the government to focus more on national reconstruction and development.

During the skirmishes, a lot of people were displaced, houses and business premises burnt. This violence has left the poor people even poorer. The only way they can regain their livelihoods is to get compensation or be resettled either in their original homes or elsewhere to start rebuilding their shattered lives.

Kenya has thousands of square kilometres of land owned by the rich including the past and present ruling class, most of which was illegally acquired and is still unused to date. Up to now we are yet to hear one of the big landowners say this: "Okay, as a sign of solidarity with the landless, I now donate some of my land to them", or "I will sell a part of my land to the Government at a fair price for the resettlement of the displaced." One of the issues that has fuelled the conflict in January and February is the unjust distribution of land, especially if we take into consideration the high population growth witnessed in Kenya.

Consequently thus, a total overhaul of the country's land policy cannot wait any longer, if we are to avoid future conflicts of this nature with even more disastrous consequences. On the contrary, resettling the landless in forests is no solution as this would be a step backwards. In the past, previous governments hived off huge chunks of gazetted forest land and water catchments to undeserving individuals in order to solicit for votes ahead of general elections. Consequently, trees were cut down for timber, firewood, charcoal production and the result is the bare land now used for farming.

The result now is an environmental disaster in many parts of the country. Rivers emanating from these forests have dried up are choked with silt while the rainfall patterns have changed. We can reverse this environmental decline, at least to some extent, if urgent measures were taken to reclaim the grabbed land and ensure that genuine, landless people are resettled elsewhere. It is only through proper and careful utilisation of our resources that we can reduce poverty and achieve sustainable development.

High fertilizers prices: Are there options?

The Organic Farmer

Many farmers are desperate because of the current hike in the prices of fertilizer. A 50 kg bag of DAP is now selling at Ksh 3'800 per bag, an amount most of the small-scale farmers cannot afford. In the last few weeks we have had at least 5 calls per day from farmers asking where they can get cheaper alternatives to chemical fertilizers. Some of the questions we got were: Are there organic fertilizers with the same immediate effect like DAP? Are there any other cheaper fertilizers that we can use to grow maize?

These are tricky questions. There is a fundamental difference between the conventional farming with the use of DAP for instance, and the organic way, where fertilizers such as DAP or Urea are not allowed in organic farming.

There is an organic alternative: TwinN. This is a selection of high yielding nitrogen fixing microbes for use as a soil improver in all crops. One portion of TwinN costs Ksh 3'500 and is enough for 2.5 acres (1 ha); for the same size of land a farmer needs 3 bags of chemical fertilizer. See page 2.

New organic soil improver

The Organic Farmer

There is a new organic soil conditioner in the market. TwinN is actually a soil improver that can be used in place of chemical nitrogen fertilizer such as CAN or Urea for top dressing of all types of crops (maize, beans, sukumawiki, cabbages, potatoes, fruit trees etc.) It is approved as organic soil conditioner by the UK-based Soil Association and by the International Federation of Organic Agriculture Movements (IFOAM). TwinN provides the crops with all their nitrogen requirements throughout the growing period when applied only once, at the usual time farmers apply CAN or Urea.

In a tiny bottle, smaller than a matchbox, are microbes; they look like little white blocks. These microbes are frozen in dry form. They come back to life, as soon they are dissolved in water, they are poured into the bigger container that holds their food. After standing for three to four hours at room temperature it can be used immediately or kept in the refrigerator for up to three months.

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When sprayed, the microbes can help the plants to produce nitrogen equivalent to three bags of CAN or Urea. Not many farmers can believe this. But according to Gitau Macharia, the Managing Director of Lachlan Ltd., the company selling TwinN, the soil conditioner has been tried in more than 40,000 acres of land planted with different crops in various parts of Kenya with very good results.

Unlike chemical fertilizer, TwinN supplies nitrogen in a form that plants can easily break down and use. In normal fertilizer application, a large percentage of chemical fertilizer never ends up in the plant; this is because nitrogen fertilizers are prone to leaching or escape back into the atmosphere as nitrogen gas or nitrous oxide.

TwinN is available in packets enough to spray 1, 5 and 10 hectares and can be bought in the agrovet shops. The one for 1 hectare (2 ½ acres) costs Ksh 3'500. Interested? Contact the company Lachlan Kenya Ltd, P.O. Box 494, Nairobi, 00100, Tel. 020 207 39 12/3/4 or 0722 209 474. email: Lachlan@agriculture.co.ke



In this tiny bottle, smaller than a match box are the microbes (white cubes). The bigger bottle contains the microbe food.

Organic fertilizers can cut costs

Building soil fertility through organic farming can save farmers the extra cost of buying chemical fertilizers.

The Organic Farmer

With the current high fertilizer prices, farmers who took our advice and started building their soil fertility some years ago through organic farming are happy now that they do not have to buy fertilizer. Since they have used compost for several years now, they have already enriched their soils to a level that can now support the various crops they intend to grow. This is the most important quality

of organic compost; unlike chemical fertilizer, compost releases essential nutrients needed by plants slowly and retains some nutrients even after feeding the plant. Good compost needs some work: Charles Munyari turns compost.



Chemical fertilizers on the other hand go directly into the roots of the plants without feeding the soil.

Some little fertilizer helps

Several times now, we have explained to farmers how to prepare good compost. The best way to make compost is to mix the manure with organic matter such as crop residue or kitchen waste. If you add some EM1, the organic matter decomposes fast, producing quality compost in a period of three weeks.

For those farmers who are still practising conventional farming, one way to cut costs is to use compost but in this case add a small amount of fertilizer over the compost heap and mix it properly. This method has a double effect: It helps to decompose the organic matter fast and second, the chemical fertilizer goes to the roots of the plant immediately, the compost releases the nutrients slowly into the soil in this way feeding the plants. Farmers can buy small quantities of chemical fertilizer – although it is not organic.

You need more milk? Feed the cows well!

Many farmers do not take dairy cows keeping as a serious business. They thus do not feed their animals well.

The Organic Farmer

A short while ago, farmer Joseph Macharia from Karatina sent us a letter. "I have a Friesian cow. I know that in Europe cows of this type produce 25 to 30 litres milk a day. I hardly get 9 litres of milk from my cow. What is wrong with my cow?" he asks.

We would say that there is nothing wrong with Macharia's cow. Like many other farmers in the country, Macharia does not feed his animal well. In other words, the cow is not well-nourished to be able to produce an appropriate amount of milk. "Proper feeding of dairy cows is the greatest challenge facing most of the small-scale farmers in Kenya today. They do not know what it takes to maintain a dairy cow so that it gives the desired quantity of milk", says Dr. John Kariuki, an animal nutritionist and the Centre Director at the National Animal Husbandry Research Centre, KARI Naivasha. Dr. Kariuki says that most farmers do not feed enough fodder to the animals, and if they do, it is often not of the right quality.

Feed requirements

An experienced farmer ensures that their animals have the right feed and in the right proportion. A balanced diet will keep an animal healthy and productive. There is a direct link between the quantity and composition of the feed and the health status of the animals. And there is a direct link between proper feeding and milk production. A cow without good and balanced fodder will never give the farmer a good milk yield. It is important that dairy cows get suitable feed in sufficient quantities.



Fresh grass is good for cows

A dairy cow requires a basic diet. Basic diet consists of pasture grasses and fodder (see box on page 5). A mature Friesian cow weighing about 450 kg will consume about 80 to 100 kg of fresh green roughage a day. The fodder contains roughage which provides the animal with its daily energy requirements for body maintenance, milk production, growth, weight gain and reproduction. An animal can get extra energy sources from molasses, maize and wheat germ.

Protein in feeds

In addition to this, a dairy animal requires adequate protein in the diet to help microorganisms in the rumen (stomach) to convert the roughage into nutrients. Dr. Kariuki says protein

deficiency in the animal diet is a big problem among small-scale farmers. "We are always trying to train them to ensure that they supplement the forage diet with legumes which are a good source of proteins," he says. Lack of protein in the animal diet results in poor growth, reduced milk production, loss of weight and late maturity.

Good protein sources include legumes such as Lucerne, white clover, and bean straw. Fodder trees such as calliandra, sesbania and leucaena are good source of protein for animals. Farmers should dry calliandra before feeding the animals as it causes the milk to smell when given fresh to the animals. Research has shown that 3 kg of tree fodder and other legumes such as sweet potato vines give the same milk yield as 1 kg of dairy meal. A cow should also be provided with mineral licks. Some of the minerals present in the licks are calcium and phosphorus which are very important to animals when given in the right proportion. Pregnant cows especially require adequate amounts minerals to help in bone and tissue development of the calf. Never give cows the ordinary table salt as it has none of these minerals! Dr. Kariuki says that more than 80% of locally made mineral licks are of poor quality. Farmers have to be careful when purchasing these licks.

Filling the cow's stomach

For dairy cows, goats or sheep, roughage forms the bulk component of the animals daily ration. The expected daily consumption of roughage will depend on the quality of the roughage, the size of the animal, level of milk production, quantity of supplements given and dry matter content of the feed material. The cow needs enough basic diet (roughage) to fill the stomach. Dr. Kariuki says that

Continued on page 4

Total mixed rations (TMR) for a dairy cow.

Milk yield target (kg)	Live body weight (kg)	Maize silage (kg)	Lucerne Hay (kg)	Napier Fresh (Kg)	Rhodes Grass (kg)	Concentrates (kg)	Total Dry Matter Intake(kg)	Forage Concentrate Ratio (Kg)	Calculated Cost per kg of milk
30-35	600	14	3	3	2	15.2	21.3	1: 1.5	8
20-25	550	14	3	3	2	10.4	16.8	1: 1.1	15.9
10-15	550	16	-	4	6	6	15.6	1: 1.5	15.9

- For every 5 kg of milk produced above the target, add 0.5 of each individual ingredient.
- Production system is semi-intensive. (Source: KARI, Naivasha).

>>> from page 3: feed the cows

supplementary feeds such as concentrates cannot replace basic diet.

In the dry season most of the cows do not get enough fodder. Many small-scale farmers try to balance the deficit by feeding the animal with more dairy meal. Farmers become disappointed if the milk production does not increase. Most of them blame the animal feed companies for producing poor quality feed – or their cows. “What they do not take into consideration is the fact that without a properly filled stomach, even the correct portion of the best quality dairy meal cannot help the animal increase milk production”, says Dr. Kariuki. When not given sufficient basic fodder, the cow uses the dairy meal to maintain its body and cannot increase milk production. Very often, the farmers feed their animals with whatever feed they can get, even rotten maize. Feeding rotten maize to animals is dangerous as such maize contains aflatoxins. The aflatoxin ends up in the milk which is dangerous for the cows as well as for people who finally consume the milk. ■

Well kept animals are healthier

Disease causing germs and parasites are present almost everywhere. Animals have an immune system which is usually able to cope with these germs. The efficiency of the immune system will be disturbed if animals are not properly fed or can not practice their natural behaviour (free movement).

Organic animal husbandry puts its focus on improving the living conditions of animals and on strengthening their immune systems. Of course, if an animal gets sick it must be treated.

Prevention better than cure

Just as in plant health, organic animal husbandry puts the main emphasis on preventive measures in order to keep animals healthy, rather than on curative methods. This starts from keeping robust breeds rather than high performing but very susceptible ones. Next, the conditions in which the animals are kept should be optimal ones. Sufficient space, light and air, dry and clean bedding, frequent exercise (e.g. grazing) and proper hygiene as well as the quality and quantity of fodder is of crucial importance for the health of the animal. (TOF)

Good planning, more income

Keeping dairy cows is first of all a question of knowledge and planning. Any serious farmers should be able to sit down and make a business plan. They should be able to tell if the land available is big enough to keep the number of animals they wish to keep and if so, what type of fodder, legumes, or grasses can be planted. They should ask themselves the following questions:

- Do I know how much each animal will require in a day?
- Do I have enough to feed the animals during the dry season?
- How will I conserve the excess fodder during the rainy season so that I can feed it to the animals during the dry season?
- Do I have enough money to buy concentrates, mineral licks and drugs to keep the animals healthy in order to produce adequate milk for sale?

If farmers took time to ask themselves these questions, then they can arrive at a good decision on whether or not they are able to run a dairy farm and make profit from their operations.

Water and licks

And one essential challenge they should not forget: Dairy cows need a lot of water. Water should be available all day. Farmers do not give cows enough water. An exotic cow producing 30 litres milk will have to drink at least 60 litres of water in a day. Milk production is very dependant on the amount of water drunk by the animal, same with good mineral salts. In the dry season there is low mineral content in the dry grasses cows feed on. They therefore always require more salt licks in the dry season.

Dairy farming is business

Dr. John Kariuki (KARI Naivasha) regrets that most farmers do not see dairy cattle farming as a serious business. “For example, we are often surprised to see a farmer investing a lot of money in a horticulture business. If you look at the same farmer’s animals, they are neglected and do not even have enough feed – even if the farmers know that they



Cows need space for movement and access to clean water (see photo below).

can make good profits from milk since the demand for milk and price are currently high and increasing,” Dr. Kariuki says. Most small-scale farmers know (or have at least heard of) methods of feed conservation such as silage, hay or use of polythene cubes. KARI has a lot of useful and well-done brochures about silage or hay-production, which farmers can buy. *The Organic Farmer* has featured articles on how to make hay and silage (TOF issue No. 19). But very few farmers try out these methods. “It is so frustrating to see farmers ignore useful advice that can help improve their income and standard of living,” adds Dr. Kariuki.

Cows need space for movement

In organic farming feeding should be mainly based on the fodder produced on the farm itself. Furthermore, organic dairy farming management demands that the animals have sufficient freedom to move around and perform their natural behaviour. That is why landless animal husbandry, where animals do not have enough space for movement and rest, is not permitted in organic farming. To keep the cows in the boma day and night is against the nature of the animal and affects the animal’s health and creates stress. We should never forget that a dairy cow is an animal with its own needs. It is not just a milk-producing machine! ■



Some feeds do not have any value for cows

After receiving many complaints from farmers about the quality of dairy meal we got curious. This curiosity generated in us some questions: Why are the farmers not happy with the feeds in the market? Are these farmers only grumblers or do they have good reason to complain? To find out, we went out and bought six samples of dairy meal from agro-veterinary shops in Nakuru, Naivasha and Thika and sent them for testing at the National Animal

Husbandry Research Centre KARI, Naivasha. The results we obtained are shown on the table below. Unfortunately we cannot mention the names of the manufacturers, otherwise we will face a chain of legal suits. Farmers interested in the full information can get in touch with TOF. We also tested concentrates for pigs and chicken; these results shall be published in another TOF-issue.

The Organic Farmer

		Dry matter (%)	Crude protein (%)	Energy Kcal/kg (%)	Crude Fibre (%)
KARI-recommended standards		90 %	15 – 18 %	12 %	Less than 16 %
Prices at Agrovet shops	Sample Code				
Ksh 1'000/ 70 kg	DM1	90.96	19.42	9.6	8.39
Ksh 1'100/ 70 kg	DM2	92.52	17.37	11.1	12.77
Ksh 1'030/ 70 kg	DM3	97.05	9.25	8.5	26.14
Ksh 300/ 20 kg	DM4	95.63	4.05	5.3	29.07
Ksh 1'200/ 70 kg	DM5	94.55	11.09	14.5	7.03
Ksh 1'030/ 70 kg	DM6	96.74	11.19	10.6	16.43



These are the analysed feed samples from six feed manufacturers in Kenya. Although the prices of the different types of feeds given above is more or less the same, some of the animal feed manufacturers make very poor quality

feed. The crude fibre content in DM3 and DM4 is too high and does not add any nutritional value to the concentrate since the animals already get crude fibre from the fodder provided on the farm.

Source: The Organic Farmer

Home-made concentrates? Quite a task!

Many farmers want to know if they can make their own concentrates at home. They can, but it is a difficult task. One has to mix the different ingredients and in the right proportion; otherwise the results would be similar to those of a sick person taking various drugs without matching them properly. That means that concentrates need to have the correct mixture of the ingredients. They need to have energy boosters,



protein, the right balance between calcium and phosphorus etc. It should be done under the supervision of an extension officer or at least an experienced farmer. Never use rotten materials such as maize (maozo) or affected wheat as both contain aflatoxins.

In every case it is advisable to have the concentrate tested. KARI Naivasha has modern testing equipment. It takes 24 hours to analyse one sample and it costs Ksh 1,000 per sample. When you send a sample to KARI, ensure that it is a well-mixed sample, around a 1/2 kg. *Send to: KARI Naivasha, P.O.Box 25, Tel 050 504 82; Cell 0722 336 589.*

No authority to regulate feed manufacture

The increase in demand for milk has encouraged many farmers to engage in dairy farming. Consequently many local companies have ventured into the animal feed manufacturing business to cash in on the increasing demand for animal feeds. The sourcing of raw materials for the manufacturing of animal feed coupled with lack of experience in animal feed formulation is a big challenge to the new feed manufacturers. Lack of a

regulatory authority to control the quality of these feeds is however the major problem.

The Kenya Bureau of Standards (Kebs) has not set standards that animal feed manufacturers can follow. A bill to regulate the industry is however in the pipeline. Farmers in doubt about the quality of feeds that they regularly use are advised to test the feeds from time to time at KARI, Naivasha.

Feeding cows is not a Sunday's walk

It should be the target of each farmer to produce as much fresh fodder of high quality as possible on their own shamba. Cows need not only a full stomach, they grow healthier if they are fed on a variety of foods. Before stocking, a farmer has to remember that the economic benefits shall be more if they only kept the number of animals that they can feed well. It is not only the amount of feed that matters, but also the quality of the available feed must be taken into consideration. – If concentrates or supplements are used, they should not contain growth promoters (for instance hormones) and other synthetic substances.

Roughage

The majority of the fodder should consist of roughages:

Pasture: Grasses (kikuyu, Rhodes, star grass)

Fodders: Napier, green maize, sorghum, sweet potato vines, sesbania, calliandra, leucaena

Legumes: Lucerne, desmodium,

Hays: Rhodes, lucerne

Silage: Napier, maize, sorghum,

Straws: Wheat

Stalks: Maize, sorghum





A hanging garden

It is simple and labour free and attractive to the eyes. Portable kitchen gardens can be erected around our houses. Mobilizing local resources such as top fertile soil, manure, compost, empty sugar bags, gravel, small stones and empty Kasuku oil tins with top and bottom sides open, farmers are now able to grow vegetables, organically for their kitchen needs. Spinach, sukumawiki and tomatoes intercropped with pests repellent plants can do well using this method.

How to make it

Identify leveled sites around the house where roof water falls into the bags directly. Mix the top fertile soil well with well-prepared compost. At the centre of an open bag, place the Kasuku tin upside down with an open narrower bottom up. Fill the Kasuku tin with stones. Around the tin and inside the bag, carefully fill the mixed soil to the height of the tin. Slowly and gently pull up the tin to the level of the soil in the bag. Fill the tin with stones and repeat the same with soil. The upright standing bag is now full to the top. Pour water gently on the stones and soil is made wet from top to the bottom. Using a sharpened stick the size of your thumb, pierce well-spaced holes all round the bag from top to bottom. Into these holes, gently plant your vegetables and add water. A three to six month's sustainable kitchen garden is ready. It requires less water, no cultivation and no labour. To scare birds and chicken from eating leaves and fruits; slurry from cows, goats and sheep can be applied on the open top of the bag and outside.

J. G.Njoroge, 3N Africa, Sabasaba



farmers forum

I want to train farmers in organic farming

I work with the Ministry of Agriculture in Nandi district. I have great interest in organic farming. I practice it on a very low level on my kitchen garden and try to educate fellow women to try it on their gardens. We have a farm that we want to convert to organic farming in order to create awareness to the surrounding community, through training, visits and demonstrations. I am writing to ask for more information on how I can go about setting it up and the requirements. I would also like to know if you

offer any kind of financial support. I can get someone to train farmers and occasionally supervise the work. He has done a course on organic farming. Eliseba Lelei, P.O Box 180, Kapsabet

You have a good idea aimed at helping farmers, however the only way we can assist you is to provide you with additional information to educate them on organic farming. We are a small organisation with limited resources, we are therefore unable to offer any kind of financial support to farmers' groups.

We can share experience

We acknowledge the receipt of 30 copies of *TOF* magazine for the month of January. We are grateful that you honoured our request in December 2007 to have some more copies. We have already distributed all the copies to farmers and they are pleased by the amazing farmer innovations and experiences in the field of organic farming. You will be receiving our Mbeere experience on dry land farming.

Peter Mbogo, P.O Box 202, KADI Embu Tel.

TOF good for my school

I am an agricultural teacher in St. Mukasa school. I have been reading *The Organic Farmer* magazine from a friend and have found it very useful for teaching agriculture in school. Please if possible, send us some copies. They will assist our students to improve in agriculture.

C. W. Wamalwa, P.O Box 1123, Webuye

Saving on input costs

We have found your organic magazine very beneficial. Most farmers who read *TOF* spend less in input costs in farming. To reach more farmers, we have decided to introduce one more information desk in our division. We therefore request for more copies.

John Sprite, Nyasi Unit, P.O Box 1781, Kitale

We require past issues

I would like a copy of the plant extracts special and all the past issues. I sincerely like to thank you in for supplying me regularly. I hope you will continue sending the magazines.

Mafuta Farm, P.O Box 79, Moiben

I need to learn more

I write to sincerely thank you for putting me on the mailing list of farmers who receive the *TOF* magazine. I am happy to inform you that I am now more knowledgeable than I was before reading the magazine. The magazine is indeed a blessing to farmers. If it is possible, please send me special issues on the following: Pests, diseases and deficiencies in plants, plant extracts, ecological methods for the control of pests and parasite infestations of plants, humans and animals. I would also like to know the full address of KIOF.

William Tiyoy, P.O Box 2540, Kitale

Write to KIOF P.O. Box 34972, 00100 Nairobi Tel.0733 799 072

More on poultry keeping

Thank you for the good work you are doing. Actually, the magazine has taught me a lot. I came across a copy of September 2007 from a distant friend and just wish that you include me in the mailing list. I would be very grateful if you consider me as I want to start poultry keeping and zero grazing. Inform me on how to construct the poultry house of 100 chicken layers and the requirement.

Irungu M Murimi, P.O Box 1713, Thika

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.



So many problems with tomatoes!

Rain. I have a problem with tomato growing here in Kenana farm, Njoro. I think that's because of heavy rains. Please assist.

Tomato plants do not like a lot of water. Once established, tomato plants can be watered twice a week and preferably at the soil level, using jerry cans or drip irrigation. Sprinklers splashing on plants also allow for the dispersal of pests and disease. Our soils also harbour soil-borne diseases that affect our tomatoes and can be spread by too much water. Tomato seedlings in particular do not like to be crowded or narrow, and suffer from damping off which is noticeable when entire lines of seedlings start to collapse.

Check with your agronomist to ensure you have the best suited tomato variety for your area, and ensure to provide the plants with a lot of nutritious compost during the growing period.

Spider mite. Help! I am facing a spider mite problem in tomatoes. Tel.0710 671 228

For spider mite problems, a good solution is to use an organic insecticide like pyrethrum extract. Make sure you spray early in the morning or late evening to avoid killing beneficial insects. Spider mites love thick

bushy humid and hot conditions. Allow for optimum aeration around your plants to avoid these conditions. Prune lower aging leaves from tomato bushes often, make sure to identify the spidermite problem early and deal with it before it becomes a bigger problem. Plant hygiene is important, mites can be spread on clothing, tools, and pets that are used on the plants or simply brush against the plants.

Bacterial wilt. I grow tomatoes in a green house and they suffer from bacterial wilt. Please help. Ogal Opiyo

Unfortunately bacterial wilt is soil borne and extremely difficult to remove. It is advisable for you to rotate the growing in your greenhouse for the next three years before returning to planting any of the same family type i.e. potato, egg plant, pepper. Bacterial wilt can be spread through infected seedlings, contaminated machinery, contaminated water sources, infested soils taken with seedlings from field to field.

To check for Bacterial wilt, slice through the stem of the plant and submerge the cut end in a glass of clear water. If you see white liquid streaming in strands into the water, then this is confirmation of infection.

Su Kahumbu

Protect your chicken against disease outbreak

How often should chicken be immunised? Tel.0728 426 351

It is difficult to recommend a fixed vaccination programme for chicken because different areas experience different levels of disease incidences. The seriousness of a particular disease and its status in an area will determine the type of vaccination pro-

gramme a poultry farmer can put in place. However, we can give you information on a range of chicken diseases common in Kenya and the recommended vaccinations:

Marek: An vaccination against this disease is administered at the hatchery before you take the chicks for rearing. The vaccine is given only once.

Newcastle: The vaccination is inter-nasal drops applied to the eyes at 2 or 3 weeks and repeated at 18 weeks and thereafter every 6 months.

Fowl typhoid: The vaccination against fowl typhoid is given at 8 weeks and later after 6 months. It administered through drinking water or an injection in the bird's muscle. One vaccination is adequate for entire life of the chickens.

Fowl pox: This is applied to the wings at 8 weeks in high risk areas (e.g. Coast Province and Kisumu) and at 18 weeks in less risky areas.

Gumboro: It is dissolved into drinking water at the 4th and 14th day. Gumboro can be repeated whenever there is a threat of re-infection. (TOF)



Good mushrooms (above)
False mushrooms or Coprinus (below).



Mushroom need great care to grow

I have grown mushrooms but they wither immediately after germination. What could be the problem? Tel. 0723 727 885

The problem with your mushrooms is not withering. Indeed what is growing in your substrate (growing medium) is a fungus called coprinus. It starts growing in place of mushrooms when the substrate preparation process is done in the wrong way. When making the substrate you should make sure that it is well pasteurised (well boiled) for at least 6 hours to ensure that all the bacteria are destroyed. After pasteurisation, you should drain the water to ensure that the substrate is not too wet. Ideally, the conditioning of the substrate involves draining it for a period of about 12- 24 hours in a room that is well sterilised to ensure no bacteria are reintroduced into the medium. When sure that you have done all that is required, you can then introduce the spawn. The problem with your mushrooms is that they were underpasteurised and in this conditions the mushrooms cannot grow. The fungus (see picture) takes advantage to grow when the right conditions for its growth are created.

Before going into mushroom production, it is important that farmers get training before starting, to reduce any chances of failure. It appears that most farmers have already gone into mushroom production without adequate knowledge on production, processing and even marketing. (TOF)



from farmers for farmers

Farmers depend on each other

The consequences of the recent post-election violence are already being felt in the agricultural sector throughout the country. For the first time ever, many farmers are now coming to realise the interdependency between themselves and other sectors that support agriculture. Apart from the harvest that was destroyed or stolen during the violence, many farmers



GM maize already in Kenya?

There is a row on GM maize following a report on the *Sunday Nation* about genetically modified maize (GM maize). According to the newspaper, the Pioneer seed company, has been selling GM maize to local farmers without them being aware of the fact that it is GM maize. The newspaper founded its report on research done by the Biodiversity Coalition (KBioC), a body that brings together 45 farmers' groups, NGOs and civil society bodies. Their tests discovered traces of MON810, a genetically modified maize variety owned and marketed by Monsanto, and US-American biotechnology company.

A few days later, the Pioneer seed company denied the claim, saying that the alleged GM Maize had undergone trials locally and met the requirements set by the Government before they released it to the farmers. Pioneer says in the advertisements in local newspapers that the maize is bred conventionally and not genetically. At the same time Pioneer concedes that there is no agricultural material that does not contain some foreign genes in its genetic make-up. (TOF)

lost their valuable farm machinery while others were forced to transfer theirs to areas they felt were safe or at least not hostile to them. In the wheat and barley growing areas of Molo, Nakuru and Narok thousands of acres of barley now remain unharvested because most owners of farm machinery withdrew them for security purposes.

Services interrupted

Easy access to all parts of the country ensures that cereals and other food items move from food producing areas to those with food deficiency with ease. This helps to stabilise food prices and ensure availability of a variety of food items in all parts of the country. The political violence has created so much fear and suspicion that transporters are scared of going to particular parts of the country, leading to food shortage in these areas. Notably, it is not only the machinery and transport that have been affected by the violence. Many businesses supporting the agricultural sector such as the personnel offering valuable support to farmers such as veterinary services or artificial insemination have all moved to areas they consider safe.

Food security in danger

One of the most important inputs is fertilizer. The sudden increase in fertilizer prices will also make it difficult for many farmers to afford it. With traders having taken advantage of the political violence to hike fertilizer prices, the Government should have taken measures to import the commodity in time for the planting season; but if we take into account the bureaucracy involved in the Government procurement process, this means that the earliest farmers can expect to buy fertilizer at a subsidised price from the National Cereals and Produce Board (NCPB) is late May or June 2008, which will already be too late for planting.

The general outlook in the agricultural sector for the year is not very encouraging, and there is a possibility of a looming food shortage. For farmers, the clashes should be a lesson that they need to live in harmony with their neighbours as they need each other to successfully accomplish their goals. Steven Abongo



Market Place

Training: Jomo Kenyatta University of Agriculture and Technology has a training programme for farmers who want to go into mushroom growing as a business. 2008 training dates: April 16-18, May 21-23, June 18-20, July 23-25, Aug 27-29, Sept 17-19, Oct 22-24, Nov 12-14, Dec.3-5. Course charges are Ksh 10,000 per participant. Call now for booking at; JKUAT Enterprises Ltd. 067-52420. 0736-524200. 0724-256696.

e-mail: md@jkuates.jkaut.ac.ke
bm@jkuates.jkuat.ac.ke Ask for P.K.Muchiri.

Sweet potato vines: Miritho Mirio Self-Help Group is selling sweet potato vine. The group has seven varieties of sweet potatoes such as orange-fleshed sweet potatoes with vitamin A from which various food products such as potato juice, baking cakes, chapati, mandazi. Other food products that can be made from these potato varieties include vegetable crisps, chips and sweet potato flour. We are selling each vine at the price of Ksh 2. Farmers interested in the vines can contact us. Call Alphaxard Kirathe Njoroge Tel. 0735 565 231.

Cocks wanted: I am an indigenous poultry farmer and would like to improve my local breed of chickens. I need a pure exotic Black Australorp and a yellow-skinned Rhode Island red cocks. Please get in touch with me if you have these breeds. Call Mbai Tel. 0724 920 184.

Amaranth for sale: I grow amaranth for grain and value addition. At the moment I have 500 kg of amaranth flour containing 6-7 % oil, 7% squalene higher than the amounts found in other vegetable oils. It has a balanced composition of carbohydrates, fats and protein and is suitable for people recovering from illness or those who are fasting. Tel. 0724 037 421.

Amaranth for sale: I have 1400 kg of amaranth grains for sale. Interested buyers can call me on Tel. 0725 292 960.

Apple mango and Rose coco beans: I would like to buy apple mango seedlings and 3 tonnes of Rose Coco beans. Sam Kinuthia Tel. 0727 000 235