

The Organic Farmer

The magazine for sustainable agriculture in East Africa



Nr. 88 September, 2012

The scramble for New KCC

Farmers want a controlling stake in the New KCC in order to protect their interests.

The Organic Farmer

The story of the dairy industry in the country cannot be complete without the mention of the Kenya Cooperative Creameries (KCC). It was the major milk processing company in the country until the 1990s when it collapsed due to mismanagement. Equipment belonging to the company were vandalised and sold to private milk processing companies that had set up by well-connected individuals within the government to take its market share in milk processing.

By the year 2002, KCC was on its deathbed; but immediately the NARC government came into power, KCC was among the first institutions that the new government revived. The New KCC, as it was named, immediately started reviving factories that had closed down. Many farmers who had abandoned dairy farming revived their enterprises. However, the last few years has witnessed a new campaign to cripple New KCC through frustration in the market. Many supermarkets and retail outlets that used to sell its products have stopped.

There are plans by the government to privatise New KCC. According to the ownership structure proposed by the Privatization Committee, farmers have been allocated 42 per cent shareholding. A total of 34 per cent of the shares are to be listed at the Nairobi Stock Exchange. The government will retain a 20 per cent shareholding, while 4 per cent have been reserved for New KCC staff.



Farmers fear that the privatisation structure will allow private processing companies to buy the 34 per cent shares that will be floated at the stock exchange. Should the government decide to sell its 20 per cent shareholding at the stock exchange, then the same companies could buy these shares, effectively taking

The winners and losers in Kenya's dairy industry Page 4 & 5

over the New KCC. – The farmers want to be given 51 per cent shareholding through which they can run the cooperative and ensure their interests are protected.



What farmers can do when their calves are sick.

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Biological pesticides

There are quite a number of biological pesticides, sulphur-based pesticides and copper-based fungicides in the market, which are allowed in organic farming. Farmers interested in this list can send us an SMS 0715 916 136 with

the keyword "BIOLOGICAL PESTICIDES" and their full contact address. We shall send the the five-page list of these products, which includes the names of the manufacturers and their addresses.

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Dear farmers,

Many farmers want to go into dairy farming as a source of income. But the situation is more challenging than most of them realise. Small-scale farmers with two or three dairy cows find it extremely difficult to support their families with earnings from milk production. The problem is to feed and manage high yielding exotic breeds of dairy cows adequately. The cost of production has really gone up making it uneconomical to manage a few dairy cows. The biggest problem is lack of sufficient land, on average one needs one acre per cow. Due to traditional land tenure, the available land has been subdivided into many small parcels, so farmers, practicing zero-grazing, cannot produce enough fodder.

The other big problem is marketing. At the current market prices, only large-scale dairy farmers producing large quantities of milk find dairy farming profitable. Almost all milk-processing companies offer very low prices to small-scale milk producers. This has forced many small-scale dairy farmers to sell their milk in the informal market where they get better prices.

The milk industry in Kenya remains unregulated, which has left small-scale farmers at the mercy of big milk processing companies. Currently there is tug of war between farmers and the other big players in the sector for the control of KCC (see article on this page). KCC had managed to stabilize milk prices across the country before, but its future is now uncertain.

The only solution now lies with the farmers themselves. They need to come together; mobilise their resources and set up small-scale milk processing enterprises. If such facilities are well managed, they can help transform the dairy sector in the various regions in the country, improve the income of many small-scale dairy farmers and improve food security for the country.

The Githunguri Dairy Farmers Cooperative Society (see page 4) is a good example of what farmers can achieve if they decide to work together.

Mbaazi can cope with climate change

Pigeon peas provides farmers in dry areas with food and fodder – and enrich the soil.

The Organic Farmer

More and more farmers in Eastern Kenya are beginning to plant pigeon peas to recover the losses they incurred when their maize crop failed. There are varieties in the market which can mature within three to four months and will even grow with the short rains. They are an important crop in semi-arid areas with an average of 600-1000 mm of rainfall a year, but on deep, well-structured soil it will grow with as little as 250 to 370 mm of rainfall. It is sensitive to high salinity and to water logging.

Pigeon pea is a perennial shrub that is commonly grown as an annual crop. It can be of a perennial variety (growing continuously), lasting three to five years, although the seed yield drops considerably after the first two years. With a deep taproot, pigeon peas are able to take up nutrients and water from lower sub-soil layers. Therefore, when mixed with other crops, they hardly compete with the companion crops. This crop grows and produces good yields under conditions of low rainfall and poor soil. Pigeon pea improves the soil by its extensive root system. The Rhizobium bacterium that lives on the roots of the pigeon pea is able to fix nitrogen and thus to improve soil fertility. Fallen leaves are used as mulch.

Pigeon pea is well balanced nutritionally. The seeds are 25% protein and can be eaten fresh or as split dried peas.



The dried seeds contain five times more Vitamin A and C than green peas. The leaves and young shoots can be eaten or cooked as a vegetable, they are fibrous and have a strong spicy smell.

Propagation and planting

Propagation is by seed. Pigeon pea varieties differ not only in seed form, colour and taste, but also in growth habit, time of flowering and susceptibility towards pests and diseases. Pigeon pea varieties (available in Kenya) and their characteristics:

Land preparation

Pigeon pea seeds should be sown in rows with a spacing of 30-50 cm x 75-150 cm and 10 cm deep. Plants are fairly slow to start and weed control for the first two months is important in crop establishment. Once plants are established they grow vigorously.

Intercropping

In intercropping, the crop performs well with two rows of cereals (e.g. sorghum, maize, millets). After harvest of the intercrop, long-duration pigeon pea continues to grow and protects the soil. Pigeon pea is regarded as a good plant

for restoration of fertility.

Harvesting

The crop is usually cut near the ground when most pods are mature, or mature pods are picked individually. Green pods are picked over a long period in home gardens or hedge crops. After harvest the stems are cut back to facilitate re-growth and a second crop is harvested in the subsequent season.

Pests

The most important pests of pigeon peas are insects feeding on pigeon pea pods and seeds, such as pod sucking bugs, pod and seed boring caterpillars, pod flies. Varieties that mature during the dry season have low damage levels.

The bruchids are the most common and widespread insect pests during storage. They attack both pods in the field and seeds in storage. They attack nearly mature and dried pods. Infested stored seeds can be recognised by the round exit holes and the white eggs on the seed surface. Pods should be harvested as soon as they mature and the seeds sun-dried before being stored in clean beetle-proof containers.

Forage

According to research in the Sahel countries, the pigeon pea is the most promising crop for combined crop-livestock production systems. The plant has a high feeding value for beef and dairy cattle, swine, sheep and goats. Pigeon pea is an excellent chicken forage, providing high protein seeds, edible leafy greens and shelter. Dry leaves are a source of carotene and other essential nutrients in chicken rations.

Variety	Maturity (days)	Potential yield (bags/acre)	Characteristics	Sole cropping plant density
Kat 60/8	135-150	5-7 for one season (13 for 2 seasons)	Grains are white with brown spots and smaller seed size than local varieties. Grows between 0-1800 m above sea level and performs well where temperatures are high.	75 cm between rows and 50 cm between seeds
Kat 81/3/32	170-185	6-11	Tolerant to wilt, pod sucking bugs and pod borers. Cream white grain with large brown patches. Adapted to medium and higher altitudes (over 900 m above sea level)	90 cm between rows and 50 cm between seeds
Kat 777	160-180	6-10	Oval white seeds. Adapted to medium and higher altitudes (above 900 m above sea level)	90 cm between rows and 50 cm between seeds
ICPL 89091	120	4 for one season, 8 for 2 seasons	Is grown in the same range of altitude as KAT 60/8 but is more adapted to the more humid coastal zones. Performs best in high density.	50 cm between rows and 10 cm between seeds

Seed rate: 20-25 kg per ha (8-10 kg per acre).

Source: Infonet-Biovision.

The Organic Farmer is an independent magazine for the East African farming community. It promotes organic farming and supports discussions on all aspects of sustainable development. *The Organic Farmer* is published monthly by icipe and distributed free of charge to farmers.

The reports in the *The Organic Farmer* do not necessarily reflect the views of icipe.



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

Publisher African Insect Science for Food and Health (icipe), P.O. Box 30772, 00100 Nairobi, KENYA, Tel: +254 20 863 2000, icipe@icipe.org, www.icipe.org

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Layout In-A-Vision Systems, 0720 419 584

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Sick calves - what farmers can do

A good dairy cow was a well-fed and healthy calf while young. A sick calf grows into a poor cow.

Theresa Székely

Dairy development depends on young stock. Buying dairy animals is a risky business. Every farmer knows the problem: What is this heifer or cow really worth? Is it true what the seller tells you, or will it not perform as promised? Or is this animal sick? Diseases that are not visible at first sight may be transmitted to your healthy stock, once the cow is on your farm.

There is a better way to replace stock by making use of AI (artificial insemination) and rearing calves to be good dairy cows. Although there is an inadequate supply of good young breeding stock in the country, death rates of calves in Kenya are still incredibly high. In the small-scale farming sector especially, it is not unusual that every third calf dies within the first year. In this article we show you how to avoid common calf diseases and how to rear healthy, well-performing dairy cows.

Reasons for high calf mortality

Too many calves in Kenya die at a very tender age, and small-scale dairy farms have the highest losses. There may be two main reasons: Dairy animals may be of exotic origin and thus require a high level of management and resources



to stay healthy and to perform well. Secondly, dairy farming does not have a long tradition in Kenya, and knowledge about dairy management and rearing dairy calves is limited among small-scale farmers.

If we look at the clinical causes of calf deaths, around 40% are due to various gastro-intestinal problems, and around 20% are infections of the respiratory tract. These two most frequent problems are closely linked with poor management. Depending on the region and on grazing management, insect and tick-borne diseases like East Coast Fever

(ECF) or trypanosomiasis can also be important.

How to prevent calf diseases

As mentioned many times before, good management can prevent most problems. The effort pays back with fewer diseases, earlier maturity and more milk in adult life.

- Start with taking good care of the pregnant cow.
- Sufficient colostrum within the first hours after birth is absolutely essential for disease-resistance of the calf.
- Move new-born calves to a safe and

continued: page 6

Treatment of calf scours (diarrhoea), worms and pneumonia

You must replace the lost body water and salts immediately; the earlier, the better the response!

- Mix 2 litres of warm and clean water or thin black tea with 1 spoon of common salt and 6 spoons of sugar.
- Feed 1 to 2 litres of this solution in turns with milk every 2 to 3 hours in less severe cases.
- In severe cases, withdraw milk and feed at least 1 litre of the solution every 2 hours. At recovery, increase the share of milk gradually over several days.
- If a calf is severely affected and does not drink, you need a vet to serve it with intravenous fluids. Don't force feed! Very sick calves cannot swallow properly and may develop pneumonia.
- Keep affected calves isolated, warm and dry.

Worms

Gut worms can cause greenish diarrhoea, but rarely do they cause death. Lungworms can promote calf pneumonia. Once infected, calves build up immunity against gut worms and lungworms, but calf development can be affected. Gut worms, lungworms and liver flukes are controlled with good grazing management and de-worming.

- Avoid overstocking, grazing on a

small pasture, and roadside grazing.

- **Graze in rotation:** Groups of calves are followed by groups of older cattle, divide grazing area and graze calves first and older animals later on each paddock.
- Prepare hay or silage on grazed pasture and move the cattle onto fresh ungrazed grass.
- Wet, swampy areas have to be fenced off to avoid liver flukes.
- De-worming can be done when calves begin to graze, usually every 3 months.
- Where liver flukes are common, animals have to be treated with flukicides regularly, there is no immunity.

Bloat

If a calf stops eating, breathes rapidly and shows a swollen left abdomen, this is bloat. If the animal goes down, death can be rapid. Bloat can be prevented by grazing new lush pastures at the beginning of the rainy season only for an hour, and increasing grazing time by another hour day by day. Avoid wet pasture in the morning. Be careful with legume fodder: The diet should not contain more than 30% of it. Introduce new feeds in small quantities, especially legumes and grain meal.

React quickly at the first signs of bloat.

- In less severe cases, administer edible vegetable oil (100 to 500 g, depending on the size of the animal). Make it move around to improve on digestion. Stop feeding for several hours.
- In more severe cases where the animal cannot swallow, tie a rope across its mouth to make it chew the rope and to stimulate belching.
- Bloating animals starting to show signs of distress need immediate veterinary attention. Contact a vet without delay!

Pneumonia

Watery discharge from nose and eyes, rapid breathing, coughing, loss of appetite and high temperature are signs of pneumonia, which is the second most frequent killer of calves. Prevention aims at reducing stress and disease pressure during the first 3 to 4 months while the immune system of a calf is still developing.

- Colostrum and nutrition are as indicated in the paragraphs as indicated above.
- Clean, sheltered and spacious housing (2 square meters per calf) is the standard measure.
- Avoid stress during transport or disbudding (removing calf horns).

Milk processing companies are milking farmers

Despite making huge profits from milk, dairy companies pay farmers low prices for their milk.

The Organic Farmer

"Milk prices confound dairy farmers" – this was the title of a short article in our last issue (TOF August 2012). We got impressive feedback in form of SMS and calls; for most of them, it was clear that small-scale dairy farmers are not getting a fair price for their milk. To some extent, they were right. But the marketing situation is much more complex than that.

Before looking deeper into the mechanisms of milk processing and marketing, let us begin with two facts and some questions. Fact one: Farmers get very low prices for their milk. Fact two: The major milk processors make huge profits from the processed milk. The questions: How much money do the dairy farmers use to produce one litre of milk? Do they know the amount of money required to raise one dairy cow? Do they ask themselves, why do prices of milk go down at certain periods? Are they aware that small-scale dairy farming can only be practised as an additional source of income and not the only source of income, since it cannot sustain them?

Milk market liberalised

Now, let us look at the two above-mentioned facts. Since the Kenyan milk market is liberalised, the existing processing companies have expanded their capacities, and a number of new processors have entered into the milk market. It is obvious that they have been attracted by the good profits in this sector.

TOF tried to find out how much it costs to process 1 litre of milk. In a milk processing factory, fresh milk undergoes



A milk processing plant



Many farmers prefer selling their milk in the informal market due to better prices.

only three stages before marketing: Pasteurisation, homogenisation and packaging. Processing fresh milk requires water, labour and electrical energy. According to experts, it costs an average of Ksh 5 to process 1 litre of milk, which caters for water, labour and power costs. An extra Ksh 7 is used to package it. This means that the milk processors spend about Ksh 12 to 15 to process the milk. Additionally, they make good money with milk by-products such as fermented milk, yoghurt, cheese, cream and butter. Milk with less fat for instance is sold at nearly the same price as whole milk, but the milk fat that remains is the raw material that the processors use to make cream and butter.

The processors claim that they incur extra costs in transporting the milk back to the market, and one also has to account for the retailers profit margin. Let us put these two costs at Ksh 12 per litre. Research in Nairobi on 20th of August in various big shops showed quite different retail prices. Half litre of processed milk retails at between Ksh 31 (Fresha from Githunguri Dairy Farmers Cooperative Society as the cheapest) and Ksh 48 (Brookside as the most expensive). Our conservative estimates show that processors are making between Ksh 13 to Ksh 45 for 1 litre of milk, which they buy from farmers at between Ksh 24 and Ksh 34 a litre. In essence, they make quite a good profit for every litre of milk sold.

Farmers are underpaid

Farmers expected an increase in milk prices with the entry of more processors into the market, but the opposite is happening. "Even if the milk processors spent Ksh 18 a litre in milk processing and transport to the market, this cannot justify the price they are paying the farmers for raw milk," says an expert in the milk industry.

This is at least one reason why 75

percent of the milk produced in Kenya is sold locally, to neighbours and hawkers at between Ksh 30 to Ksh 50 a litre. However, one reason farmers do not prefer the informal market is the unreliability of the buyers, some of whom take the milk on credit and later default or delay payments.

One of the most successful processing and marketing cooperatives in the country is the Githunguri Dairy Farmers Cooperative Society, which has a membership of 17,000 farmers. The cooperative processes more than 170,000 litres of milk in a day. Farmers selling their milk through the society currently get Ksh 34 for 1 litre of milk sold. The Society operates consumer and agrovet stores where members can take various consumers goods such as flour, cooking fat, sugar and farm inputs including animal drugs and AI services; this is then deducted from their milk earnings at the end of the month. There is no statement of accounts available which show the actual income and expenses of the society. At least the budget for 2011-2012 can give some hint. It shows that the society expects an annual turnover of Ksh 4.1 billion and a pre-tax profit of Ksh 66 million.

The costs of milk production

Many small-scale dairy farmers complain about the discrepancy between the profits made by milk processors and the prices they pay the farmers for one litre of milk. They feel cheated considering the high costs of milk production.

Now, let us come to the questions posed at the beginning. Do small-scale farmers produce their milk efficiently? This is the problem. Michael Muriithi for instance, a member of the Githunguri Dairy Farmers Co-operative Society says that production cost can go up to Ksh 30 for 1 litre of milk according to his own records and experience. He is an exemption: Only few farmers keep

rs dry in Kenya

proper records in order to determine their production costs to know if they making a profit or loss.

Fred Ngatia is a farmer in Nakuru district. He has 4 dairy cows in his 3-acre farm. At any one time he milks 2 cows that give him an average of 28 litres of milk in a day at peak production season. He delivers his milk to Brookside dairies that pays him Ksh 24 a litre after deducting Ksh 1 for transport. Ngatia says almost half of his earnings from milk sales go into buying fodder, concentrates, including minerals licks, drugs and acaricides. The prices for all this inputs tend to go up by the day!" he adds.

He complains that the earnings from milk sales cannot sustain his family of 5, 2 of whom are in high school. "I sometimes have to depend on their elder sister who is a primary school teacher to assist me to pay fees especially when the milk production goes down," Ngatia says.

These figures testify to the real dilemma of the zero grazing system, which has been sold as the ultimate solution for small-scale dairy farmers. For them, the lack of resources is the biggest problem. Zero grazing as practised by most farmers is unsustainable unless the farmer has adequate land to grow fodder; one cow needs the fodder of one-acre land. It diminishes the farmer's profit when they have to buy even Napier grass or hay.

A very interesting study done by the Tegemeo Institute of Agricultural Policy and Development, named "*Productivity trends and performance of dairy farming in Kenya comes to the following conclusion:*" Smallholder dairy farming is an economically viable enterprise in Kenya, in the short term. However, dairy farm performance measures showed that pasture-based enterprises were somewhat more profitable than zero-grazing enterprises, when compared on a per cow or as per litre of milk basis". This could be changed if the milk processors would pay fair prices for the milk.



Don't be deceived by crafty inseminators

Some unscrupulous providers are conning farmers with Artificial Insemination (AI). Always insist on checking the catalogue and make sure you keep the straw.

Wesley Ng'eno*

I write this brief text to share with fellow farmers and also warn them to be careful about the kind of people they use for services such as Artificial Insemination (AI).

A case from Nakuru

With the emergence of the new Fleckvieh breed in Kenya, a farmer from Nakuru (name withheld) bought Fleckvieh semen through an AI provider in Nakuru town, only for the calf to turn out to be a Zebu. I went to see the calf and even wrote to Kenya Animal Genetic Resources Centre (KAGRC) based in Kabete to complain on behalf of the farmer. This is one of the many cases of farmers falling prey to cheating individuals, out to reap where they have not sown.

AI is a preferred method by most dairy farmers in Kenya because it is cost effective. The cost of AI semen is between Kh 400 – 15,000, a better option compared to the costs of a Holstein bull (possibly Ksh 70,000 to buy). A bull is expensive to rear, vulnerable to disease and may even prove to be a danger to cows while mounting them since it is heavy. AI also allows the choice of using the best possible bulls of proven quality in improving the genetic make-up of cows. Through it, farmers have access to genes from high quality bulls, which they may not individually afford.

The challenges

However, in the adoption of AI, little information and/or misinformation to farmers creates loopholes for the exploitation of farmers. It is high time that we as farmers and especially livestock farmers take a closer look and be keen on what happens in our farm. It is important to engage our veterinarians and AI personnel with questions that can enlighten

us. Gone are those days of a hands free style of livestock management.

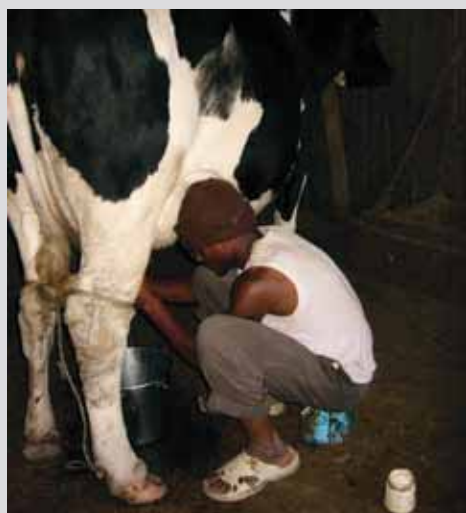
On several occasions, we have heard of situations where farmers have asked the AI personnel to serve their cows with semen worth Ksh 1,000 without a care in the world what that bull semen is and what breed. The mistake is not the AI personnel's, rather it is the farmers' responsibility to ask and get what they need. As a farmer, ensure that you understand the process of AI. Basic information is readily available in farmers' barazas in your village and with the District or Divisional veterinary office in your division.

Consult other farmers

If you have problems with AI personnel, talk to established farmers who can direct you to the most reliable AI personnel. Also, take the lead on what you want for your cow. If you are not sure about the AI personnel, you had better use a bull to serve your cow. As a mark of good service, when an inseminator serves your cow, let him give you a receipt and leave you with a semen straw. The straw details are important for record keeping. The unique number on the straw comes in handy when and if you have any complaints to make.

Get yourself the Bull Catalogue. You can either buy one from a licensed AI officer or download from www.kagrc.com. In the catalogue, is a list of AI agents licensed to handle semen in various regions in Kenya. You can contact these people and let them recommend for you good AI personnel in your locality. Lastly, let us not let anybody take advantage of the hardworking Kenyan farmers.

* Wesley Ng'eno is the proprietor of *Lelgut Dairy Farm in Olenguruone, Nakuru County*. Phone number - 0721206070, www.lelgutdairyfarm.kbo.co.ke/





Farmers' Resource Centre opened in Kakamega

A Farmers' Resource Centre has been opened at KARI, Kakamega to provide Agricultural information on ecologically sound farming methods to farmers in the Western Kenya region. The Centre is one of the many that will be set up in a number of African countries under the Ecological Organic Agriculture in Africa (EOA) Initiative, a project run by the Biovision Africa Trust (BvAT) and funded by Biovision Foundation.

Project to promote sustainable agriculture

A new project has been launched to assist the government and other stakeholders incorporate sustainable agriculture in policy planning. The two and a half year project called "Changing Course in Global Agriculture," will be implemented in Kenya, Ethiopia and one country to be identified in West Africa.

During a presentation of the project at the Ministry of Agriculture Headquarters last month, the Agricultural Secretary Wilson Songa, said the government will

collaborate with the Millennium Institute, Biovision Foundation and the Biovision Africa Trust (BvAT) in the implementation of the project through the Agricultural Sector Coordination Unit (ASCU). The presentation was made by the Biovision Project Manager Stefanie Keller and the BvAT director David Amudavi.

Among those funding the project is the International Fund for Agricultural Development (IFAD) and the Swiss government through the Swiss Agency for Development and Cooperation (SDC).

Application of liquid fertilizers

How long should a farmer wait before harvesting fruits or vegetables where liquid fertilizers have been used?

Why should we not apply the liquid fertilizers especially from animal waste directly to the plant?

If you take care not to spill the fertilizers over parts that are going to be harvested, there is no waiting period at all. Fresh animal manure can contain pathogens such as E.Coli that can affect human health. Some of them can remain infectious for several weeks or months. Fertilizers from animal origin should therefore be applied to the soil directly. Pure urine does not contain pathogens, but it is not easy to collect without traces of manure. Urine can also burn plant leaves.

Take care of liquid fertilizers

Why should liquid fertilizers be prepared under a shade and why should the container that has been used to make it be covered?

Shade prevents the solution from being heated up too much, and covering prevents the nitrogen from escaping.

Soap assists plant extracts

Why should we add soap to the extract?

A bit of soap makes the water "sticky". If usual water is applied to the surface of a plant or pest, it forms droplets which run off quickly. If soap is added, the solution spreads and sticks better and makes the pesticide more effective.

Tithonia

What makes Tithonia leaves to be suitable as foliar feeds for plants?

Tithonia grows quickly and abundantly, can be harvested easily, and has soft leaves that decompose readily, releasing nutrients into the solution.

>>> from page 3: Sick calves

area with good beddings (wheat or barley straw) within the first hour. This area should be used only by calving cows. It must be kept clean, dry, and well-ventilated all the time.

- Good nutrition of calves and heifers: Sufficient milk, good quality roughage from the second week, and protein supplements (concentrates, farm grown legumes).

- Stress must be minimized and overcrowding avoided.

Avoid malnutrition

Malnutrition is very common and leads to diseases, parasite infestation and death. Therefore, feed that calf well! A dairy calf needs at least 5 litres of milk a day in week 2 and 3, then 4 litres up to the 10th week, and good quality roughage (hay and grass). Early weaning (at 12 weeks) must be accompanied by feeding protein rich concentrate supplements from the third week. Feeding legumes and branches from fodder trees assists

in preventing protein deficiencies. If you do a quick calculation, you will see that selling the milk needed by your calf never gives you enough money to purchase a

new dairy cow. Equally, selling a good heifer is more profitable than selling the milk it needs.

Diarrhoea or scours

Diarrhoea accounts for most losses and is caused by bacteria such as E.coli, salmonella, coccidia gut worms. Manure can be whitish, bloody, or greenish. A scouring calf can lose 20 times more water than normal. This loss of water and salts may lead to dehydration, shock



and death within a short period.

Prevention

Prevention includes sufficient provision of colostrum after birth, clean and dry bedding, clean water, good

feeding, comfortable shelter and no overcrowding.

Watch your feeding technique: Give clean milk (at body temperature, check with back of your hand), clean feeds in sufficient quantities and at regular intervals, clean buckets and troughs. Avoid sudden changes of diet. Avoid wet pastures and rotate them to minimize coccidia and worms. Don't overstock and or overgraze.

All about Napier grass

Napier grass is the most common fodder for cattle; so farmers are interested in knowing more about this grass. In this issue, we answer some of the many questions which we receive on this subject.

Advantages of Tumbukiza

Which is the best system for growing Napier grass?

The *Tumbukiza* system has proven effective. Dig pits 1-2 feet wide and deep, at a distance of 1 to 2 meters, depending on your climate: in a drier climate, spaces should be wider. The first 1/2 -1 foot topsoil is put aside, and the subsoil is put aside separately. Mix the topsoil with farmyard manure or compost 1:1 and put it back into the hole, but do not put back the sub soil. Plant 5-10 cane cuttings or root splits into each pit. Make sure the hole is deeper than the original soil level, as this will help in accommodating more water. In case of dry spells, water the soil. You may throw any organic material like uprooted



weeds, crop residue etc. into the pits to decompose there. Keep adding liquid fertilizers like plant tea or diluted slurry to encourage continuous growth.

Life span

What should be the life span of Napier grass before it is rotated with another crop?

Napier is left to grow for 3 to 5 years, or as long as it grows well. You may plant any other crop after Napier grass.

Storage

Can I use Napier to make hay or silage?

Napier grass is a bit bulky, but this is no obstacle for conserving it if you have a surplus of it. Cut it when it is still young

(not more than 3 feet high), for feeding fresh, for hay preparation or for silage, because later its nutrient content (especially proteins) will decrease steadily. Napier grass for silage needs to be wilted for a few hours, and then chopped.

Intercropping with Napier

Can one practice fodder intercrop?

Yes, there is no problem with that. A classical combination is Napier grass or maize and Desmodium or any other leguminous plant. You can also intercrop a fodder grass or fodder legumes with a crop for human consumption, just plant and combine what you think is useful for you.

Crop rotation against early and late blight

I have tried growing tomatoes for the last 3 seasons but all in vain because of blight, how can I overcome the problem?

Early and late blight are both devastating diseases. Early blight develops in warm humid conditions, late blight in cool humid conditions. You should look out for a combination of measures:

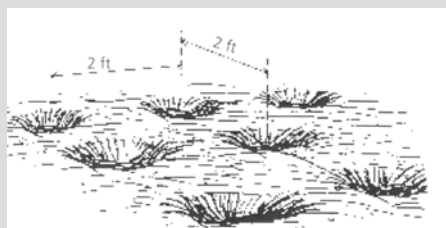
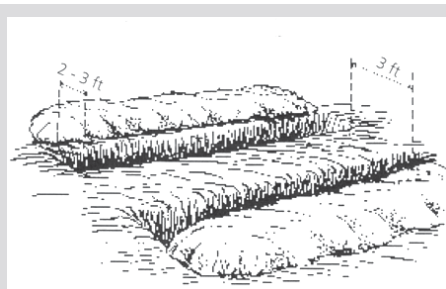
- Try to buy resistant varieties e.g. Rio Grande, Tengeru 97
- Use certified disease-free seeds and transplants
- Practise rotation. Do not plant tomatoes after tomatoes, potatoes, peppers, eggplants (they are all from the Solanaceae family and susceptible to blights). Plant tomatoes after legumes, onions, spinach, or grains, and rotate with cabbages/kales, pumpkins/melons/cucumbers, carrots, sweet potatoes.
- On a particular plot, you should allow 3 years of other crops between two crops from the Solanaceae family. This means that if you want tomatoes every year,



Early blight (left), late blight (right).

you should not plant them in more than one quarter of the total planting area.

- Greenhouses protect tomatoes from rain which favours blights, but crop rotation must also be practised, otherwise a greenhouse can turn into a disease trap!
- Stake and prune your tomatoes
- You may apply preventative spraying with copper fungicides



Using rectangular pits (trenches) is preferable if farmers are planting Napier grass since trenches produce more fodder than round pits. Farmers are advised to use round pits for maize and other crops. To make a rectangular pit or trench, dig a 2 feet deep trench by 2-3 feet wide. Separate top-soil from subsoil. Mix 1 debe of top soil with 1 or 2 debes of farmyard manure and spread over every 3 feet length of the pit. Plant 5-10 cuttings or single splits for every 3 feet length.

Kitchen garden

What are qualities of a kitchen garden?

The soil should be fertile and high in organic matter. You need a nearby water source and space for movement for easy management and supply of water and compost fertilizers to the crops. It should also be near the house for accessibility and security purposes.

Harvest more with *Tumbukiza*



TOF - Tumbukiza is a technique that is appropriate mainly for arid and semi arid lands to conserve water. *Tumbukiza* means, to plant seedlings or seeds in a hole, where water stays longer. With this method, the output is higher. It has been widely adopted by dairy farmers

to grow Napier grass in areas with tiny pieces of land. It is a solution that has seen per hectare Napier yields rise by up to 20 per cent. As shown in the pictures, the method can be used for a wide variety of crops.

To make the pits: See page 7

Exhibition: The Swedish Cooperation Centre and Vi Agroforestry Project, Kitale in conjunction with Trans Nzoia stakeholders forum wishes to invite exhibitors, development organisations, environmental organisations, farmers, schools and general public to participate in open learning event to be held at vi agroforestry farm, next to Kitale Museum as from 18th to 20th September 2012. For space during the event write to matlimokip@yahoo.com or kitale@viafp.org Call 0720 779 182

Calling rabbit farmers: The Rabbit Breeders Association of Kenya (RABAK) assures all rabbit farmers in Kenya that there will be a ready market for rabbits in the next few months. All farmers are requested to register with the association. An international standard slaughterhouse will be operational beginning December 2012. It will be located in Thika Kiambu district. For more information, farmers can visit the RABAK website at www.rabak.or.ke. James Njeru 0734 923 776

Organic fertilizer: I am a distributor of Super Gro fertilizer. It has done great in my farm. Interested farmers can get in touch with me. Betty Ndubi 0722 460 525 Nakuru.

Fertilized eggs: We are selling fertilized *kienyeji* eggs for quick maturing giant breeds at Ksh35. Call 0789 977 426 or 0722 281 127 to order.

Health Information



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More information, contact iAfya team on: 0716 511 262

iAfya's Mama Fatuma explains... **What are the signs and symptoms of Malaria?**



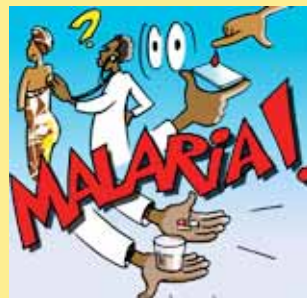
Benta is ill, it began with high fever and headache.



The fever is gone, she has gone back to work. She starts to sweat a lot and feels weak.



Mama Fatuma knows that Benta could die of Malaria if she doesn't get treatment.



The doctor takes a blood test and Benta is given anti-malarial tablets.



Mama Fatuma is happy! Benta is back, she can do all her work.

Look out for our next issue to learn more on:

How do you prevent Malaria?

