The Organic Farmer

The magazine for sustainable agriculture in Kenya

biovision

Nr. 68 January 2011

Dorper, a highly valuable breed

Dorper sheep perform well even in semi-arid areas, provided they get good care: Good feeding, housing, disease and parasite control and vaccinations. Their quality can be improved through breeding. *Page 3* *(Photo IN)*

Improving dairy goats

The quality of dairy goats in the country cannot improve unless farmers embrace modern breeding practices. A meeting of dairy goat stakeholders held in Nakuru recently found that dairy goat farmers lack basic skills in dairy goat breeding. Dairy goat farmers who have registered their animals with the Kenya Stud Book (KSB) do not keep milk records, which can help determine the performance of their dairy goats. There are very few farmers breeding quality dairy goats in Kenya. *Page 4*

TOF Radio partners with Milele FM

TOF - Starting January 2011, The Organic Farmer will launch a new 15 minutes radio program to be broadcast at Milele FM. The program will be aired every Tuesday at 8.30 pm. Tune to the program in your area on the following FM frequencies: Nairobi 93.6, Mombasa 96.7, Kisumu 99.7, Nakuru 90.2, Eldoret/Kapenguria 88.3, Nyeri 91.7, Meru 101.5, Webuye 92.7, Malindi 101.3, Kibwezi 104.3, Taita Taveta 89.7

The right trees for your farm

TOF – Soil and water are the biggest assets to the Kenyan farmers, without which agricultural production will not take place at all. In this edition, we encourage you to plan for your tree planting project for 2011. We give you some ideas on the types of trees you could grow in your farm for specific uses in order to make your contribution as a farmer to environmental conservation in Kenya.

From the article published last month, we have received positive responses from individual farmers as well as groups who have made a commitment to plant trees in 2011. At TOF, we are encouraged by these responses because we know that farmers can make a big difference.

How many trees will you plant in 2011? Let us know on 0715 916 136 (SMS). *Page 4*

Croton macrostachyus (Mutundu)

in this issue

You want TOF in 2011?

Return the questionnaires that we sent you in November 2010.

Dear farmers,

Very often, we hear that Africans and especially the small-scale farmers have nothing to do with climate change. Industrialized countries in Europe and the USA as well as China are accused of causing climate change. To some extent this is true. But it is very short-sighted to insist on this position and to think these developed countries will solve this problem on their own. Why?

First, African countries are also contributing to worldwide air pollution. In Kenya for instance, about 5000 more vehicles join our traffic trail every month, most of them second hand cars and therefore air polluters.

Secondly, we in Africa cannot remain complacent – because of the simple fact that no other continent is more affected by climate change than us.

So we have to do something. Since there is no single cure to climate change, a combination of approaches will work. In our own small way, we can play a part in reducing the effect of climate change by planting trees. Look at our forests! We have cut down almost all the trees for firewood, charcoal and other uses, yet hardly anyone is planting trees these days. We know the importance of forests to our water catchments, and the link between forests and climate. This is the reason why we have decided to write about forests, their economic and ecological benefits plus the beauty they give our landscape. Every TOF issue this year will have an article on forests.

Let's get to some other points.

- In the next three months we want to reach more farmers with a new radio programme on Radio Milele; you can listen to us every Tuesday at 8.30 pm.

- Our radio programme on KBC Sikio la mkulima, has been off air for the last four months now because our partner, the Agricultural Information Centre could not raise funds for his share of the programme during this period. However, the programme will be back on air beginning this month.

- Please send back the forms we sent to you with the November issue. If you lost yours, apply for a new one (Send an SMS to 0715 916 136). Without feedback, youi risk being struck off the mailing list.

Otherwise, we wish you all a properous new year and look forward to a lively interaction with you in 2011.

TOF P.O. Box 14352, Nairobi 00800, Tel: 020 44 50 398, 0717 551 129, 0738 390 715, Email: info@organickenya.org

TOF Radio
KBC Kiswahili service
Thursday
8.15 to 8.30 pm

Add value: Dry your fruits and vegetables

Fruits and vegetables need not go to waste if farmers learnt preservation methods.

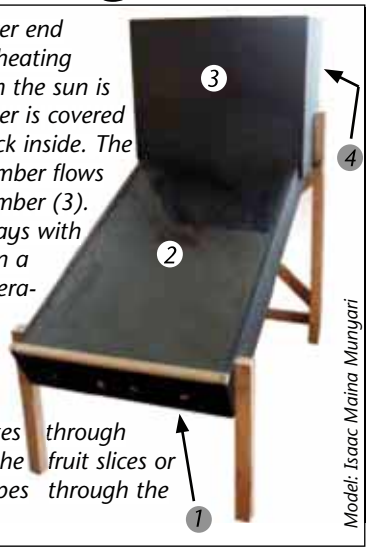
The Organic Farmer

Mango fruit farmers face a lot of problems when they harvest more fruits than they can be able to sell. Mangoes are one of the most perishable fruits and must be sold as soon as they are harvested to reduce spoilage. If there is no market, farmers need to search for alternatives. One way out of this predicament is processing the mangoes. In dried form, they can be stored and can be sold any time when the farmer wants to sell them – this is only possible when they are dried properly and in a hygienic way. Drying may however lead to changes in colour and appearance that might not be desirable.

Last year, quite a number of farmers asked us for tips on how to dry fruits. Below we write about the most common methods for drying and processing mangoes and bananas.

Farmers need to follow the following basic rules:

- Select hard, ripe fresh fruits.
- Wash them thoroughly in clean water.
- Peel and remove damaged parts
- Slice or cut into thin, uniform slices.
- Prepare lemon juice and water at the ratio of 1:20.
- Add three grams (or one full bottle top) of potassium metabisulphite (available in chemists), which helps to preserve the fruits and maintain their colour.
- Dip fruit slices into this solution, then arrange them in trays and load into the drier.
- Pack the dried products in moisture-proof packs.
- Store in a cool, dark, dry, well-ventilated place



Through the holes at the lower end (1) the air can flow into the heating chamber (2) where heat from the sun is retained. The heating chamber is covered with a glass and painted black inside. The hot air from the heating chamber flows upwards into the drying chamber (3). In the drying chamber are trays with the vegetable or fruit slices. In a normal sunny day, the temperature in the drying chamber can easily reach 60° C. On the backside of the drying chamber is a door with three holes (4). The hot air circulates through the trays helping to dry the fruit slices or vegetables and later escapes through the holes in the back door.

Model: Isaac Maina Munyari

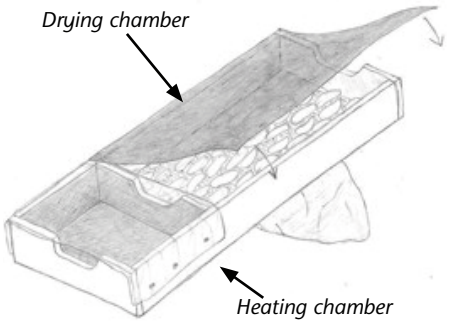
Treatment of diseased mango fruits

One disease that can easily affect mango fruits is anthracnose. Anthracnose can be prevented from developing on mango fruits by using hot water treatment. When fresh mango fruits are dipped into water at 51-55 °C for 30 minutes and then wiped dry, they show no sign of anthracnose as they ripen. This is very helpful especially when mangoes are to be marketed.

Drying of vegetables

Many vegetables can also be preserved by drying. Tomatoes, herbs, *sukumawiki*, cabbage etc. can be dried and stored for long periods of time. To prepare these vegetables for drying, wash and remove old and damaged parts and then chop and slice them for better drying.

For vegetables, blanching is necessary. A solution of water and salt is prepared (varying in concentration depending on products) and boiled. The vegetables for drying are dipped into the hot boiled solution in a piece of clean cloth (or basket). Kale, other hard leafy vegetables and cabbages should be dipped into the hot boiling solution for 3 minutes while spinach and soft leafy vegetables require only 2 minutes. To avoid overcooking, boil the blanching water before dipping the vegetables. Dip the vegetables in cold water immediately after removing them from the boiled solution to prevent further cooking. After blanching the vegetables are spread on trays and dried, then packed and stored in dry, dark store. Blanching is carried out to reduce the microorganisms, soften the vegetables, and preserve their natural colour.



Make your own real tomato sauce!

If you have an overproduction of tomatoes, you can produce your own tomato sauce!

Ingredients;

2 kg very ripe tomatoes
2 medium size onions
6 cloves of garlic
2 teaspoons of salt
1 teaspoon of fresh ground black pepper
Half a cup of cooking oil

How to do it

1. Wash tomatoes and blend to liquid.
2. Chop onions and garlic fairly small and uniform in size and cook in saucepan with oil until almost fully cooked. Add salt.
3. Add tomatoes and blackpepper and cook for approximately half an hour on a gentle boil until much of the tomato juice water has evaporated and mixture is quite thick mainly cooking in oil. Add a little oil if necessary.
4. Remove from heat and add to clean jars while still hot.

Source: infonet-biovision

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Dorper sheep have attractive properties

Dorper sheep do well with good feeding, housing, disease and parasite control and vaccinations.

Theresa Székely

The dorper sheep is a cross-breed between the blackhead Persian sheep (an African breed) and the dorset horn (a British breed) developed in South Africa between 1945 and 1950. It is a very successful and adaptable breed that has been exported to many countries including Australia. The dorper sheep was introduced into Kenya about 50 years ago. There are two types: the 'dorper' with a black head, neck and legs, and the 'White dorper' with a white head.

Dorper sheep perform well in semi-arid areas. They have a high lambing percentage and can breed every 8 months. They lamb easily, are excellent mothers, and have a quiet disposition. They are quite disease resistant and not susceptible to fly strike. Lambs gain weight quickly, mature early and may be mated at around 9 months.

Good care is essential

These are very attractive properties. However, if you would like to keep dorper sheep, you should not stop there. There are some more important facts to consider.

- Local breeds have the advantage that they are hardy and adapted to their environment and climate. Red Maasai sheep, for example, can cope much better with worm infestations or droughts than exotic breeds. It therefore makes sense to give priority to the improvement of local breeds.
- Upgrading with more productive exotic breeds is only successful in combination with improved animal husbandry. Otherwise, exotic breeds may do even worse than local breeds as they require better management (*see box exotic breeds*).
- Sheep respond very well to good care and management. The most effective step to improve profitability of any sheep breed is to improve husbandry: Good feeding, housing, disease and parasite control and vaccinations. Poorly fed animals are less resistant to diseases and parasites. Underfed ewes do not come on heat, their milk production is poor and their lambs are weak and develop slowly. Clean sheds, clean water, sufficient quality feeds and supplements and mineral licks are essential.
- Meat production of sheep can then be improved further by a good breeding programme. Select heavy animals for breeding, as they produce faster growing offspring. For a lasting effect it is essential to prevent inbreeding (*see box breeding records*) and to include as many animals as possible. The best way to do this is by involving the whole community or region.
- Last but not least: sheep are heavy grazers that feed close to the ground and will finish off a pasture entirely. In dry regions you should be careful with sheep: They may ruin the scarce and fragile vegetation completely.

Breeding records are important

It is absolutely essential that all farmers keep a breeding documentation for each animal. This is the only measure that can prevent inbreeding. Inbreeding degrades the health and performance of all animals and ruins the effect of upgrading.

- A ram must never be allowed to mate with its sisters, daughters, granddaughters, mother or grandmother. Compare the parents and grandparents of any ewe you want to mate with the parents of any ram you are going to use.
- Keep records and use some system which allows you to identify each of your animals! You must know at least the mother and father, grandmother and grandfather of each animal.
- A ram should never serve one flock longer than one year.
- Rams should be rotated regularly among users and farmer groups to bring in fresh blood.

Exotic breeds and disease resistance

Exotic animal breeds and their offspring are often less adapted to diseases, parasites, and poor nutrition and management levels. Dorper sheep, for example, are less resistant against gastro-intestinal parasites than red Maasai sheep. This may result in high death rates in lambs, if deworming is not carried out early and frequently. Because dorper sheep have been bred into local sheep herds quite often in the past, there is even a fear that the natural disease resistance of native breeds may be weakened or lost due to uncontrolled cross-breeding.

It seems to be more and more difficult to find purebred red Maasai sheep in the country. A recent study came to the conclusion that this native breed which is so well adapted to its environment may actually be threatened by extinction. Preserving it is especially important for regions where parasite numbers are high, e.g. in a coastal sub-humid climate.

Improving local breeds

Only the best ewes and rams in a herd and in the community should be chosen for reproduction. Castrate surplus rams. Selection criteria can be fast growth (in rams), good health, fertility and litter size (twins may be undesirable as they are usually weaker than single lambs), etc. Local sheep breeds may improve considerably within a short time if herds are well managed.

Upgrading of dorper sheep

Local ewes (e.g. Maasai ewes) are mated with rams of a more productive breed, e.g. the dorper sheep. The resulting crosses are then mated with non-related males and females with the same level of cross-breeding (50% or 25% local blood). Positive traits of the local breed can be maintained in this way.

Studies found that dorper-red Maasai crosses had much higher lamb survival rates than pure dorper sheep. The highest productivity was found in animals with 75% red Maasai blood. This level is achieved by crossing pure red Maasai with pure dorper sheep, and crossing its offspring again with red Maasai sheep. These "backcrosses" have 75% red Maasai blood and 25% Dorper blood.

Farmers' question

Most farmers in the semi arid areas are interested in raising dorper sheep. Please write an article on dorper sheep in one of your issues, 0722 698 499.

Know the characteristics of your trees

Whoever wants quick profit, should not plant trees. Trees are long-term investments, with long-term benefits.

TOF - We cannot over emphasize the close relationship between trees, a healthy environment and farming. Farmers are aware about this connection: The strong feedback to our tree planting campaign for this year is a sign of hope. So many farmers want to know where they can get seeds and seedlings, especially for indigenous trees. We will publish a list of nurseries throughout the country in the February issue of TOF. On the other hand, we advise farmers to collect their own seeds from healthy trees which are native to their home area. Farmers know these trees, this can be seen in the various local names. Go around, collect seeds and make your own nursery!

Selecting the right tree

Trees are long-term investments. Planting trees needs planning. It is necessary to choose well, the table on this page will assist you in decision-making. All trees help conserve the soils; some produce fruit and nut, others give us timber, or raw material for medicines and fodder for animals. On the table beside we only mention some special properties for use.

Of course, one might be attempted to plant only fast growing trees like grevillea or eucalyptus to get a return as early as possible. However, one thing we should not forget: Indigenous trees are best adapted to the climate and the soils. They have evolved resistance to disease and fungal attack and provide farmers with a wide range of products and services. An enormous variety of our plants and animal communities have become dependent on these trees too. That means: Planting indigenous trees allows the conservation of a multitude of other living things.

Source: Useful trees and shrubs for Kenya, Patrick Maundu, Bo Tengnäs. World Agroforestry Centre Handbook no. 35, 2005.

Tree action box

On this space, we will feature initiatives by individual farmers who are making commitments to plant trees. Here are some of them:

- Amuka Farmers Group, Gatuto: 1,000 trees.
- Joshua Nzueni, Makueni: 1,000 trees
- Twisibo Youth Group, Molo: 500 trees
- J Kiruy: 150 trees

At the end of the year, we shall honour 10 initiatives with a attractive prize.

- What is your plan?
- What kind of information would you like to read in this tree series? Let us know via SMS on 0715 916 136.

In the next issue: What you need to know about planting trees.

Dry to very dry areas (Northern Kenya)

Botanical names	Local names	Special characteristics
Azadirachta indica	Neem, Mwarubaini	Human & veterinary medicine, bee forage, wood-carving ***fast growing***
Dobera glabra	Msega, Mswaki, Koros	Fruits and seeds important food during famine
Terminalia spinosa	Mwanga, Mwangati	Resistant against termites and fungi; believed to have magical properties
Ziziphus abyssinica	Mkunazi, Mukhalita	Firewood, furniture; fruits (dried and eaten like dates); fodder; live fence,

Semi arid areas (for example Kitui)

Balaniates aegyptiaca	Mjunju, Muchunju	All parts of the trees can be used; shadow for ceremonial meeting places
Berchemia discolor	Mkulu, Mnago	Hard wood; good for charcoal; tree used for hanging bee hives
Melia volkensii	Mukau	Common intercropped with food crops; good timber; drought resistant
Terminalia brownii	Mbarao	Drought resistant; recommended for agroforestry: crops do well underneath. ***Fairly fast growing***
Vitex payos	Mfudu, Mfufu	Fruits sold and eaten in Ukambani

Coastal areas (Hot & humid)

Dialium orientale	Mpepeta	Boat building; fruits for flavouring porridge and local beer. ***Slow growing***
Manilkara mochisia	Mnago, Msapa, Mtaklwanda	Resitant against termines and sea water. Overexploited, needs protection.
Moringa olifera	Mrongo, Mzunze	Highly valuable tree for medicine; seeds and leaves eaten as vegetables
Tamarindus indica	Tamarind, Mkwadju	Fruit has many uses; wood produces utensils
Vitex doniana	Black plum, Mfudu	Fruits; medicine; fodder (leaves, fruits, seeds)
Syzygium cumini	Jambilan, Mzambarau	More and more planted for fruits

Mid altitude (Nairobi, Embu, Meru)

Acacia seyal	Mgunga, Munga	Produces edible gum; Boran extract a red dye from the bark
Acacia xanthophloea	Fever tree	Useful tree for protection of water resources; bark for malaria treatment
Croton macrostachyus	Mutundu, Toboswa, Tebusuet, Mfirifiri	Hard wood; good for intercropping ***fairly fast growing***
Croton megalocarpus	Mukinduri , Nyapo	Boundary marking (Kikuyu)
Eucalyptus camaldulensis	River red gum, Mubau, Musanduku, Bao	Do not plant near crops! ***fast growing***
Grevilla robusta	Silky oak	Grows well with food crops if managed to reduce shade ***fast growing***
Kigelia africana	Sausage tree, Mwengea	Fruit used in fermentation of sugar cane and honey beer
Prunus africana	Redd stinkwood, Kiburabura	Overexploited for pharmaceutical products; endangered, needs protection
Spathodea campanulata	Nandi flame, African tulip tree	Medicine; ornamental; windbreak

Mid altidtude with high rainfall (Kakamega)

Vitex doniana	Black plum, Mfudu	Sweet fruits

High altitude (Nyahururu)

Acacia lahai	Red thorn	Hard timber; dye, shade; slow growing
Dombeya torrida	Mukeu; Kumukusa; Olusoburiiai; monde	Has heavy shading and litter effect which restricts undergrowth.
Olea europaea	Wild olives	Hardwood, used by the Maasai for making rungu.
Juniperus procera	East African Cedar, Pencil cedar	Resistant against termites, can stay 100 years in the soil. Used for pencils; Most threatened timber tree due to over exploitation ***fast growing***
Podocarpus latifolius	Podo	This wonderful tree is getting rare, ornamental tree ***fast growing***
Prunus africana	Red stinkwood, Kiburabura; Muiri	Under heavy pressure of bark extraction; should be planted ***fast growing***
Sesbania sesban	River bean	Host of Nematodes, avoid planting it near crops. ***fast growing***
Senna spectabilis	Cassia spectabilis, Mhomba	Drought and termite resistant; used for poles and tool handles ***fast growing***

Managing dairy goats needs knowledge

Farmers lack the most basic skills in dairy goat breeding, feeding and general management.

Peter Kamau

Despite the increasing demand for dairy goats due to diminishing land sizes in Kenya, production is growing very slowly due to poor breeding and management practices by small-scale farmers. The problem has been worsened by lack of an umbrella body that could regulate production, train farmers and set standards for improving the quality of dairy goats. Many farmers and brokers have taken advantage of this to sell low quality dairy goats claiming they are pure breeds.

Farmers lack breeding skills

A meeting of dairy goat stakeholders held in Nakuru in November last year found that the dairy goat sub-sector cannot grow unless urgent measures are taken to reduce inbreeding and poor management. Donor funding for dairy goat projects takes between 3 to 5 years despite the fact that any successful breeding programme should take no less than 10 to 15 years.

According to statistics, out of the 100,000 dairy goats in the country, only 12,000 are registered with the Kenya Stud Book (KSB). Most of the farmers who own dairy goats lack the most basic skills in dairy goat management. The privatization of veterinary services and the government's preoccupation with dairy cattle has worsened the problem.

The average milk production of dairy goats is 2.5 litres in the country although dairy goats produce between 4 and 8 litres, if well managed.

Although AI services have been introduced in the country, very few dairy goat farmers benefit from the service due to lack of trained personnel to do it. In this issue we educate farmers on the basic requirements on dairy goat breeding. In one of our future issues we will educate you about feeding and general management of dairy goats.

How to improve quality through controlled breeding

Dairy goat breeding is a technical area that farmers need to understand before they can start upgrading their stock.

1. It is important for the farmer to know the reason why they want to upgrade their goats. The main reason why farmers go into breeding is to try and improve their animals to acquire certain characteristics or reduce other characteristics that they do not want.
2. Farmers may decide to upgrade their goats to reduce certain characteristics that they do not want e.g. the goats may be producing less milk because they have small udders. Other goats have small legs that make it difficult for the animal to walk properly or even stand when feeding. One of the main aims of breeding is to bring up animals that can survive changes in the environment and which are well adapted to the local climatic conditions.

There are three main breeding programmes that farmers can choose:

1. Pedigree Breeding

In pedigree breeding, a farmer buys already registered animals whose pedigree is known. To continue the pedigree line, the farmer has to serve the pedigree doe (female goat) with a pedigree buck (male goat) of a desired characteristic e.g. a buck from a goat family known to produce more milk, which they would like to introduce to their future herd. All future offsprings (grandchildren) of these goats are mated with pedigree bucks in order to maintain the pedigree breed.

2. Upgrade breeding

Upgrade breeding is done where the farmer wants to introduce foreign blood to their existing goats. For instance if a farmer wants to upgrade their Galla goats by introducing German alpine blood into their herd, they will look for a German Alpine buck and let it serve their Galla female goats. The offspring (kids) born of these goats will have both the German alpine blood as well as the Galla goat blood and characteristics (also called heterosis). Upgrade breeding has various development opportunities or stages:

Foundation stage: The farmer can continue upgrading the Galla goats by serving them with pedigree German alpine goats until the future offsprings have more of German alpine characteristics than Galla goat traits. At this point, the farmer can invite an inspector recognized by the Kenya Livestock Breeders Organisation (KLBO) to inspect the goats for registration with the Kenya Stud Book (KSB). The Inspector will examine the goat for particular traits that conform to the German alpine breed. If the he is satisfied with the quality of the breed, it is registered as a foundation.

Intermediate stage: If a registered foundation goat comes on heat, it is served with a pedigree German alpine buck. Any female goat produced by a registered foundation goat is called an intermediate. If an intermediate goat comes on heat, the farmer has to look for another pedigree buck of the same breed, in this case a German alpine (they should make sure that they have proper records to ensure that the first buck that served the mother or grandmother is not used as this will amount to inbreeding). If the intermediate goat produces a female goat (grand-daugh-

Continued on page 6

i-TOF Information Centre of The Organic Farmer magazine

Farmers get credit to buy dairy cows

*Victoria Mutinda**

In Kangundo and its environs, which is my area of operation, farmers do not have dairy animals. Soon after TOF magazine carried a story about cow leasing in January 2010, many farmers started asking me how they could benefit from the service. Two farmers groups were particularly interested; Mavuno Self Help Group and Matetani Dairy Farmers.

I told them that they could form a savings group, save the money for a while then approach a bank for a loan. I visited Equity Bank to check for them the arrangement that would be most suitable. The main aim of the farmers was to increase milk production for home consumption and also for sale. To do this, I trained the farmers from the two groups on proper management of dairy animals; feeding and record keeping.

They got loans

The members saved with the bank, where each member saved up to Ksh 3,000 in six weeks. They used these savings to guarantee each other for the loans they later took from the bank. 20 members of Mavuno and 30 members

of Matetani received loans ranging from Ksh 40,000 and Ksh 70,000 which they used to purchase dairy animals.

Value addition training

Milk production has improved as farmers have put into practice the knowledge received from the training. I trained the committee members on milk value addition and now they make and sell mala or sour milk. Of the 7,000 litres of milk collected every month, 650 litres is converted to *mala* for sale to local customers.The farmers are improving their livelihoods as they repay the loan.

**TOF Extensionist in Kangundo*

Training for farmers in *i-TOF* Centres

If a farmers' group is interested in training, they should get in contact with our i-TOF Centres directly. The following are the regions where they are located, including their contact addresses:

i-TOF Centre Western Province
Location: Kamukuywa (near Kimilili)
Extensionist: Alfred Amusibwa,
Contact: 0724 331 456
Email: itof7@ organickenya.org

i-TOF Central Province
Location: Gatuto/ Kagio
Extensionist: Peter Murage
Contact: 0724 331 375
Email: itof2 @organickenya.org

i-TOF Eastern Province
Location: Kangundo town
Extensionist: Victoria Mutinda
Contact: 0724 331 405
Email:itof1@organickenya.org.

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Goat breeding

ter of the foundation goat), it is registered with KSB as an appendix.

Pedigree stage: When the appendix comes on heat, it is served with a different German Alpine pedigree buck; a daughter produced by the appendix is now called a pedigree. The farmer can continue the pedigree line by either serving them with pedigree bucks with particular characteristics that they want to introduce into their goats.

3. Cross-breeding

A cross-breed goat is a combination of a local breed with a foreign or exotic breed. For example, a farmer might want to serve their local goats with exotic breeds such as the Toggenburg. The offspring or daughter born of the two breeds is known as a cross-breed or F1.

To improve the cross, the F1 is again served with another buck of the same breed, Toggenburg in this case. The resulting offspring is called the F2. The farmer can go further in cross-breeding by mating the F2 with another F2 goat. The resulting breed is known as the ¾ crosses or a completely new breed of goat that has no particular characteristic of any breed. The ¾ cross can be mated with other ¾ crosses until they reach the last stage called stabilization stage. The character of the new goat breed is noted and a standard set by the KSB in preparation for the registration of the new breed.

Answers in brief

Top dress

Do you mean that we can use farm yard or compost manure only we don't top dress our crops with C.A.N.? Farm yard manure and compost are usually mixed into the soil before planting. You may top dress with plant or manure tea in weak growing crops or with diluted slurry (fermented urine) or C.A.N. in heavy feeders.

Sweet potatoes

Is it true that we can obtain proteins from sweet potato leaves?

It is true: Young sweet potato leaves and shoots are rich in proteins, essential vitamins and minerals. Sweet potato leaves are consumed in many tropical countries all over the world. They can be prepared like any other vegetable.

Protein

Which animal meat has high proteins?

All animal meat is rich in protein but some sources are higher than others e.g fish, beef, pork, turkey and rabbit.

Leguminous plants

Why is it advisable to use green leaves from high - protein leguminous trees when preparing compost manure?

Young leaves and shoots of any plant are rich in proteins. If proteins decompose, nitrogen is released. This nitrogen is necessary for the bacteria that help decompose the compost material. Especially if you cannot provide fresh animal manures and urines which are also rich in nitrogen, green plant material will be a good source of nitrogen that will speed up the decomposition process. Leguminous plants are especially rich in protein and therefore a very good ingredient in compost making.

Tithonia

Can I boil Tithonia while making plant Extract? (Lucy Wanjiku, Farmer in Kambirwa, 0717 225 315)

You don't need to boil Tithonia as this will destroy some substances that are important for a good fermentation process. One easy way of making a plant extract using tithonia is to chop tithonia vegetative parts and soak them in water at a ratio of 1 parts in 4 parts of water. Let it stand for seven days air tight (in container). Use the ratio of 1:1 to dilute the concentrated solution before the application.

Inoculation

Can seed inoculation be applied in maize seeds during sowing? Bernard Kamau, farmer in Giikuni

Seed inoculation is applied in legumes especially when the crop is planted for the first time in the field. Inoculation means that the seeds are treated with a preparation of special bacteria that enable the leguminous plants to fix nitrogen from the air. Maize plants are not able to do this, so inoculating maize seeds will not have any effect.

Two devastating banana diseases

Thanks a lot Theresa for an elaborate answer to my banana problem, which I am sure most farmers silently face. There is yet a devastating banana disease which attacks after fruiting. As fruits mature, they appear to ripen, but then rot. Could you advise on remedial action for affected farmers and help us save this enterprising crop. Gideon Ochola 0722 298 699

Thank you for your compliment. It is true; there is yet another disease, or rather two diseases threatening banana production in many African countries: banana bacterial wilt and banana bunchy top disease. Unfortunately, both are extremely difficult to control.

Banana bacterial wilt

Bacterial wilt causes wilting of leaves, uneven and premature ripening of bunches, and fruit rot. The whole plant rots and dies eventually. This disease, also called Banana Xanthomonas Wilt (BXW), is spreading around the Great Lakes region including Kenya. Banana wilt cannot be treated by pesticides or bio-control agents. All banana cultivars are susceptible, and naturally resistant varieties do not exist. Control can only be achieved through strict and immediate eradication and destruction of infected plants. Removal of male banana buds is important as this is the primary infection site. Sterilization of used tools and availability of clean planting material are also essential. If these efforts are neglected, the disease may resurge, as experience documented in Uganda has shown.

There is some hope that a transgenic banana variety that carries a resistance gene from sweet pepper can contribute to the solution of the problem. However, this variety is still in development at IITA (International Institute of Tropical Agriculture) and NARO (National Agricultural Research Organization) Uganda, and it will take years to be released.

BBT disease

The other disease is banana bunchy top disease (BBTD) caused by the BBT-virus. It affects bananas worldwide and is present in 11 Sub Saharan countries including Kenya. BBTD causes bunched leaves at the top that are narrow and wavy with yellow margins. The plants are stunted and fruitless and will die soon. Newly infected plants cannot be detected easily and the disease often spreads uncontrolled. The only control measure is the removal and destruction of affected plants as soon as symptoms are noticed. In Australia, costly eradication programs and strict quarantine control led to disease eradication, but there is a high risk of resurgence. ***tsz***

How to clean drip irrigation pipes

I am an organic farmer & use drip pipes for irrigation. Unfortunately the water is salty & has blocked many holes in the pipes. I have been advised to use phosphoric or sulphuric acid. Is this allowed in organic farming? Please also advise other methods I can use. 0722 563 439

Phosphoric and sulphuric acid are used to treat and reduce plugging of drip lines caused by mineral deposits (usually lime and magnesium). They may actually not be used in certified organic farming, but natural acids like acetic acid (vinegar) or citric acid are allowed. They are more expensive because larger amounts are necessary to achieve the same effect. Clogging of emitters can also be caused by bacterial growth which is treated with chlorine or hydrogen peroxide. This is usually done at least once every month. Irrigation pipes should also be flushed thoroughly at least once every month. Filters must be checked and cleaned at least once every week, or even every day if the water is dirty. This regular maintenance should never be neglected, as clogged lines stop working and are very difficult to repair; they may have to be replaced. In case of problems with the drip system you need qualified advice. Try to get information for your specific case from your irrigation equipment supplier, and from a local chemical dealer with respect to chlorine and acid applications. Or you can get in contact with David Smith, david.dihelp@gmail.com or 0771 906 219

Inside a drip pipe: Only clean water can run out of the small holes shown (arrow); ensure the pipes are cleaned regularly.

Fungi on pawpaws

I was given your magazine on 28.9.2010. Please help me to control virus-infected plants. I have already planted 1000 paw paw plants. Please help me as the plant is turning yellow. I am a small famer trying my best. Thank you. Paul Njau Chomba, Box 196, Maragua, 0726 695 429

Turning yellow may be due to a number of reasons! Pawpaw can be affected by fungi, nematodes or viruses. Please try to find out what is wrong with your plants first. If there is no good extension service in your region, you may for instance go to an Internet café and use Infonet (www.infonet-biovision.org). Click Crops/ fruits/ vegetables, then scroll until you see "Papaya". Click on it, and you will find information on pawpaw including on common pawpaw diseases and on what to do about them. Ask somebody for help if you are not used to using the internet!

Controlling leaf miners

I have planted courgette in my organic farm and have problems with leafminers. Please advise on organic remedies. James Muriithi, farmer in Sagana

Check the seedlings and older plants for abnormality. Neem extracts usefull: Apply them several times at weekly

intervals. You also may spray EM1-FPE solution which is effective against a wider range of pests. Conserve natural enemies like parasitic wasps which keep leaf miners under control.

Bananas need a lot of water

How many liters of water does one banana plant require per day? How much is this in relation to a plant tea to be applied? Farmer in Buyangu

Bananas require a lot of water! They need an amount of rain, which is equivalent to an average of 15 - 25 liters per plant every day of the year (if you calculate an area of 5 square meters per plant). In hot and dry weather even up to 35 liters of water may be required.

Applications of plant teas will therefore only contribute a small part of the necessary water supply. But bananas will be very grateful if you provide some water during dry spells. Water deficits have an adverse effect on plant growth and banana yields. A constant and good water supply is especially important during establishment of young suckers and before flowering. We recommend mulching of bananas; this will conserve water, improve infiltration and provide nutrients. ***tsz***

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What to do with retained placenta

TOF - *We are getting quite a number of questions about dairy cows with retained placenta. That is the reason, why we answer these questions immediately.*

1. What causes retained placenta or long hours or placenta withdrawal in a calved down cow?
2. Which plant can I use to give to my cow in case of a retained placenta of calved down cow so that it comes out on time or quickly? Farmers in Buyangu

Retained placenta is quite frequent, especially in dairy cows. It can have a number of reasons and often indicates

that other health problems exist.

- A difficult calving is one of the most common causes. Cows that abort, calve prematurely, have twins, or any other difficulties or illness during calving are more likely to suffer from retained placenta. The reason behind this is that the uterus can easily become infected when there are calving problems and when the immune system is weakened.
- Unhygienic calving conditions are a high risk for retained placenta and infections of the reproductive tract.
- Poor nutrition is another cause. Vitamin and mineral deficiencies can make the cow highly susceptible to uterine health problems. Overweight cows have also an increased risk of retained afterbirth.
- Some diseases, such the BVD virus and leptospirosis can induce early calving and cause retained placenta. Milk fever can also be associated with retained placenta.

Prevention

Many cases of retained placenta can be prevented. The best thing is to maintain a healthy, well-fed and active cow before, during and after calving. Take care to give a balanced ration during the dry period. Daily exercise (e.g. grazing) is important, because a weak cow that is not used to exercise (e.g. a cow that is kept in a zero-grazing unit) is more likely to have difficulties at calving. The calving area must be large, comfortable and very clean to reduce the chances of placenta retention and infections of the reproductive tract.

What you can do?

We are sorry not to be able to recommend plants that can be helpful, but we can offer the following advice.

Retained placenta has in the past been treated by removing it manually. This practise has been abandoned, because there is a high risk of internal injuries which may even lead to infertility. The placenta should be allowed to separate naturally, even if it takes a whole week. You should also resist the temptation to cut any hanging material off, because the rest may suck back inside the cow, introducing bacteria that will cause an infection.

If the cow shows signs of infection (fever, depression, lack of appetite) a veterinarian should be consulted.

It is also recommended to leave the calf with the mother. Frequent nursing causes release of hormones that stimulate the release of the placenta.

Sexed semen now available in Kenya

How can I serve my cow to either come up with a male or a female calf depending on my own choice? Farmer in Buyangu

You are expressing an old wish of cattle breeders. Beef producers will prefer male calves, while dairy producers need female calves for restocking. Unfortunately, this is one of the things that are difficult to influence. The reason for this is simple: The semen liquid of the bull (in fact of any male creature) contains a mixture of 50% male sperms and 50% female sperms. In industrial countries, methods are underway to separate the semen into male and female sperms ("sperm sexing") for artificial insemination. However, the procedure is expensive and challenging technically, and

the separated semen is more difficult to handle and pregnancy rates are lower. Sexed semen is now available in Kenya. We have not heard of any other methods that are successful and reliable in selecting the sex of the animals.

Make your own fertilizer!

Farmers in Central Kenya have been spending a lot of money buying farmyard manure from pastoralists in parts of Rift Valley to improve their depleted soils. However, the quality of the manure has not been up to standard: It is left in the open cattle *boma* where it is exposed to sunlight and rain, which wash away all the essential nutrients such as nitrogen. Farmers who use such farmyard manure get very low crop yields.

Use on-farm resources

Since the crops can no longer do well without fertilizer or manure, farmers need to look for alternative methods of restoring soil fertility. They should look for resources within their farms to prepare good quality fertilizers. One of the methods they can adopt is the preparation of compost manure or even liquid manures (see TOF Nr. 44 January 2009 and Nr.47 April 2009). The material for preparation of compost is readily available on the farm and would save the more than Ksh 20,000 farmers pay for one lorry-load of poor quality farmyard manure.

The government should make use of its extension workers to train farmers to use available resources within their farms to make organic fertilizers such as compost and liquid manure to improve soil fertility and increase food production.

Eutycus Muchiri. P.O.Box 543, Othaya, 0725 320 115

Stop over-reliance on maize!

Whenever the weather is good and there is overproduction of maize, the natural laws of supply and demand come into play. Buyers offers very low prices, sometimes far below the production price. As if this is not bad enough, the pests and aflatoxin trouble the farmers even more.

Imported maize

During bad weather as drought, the shortfall in production is replaced by cheap maize, imported by greedy cartels, while the farmers do not benefit from enhanced prices that come with the shortage.

There are two issues here that the farmers must tackle to alleviate incurring accumulated deficit every year:

High production cost: Farmers should convert to conservation tillage coupled with organic farming. At least this will reduce production cost.

Diversify: I guess that where maize grows, there are other crops, which can also do well. Farmers should grow them to optimise their income. Looking at it closely, the maize farmers are subsidizing the *ugali* consumers without getting anything in return. This season I have seen a lot of farmers sell green maize to get higher prices, but this will also create food security problems in some homesteads.

For the last four years, I have not grown maize for commercial purpose. I have instead grown fruits and a little maize for my own use and it has not been bad for me. Farmers should wake up!

Karimi, farmer