

The Organic Farmer

The magazine for sustainable agriculture in Kenya



Nr. 65 October 2010

Enforce new land laws now

As the population increases land is getting scarce. Kenya urgently needs a strict land policy.

The Organic Farmer

Kenya faces a crisis if urgent measures are not taken to stop land sub-division and create jobs outside the agricultural sector to reduce pressure on land. Sub-division of land is to blame for reduced food production and environmental degradation.

According to the 2009 population census, which was released last month, Kenya's population is growing at the rate of 2.8 per cent per year. This population now stands at 38.6 million. More than 90 per cent of the country's population depends on 18 per cent of the land that is suitable for agriculture. Unless the available land is used sustainably, it will not produce enough food and income for the increasing population.

The population growth is not the only reason for the problems we are facing now. A lot of land was allocated irregularly for political patronage and remains underutilised. The Land Control Act, which should regulate allocation and sub-division of land, has for many years been violated by Land Control Boards leading to irregular allocation of land sub-divisions and grabbing.

Land is critical to the country's socio-economic and political development.



Creating jobs outside farming will reduce pressure on land. (Photo TOF)

That is why the government has formulated a National Land policy. The policy is aimed at guiding the country towards an efficient, sustainable and equitable use of land for development and use by future generations.

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Dear farmers,

It is a deep-rooted tradition in Africa that fathers sub-divide their land among sons (and daughters according to the new constitution). This confirms the fact that land should remain a heritage for children and grandchildren.

Sub-division is to blame for shambas which are becoming smaller and smaller, until they cannot nourish even a family with two children. This development was the reason why many developed countries stopped the sub-division of farms between 1900 and 1950. The laws in these countries say that land can only be taken over by a son or a daughter who is willing to continue with farming. Of course, the population in Europe is not growing as fast as in Africa; besides, there are more jobs available in manufacturing and the service industries.

This last point is the most important solution to the land problem in Kenya and other countries in Africa. Whatever policies are put in place on land management, the country has to explore other economic activities to create employment outside the agricultural sector. Many people engaged in farming in the rural areas in the country do it, not because they are good farmers, it is just due to the fact that they have nothing else to do. If there were opportunities outside farming, many of these people would be absorbed productive activities that would reduce pressure on land. At the same time, farmers should be supported in processing and marketing of agricultural produce through value addition. Both measures would, in the long term, reduce the pressure on land and contribute more to diversification of economic activities in the rural areas.

But first of all, the country needs a clear and transparent land policy. All grabbed land has to revert back to the state. Corruption in offices handling land issues has to be stamped out. And we should create awareness on proper land use practices. Kenyans must discard outdated traditions that force everyone to own land for social prestige.

Healthy chickens? Clean their house!

Keeping housing, feeds and water clean is the best way of preventing common chickens diseases.

Farmers make more money if their chickens are healthy.

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Photo P. Lüthi



Water melon: A money maker

Watermelons are always in demand. They can be a profitable source of income; they are also easy to grow: All they need is sun and fertile soil. Page 3

Plant sorghum for fodder

New Sorghum varieties developed by KARI take a short time to grow and require less rain. Sorghum gives more fodder than maize and Napier. Page 2

Sorghum is good fodder for your animals

Sorghum can grow well in areas with less rain and produces the same amount of fodder as maize.

The Organic Farmer

Farmers across the country rely on Napier grass and maize stalks as their main source of fodder. But changes in climate and unpredictable rainfalls have led to failure of these two fodder sources or at least to reduced harvests whenever there is drought. If farmers have to maintain their fodder production, they have to rely on drought resistant fodder crops. One such crop is sorghum.

Sorghum was one of the most important food crops in Africa in the past. Over the years, farmers have abandoned it in favour of maize and other food crops. KARI together with the Ministry of Agriculture have developed better varieties that can be grown as animal feed and even as human food.

Advantages of sorghum

Sorghum has many advantages over maize and other pasture grasses:

- It can grow well in both high and even in low potential areas with poor soils, where maize cannot do well.
- As a fodder crop it can be used in place of maize for making silage and grain and even fresh chopped fodder for all animals (cows, goats, sheep, pigs and chickens).
- As animal feed, it has the same energy level as maize or other cereals.
- Sorghum can withstand dry conditions (600 mm annual rainfall) and remain green at very low moisture levels. It provides the farmers with



adequate supply when maize and other feed sources fail.

- Most varieties of sorghum produce much more forage than maize.
- Unlike maize, the lower leaves do not dry out as the plant matures; they remain green and therefore retain a higher crude protein content.
- Sorghum can regenerate (grow again) after cutting the stalks for fodder and harvesting the grain (second crop or ratoon); this way the farmers can reduce the cost of replanting, land preparation, seeds and time.

Easy to plant

To get a good sorghum crop a farmer needs to observe these guidelines:

Land preparation: For both forage and food varieties of sorghum, start preparing the land at the end of the rains following a crop season. Sorghum does well in fine soils. It can also be grown where the soils are not disturbed much (where conservation tillage is practised).

Seed rate and spacing: Farmers should plant sorghum at a seed rate of 2.4-3.2 kg per acre (6-8 kg/ha). Fodder varieties of sorghum should be planted at a spacing of 75 x 10 cm. Varieties meant

for feed and grain (dual-purpose sorghum) requires a spacing of 60 x 20 cm; this spacing allows for a higher grain-fodder ratio.

Sowing: Sorghum should be sown at the onset of the long rains. Drill seeds along the furrows (trenches). Seeds should be planted 3 cm deep when dry planting to avoid germination in false rains, but 2 cm deep if the ground is wet.

Manure application: Well-composted manure should be applied during land preparation and worked into the soil. Organic foliar feeds can be added when the plant is knee high.

Thinning: The crop should be thinned when it is 30 cm high or 30 days after planting, whichever comes first, to ensure a spacing of 10 cm between rows for fodder sorghum and 20 cm between rows for dual-purpose varieties.

Weeding: Hand weeding should be done at least twice. A sorghum field should be kept weed-free especially at early stages of growth.

Pest and disease control: Control of cutworms, aphids, shootfly and stalk borer is important. Birds like sorghum especially at milk stage; they prefer white-seeded varieties. Sorghum is generally disease tolerant. Control disease when necessary.

Harvesting: Sorghum meant for seed production should be harvested at maturity stage. Sorghum meant for feed can be cut when still green and fresh. Leave it in sun to allow wilting for 12 hours then chop and then feed the animals. To make silage, start harvesting at dough stage (between milky and hardening stage). For dual-purpose sorghum, cut the head with a knife or use a combine harvester.

Qualities of different sorghum varieties

Varieties	Maturity (days)	Height (m)	Grain yield bags/acre	Dry matter (bags/acre)
E 6518	230	3.0	33.3	289
E1291	160	1.7	66.7	200
Ikingaruka	160	1.7	77.7	200
BJ28	110	2.5	33.3	156
BM30	210	2.5	66.6	244

Source: Highland Forage and Dual-purpose Sorghum for Livestock Feed and Human Food- KARI Lanet Research Centre P.O. Box 3840 -20100, Nakuru, Cell: 0729 883 276

NOTE: All except E6518 variety can be used for fodder and food. A kg of seed for each variety goes for Ksh 250.

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How to prevent chicken diseases

Chicken farming is profitable, but you need to reduce chances of infection with diseases to a minimum.

The Organic Farmer

Many farmers invest in poultry production: in hybrid layers, broilers or in indigenous chicken. They build chicken houses and buy feedstuffs and birds hoping to earn a good return on investment. Often, during the first time, everything seems to go well – until farmers are surprised by disease outbreaks that decrease production or even kill the precious birds. What can farmers do to reduce this risk? Experience all over the world shows: Keeping housing, feeds and water clean is the key factor to prevent common diseases such as coccidiosis, fowl cholera or salmonellosis. Being serious about poultry production also includes vaccinations against some devastating diseases such as Newcastle disease and fowl pox.

Rules for disease prevention

Housing management

- A chicken house must be clean and dry at all times.
- Poultry houses must be well ven-



tilated. Avoid overheating and high humidity.

- Remove droppings and dirty litter frequently. They provide valuable manure rich in phosphorus and nitrogen.
- Clean the house when it is dirty and disinfect it from time to time. Provide fresh, dry litter regularly.
- Provide perches, adequate nest boxes, feed and water troughs that are easy to clean, and a place for dust bathing.
- Control rodents and mice infesting the poultry house and feed store, as they are disease carriers.

Bird management

- Vaccinate chicks against the most important diseases as recommended by the local vet. Vaccinations start in the first week (e.g. against Newcastle disease) and may have to be repeated later.
- Do not put too many birds together. Overcrowding leads to fast spread of diseases.
- Keep chicks separately from adult birds (except from the mother hen), because young chicks are particularly vulnerable to diseases.
- Divide confined outside runs and use the compartments in rotation.

Feeding management

- Provide a well balanced diet and sufficient quantities. Supplement it with greens, scraps, grains, coarse sand or eggshells.
- Provide clean water at all times.
- Clean drinkers and feeders every day. Wash, scrub and rinse them to remove the slimy surface film that often contains bacteria like Salmonellae and *E. coli*.
- Buy feeds from a good provider to avoid salmonellae, aflatoxins etc.
- Store feeds in a cool dry place and not for longer than 3 months to avoid contamination with fungal toxins.
- Never feed anything that looks or smells mouldy.

Disease management

- Seek veterinary advice at the first sign of disease in the flock. Isolate



Free range chicken (above). A cock infected with chicken pox (below) Photos P. Lüthi, jm

and medicate sick birds or kill them in order to prevent the spread of disease.

- Remove dead birds immediately and dispose of them by burning or burying. Do not eat sick birds – some fowl diseases can transfer to human beings in this way.

- In case of any disease outbreak in the region, keep visitors away from the chicken houses. People can bring in diseases through boots, clothes and hands. Vehicles can contaminate your farm through wheels, load platforms and undercarriages.

tsz

Animal manure and diseases

Most people are aware of the fact that droppings of animals (and of human beings) can contain disease-spreading micro-organisms or parasites. However, the fact that almost all these organisms are very specific is equally important. Bacteria, viruses or parasites that affect certain animals usually do not affect humans or animals of another species. There is therefore no reason to be afraid when handling animal manure! Making sure not to eat it and washing your hands with soap (e.g. after cleaning a shed) is sufficient for your safety. What you really have to fear are livestock disease outbreaks that are the invariable result of leaving manure and urine inside animal housings instead of removing them continuously. Animals should never have prolonged contact with their own droppings.



Regular checks

Daily

- Clean feed and water troughs and nest boxes
- Remove droppings
- Observe your birds to check their health and welfare

Weekly

- Remove dirty litter, add fresh one

Monthly

- Check for mites and body lice and treat if necessary

Procedures before bringing in a new flock

1. Remove all litter, feeders and drinkers
2. Scrape off all visible dirt from all surfaces
3. Wash the whole house and equipment thoroughly with water and a cleaning agent
4. Rinse and let dry
5. Disinfect using lime wash or an other disinfectant
6. Provide new litter, install and fill the feeders and drinkers

Water melons need warm and fertile soils

Water melon is a typical cash crop with very good market opportunities, particularly in urban areas.

Theresa Székely

Many farmers have asked us to write an article on water melon production. What is important if you want to produce water melons of good quality? First and foremost is to have the right site in the right region: Grow water melons only in warm and well drained soils! In compacted and water logging soils, they will do very poorly. Watermelons require full sunlight, a dry, warm climate, and sufficient water during the first 3 weeks and during fruit growth. You will therefore have to think about irrigation. Drip irrigation is ideal because overhead irrigation promotes leaf diseases in the same way as frequent rain does. The third thing to consider is crop rotation: the field should not have been planted with other cucurbits (melons, pumpkins, cucumbers, butter nuts etc.) for at least 5 years. Melons are very sensitive to soil borne diseases that are typical for this plant family.

Seeds and planting

The next thing is to get good seeds from a reliable provider. Seeds from a previous watermelon crop may grow into plants with low yield and fruits of low quality, especially seeds from hybrid varieties. Choose a variety that is popular in your region. Water melon seeds germinate best when the soil is very warm (25°C - 32°C) and the air is almost hot (28°C to 33°C), as it is the case at the end of the dry season. Mix plenty of compost or manure into each planting hole; at least one shovelful. Watermelons like fertile soils high in organic matter. It is recommended that you apply animal manure (e.g. composted poultry manure or cattle dung) and rock phosphate before or at planting.

The holes are dug at a distance of about one metre within the row and about 2 metres between the rows. Plant 2 seeds per hill, placing them 3 to 4 cm (1.5 inches) deep into the soil. Water the hills thoroughly if no rain is in sight.

Rotate with legumes

It is also very beneficial to plant water melon in a field where leguminous plants (soy beans, peas, beans) were



grown before. The roots of these legumes, and possibly also the leaves, should be left in the field; they provide nitrogen to the next crop.

Irrigation

After planting, water regularly with plant or manure tea to provide additional nutrients. Well-filtered teas can also be used in a drip irrigation system. There are three critical periods where watermelons need sufficient moisture:

- After planting to allow fast and even emergence
- At early bloom to prevent poor fruit set and misshapen fruit
- During fruit development to ensure good melon size.

Do not apply too much water, avoid water logging, and minimize wetting of the bed tops! Heavy irrigation or rainfall may also result in fruit splitting.

Pests, diseases and weeds

Plant early, and when growing conditions are ideal. This ensures rapid emergence, growth and soil cover, and increases resistance against pests and diseases. Try to avoid stress caused by cold soil, too wet soil, infertile soil, drought, excessive heat, and plant injuries.

- Aphids can be controlled with preparations from the Neem tree, Tephrosia leaves, pyrethrum flowers, chilies, garlic, and soap. These preparations can also control spider mites and thrips



Water melons in a market stall (Photo jm)

that may infest watermelons in hot and dry weather. You may use Neem or Tephrosia preparations against cucumber beetles, cutworms or leafhoppers that damage young seedlings or flowers.

- Many diseases can be prevented by practicing crop rotation. Good seeds, robust varieties, and early planting reduce further risks. Control aphids and avoid plant injuries, and avoid frequent overhead sprinkler irrigation to prevent foliar diseases. If you have to spray fungicides, spray as soon as a disease appears. Thorough spray coverage and repeated applications are essential, also in the case of insecticides.
- Weed control is done before the vines begin to run and while the weeds are still small. Two weedings are usually done using a hoe. Take care not to damage the roots of the water melons! When the melon leaves cover the soil, only very noxious weeds need to be pulled out to prevent them from developing seeds.

Remove all misshapen and split fruit to channel nutrients into marketable fruit. Leave only one to three well shaped melons per plant. Put dry grass under the melons to prevent rotting.

Fruit pruning and care

Remove all misshapen and split fruit to channel nutrients into marketable fruit. Leave only one to three well shaped melons per plant. Put dry grass under the melons to prevent rotting.

Harvesting and marketing

Watermelons can be harvested about three months after planting. Be careful, water melons are perishable. That means, you have to organise the sale early enough in looking around for a buyer.

Attention: honey bees!

Melon flowers must be pollinated by honey bees in order to set fruit. Because most insecticides are toxic to honeybees, insecticide applications should be made in the evening, when bee activity has ceased. This practice makes plant insecticides more effective as well, because they break down faster in the sunlight.

Farmers' questions

- Please write something on watermelon (question from Buyangu).
- I would like to grow watermelons. How can I prepare a hole for planting and what do I need to have? Wellington Njeru - 0720 996 322



Sub-division of land reduces its productivity

Uncontrolled land sub-division into unviable units causes soil, environmental degradation and poverty.

Peter Kamau

Michael Njagi, a 60 year-old farmer in Wanyororo area in the outskirts of Nakuru town has 2.5 acres of land. For the last ten years, he has been toying with the idea of sub-dividing the land among his 5 sons and 2 daughters who are still unmarried; but he does not know how he will do it because it is too small for further sub-division.

"I have given each of my sons a place to build a house nevertheless they still want me to sub-divide the plot, I surely do not know how I will do it," he laments. Since the sons put up their houses on the area he used to grow tomatoes and vegetables for sale, his income has considerably gone down.

Reduced maize yield ...

John Kigen used to harvest 150 bags of maize in the 1980s on his 10-acre farm in Rongai area, Nakuru. But he can no longer grow maize because he has sub-divided and shared 8 acres among his 6 sons, leaving 2 acres for himself, his wife and their unmarried daughter. The title deed to the land is still in his name; like many small-scale farmers, he fears the high costs of the transfer of the title deed. Consequence: The sons cannot secure loans without a title deed acting as security.

In yet a similar case, 45-year-old Simon Waruiru lives on his father's 3-acre farm in Kibichiku area in Kiambu District. The parcel of land has been sub-divided between his younger brother and an unmarried sister. Although he has two dairy cows and he is rearing broiler chickens for sale to hotels in Nairobi, his portion of land cannot produce enough food for his family or even adequate fodder for his cows.

Simon Kariuki and a brother were given a ½ acre each by their parents in Kabete, Nairobi. Although the two brothers would like to access credit and diversify, their income, they have been unable to do so because their

parents have denied them title deeds for fear they could sell the family land or neglect them in old age.

Discriminated women...

For Nancy Wanjiru, a mother of two, life has been a nightmare since her father and mother died six years ago. She has been in and out of courts to stop her brothers from throwing her out of their 9-acre farm. According to them, women have no right to land. She is waiting for the judgement set for this month to know her fate.

... and an environmental disaster

"I think we are facing a disaster which nobody seems to care about it. There should be very strict laws to stop any further sub-division of land," says Francis Kimani, a farmer in Githunguri, Kiambu district. He says administration officials such as chiefs have little time to attend to development issues due to increased land disputes arising from sub-division.

Kimani attributes the problem of soil erosion and environmental degradation in his area to land sub-division. "You cannot even plant a tree along your boundary, because your neighbour will complain that the tree shade and roots are interfering with their crops", he states. "Apart from this, it is difficult to practice crop rotation on such a small piece of land. The soils are so overused resulting in poor crop yields. Indeed, no sustainable farming can take place if land sub-division is allowed to continue." Kimani hopes that the government can come up with laws to stop further sub-division.

The unresolved land problem

All these examples have one thing in common: They illustrate the unresolved land problem. A number of factors has been responsible for the land problem in Kenya:

- Population growth is one of the factors responsible for fragmentation of land holdings into uneconomic units.
- Lack of jobs outside the agricultural sector has increased pressure on land. Farming is the only occupation that jobless people can rely on for survival.
- Land grabbing by unscrupulous

individuals: According to the Sessional paper No. 3 (2009) a lot of urban, trust and private land owned by well-connected individual, much of which was acquired illegally. Much of this land has been held for speculative purposes, is underutilized. It should be repossessed and put to productive use according to the Commission of Inquiry into Illegal and Irregular Allocation of Public Land or Ndungu Commission.

-Traditional beliefs about land is another problem. In Kenya, land is regarded as a status symbol. People who do not own land are not regarded highly in society, everyone therefore struggles to own a piece of land. Others just want a place where they can be buried when they die. Many parcels of land lie idle as a result.

Lack of political will

The problem of diminishing land resources has been compounded by poor implementation of the Land Control Act. Land Control Boards have, through corrupt practices, sub-divided land to unviable units, says a report: *Land Reform and Poverty in Kenya*. According to figures from the National Land Policy Secretariat, about 75 per cent of Kenyan population lives in the high and medium potential areas which is only 20 percent of Kenya's total land area.

The National Land Policy recognizes the problem facing land ownership and sets out guidelines, which the government should adopt to achieve proper land utilization and management. The policy notes that land is not a commodity that can be traded in the market; it is an economic resource that should be managed productively. All Kenyans should have equal access to land as a source of livelihood. Since the available land is limited, it should be used sustainably for future generations.

Hope in new Land Control Act

Ibrahim Mwachane, a licensed surveyor and Director of Land Development and Governance Institute is of the view that commercialization and speculation in land has in the past

Continued on page 6

accelerated sub-division and ignored laws that govern ownership. He says that the new Land Control Act aims at stopping further fragmentation of land into unviable units.

"People had been made to believe that they could do anything they wanted with land since they owned it. But this is bound to change when the new Land Control Act is put in place," he observes, "things have to change." And he points at the Land Control Boards: "They had become so corrupt and were largely manipulated by politicians to an extent that they did not seek advice from relevant government departments such as the department of agriculture before authorising subdivisions or allocation of private and even public land," he concludes.

Awareness creation

According to the new Land Control Act, the government will ensure that all sub-divisions of land are tied to land sizes specified for different agricultural zones. It will set the minimum size that can be sub-divided for each region.

It will introduce incentives to encourage use of technology and scientific



You get more out of a small piece of land if you practise crop rotation. Photo TOF

methods of soil conservation; this includes the use of traditional conservation methods. It will also encourage environmental conservation in all agricultural areas to restore soil fertility and productivity.

Mwathane is of the opinion that civic education of small-scale farmers is needed, "we have to help them understand and implement the provisions of the Land Control Act to ensure that any further sub-division of land is done within the law. These measures will prevent further land degradation and related environmental consequences.

Tips on white fly control in greenhouses

Farmers especially those with greenhouses have complained of the whitefly infestation of their tomatoes in greenhouses. In TOF issue Nr.64 (September 2010) we gave a number of tips of how tomato farmers can control whiteflies. After reading the complaints from farmers on this problem, David Smith gives additional advice on how to contain it below:

1. Spray the affected crop with a solution of 20 ml of hydrogen peroxide for

every 20 litres of water (wait for 2 days before harvesting of the crop).

2. Spray the crop with a solution of 20 ml of liquid cooking oil in 20 litres of water (you can harvest the crop anytime you wish after spraying)

3. Hang yellow plastic bags smeared with engine oil (the flies are attracted to the yellow colour and get stuck on the bags)

David Smith, david.dihelp



Training in i-TOF Centres free of charge

In August 2009, *The Organic Farmer* magazine opened the information and input centers (i-TOF). Since then, thousands of farmers have been trained on environmentally sound farming methods; this service is free of charge. In the past few weeks we have received a number of requests from farmers asking for training.

Book for training

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: Majengo,
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

Answers in brief

No porridge from potato flour

Can potato flour be used for making porridge? Farmer, Kamara.

We are not sure what kind of potato flour you are talking about. There are two different flour-like products made from potatoes; both are industrial products. Potato starch is a very fine white flour. It is produced by extraction and isolation of the starch and is used in small quantities to bind sauces, soups or puddings. It does not contain any vitamins or fibres, so it is not recommended for consumption as porridge. Potato flakes or flour on the other hand are processed from whole potatoes and are more natural products – though they are processed in a factory. These potato flakes can be eaten as potato mash, but not as porridge.

Is this the real Moringa tree?

In our area, there is a tree called *muringa* which is used for firewood and timber production. Is it the same as *moringa oleifera* which is referred to as the tree of life? Benard Karuri Munene, Rukanga

The *muringa* tree you are talking about is *cordia Africana*, which has no relationship with *moringa oleifera*. There are seven different trees in the *moringa* family (*moringaceae*) the closest being *Moringa stenopetala*. Among the Tharaka, *moringa oleifera* tree is called *Muguunda*.

Diatomite cannot purify water

Due to heavy rain in this region, my fish pond has become dirty, posing danger to my fish. Can I use diatomite to purify the water in the pond? Waweru, Kagio

Diatomite cannot be used for water purification. Although it is used for filtration of various beverages in the manufacturing purposes, it requires special equipment for this purpose. You can reduce water pollution by a good drainage system around your pond to ensure that run-off water does not go into the pond. Your pond should also have a water outlet to allow change of water when it becomes dirty or unsuitable for fish.

Seeds packed in polythene bags

Are seeds packed in polythene bags suitable for planting. I planted some and they never germinated. What was the reason? Vunandi CBO

Most seeds from local tree nurseries are often packed in polythene. Sometimes the plastic bags contain moisture, so the seeds begin to germinate; this process stops when the seeds are planted. This might have been the problem with your seeds, it may also be due to the way you planted them. Therefore it is better to store seeds in good paper bags. Do not forget: Different seeds need different treatment to germinate well.



Colostrum is important for calves

Can a cow's colostrum be kept in a refrigerator and given to the calf after a while or is it harmful to the calf? Regina.

If colostrum (or milk) is kept at room temperature, bacteria will grow at a terrific speed, posing a serious health risk to a newborn calf. If colostrum is kept in the refrigerator, this slows down the development of bacteria. In a good refrigerator that keeps the temperature reliably and constantly at 4°C, colostrum can be kept for 3 to 4 days. But, the colostrum a cow produces is most concentrated during the first few hours after birth. At the same time, the calf's intestine is able to absorb the immunizing substances best during this time. This means that early harvested colostrum will not have nearly the same beneficial effect to a calf which is 3 or 4 days old! So it is always best to use colostrum immediately. If you want to store colostrum for an even longer period, e.g. as a reserve for another calving, freezing is the only good choice.

Moles are clever survivors

How does garlic kill moles? 0722 416 988 (SMS)

Garlic can not kill moles. Moles may perhaps avoid places where garlic plants grow, but the reasons for this are not even known. Moles feed on grubs, worms, insects and other small creatures they find while tunneling through the soil. They are therefore quite useful. Mole rats, on the other hand, feed on roots and tubers and cause more damage. It is difficult to fight both species successfully. Their underground runways may stretch hundreds of meters. The mounds you see are just a very small part of this system. They could be compared to chimneys where the mole piled the soil it excavated from the deeper tunnels. If a mole is disturbed in one place, it will just get busy further away, but it may return any time.

Always remember: Colostrum is the most effective natural "vaccination" which protects the calf from diseases during its first few weeks. It is a life assurance! Particularly if a calf had a difficult birth, you should milk colostrum within the first hour or as soon as possible after delivery and bottle-feed the calf without delay. Try to feed 2 to 3 litres of colostrum during the first hour. Depending on the size of the calf, it should get 4 to 8 litres of colostrum within the first 12 hours after birth, the earlier, the better!

We recommend this practice of hand-feeding during the first two or three days, as very often calves do not get enough colostrum if they are just left with their mothers. There is one condition which is absolutely essential: The cow's udder and your hands must be clean and dry at colostrum collection. Bottles, feeders and containers must be very clean and dry at all times to prevent contamination with disease-causing bacteria. The same applies, of course, to the calving environment.

What causes droplets of water on plants?

I have often observed trees that are leaking or rather producing droplets of water even in the dry season. Most of these trees have insects like shiny caterpillars on them. What is the reason behind this?

Droplets of liquid on plants can appear from various reasons. Plant sap sucking insects like aphids often secrete excess plant liquid which is sticky from the sugar it contains. Plants can also excrete excess water through small pores in the leaves, producing water droplets. This is called "guttation" and happens when the roots have taken up more water than the leaves can transpire (evaporate), either because the soil is very wet or when outside temperatures are low. Some trees can take up water from deep down in the soil even during the dry season. These trees do not drop their leaves or just shed a part

Side effects of organic fertilizers

Do organic fertilizers have side effects when used in excess or overdose when applied to both soils and crops? A farmer in Shinyalu.

Nutrient overdosing will always create side effects, no matter whether you apply organic or synthetic fertilizers. But because organic fertilizers have much lower nutrient concentrations, and because they are usually not available in high amounts, it is much more difficult to overdose them. It is more likely that insufficient quantities are used. If you do not apply more than 10 t of organic manure per acre each time, and not more than 20 t per acre in a year, you need not worry about side effects.

Liquid boost for plants

What amount of organic fertilizers in terms of liquid manure and plant tea is to be applied to crops? If a banana is having 5 stems, how many litres of the solution have to be given? Buyangu

Liquid manures and plant teas are a diluted form of fertilizer. They are usually applied to give additional small doses of nutrients that can easily be taken up by plants and to provide water at the same time. It is quite impossible to overdose them. Be aware that they can not replace proper manuring and fertilization in any crop! Bananas, for example, should be fertilized regularly with mulch material (any plant residues), animal manure, wood ash, and compost. They should also be de-suckered regularly to economize nutrient and water use. Leave only three vigorous suckers per banana stool: The "mother" which is bearing a bunch, a "daughter" that will be fruiting soon, and a "granddaughter" that is still small.

of them. There can be a third reason: When there is fog and air humidity is high, the water in the air condenses on any surface and forms droplets, also on plants. This is called dew and can often be seen after cool nights. The insects you observed may also just take advantage of this water source – they may need it, especially in the dry season.



Guttation on strawberry leaves

We are addressing the goat issue

We read the article in your magazine (TOF Nr. 63, August 2010), which we discussed with Dairy Goats Association of Kenya (DGAK) chairman and felt that, whoever gave out the information, does not know the steps we are taking to address the inbreeding in Dairy goats and the measures we are taking to stamp out records falsification in DGAK. We also found out that most of the information in the article was not true. We would like to inform your readers the real situation on the ground:

Artificial insemination

There are no frustrations by the Veterinary department for the introduction of AI in goats. We have already received a permit to import goat semen from France from the Department. We are also doing artificial insemination with the semen we have in our store. The service providers come for it from our office and with arrangement, we deliver to them as we go for our other activities.

In May, this year we had a team from the Ministry of Livestock Development, Animal Production Department and GTZ/PSDA who visited our farmers to see the progress on goat AI, of which they were very impressed. There are no qualified AI service providers who have been denied a permit to practise. We do not have any veterinary officer offering AI service to our members. The services are being offered by qualified Animal Health Assistants. All the qualified technicians have equipment for AI. DGAK assisted the technicians with some of the specialized equipment they were lacking before.

For quality control we tattoo our goats around 3 month after birth and

The article on dairy goats in our August magazine is still provoking a strong feedback from farmers. In this issue, we publish the statement of the Dairy Goats Association of Kenya



issued with a record card. For the goats that qualify, we apply for registration with the KSB. All this is done by our trained farmer based service providers. The service providers send these application forms to our office where they are checked and sent to KSB offices for the processing of the certificates. Once the certificates are ready they are sent back to our office. There is no time that a farmer follows the certificate from KSB.

On falsification of record cards, we put a seal on all our record cards before they are released to the field.

Records

It has also come to our notice that some buyers (especially those who are buying on behalf of organizations and do not want to buy through DGAK) are colluding with some of our dishonest service providers to issue wrong cards in order to cheat on the grade. We have expelled our service providers found with such malpractices. We have now come up with a circular stating that any tattooing and issuing of record cards should be done at group level and an official of the group sign and write his or her telephone number on the card.

For further clarification, you can visit our office at Wambugu Agricultural Training Centre in Nyeri. Warui, DGAK Mobile 0721 398 906, 0734 530 201.

"Inbreeding is a big problem for us"

Thank you for highlighting this very important issue on the scandal related to dairy goats. I am a community-based sustainable organic farming trainer from Western Kenya and very much in picture of the development of dairy goats in Kenya. Indeed inbreeding and use of poor bucks is responsible for low production and quality of the animals. I am also a dairy goat keeper in Kitale and share many of the concerns raised in that article.

We call upon interested stakeholders such as the Heifer Project International and Farm Africa and DGAK to help address the issue.

We are a community-based organization based in North Bunyore (Esibuye). We are promoting organic farming and biodiversity conservation. We have also started a small grocery for marketing. We are interested in wider linkages with other development partners espe-

cially on organizational development. *F. Wafula, Coordinating officer, Bio Gardening Innovations (BIOGI) biogardeninginnov@yahoo.com*

Resolve goat problem

The dairy goat breeding problem should be a wake-up call to the Ministry of Livestock Development and other stakeholders in this sub-sector to take action and help farmers who have dairy goats. We also appeal to the DGAK to mobilize more resources to ensure that farmers all over the country benefit from their services. The introduction of AI services for dairy farmers would go a long way in solving the problem. Farmers cannot avoid inbreeding if all the goats in the country are descended from the 11 goats brought to the country at the start of the project. We thank you for highlighting this problem.

Moses Rono, Bomet

A useful book for dairy farmers

Dairy farmers lack reading and reference material on different areas in animal husbandry. Most of the knowledge they have is what they have learnt by trial and error, which can be costly if they incur losses.

The Self-Help Africa (Kenya), an organization that works with farmers in Nakuru and Naivasha districts, has published training manual for dairy farmers, which addresses

some of most important issues on dairy cattle management.

Livestock extension workers, trainers and students will also find the book useful because it is written in simple way that most of the readers will find easy to understand and apply.

The handbook: *Dairy Cattle Training Manual* covers all important areas of livestock farming, from breed selection, feeding, diseases and management, marketing and even record keeping. Farmers interested in getting the manual can get in touch with the organization through the address:

The director, Self Help Africa (SHA) Kenya, P.O. Box 2248-20100, Nakuru, Kenya. Tel. 254 051 221 229 1 Email: Kenya@selfhelpafrica.org www.selfhelpafrica.com

Buying & selling

Hay for sale: We have 1000 bales of hay that we would like to sell. They are packed and ready for collection in Kiserian, Nairobi. If you are interested in buying please write to us: E-mail: nwwachira@gmail.com

Neem powder wanted: I am urgently in need of neem powder or cake, if you know where I can buy it, please call me, Christine Njiru, Gichugu, 0722 400 931

Silage tubes and training: We have silage tubes for sale to farmers, training on upgrading of dairy cows. Contact Makechi Tel 0721 245 443, 0771 178 805.

Organic products for sale: We sell moringa powder, carrot flour, beetroot flour, amaranth flour, dried vegetables, garlic powder, stinging nettle flour and ginger. We also offer training on value addition to interested farmers groups and even individuals, call the Director, SUFOD Tel 0724 456 420, Nairobi.

