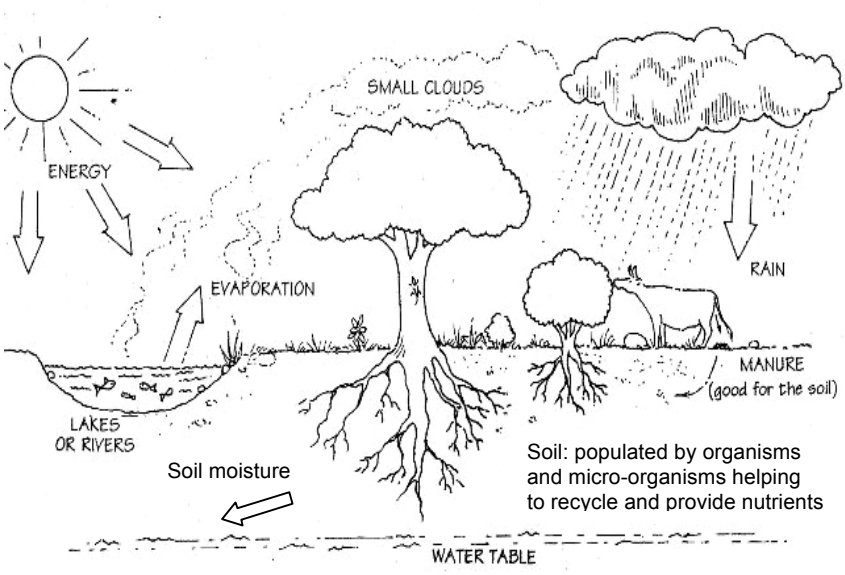
ORGANIC AGRICULTURE

A different way of farming

All living creatures are organic by nature. The philosophy behind organic farming is the thought that all organisms have their specific place and role in the complex natural system which has developed over millions of years. This includes the smallest micro-organisms in the soil as well as plants, animals and human beings. Agriculture depends heavily on natural resources for food production. It should therefore be managed in a responsible manner and avoid technologies which are harmful to the health and the well-being of people and the environment.

Organic agricultural systems have developed in response to the enormous changes in agricultural practices in industrial countries during the last century.
Starting points for an increasingly industrialized agricultural production were farm mechanization, synthetic production of Ammonium nitrate as fertilizer, and introduction of DDT as one of the first insecticides. The development of hybrid plants intensified production further.
At the same time, advocates of a more natural way of farming emerged all over the world, some of them even before the negative impacts of modern agriculture became evident. These side-effects include long-term pollution of soils, groundwater, rivers and lakes, the elimination of beneficial insects and other animal species, loss of efficiency in pesticides, and pesticide residues in foods.



Organic agriculture seeks to consider the whole picture of the environment - not just one pest which must be killed. It tries to fit agricultural activities into existing natural cycles and the complex food chains. IFOAM, the International Federation of Organic Agriculture Movements, characterized the commitment behind the many approaches and methods of natural agriculture with four central keywords: Health, ecology, fairness, and care.

Health of soil, plants, animals, human beings

Agriculture must sustain and promote the health of soils, plants, animals, and human beings. The soil is seen as the central element on which all life depends: infertile, polluted and degraded soils can neither produce healthy crops for food nor enough fodder for animals. To enhance crop and fodder production, soil fertility has to be sustained and promoted. Human and animal health is directly linked to the production potential of the soil.

Every farm is embedded in an ecological context

Organic agriculture should be based on the resource cycles and processes of the natural environment. It should work with them, not against them, make use of them, and help sustain them. Organic management must be adapted to local conditions and contexts, whether agricultural, cultural or social. In order to maintain and improve environmental quality and conserve available resources, use of external inputs and energy waste should be minimized by reuse, recycling and efficient management of all resources such as water, soil, organic matter, nutrients, and biodiversity.

Fairness in all relationships

Organic farmers tend to feel that that they share this world with all other living creatures and that all other beings, whether people or animals, should also have their share of well-being and happiness.
This includes fairness at all levels and to all parties - farmers, workers, consumers, processors, distributors, and traders. Organic agriculture seeks to ensure good quality of life for everybody, and to contribute to food sovereignty and reduction of poverty. Natural and environmental resources should be managed in a socially and ecologically just and responsible way.

Care and precaution

Organic farmers tend to take their responsibility as land users seriously. Agricultural land and other resources like water should be maintained in a good condition, not at least for future generations. People and animals should be treated with care and everything should be done to ensure their healthy development. New technologies as well as traditional methods have always to be assessed with regard to this principle. Precaution and prevention are appropriate if risks are not certain, and decisions should always reflect the values and needs of all who might be affected by them.

Common farming approaches in short

Traditional farming

Traditional farming systems include all farming practices which have developed and been in use over many centuries. Usually they make the best use of local resources, are well adapted to local conditions and are sustainable – as long as ecological and social settings do not change.

If traditional methods are followed in spite of changed conditions, they may become destructive or must be adjusted. An example is the traditional slash-and-burn technique which is no problem if only a small part of the available land is under cultivation. The same method leads to total deforestation and land degradation when practised by an increasing population and with decreasing land reserves.

Conventional farming

Conventional farming makes use of all agricultural developments of the last century: farm mechanization, synthetic pesticides and fertilizers, hybrid breeding, GMO varieties, large-scale irrigation. Conventional technologies have led to high productivity increases worldwide.

Intensive conventional farming also includes high risks such as environmental pollution, soil degradation, or dependency on few crop varieties and synthetic inputs.

Organic farming

Organic farming includes an ethical commitment and the deliberate decision not to make use of technologies which pose a risk for human beings and the environment.

Organic farmers are a small minority worldwide (but a growing one). In countries where organic farming is successful and organic markets are well developed, they reach a market share of 5 to 10%, although regional differences can be high.

Where local markets for organic products are not established, motivation for organic production is usually low. In Kenya for example, most of the few certified organic farmers are oriented towards organic export markets.

Integrated farming

Integrated farming systems combine the advantages of all existing methods. They try to reduce and avoid harmful effects of modern agricultural methods by integrating organic practices and control methods, by minimizing fertilizer and pesticide use and by careful choice of pesticides. In many countries, this is seen as the most viable approach to correct some of the adverse effects of conventional agriculture.

Organic farming in practice: an overview

Organic crop nutrition

Synthetic fertilizers are not used in organic agriculture. Organic crop nutrition is based on “feeding the soil, not the plant”. Increasing soil fertility is regarded as central. Organic matter is maintained or increased in the soil by addition of compost, animal manures, green manures, and leaving residues in the field as mulch. Organic matter binds nutrients including N, P, and K. They become available to the plants when micro-organisms break the organic matter down while feeding on it.

- **Nitrogen** (N): Good organic sources of nitrogen are urines and all animal manures, especially from poultry and pigs. Teas from plants or manures provide easily available nitrogen. Leguminous crops and green manures are an important organic nitrogen source. N-rich products include blood meal and feather meal.
- **Phosphorus** (P): Organic sources of phosphorus are rock phosphate, poultry manures, and bone meals.
- **Potassium** (K): Organic potassium sources are wood ash, goat and sheep manures, poultry manure, and cattle manure.

Organic pest and disease management

Strict crop rotation is one of the best strategies against diseases. Disease and pest resistant crops and crop varieties should be preferred. Organic farming promotes beneficial insects and natural enemies of pests and diseases as they often control pests like aphids effectively. Sustaining soil fertility makes plants healthier and more resistant to diseases and pests.

For direct control, insecticides and fungicides of mineral or botanical origin may be applied, and some of them can easily be prepared by farmers themselves.

Organic weed management

Organic weed management relies on crop rotation, planting cover crops and green manures into crops with scarce ground cover, and covering the soil surface with different types of mulches (including plastic or fabric covers). Early weeding, adapted soil preparation and leaving residues in the field help to reduce seed populations. Hand weeding / hoeing or regular slashing of weeds and leaving them in the field as mulch are still important in many crops.

Organic livestock husbandry

Livestock are an essential part of an organic farm. Animals provide valuable manure, which is used as fertilizer. In addition, fodder plants improve all crop rotations. Grasses and forage legumes are not only the best feeds for ruminant livestock but they also build the soil, provide nitrogen and are good in crop rotations. Livestock also recycle crop residues.

It is also possible to fertilize crops without animal manures. But more thought may have to be given to the materials from which compost is prepared, and legumes and cover crops will be more important.

Animal well fare is paid high attention to, as prevention of diseases is central in organic farming. Animal health is promoted by keeping robust breeds, providing clean, dry bedding, spacious housing, grazing wherever possible, and by ensuring a feeding management which provides all nutrients in sufficient quantities. Vaccinations and regular deworming are recommended.
If diseases occur, animals have to be treated promptly and following the instructions of a veterinarian.

What benefits can be expected from organic farming?

- Organic farming increases soil fertility in the long run. Organic soils have a higher content of organic matter. This increases soil productivity, water holding capacity and drought resistance.
- Organic farming does not require high investments. Organic farming makes use of locally available resources and reduces dependency of small-scale farmers on expensive chemicals.
- Recent UNCTAD research (also from East Africa) found that organic agriculture can outperform conventional and traditional systems in developing countries:
  Organic agriculture increases farmers' yields over the long term while investments are low and at the same time a larger variety of crops is grown. This especially benefits smallholder farmers, who are often at risk of food insecurity, malnutrition, and debts.
- Organic agriculture does not expose farmers and their families to health risks resulting from agro-chemicals and fertilizers.
- Organic agriculture combines modern scientific research and traditional farming in a sustainable farming system.
- Even if organic farming is not followed strictly, and even if no market for organically produced crops and products can be found, the farm will benefit from using organic techniques!

Organic markets in Kenya

Although quite a number of organizations and institutions are promoting organic farming in Kenya (KIOF e.g. since 1986), only few consumers are aware of organic production. The domestic market is practically limited to Nairobi, and the few certified producers deliver to export markets. However, many farmers show interest in producing and selling organic products either for domestic markets or for export.

Organic export markets and certification

The export market and formal mainstream markets usually require certified and labelled products. For certification, an independent company has to control the producer (usually once a year) in order to verify that the product has been produced according to the rules of the "Organic Standard". A standard describes in detail how a product must be produced in order to be labelled and sold as organic.

In Kenya, the Kenya Bureau of Standards has recognized the 'National Organic Standards of Processing and Production' and the 'East African Organic Standards'. Certified organic products can usually be sold at a higher price than the same conventionally produced products. Certification and labelling ensure that not every producer can claim his products are organic. The label gives a certain guarantee that a product has really been produced organically.

If you found a buyer who purchases certified organic products, you will have to follow precise production rules. The list of requirements is long, and they can be quite different from usual traditional or conventional farming practices. You will have to know the exact requirements of the standard, e.g. which substances for pest and disease control are allowed. Production, storage and packaging of the commodity will be controlled. Control and certificate have to be paid for by the farmer.

Training is necessary for certified production

For small-scale farmers, conversion to certified organic production is a challenge. Some local companies are contracting farmers for organic export production, and they usually offer them training. Because of the high costs for certification, small-scale farmers have to be organized in producer groups. The certification fee is then divided between the members, making it much cheaper.

Examples of companies working with small-scale farmers:

- Earth Oils contracts farmers' groups in Nanyuki. Product: Tea tree for extraction of essential oils for export. Farmers are provided with training and seedlings and are assisted with certification costs.
- ICIPE works with more than 1000 farmers in Mwingi district to process organic honey for the export market.
- Meru Herbs trains farmers in the region and sells a bulk of its products to Europe.

Domestic organic markets: Help create them!

Less formal domestic markets, institutions etc. sometimes do not require certification and may instead rely on a simpler and less costly form of verification. In the urban setting of Nairobi, opportunities to market organic products are good – there are several examples of successful organic initiatives. By using certification and symbols or labels, consumers can be convinced of the integrity of the organic products.

Green Dreams is an example, and also the Kibera Youth Reform Group (KYRG). Every day the youth place their freshly harvested products out on a table beside the farm and they inform and educate their consumers about the high value of their production. Why not follow them as an example?

If you are convinced of what you are doing and producing, let your buyers in local markets know what you have and why they should buy from you! This can be done through word of mouth, with flyers, etc. Be proud!

How to start organic production

If you are seriously thinking about starting organic production, TOF suggests the following procedure:

1. Locate the market first. Ask yourself:

- Where and to whom can I sell my organic crop?
- At what price can I sell my commodity?
- How much can I deliver, how often can I supply?
- Who are my competitors?
- Are there any farmers or farmers' groups already successfully producing organically in the region who I could join or from whom I could learn?

In short, when growing any products for any market, the first step is always to identify the markets and the buyers. It has to be clear where and to whom you can sell your product before you start producing!

Other factors you have to consider include: distance to the market, prices at the market, production costs of your product, and shelf life of the product (the period within which you have to sell the product, before it deteriorates).

2. Experiment with organic production

When you are sure that you will be able to sell your organic crop, experiment with a small area under organic production at first. Produce for both markets while you get used to organic production. Some crops and diseases are quite difficult to manage organically, and you risk loosing an entire yield. Alternatively, you could look at simple value addition of the crop (like making jam or air drying).

3. Expand your organic production

- but only if you see that it works and if you are sure you will be able to sell it profitably. The same is of course true for any product you produce!

Sustainable and organic farming: more information!

The information provided by The Organic Farmer is useful for any farmer – this knowledge can be applied by everyone!

i-TOF Centres	Kangundo, Eastern	contact Tel. 0724 331 405	***The Organic Farmer***
	Gatuto, Kerugoya	contact Tel. 0724 331 375	www.organicfarmermagazine.org
	Buyangu, Western	contact Tel. 0724 331 456	

Infonet-biovision This internet resource promoting organic farming methods provides information on all aspects of farming in East Africa: crop production, animal husbandry, soil and water management, and malaria.

This is how you can access and use Infonet-biovision:

1. Type in the address: **www. infonet-biovision.org** and make sure there is no mistake. Click "enter".
2. When Infonet appears on the screen, choose the subject that interests you. If you have a problem with your passion fruits, for example, click on "Crops/ Fruits/ Vegetables". A list of pictures and names of the most common crops will appear. Click on the picture or on the word, in this case on "Passion fruit". You may have to scroll down a bit to find it.
3. When you clicked on it, a lot of information about passion fruit will appear on the screen. At the top you find general information and cultivation requirements. If you scroll down, you find a long list of pests and diseases with large pictures for identification as well as suggestions for treatment.
4. In case you want to identify a disease or a pest you do not know, bring a sample of the infected plant part or the pest along with you. You may note down any information which appears useful to you. Get assistance if you would like to print out parts of it!

Infonet-biovision is available on a CD. It can be ordered from TOF:
Phone: 020 44 50 398 Email info@organickenya.org

The TOF leaflets

No 1:	Organic agriculture
No 2:	Crop rotation and intercropping
No 3:	Organic disease and pest management
No 4:	Organic crop nutrition
No 5:	Compost, manures and liquid manures
No 6:	Green manures, cover crops, mulching, weed management
No 7:	Conservation agriculture
No 8:	Water management
No 9:	Drip irrigation and greenhouses*
No 10:	Storage and simple processing*
No 11:	Fodder production and concentrates
No 12:	Dry season fodder
No 13:	Goats: Housing and feeding
No 14:	Goats: Breeding, milking, kidding, health
No 15:	Cattle: Housing and feeding management
No 16:	Cattle: Milking and calving
No 17:	Cattle: Breeding
No 18:	Cattle: Diseases
No 19:	Cattle: Parasites
No 20:	Chicken
No 21:	Sheep husbandry

*under construction

The leaflets can be ordered from TOF

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References IFOAM: Principles of Organic Agriculture. http://www.ifoam.org/organic facts/principles
John A. Biernbaum undated: Organic Farming Principles and Practices. http://www.msuorganicfarm.com/organicfarmingprinciplesandpractices.pdf
UNCTAD undated: Organic Agriculture and its Benefits http://www.unctad.org/Templates/Page.asp?intItemID=4281&lang=1
Su Kahumbu: Identify a market before going organic. TOF No. 52 September 2009
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