

TRAINING WORKSHOP ON ORGANIC AGRICULTURE

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Main objectives of the course

1. Understand organic agriculture production practices, principles and benefits
2. Understand organic standards, inspection and certification
3. Understand market requirements and market approach to organic production

Main modules/ themes

- Introduction to organic agriculture
- Soil sampling and testing
- Soil fertility management
- Soil and water conservation
- Small -scale irrigation
- Organic crop production

- Organic certification
- Organic agribusiness

YOUR EXPECTATIONS FOR THE COURSE????????????

INTRODUCTION TO ORGANIC AGRICULTURE

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Outline

- Objectives
- Definition
- Organic production system is designed
- Principles of organic agriculture
- Contribute of organic agriculture to the enhancement of sustainability
- Questions for discussion
- References

Objectives

Understand the concepts of organic agriculture, how an organic production is designed, principles of organic agriculture, the process of conversion from a conventional to an organic system

Definition

Organic agriculture is an integrated production management system which promotes and enhances

Agro-ecosystem health, including biodiversity, biological cycles and soil biological activity (FAO/WHO

Codex Alimentarius Commission, 2007). It emphasizes the use of natural inputs (i.e. mineral and

products derived from

plants) and the renunciation of synthetic fertilizers and pesticides.

Organic agriculture follows the principles and logic of a living organism, in whi

organic production system is designed

- Enhance biological diversity within the whole system;
- Increase soil biological activity;
- Maintain long term soil fertility;
- Recycle wastes of plant and animal origin in order to return nutrients to the soil, thus minimizing the use of non-renewable resources;
- Rely on renewable resources in locally organized agricultural systems;

- Promote the healthy use of soil, water and air as well as minimize all forms of pollution that may result from agricultural practices;
- Promote the careful processing methods agricultural products in order to maintain the organic integrity and vital qualities of the product at all stages;
- Become established on any existing farm through a period of conversion, the appropriate length of which is determined by site specific factors such as the history of the land, and type of crops and livestock to be produced

Principles of organic agriculture

Principle of health: the role of organic agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In view of this, it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

Principle of ecology : organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustaining them. Organic management must be adapted to local conditions, ecology, culture and scale. The reduction of inputs by reuse, recycle and the efficient management of materials and energy will contribute to improve environmental quality and will conserve resources.

Principle of fairness: This principle emphasizes that those involved in organic agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all Parties –farmers, workers, processors, distributors, traders and consumers. It also insists that animals should be provided with the conditions and opportunities of life according with their physiology, natural behaviour and well-being. Natural and environmental resources that are used for production and consumption should be managed in a socially and ecologically Fair way and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs

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Principle of Care : This principle states that precaution and responsibility are the key concerns in management, development and technology choices in organic agriculture. Science is necessary to ensure that organic agriculture is healthy, safe and ecologically sound. However, it must consider valid solutions from practical experiences, accumulated traditional and indigenous knowledge and prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering

Contribute to the enhancement of sustainability

Ecologically sustainable:

Improving soil structure and fertility through the use of crop rotations, organic manure, mulches and the use of fodder legumes for adding nitrogen to the soil fertility cycle.

- Prevention of soil erosion and compaction by protecting the soil planting mixed and relay crops.
- Promotion of biological diversity through the use of natural pest controls (e.g. biological control, plants with pest control properties) rather than synthetic pesticides which, when misused, are known to kill beneficial organisms (e.g. natural parasites of pests, bees, earthworms), cause pest resistance, and often pollute water and land.

- Performing crop rotations , which encourage a diversity of food crops , fodder and under-utilized plants; this, in addition to improving overall farm production and fertility, may assist the on -farm conservation of plant genetic resources
- Recycling the nutrients by using crop residues (straws, stovers and other non-edible parts) either directly as compost and mulch or through livestock as farmyard manure.
- Using renewable energies, by integration of livestock, tree crops and on farm forestry into the system . This adds income through organic meat, eggs and dairy products, as well as draught animal power. Tree crops and on-farm forestry integrated into the system provide food, income, fuel and wood.

Social sustainability

- Organic agriculture contributes to the social well-being by reducing the losses of arable soil, water contamination, biodiversity erosion, GHG emissions, food losses , and pesticide poisoning.
- Organic agriculture is based on traditional knowledge and culture. Its farming methods evolve to match local environments, responding to unique biophysical and socio economics constraints and opportunities.
- Organic agriculture stresses diversification and adaptive management to increase farm productivity, decrease vulnerability to weather vagaries, and consequently improves food security, either with the food the farmers produce or the income from the products they sell.

Economic sustainability

- By using local resources better, organic agriculture facilitates Smallholders' access to markets and thus income generation; and relocalizes food production in market -marginalized areas.
- Operating costs (seeds, rent, repairs and labor) in organic agriculture are significantly lower than conventional production,
- lower input costs on synthetic inputs, lower irrigation costs, and labor cash costs that include both family labor and hired workers.

QUESTIONS FOR DISCUSSION

Ask the participants: How would you define „Organic Agriculture“? Note down the suggestions in keywords on a board, discuss. Come back to the notes in the end of the session and check whether the participant's understanding has changed.

Alternatively, you can put some possible definitions on the board and let the participants give their preference and comments one by one. For this, each participant gets two stickers (pens will also do), a green one and a red one, which he or she can stick to the definitions. Green shows agreement with the selected definition, red disagreement. While placing their stickers, participants shall explain their choice. Conclude by rating the definitions according to the result of the evaluation.

QUESTION FOR DISCUSSION

- . Discussion: Organic farm ecosystems

Discuss with the participants which of the principles of natural ecosystems they can identify in traditional or organic farm ecosystems of the area. What is their significance for the farmer? Which elements could be included in order to improve the farms?

QUESTION FOR DISCUSSION

Brain storming: What do you expect from organic agriculture?

Ask the participants: „Why are you interested in Organic Farming? What do you expect from organic farming?“

Draw a triangle on the board with the three dimensions of sustainability: ecological aims, economical aims and social aims. Distribute cards and pens to the participants and ask them to write their personal aims and expectations regarding organic agriculture on cards (one aim per card) and pin them on the board. You can also use this exercise as an ice-breaker: divide the participants in groups, supply each group with cards of a particular colour and make a competition among them as to which group manages to name most aims. Conclude the exercise by commenting and discussing the result. Use transparency 2.1.1b in the next section.

QUESTION FOR DISCUSSION

Discussion: Practical relevance of the principles

Discuss the cited principles one by one. Ask the participants whether they agree with each principle and whether they make sense in local conditions.

What needs to be done to achieve the principles in local organic farms?

QUESTIONS FOR DISCUSSION

1. An attempt to distinguish between some commonly used terms of agricultural systems.

2. Discussion: Is organic farming sustainable?

Discuss the provoking questions with the participants in the plenum. Which organic farms do they know or did they hear from? What is their opinion on whether these are sustainable or not? What must be changed to achieve sustainability.

If possible, you can prepare some brief case studies of different organic farms in the region or elsewhere.

QUESTION FOR DISCUSSION

Group work: How organic are traditional systems?

Ask the participants which traditional farming systems are found in their region. Identify 3–4 systems and let the participants join in groups on the basis of the system they feel most familiar with.

Each group shall describe their traditional farming system in a few keywords. With the help of the checklist in Annex 8.1, each group shall discuss which of the principles and minimum requirements of organic agriculture are met in their traditional system and which are not. Which are the problems the traditional systems facing? Can the system be called „sustainable“ from an ecological, economical and social point of view? Each group shall present their findings to the plenum.

QUESTION FOR DISCUSSION

Group work: A time line

Analyse the history of the agricultural development of the region. Form groups of participants belonging to one geographical area. Draw a time line on paper charts, e.g. of the last 50 years (mark: 1950's, 1960's, 1970's etc.). Discuss and note down the development in agriculture in the specific region. Consider environmental, economical and social aspects. The following questions may help:

- What was the traditional agricultural system?
- Which were the first „modern“ technologies? How were they introduced?
- How did the farmers initially react? Did they adopt the new methods?
- What were the experiences of the farmers? Which success stories happened?
- What problems appeared? How were they dealt with?
- What is the present situation in agriculture? Where to go now?

If time allows, (elderly) farmers of the region can be invited and interviewed

QUESTIONS FOR DISCUSSION

1. Statistics on national organic production

Is there any statistics available on organic production in your country?

If

not, discuss with the participants the following questions:

- Can you estimate how many farmers are engaged in organic farming in the country? Which areas are covered? Which are the main crops?
- How could information on organic production be made available?

Who could (should) collect the necessary data?

2. Share with the participants whether there is a regional or national group

of IFOAM in your country, what their activities are, how to join them etc.

References

- FAO 2015. Training manual on organic agriculture. Edited by Nadi scialabba, Ika Gomez and Isa Thivat
- FOAM. 2003. Training Manual for Organic Agriculture in the Tropics. Edited by Frank Eyhorn, Marlene Heeb, Gilles Weidmann, p 24 -46, <http://www.ifoam.bio/>
- FAO. 1999. Organic Agriculture. Fifteen Session of the Committee on Agriculture. Retrieved from: <http://www.fao.org/docrep/meeting/x0075e.htm>
- [FAO and WHO. 2007.](http://www.fao.org/docrep/meeting/x0075e.htm) Codex Alimentarius: organically produced food. 3rd edition. Retrieved from: <http://www.codexalimentarius.org/standards/thematic-compilations/en/>

CONVERSION TO ORGANIC AGRICULTURE

Conversion to organic agriculture describes the process of learning and implementation of changes on the farm towards a more sustainable and natural way of farming. The form the process takes depends on the local circumstances and the predisposition of the farmer or the community, and it varies from farm to farm.

Factors to be considered during conversion to organic agriculture

1. Analysis of the location

The conversion from a conventional to an organic system requires a transitory period, where the organic practices are applied progressively following an organized plan. During this period it is important to analyse carefully the actual situation of the farm and identify the actions to be taken (Florez,2003).

The analysis of the farm must include:

1. Farm characteristics: size, plots and crops distribution, which kind of crops, trees, animals are integrated in the farm system.
2. Soil Analysis: an evaluation of the soil structure, nutrient levels, organic matter content, erosion level, and/or the soil have been contaminated.
3. Climate: rainfall distribution and quantity, temperatures, frost risks, humidity.
4. Organic matter sources and management (manures).
5. Presence of animal housing systems and/or machinery.
6. Limiting factors such as capital, labour, market access, among others.

1.Farms with high external input use

Conversion process can be achieved, if the following practices are implemented:

- Diversify the farming system: Select appropriate annual crops for the area and rotate them in a planned sequence. Include legume crops such as beans or leguminous feed crops in the rotation to provide nitrogen to the subsequent crops. Plant hedges and flower strips to encourage natural enemies and to control pests.
- Start recycling valuable farm by -products. Establish on -farm compost production based on harvest residues and manure, if available, and mix the compost with the topsoil. This will bring stable organic matter into the soil and improve its structure and its capacity to feed the plants and store water. Green manures can provide plenty of plant material to feed soil organisms and build up soil fertility

- Introduce farm animals into the system . Farm animals provide valuable manure and diversify farm income through additional animal products.
- Grow cover crops . Cover crops or lay out mulches in perennial crops provide protection to the soil.

2. Farm with low external input use

Some practices for conversion in this system are-:

- Implement planned crop rotation and intercropping systems. A combination of annual and perennial crops including leguminous green manure cover crops is needed. Combined with properly selected or improved crop varieties with good resistance to plant pests and diseases, will facilitate the crop and soil management

- Proper integration of animals into the farming system, as well as planting rows of nitrogen fixing trees between annual crops will improve the growing conditions for the crops and encourage better growth, while providing additional feed for the ruminant animals. Better housing is also needed to facilitate collection of animal manure for field use.
- Improving the fertility of the soils, for example, through the application of high quality compost. Compost is a highly valuable fertilizer in organic farming. Instead of burning the crop residues after harvest, collect them for compost production, or work them into the soil. The animal manures and plant materials should be regularly collected for compost making.

- Growing nitrogen fixing legumes between annual crops is another possibility to feed the soil and the crops.
- Additional measures to control soil erosion such as digging trenches and planting trees along the hillside, and covering the soil with living or dead plant material should be implemented

3. Mixed farm

Recommendations for organic conversion:

- Implement organic practices to manage the soil and to control weeds instead of using herbicides. For example, in fruit orchards grow a leguminous cover crop to cover the soil. Or in vegetables and arable crops implement a planned crop rotation that includes weed suppressing green manure or feed crops.
- Further improve recycling of farm own nutrients from animals and crop residues to make best uses of them, for example by mixing them with crop residues for making compost. Improve storage of animal manures to avoid nutrient losses.

- Use seeds without pesticide -treatments, if available. Make sure to use healthy seeds only and get familiar with non-chemical ways of treating seeds.
- Get familiar with approaches and methods of natural pest and disease control.
- Learn about beneficial insects and observe population dynamics of pests through regular monitoring during crop growth.
- Further diversify the farming system to increase productivity of the land and provide habitats for beneficial insects and spiders.

QUESTIONS FOR DISCUSION

Group work: Obstacles in the conversion process

Divide the participants into three to four groups. Each group shall deal with a specific type of farm (pasture farm, 2. livestock and cereal crop farm, 3. vegetable farm and/or orchard, 4. plantation). The groups shall discuss and note down the difficulties their type of farm may encounter during the conversion to organic agriculture. For each problem, possible solutions shall be indicated. After finishing, each group presents its findings to the plenum.

QUESTION FOR DISCUSSION

Field excursion: Conversion planning

Organize a field trip for the participants to a farm, which is under consideration for conversion to organic farming. If possible, arrange the participants into groups of 4-5 persons and send them to different farms. The participants shall discuss with the farmer and farm family about a possible conversion to organic farming, what aims they have, what problems might come up etc. For this, they shall go through the topics of the farm analysis checklist and note down the main points. In a second step, a simple conversion plan with the main adaptations shall be developed, with the cooperation of the farmers. After returning to the classroom, let the groups present their results and observations. Following their field exposure the participants may suggest that the farmer and his farm family be open to the possible adaptations of the checklist and conversion plan. The exercise may well show that not all the factors have the same importance on each of the farms visited.

References

- FAO 2015. Training manual on organic agriculture. Edited by Nadi scialabba, Ika Gomez and Isa Thivat
- FiBL (2011): African Organic Agriculture Training Manual–Conversion. Version 1.0 June 2011. Edited by Gilles Weidmann and Lukas Kilcher. Research Institute of Organic Agriculture FiBL, Frick
- IFOAM. 2003. Training Manual for Organic Agriculture in the Tropics. Edited by Frank Eyhorn, Marlene Heeb, Gilles Weidmann, p 214, 219-224, <http://www.ifoam.bio/>

Step by step conversion to organic agriculture

Step 1: collect information on appropriate organic farming practices.

- How to improve soil fertility.
- How to keep crops healthy.
- How to best increase diversity in the farm.
- How to keep livestock healthy.
- How to give value to organic products and how to successfully sell them.

2. Getting familiar with organic practices

- Mulching
- Intercropping
- Compositing
- Green manuring
- Organic pest management
- Appropriate seed and planting material
- Planting of leguminous trees
- Growing farm-own animal feeds
- Terraces
- Choosing crops that can easily be integrated into the existing farming system and will contribute to its improvement.

Step 3: Full conversion to organic practices (organic farmer)

- Improving soil fertility based on the recycling of farm own organic materials and enhancement of farm own biomass production.
- Encouraging positive interactions between all parts of the production system (the farm ecosystem) to enhance self-regulation of pests and diseases.
- Optimizing the balance between feed production and livestock
- Mitigating contamination risks (pesticides & GMOs)

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Questions for discussion

1. What are the steps involved in converting to organic farming?

References

- FAO 2015. Training manual on organic agriculture. Edited by Nadi scialabba, Ika Gomez and Isa Thivat
- FiBL (2011): African Organic Agriculture Training Manual – Conversion. Version 1.0 June 2011. Edited by Gilles Weidmann and Lukas Kilcher. Research Institute of Organic Agriculture FiBL, Frick
- IFOAM. 2003. Training Manual for Organic Agriculture in the Tropics. Edited by Frank Eyhorn, Marlene Heeb, Gilles Weidmann, p 210-224, <http://www.ifoam.bio/>

THANK YOU