Shift from Conventional to Organic Agriculture

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Sifting from conventional farming to organic farming is a step-by-step procedure and consist of commonly three steps. In a first step, collecting information on appropriate organic farming practices. In a second step, practices should be tried out on selected plots or fields for validation. In a third step, only organic procedures should be implemented in the entire farm.

Step I: Gather Information First

Successful organic farming requires considerable knowledge on the functioning and the possibilities of management of natural processes. Farmers who are interested in adopting organic farming practices are recommended to get in contact with farmers in the area, who already successfully practice organic farming to learn from them. Some farmers may be good at making compost, some at growing green manures. Learning from experienced farmers allows to get first-hand experience under local conditions, and thus to learn about the advantages and major challenges related to implementing organic methods.

Information may gather from difference sources like: Radio, Internet, videos from Youtubes, Book and booklets Training, Group discussion etc.

Basically, farmers who are interested in converting their farm to organic farm need to know:

- 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.

Step 2: Getting Familiar with organic practices

Data collected for information about the requirements, the potentials and the main practices related to conversion, farmers should start to learn from their own experience on their own farms. To minimize risks of crop failure and losses of animals, and avoid frustrating overload, farmers are recommended to implement organic practices step-bystep to a limited extent, selecting specific practices at a time and testing them on selected plots. But which practices should one choose to start with? As would seem natural, farmers should start by applying practices that are of low risk and investment, require little specific knowledge, limited additional labour, and with high short-term impact. The practices may like to:

- Mulching Covering the soil with dead plant material is an easy way to control weeds and protect the soil in annual crops. This practice can be implemented into most existing cropping systems. The main question may be, however, where to get appropriate plant material from.
- ➤ Intercropping Growing two annual crops together, commonly a leguminous crop like beans¬ or a green manure crop in alternating rows with maize or another cereal crop or vegetable is a common practice in organic farming to diversify production and maximize benefits from the land. In intercropping, special attention must be paid to avoid competition between the crops for light, nutrients and water. This requires knowledge on arrangements, which promote growth of at least one of the crops.
- Composting Application of compost to the fields can have a major impact on crop growth and¬ yields. To start compost production, farmers will need enough plant materials and animal manures, if such are available. In case such materials are scarce, farmers would first have to start producing plant materials on the farm by sowing fast growing leguminous



plants that build a lot of biomass, and by introducing some livestock on the farm for manure production, if this proves appropriate. To get familiar with the process of making compost, farmers should be instructed by an experienced person. Proper compost production requires some knowledge and experience and additional labor, but is low in investments.

- ➤ Green manuring The practice of growing a leguminous plant species for biomass production and incorporation into the soil may be new to most farmers. Nevertheless, this practice can greatly contribute to improvement of soil fertility. Green manures can be grown as improved fallows, as seasonal green manures in rotation with other crops, or in strips between crops. Proper green manuring first requires information on appropriate species.
- > Organic pest management – Careful associations and management of plants and animals in \neg order to prevent pest and disease outbreaks. Initially, bio-control agents may be applied but organic pest management is best achieved through ecological approaches that establish a pest/predator balance. While the choice of resistant varieties of crops is paramount, other prevention methods include: choosing sowing times that prevent pest outbreaks; improving soil health to resist soil pathogens; rotating crops; encouraging natural biological agents for control of disease, insects and weeds; using physical barriers for protection from insects, birds and animals; modifying habitat to encourage pollinators and natural enemies; and trapping pests in pheromone attractants.
- Appropriate seeds and planting material -Use of healthy seeds and planting materials, and¬ robust and/or improved cultivars can make a big change in crop production. This practice may require some information on

selection of seeds and planting materials including availability of improved varieties and seed treatments. Generally, locallyadapted seeds are preferred because of their resilience to local conditions.

- Planting of leguminous trees In perennial crop plantations such as banana, coffee or cocoa, planting of leguminous trees such as gliricidia, calliandra, and sesbania may improve the growing conditions of the fruit crop by providing shade, mulching material and nitrogen through nitrogen fixation. In addition, some leguminous trees provide good fodder for livestock. This practice requires some knowledge on shade and space requirements of the tree crops and thus on ideal planting patterns for the leguminous trees.
- Growing farm-own animal feeds To improve available feeds for the livestock, farmers may¬ grow grasses and leguminous fodder crops around, between other crops or in rotation. As animal feed must be of organic origin, feed sources are best addressed by considering farm grown feed.
- Terraces and soil bunds Construction of terraces and soil bunds along the curves of hills is a key measure for soil conservation. This practice builds the foundation of further improvement to soil fertility on slopes. It is of high relevance, but requires much labor and some specific knowledge for appropriate implementation.

Selection of Crop to Grow During Shift

Crops that can easily be integrated into the prevailing cropping system and will depends on the farmer's knowledge on the right management of the crops. It also fit for family diet or their demand in the market. Farmers must convince about growing crops cereals, leguminous or oilseeds, Planting trees for shade, as windbreak, for firewood, feed, mulching



material or for other uses, can be recommended in most situations.

Criteria for crop selection during Shift

- a) Selection should be based on farmers requirement like food for their family or want to grow crops for the market to get money or grow crops that contribute to improvement of soil fertility or for livestock need to grow pasture grass and legumes.
- b) Cereals (Paddy, Wheat, maize, sorghum, millet) and legumes (beans and peas) are especially suitable for conversion, since they cost little to produce and have moderate nutrient demands and are tolerant against pests and diseases. High-value short term crops like vegetables, are more delicate to grow and highly susceptible to pest and disease.
- c) Choosing the right crop to sell on the market may require some market information. Decision making for crops for local or export markets requires detailed information from traders or exporters on the crops, requested varieties, quantities, qualities, regularity and season.
- d) High-value perennial crops such as fruit trees take at least 3 years until the first harvest from the date of planting. This makes them appropriate crops for the conversion period.
- e) The success of a crop will also depend on provision of favorable growing conditions. The better a crop variety matches local soil and climate conditions, and is tolerant or resistant to common pests and diseases, the better it will grow.
- f) Growing leguminous green manures provides nutrients to the soil and in the long-term, they make the soil fertile and productive for the future crops.

Step 3: Full Conversion to Organic farming

After gaining sufficient experience with different practices of organic farming it should be

implemented throughout the entire farm, and called as an organic farmer. Consistent application of organic practices marks the beginning of a long process of improving the production system:

1. Improving soil fertility based on the recycling of farm own organic materials and enhancement of farm own biomass production.

2. Encouraging positive interactions between all parts of the production system (the farm ecosystem) to enhance self-regulation of pests and diseases.

3. Optimizing the balance between feed production and livestock.

Mitigating Contamination Risk

- a) **Pesticides**: Organic farmers are responsible to protect the organic fields from being sprayed with synthetic pesticides. To avoid pesticide drift from neighbouring fields onto the crops, organic farmers should safeguard the organic fields by using any of the following measures:
- Planting of natural hedges on the boundary to neighbouring fields can avoid the risk of pesticide spray drift through wind or run-off water. The wider the border area around the fields, the better.
- To avoid runoff from upstream fields, organic farmers should divert the water away or talk to the farmers upstream about how to work together to minimize the risk of contamination through water.
- Organic farmers, who are interested in saving nature, should share their knowledge and experiences with neighbours with the aim of helping them to either adopt organic farming practices or to minimize the risk of contaminating nature.

b) Genetically Modified Organisms (GMO)

• Genetically modified products should, therefore, not be used in organic farming, and organic farmers should protect their



production against any GMO contamination.

• Besides the genetic contamination, there is also a risk of physical contamination caused by GMO residues along the production and market chain, if GMO and organic products are not properly separated during storage and transportation. Recommendations to farmers for reducing the GMO contamination risk:

- 1. Use organic seed.
- 2. Put buffer zone.
- 3. Avoid planting the same crop as your neighbor, if they grow potentially GMO crops
- 4. Practice a wide crop rotation.

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