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Organic Farming: A Vision Towards Healthy Nation

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Abstract

Organic farming system in India is not new and is being followed from ancient time. Organic farming is a method of farming system which primarily aimed at cultivating the land and raising crops in a natural way. It aims to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (biofertilizers) to release nutrients to crops for increased sustainable production in an eco-friendly pollution free environment. As per the definition of the USDA study team on organic farming "organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection.

India has great potential to grow crops organically and can be a major supplier of organic products in the world. Only 30% of area in India is cultivated with fertilizers where irrigation facilities are available. Farmers use organic manure as a nutrient for their own farms. North- Eastern region of India provides huge resource for organic farming due to low use of chemicals. About 18 million hectares of land is available in the North Eastern region of India where people do organic farming

Components of organic farming

- Maintaining genetic diversity
- Managing soil health
- Selection of variety
- Nutrient management
- Water management
- Weed management
- Pest and Disease management

Organic Farming Practices

The organic agriculture concept requires strict compliance with established standards that define and restrict applicable techniques. The common and approved ones include the following.

Crop Rotation

Crop rotation means changing species on the same field season by season. This agriculture technique may also include a fallow period within a certain interval of time.

Compared to monoculture farming practices, crop rotation:

- Eradicates pest and weed infestations and chemical contaminations to tackle the issues (since different species suffer from different pests);
- Prevents soil erosion with different root systems;
- Protects soil from depletion as diverse plants boost nutrient release, thus eliminating synthetic fertilizer applications that are disapproved in organic agriculture;
- Boost yields and reduces costs.

Cover Cropping

This farming approach implies covering the field with any plant species, either for a certain season or perennially, partially between the crop rows or completely. Cover crops tackle soil erosion, improve water filtration and aeration with their roots. They also eliminate weeding with upper parts, by hiding unwanted vegetation from the sunlight.

Green Manures

It refers to dying plants that are uprooted and stuffed into the soil to make them act as nutrient for the soil to increase its quality. Green undecomposed material used as manure is known as green manure. It also increases moisture levels and adds nutrients for microorganisms, thus improving the soil quality. Combined application of green manures, crop residues and compost along with liquid manures such as panchagavya, beejamruta, jeevamruta and vermiwash etc., release nutrients as per the need of crop to sustain higher productivity.

Animal Manures

This organic farming practice enriches the soil with natural components that originated from animals, either raw or composted (excluding slaughter by-products). The method has restrictions though, as the material must not contain any synthetic additives, the soil must be tested before applications, and manures are allowed at least three months prior to harvesting.

Composted forms are preferable since they are more compact in volume and contain fewer potential pathogens and contaminants.

Integrated Weed Management

Heavy chemicals are prohibited in organic farming. Weed control is performed through integrated weed management (prevention, biological, physical, and cultural):

- Avoiding weed penetration onto the field with machinery, animals, irrigation waters;

- Annual weeding;
- Crop rotation;
- Mulching;
- Natural chemicals to stop germination;
- Haymaking before weed seeding;
- Introducing populations of birds/insects to consume weed seeds, etc.

Integrated Pest Management

To combat pests, organic farming does not intend to destroy them completely as it will cause ecosystem changes. This concept of agriculture strongly relies on the alternative methods of pest control: prevention, constructing natural barriers, physical removal, and tackling pest invasions with their biological enemies (predators) like ladybugs vs aphids.

As to synthetic additives, the concept allows only mild pesticides approved for organic farming and minimum harm to humans and nature. Such additives include soap, hydrogen peroxide, baking soda, sulfur, or natural pest repellents like neem, citronella, lavender oil, among others.

Soil Management

Organic farming uses a variety of methods to improves soil fertility, including crop rotation, reduced tillage, cover cropping and application of compost. It focuses on the use of bacteria that is present in animal waste that helps in making the soil to use nutrients productive to enhance the soil fertility.

Livestock Management

The organic agriculture guidelines exclude dangerous and dubious additives to breed poultry and cattle like synthetic medications, growth-boosting drugs and hormones, antibiotics, non-organic forage, GMOs, clones, etc. Farming practices must provide proper conditions for raising and grazing, and create a suitable environment to ensure livestock natural behavior indoors and outdoors.

Principles of organic farming

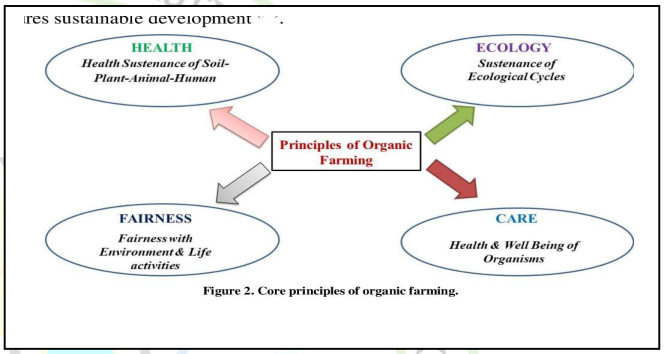

Figure 2. Core principles of organic farming.

Advantages of organic farming

- Farmers can reduce their production costs because they do not need to buy expensive chemicals.
- In the long term, organic farms save energy and protect the fewer residues in food.
- Organic farming practices not only benefit dairies as well as when dairies feed their cows organic feed, the cows experience better health.
- More animals and plants can live in the same place in a natural way.
- Pollution of ground water is stopped.
- Inexpensive process.
- It uses organic inputs.
- Generates income.
- Generates income through exports.
- Source of employment.

- Organic farming is more labour intensive. Hence, it generates more employment.

Disadvantages of organic farming

- Less output.
- Higher price.
- The lack of awareness.
- Organic products generally demand a higher price due to a higher demand.
- Shorter shelf life. Because, organic products have a shorter shelf life due to the absence of artificial preservatives.

Conclusion

India has 30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares. India needs to bring more area under Organic farming in the future, with better incentives to the cultivators. Organic farming has the bright prospect in the future with advantages of soil and biodiversity preservation, environment conservation and healthy citizens. India needs the introduction of structural changes through policy interventions and technological deployment in organic farming and make it resilient, sustainable and profitable.

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