

Challenges of Organic Farming and Its Environmental Effects in India – An Overview

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Abstract

Organic farming is preferred as it battles pests and weeds in a non-toxic manner, involves less input costs for cultivation and preserves the ecological balance while promoting biological diversity and protection of the environment. Organic farming methods combine scientific knowledge and modern technology with traditional farming practices based on thousands of years of agriculture. In general, organic methods rely on naturally occurring biological processes, which often take place over extended periods of time, and a holistic approach. Crop diversity is a distinctive characteristic of organic farming. Organic food market is one of the fastest growing businesses in India with increase in demand due to the perceived advantage of such food.

Introduction

Organic farming system in India is not new and is being followed from ancient time. It is a method of farming system which primarily aimed at cultivating the land and raising crops in such a way, as 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.

With the increase in population our compulsion would be not only to stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the 'Green Revolution' with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

Organic Farming

Organic farming is a technique, which involves cultivation of plants and rearing of animals in natural ways. This process involves the use of biological materials, avoiding synthetic substances to maintain soil fertility and ecological balance thereby minimizing pollution and wastage. It relies on ecologically balanced agricultural principles like crop rotation, green manure, organic waste, biological pest control, mineral and rock additives. Organic farming makes use of pesticides and fertilizers if they are considered natural and avoids the use of various petrochemical fertilizers and pesticides.

The Key Challenges of Organic Farming Include:

- Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention
- Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms
- Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures
- Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention
- The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioural needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

Key features of Organic Farming

- Protecting soil quality using organic material and encouraging biological activity
- Indirect provision of crop nutrients using soil microorganisms
- Nitrogen fixation in soils using legumes
- Weed and pest control based on methods like crop rotation, biological diversity, natural predators, organic manures and suitable chemical, thermal and biological intervention
- Rearing of livestock, taking care of housing, nutrition, health, rearing and breeding
- Care for the larger environment and conservation of natural habitats and wild life

Four Principles of Organic Farming

- **Principle of Health:** Organic agriculture must contribute to the health and well being of soil, plants, animals, humans and the earth. It is the sustenance of mental, physical, ecological and social well being. For instance, it provides pollution and chemical free, nutritious food items for humans.
- **Principle of Fairness:** Fairness is evident in maintaining equity and justice of the shared planet both among humans and other living beings. Organic farming provides good quality of life and helps in reducing poverty. Natural resources must be judiciously used and preserved for future generations.
- **Principle of Ecological Balance:** Organic farming must be modeled on living ecological systems. Organic farming methods must fit the ecological balances and cycles in nature.
- **Principle of Care:** Organic agriculture should be practiced in a careful and responsible manner to benefit the present and future generations and the environment.

Benefits of Organically Agricultural Produce

- **Better Nutrition:** As compared to a longer time conventionally grown food, organic food is much richer in nutrients. Nutritional value of a food item is determined by its mineral and vitamin content. Organic farming enhances the nutrients of the soil which is passed on to the plants and animals.
- **Free of poison:** Organic farming does not make use of poisonous chemicals, pesticides and weedicides. Studies reveal that a large section of the population fed on toxic substances used in conventional agriculture have fallen prey to diseases like cancer. As organic farming avoids these toxins, it reduces the sickness and diseases due to them.
- **Enhanced Taste:** The quality of food is also determined by its taste. Organic food often tastes better than other food. The sugar content in organically grown fruits and vegetables provides them with extra taste. The quality of fruits and vegetables can be measured using Brix analysis.
- **Longer shelf-life:** Organic plants have greater metabolic and structural integrity in their cellular structure than conventional crops. This enables storage of organic food for a longer time.

The Need of Organic Farming in India

India is one of the agricultural based Nations with more than 58% of the population out of 1150 million, pertaining to agricultural sector. Before 1960, in India only organic farming practice was followed without chemical fertilizers and pesticides. During late 1960s, there was threatening to food security due to population raise and frequent draughts. Government of India had entered collaboration with USA for reforming farming practices by adding chemical products for cultivation, diseases and weed management. There was increase in production and productivity in chemical or conventional farming and our country was able to satisfy partly the food security. After 30-40 years, production and productivity reduced drastically with abnormal input costs and the farming sector turned to be unfavourable occupation to all concerned. Soil degradation, more diseases, uncontrollable weeds, high water consumption, unfavourable price and with several natural and manmade issues, conventional farming turned to be unworthy for farmers. The recent decade has seen a serious concern over the issue of environmental degradation and an urgent need for its sustainability has been raised. Consequently, attempts have been made by many institutions, both public as well as private, to promote sustainable growth especially in regards to the ecology.

Conclusion

However, in India, there have been many a problems that have caused a failure of usage of organic farming. This has resulted due to failure of linkages between the farmers and markets and absence of financial support from the government. The only policy in this regard has been that of National Standards of Organic Production in 2000. It is concluded that OF practice, our own indigenous technology is to be reintroduced from the current 1 to 2% to the possible extent to get rid of difficulties in conventional farming. Organic farming will solve the food shortage and crisis in our country permanently and can encash heavily by exporting to needy countries of having severe food shortages.

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