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Organic Farming: Current Scenario And Way Towards Sustainable Development

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Abstract

Organic farming offers an alternative to more widespread, high input farming practices that use synthetic fertilizers, fungicides, and pesticides. It is based on the idea that the soil is a living system, so these synthetic products are largely excluded from organic farms.

The organic farming is labour intensive with higher input costs and lower yields as compared to conventional farming, yet it is in demand for its food safety. The search is to uncover whether the yield from organic farms in India is capable to ameliorates manage pests and diseases, economic feasibility, food safety, nutrient requirement, environmental sustainability, augment food quality.

The current paper concludes that the producers are facing the challenges of certification, beating income during transition, seeds and manures and marketing etc.in continuing organic farming. This paper depicts how farmers can move up in the next hierarchy i.e. "food safety" resulting from 'organic farming" if they are assured of regular incomes. Hence the organic farming is caught between vicious cycle of 'food security" and 'food safety" in a developing country like India.

Introduction

Organic farming is native to India. Organic farming is a type of production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, genetically modified organisms, and livestock food additives. To the maximum extent possible, organic farming system depends upon crop rotations, use of crop residues, animal manures, legumes, green manures, off farm organic wastes, biofertilizers, mechanical cultivation, mineral bearing rocks and aspects of biological control to maintain soil productivity and tilth to supply plant nutrients and to control insect, weeds and other pests.(**https://vikaspedia.in**)The ancient Indian farmers are known to have evolved nature friendly farming systems and practices such as mixed farming, mixed cropping and crop rotation. The first "scientific" approach to organic farming can be quoted back to the Vedas

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of the "Later Vedic Period", 1000 BC to 600 BC (**Randhawa, 1986; and Pereira, 1993**). The crux is to live in partnership with, rather than exploit, nature. Organic movement owes its origin primarily to the work of Sir Albert Howard, often referred to as the father of modern organic agriculture, who believed that a shift from nature's methods of crop production to adoption of newer methods leads to the loss of soil fertility (Howard, 1943).

Organic farming which is a holistic production management system that encourages and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity is hence important. Many studies have revealed that organic farming methods can produce even higher yields than conventional methods. Significant difference in soil health indicators such as nitrogen mineralization capacity and microbial abundance and diversity, which were higher in the organic farms can also be seen. The increased soil health in organic farms also lead to in considerably lower insect and disease incidence.

Fig1- Steps involved in organic farming synchronized(A-J)

Ref.https://www.researchgate.net/publication/344902290_Organic_Farming_Paradigm_Shift_during_Pandemic_to_'Food_Safety_Complying_'Food_Security_in_India/

Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (**IFOAM**), an international umbrella organization for organic farming organizations established in 1972.[8]

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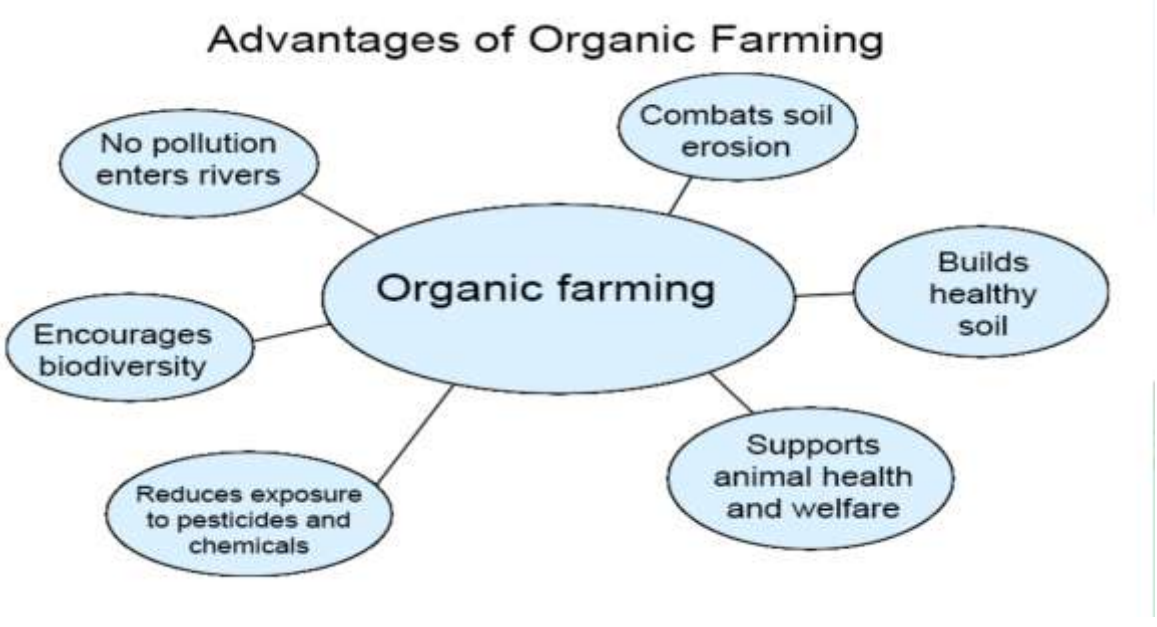
Advantages of organic farming

1. Helps to maintain environment health by dropping the level of pollution.
2. Decreases human and animal health hazards by reducing the level of residues in the product.
3. Helps in keeping agricultural production at a sustainable level.
4. Reduces the cost of agricultural production and also improves the soil health.
5. Ensures optimum utilization of natural resources for short-term benefit and helps in conserving them for future generation.
6. It not only saves energy for both animal and machine, but also reduces risk of crop failure.
7. Improves the soil physical properties such as granulation, good tilth, good aeration, easy root penetration and improves water-holding capacity and reduces erosion.
8. It improves the soil's chemical properties such as supply and retention of soil nutrients, reduces nutrient loss into water bodies and environment and promotes favourable chemical reaction



Ref.://mammothmemory.net/geography/geography-vocabulary/resource-management/organic-produce.html

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Nutrient management in organic farming

In organic farming, it is vital to constantly work to build a healthy soil that is rich in organic matter and has all the nutrients that the plants need. Numerous methods viz. green manuring, addition of manures and biofertilizers etc can be used to build up soil fertility. These organic sources not only improve different nutrients to the soil but also help to prevent weeds and enhance soil organic matter to feed soil microorganisms. Soil with high organic matter resists soil erosion, holds water better and thus needs less irrigation. Some natural minerals that are desired by the plants to grow and to improve the soil's consistency can also be added. Soil amendments like lime are supplemented to adjust the soil's pH balance. However, soil amendment and water should contain minimum heavy metals. Farmers also make compost from animal manures and mushroom compost. Before compost can be used to the fields, it is heated and aged for at least two months, reaching, and maintaining an internal temperature of 130°-140°F to kill unwanted bacteria and weed seeds. A number oforganic fertilizers / amendments and bacterial and fungal biofertilizers can be used in organic farming depending upon availability and their suitability to crop. Plant diseases are major constraints for reductions in crop yield and quality in organic and low input production systems. Proper fertility management to crops through balanced supply of macro and micronutrients and adoption of crop rotation have shown to improve the resistance of crops to certain diseases. Thus one of the biggest rewards of organic farming is healthy soil that is alive with beneficial organisms. These healthy microbes, fungi and bacteria keep the harmful bacteria and fungi that cause disease in check.

Limitations and disadvantages of Organic farming

1. Organic manure is not abundantly available and is more expensive than chemical fertilizers if organic inputs are purchased.
2. Production in organic farming drops especially during first few years, so the farmer should be given premium prices for organic produce.
3. The guidelines for organic production, processing, transportation, and certification etc are not easily understandable to ordinary Indian farmer.

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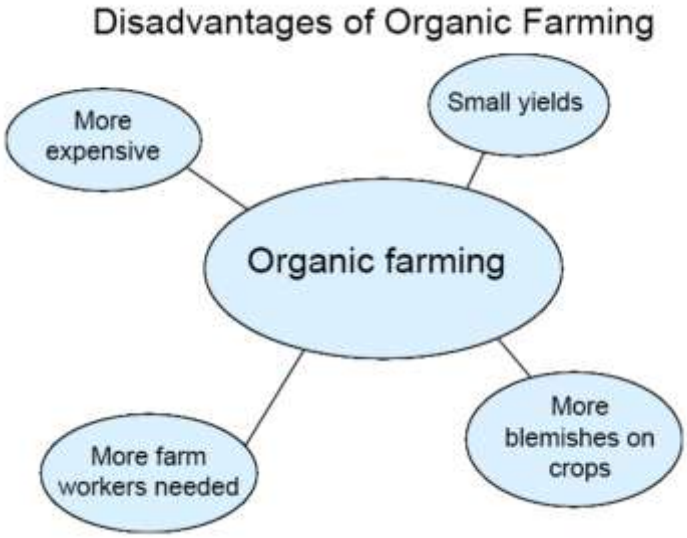
4. Marketing of organic produce is also not properly streamlined.



Ref, https://mammothmemory.net/geography/geography-vocabulary/resource-management/organic-produce.html

Way Forward

Organic farming is a knowledge intensive method and has been developed by practitioners themselves over the years. Several authors have reflected on past difficulties faced by scientists working on organic farming and the acceptance of both the research and the scientists themselves in the wider research community

- Eco-friendly and economical organic packages in various field crops,i.e. commercial crops, vegetables, spices and condiments, aromatic crops and other horticultural crops keeping in view the export standards of various countries are to be developed and popularized.
- Multidisciplinary research approach is to be stringently followed for development of organic packages
- Delineation of the potential areas or zones including hill and tribal areas for organic farming by identifying contiguous blocks of areas with little or no chemical input use and where productivity can be enhanced by using permitted inputs to enable group certification to farmers.

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- Carry out a country wide survey or incentivisation of areas in arid, semi-arid and dry sub humid regions about the level of chemical input use, productivity in selected commodities which have potential to fetch price premiums in international markets.
- Survey, documentation, and critical evaluation of indigenous technological knowledge on organic farming.
- Inter-disciplinary and location-specific research must be taken up for development of package of practices for organic farming. Organic production packages will be more locationspecific than inorganic package of practices as the input use depends largely on locally available resources.
- Identification of suitable varieties from existing pool for optimum productivity, quality, and pest resistance
- Understand the nutrient release patterns of different organic sources in combination and alone.
- Development of cost-effective technologies for on-farm organic manure production as well as large-scale production of compost from domestic, agricultural, and industrial wastes.
- Development of suitable machines, tools and machine or bullock driven devices for organic farming operations such as manure spreader, mechanical weeding machines, seed drills for multi-crop sowing and planting etc.
- Generation of acceptable scientific information on the yield, quality, economics and post-harvest aspects of various crops under different management levels and agro-climatic conditions.
- Study the role organic agriculture in mitigating the climate change and the potential of organic farming to adapt to climate change
- Developing methods which link production systems to product quality and onwards into both livestock and human health and well-being.

Conclusion

The bottom line of success in any market operation is the criteria of "return on investment"and "generating margins" and organic agriculture is no exception. For the farmers

organic farming means loss of income in initial year of transition phases, higher input costs, exorbitant and cumbersome certification costs, loss in production, limited customer base, competition from unethical business practices etc. The producers face the immediate challenges of "food security" and 'income for survival". The farmers can move up in the next hierarchy i.e. "food safety" resulting from 'organic farming" if producers are assured of regular incomes. Hence the organic farming is caught between vicious cycle of 'food security" and 'food safety" in a developing country like India.

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