



# Prospects and challenges of organic farming – a brief review

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**Abstract:** *Organic farming has gained significant attention as a sustainable and environmental friendly agricultural practice. This abstract explores the key benefits and challenges associated with organic farming, shedding light on its growing importance in addressing ecological and health concerns. Organic farming offers a range of environmental and health benefits but also comes with challenges related to lower yields and increased management demands. As society places greater importance on sustainability and food safety, addressing these challenges while optimizing the benefits of organic farming is crucial for its continued growth and success.*

**Keywords:** *organic, sustainability, ecological, environmental friendly, food safety.*

## 1. INTRODUCTION:

Organic farming is a blessing of agricultural research and findings. The main aim of organic farming is to produce high-quality healthy foods having no hazardous impact on environment. It avoids harmful chemical uses and promotes sustainable farming systems.

### Exact present situation of organic farming in India

It is true that organic farming in India is gaining a smart acceleration and growth. Let's look at the overview of the situation right now:

- **Government Support:** The Govt. of India has been actively taking initiatives to promote organic farming through implementation of various policies. The National Program for Organic Production (NPOP) was established for the very purpose of such growth and promotion of organic agriculture system. Its main role is to provide guidelines and regulations for organic certification. Besides the Paramparagat Krishi Vikas Yojana (PKVY) and the Organic Value Chain Development for the North Eastern Region (OVCDNER) were also implemented to support such environmental friendly farming practice. They aim at encouraging country farmers to adopt the beneficial organic farming methods.
- **Certification and Standards:** Setting standards and regulations are very important factor for growth of organic farming. The National Program for Organic Production (NPOP) sets the regulations and standards for organic certification in India. It follows the guidelines of the International Federation of Organic Agriculture Movements (IFOAM) and the Participatory Guarantee System for India (PGS-India). It is ensured by the certifications that specific organic produce may satisfy the required standards and is also helpful in building up consumers' credence.
- **Growth in Organic Cultivation:** It is found that organic farming system has been gaining a smart hike in India. Many farmers from different states in India such as Karnataka, Rajasthan, Maharashtra, Madhya Pradesh and Uttar Pradesh have adopted organic cultivation methods.
- **Export Potential:** We should feel proud that India already has become a cogent player in global organic market. Our country exports a vast range of organic products. Various organic vegetables, fruits, spices, tea, coffee, cereals and pulses are exported by India. Besides textiles are also included in this exportation list. European countries, the Canada, the United States are large-scale importers of Indian organic products.
- **Demand of consumer:** It's a positive point that there is a growing awareness among consumers about multiple health and environmental benefits of organic farming and organic products. The purpose of food safety and environmental management has led to an enhanced demand for organic products in domestic and international markets. Such emerging demand raises ample opportunities for Indian organic farmers too. The organic farmers may gain prolonged socio economic benefits through appropriately satisfying the demand of consumers looking for quality healthy food.



## 2. Method:

This paper is based on the knowledge and informations gained from relevant research papers and practical exposures.

## 3. ANALYSIS AND DISCUSSION:

### Challenges faced by organic farming

- **Lack of awareness and proper knowledge:** Lack of awareness and proper knowledge among farmers are mostly common challenges. There are other constraints too such as confined access to organic inputs, high cost of certification and unavailability of stable markets for organic products etc. Infrastructure and logistic development for appropriate processing, storage and transportation of organic products need proper care to be improved. Having multiple benefits, it faces multiple challenges too as follows-
- **Transition period:** There is presence of a transitional period that takes few years while the land should adhere to organic standards, but the grown farm products cannot be marked as organic. This period is really financially challenging to the farm practitioners as because they have to be stoic to the situation after monetary investment to uncertain farm outcomes for a prolonged period when they can't charge premium prices for the products from the consumers.
- **Cost and profitability:** We find higher production costs in case of organic farming compared to conventional methods of farming. Because necessary organic inputs such as organic pesticides, fertilizers are more expensive than available synthetic alternatives in market. Besides, more labor and manual weed control are required by this farming method. This is responsible for its increased operational costs. Though it deserves premium market price, but the market demand of such organic products may not be aligned with their production costs. It leads to a disappointing lower profitability of farmers.
- **Limited Productivity:** There may be lower yields in this process compared to traditional agriculture as because organic farming depends on purely natural processes and avoids synthetic farm inputs. So the lower amount productivity may become a severe challenge for organic cultivators as there is risk to become failure to meet market demands.
- **Technical expertise and knowledge:** Some factors such as pest and weed control, crop rotation and soil fertility management etc. requires proper technical knowledge and expertise for appropriate practice of organic farming. Several complex ecological interactions should be understood well by the farmers owing to produce organic products. Different alternative strategies of pest management and soil health improvement must be known to them. Though it's a hot cake nowadays, it is to be said that there is lack of access to proper skill training and resources for organic farming particularly in certain regions. It is considered as a major challenge to the farmers who wants to adopt the transition of conventional methods to pure organic methods.
- **Certification and Regulation:** Methods of organic farming include strict certification for which strict regulation standards are emphasized too. Organic farm practitioners must obey some important specific criteria too. They have to undergo some periodic inspections cum evaluations to maintain such organic certification. This is really challenging for small-scale farmers as because they face the problem of lack of resources and different administrative hurdles. This certification process is really time-taking and expensive. It is really tough for the small scale farmers to sustain with this prolonged bureaucratic process.
- **Market access and competition:** It is noticed that though the market demand for organic products has been increasing to some extent, but market access and competition remain as constraints for practicing organic farmers. Farm product distribution networks and market channels are mainly engulfed by conventional agriculture. So it is truly tough for the organic farmers to influence the consumers directly to buy their products. This becomes the main obstacle to secure fair prices for healthy and eco-friendly organic products. Such market competition with extensive conventional farm practice might be the responsible agent to curtail the profitability of organic farmers.
- **Weed and pest management:** Organic farming follows several natural non-synthetic methods of weed and pest control. In spite of availability of several organic pest management strategies, organic farm practitioners are unable to access those strategies compared to synthetic alternatives. It is really a challenging issue to this particular subject that the organic farmers have to toil hardest to understand and implement organic practice methods such as crop rotation, integrated pest management techniques (IPM) etc. to make this farming process sustained.

### Benefits of organic farming

Though it is very true that organic farming faces multiple challenges, but it is accepted and recognized by the consumers and policy makers for its enormous benefits for biodiversity conservation, environmental sustainability and



human healthcare system. Ample efforts and research practices are taken into accounts to overcome the challenges faced by organic farming. Agro-scientists have been engaged in evolutionary research process by which we may see the new dawn of enhanced beneficial technological practices necessary for intensified form of organic farming. Besides collective exertions are going on through policy supports, education too. Let's have a glance at some major advantages of organic farming:

- **Environmental sustainability:** Organic farming promotes ecological balance by prioritizing the use of natural resources in agriculture. It can scale down the environmental hazards as its focus area includes water conservation, soil health, biodiversity conservation etc. Genetically Modified Organisms (GMOs) are also avoided by this natural mode of farming along with synthetic pesticides and fertilizers. All these synthetic products may majorly harm the environmental ecosystem by causing the environmental pollution.
- **Fertility and soil health:** Organic farming includes the use of different organic matters such as manure and compost by which there would be enhancement of soil structure and fertility. We know that healthy soil can retain more water and is able to prevent soil erosion. So the enhanced health and fertility of soil through organic farming may promote prolonged sustainability. These practices take a crucial role in promotion of crop rotation and the use of different cover crops. It is really helpful in controlling of pests, nitrogen fixation and prevention of soil degradation.
- **Reduced chemical exposure:** Organic farming saves the farmers, consumers and farm workers from their exposure to risky harmful chemicals. Uses of synthetic herbicides and pesticides could be avoided by this method. So the intake of pesticide residues those are responsible for various severe health issues could be evaded.
- **Animal welfare:** Organic farming plays a crucial role in animal welfare or livestock management. Organically grown livestock have a diet free from unhealthy synthetic antibiotics and hormones. These animals graze outdoors and consume natural vegetations mainly. Organic livestock farming practices have one more benefit too i.e. it ensures that the animals are to be treated humanely and it focuses on stress reduction and promotion of natural behaviors of the animals or livestock.
- **Improved nutritional value:** Some major research studies revealed that organic crops and vegetables may have higher levels of antioxidants, important nutrients compared to conventionally grown agro products. The main reason is that it focuses on improved soil health that would lead to plant growth with enhanced nutritional profiles. People are becoming aware of food consumption that indicates the intake of natural food options. So a growing demand of organic nutrients rich food is expected.
- **Support to local economies:** Local economies could be strengthened by organic farming as this method relies on the selling of organic food products directly from producers to consumers. Besides that, this direct selling process takes part in minimization of environmental pollution too as because it totally avoids long-distance carbon disseminating transportation of food. So there would be a smart enhancement of economical status of local organic producers. They'll see the dawn of socio-economic upliftment.
- **Over long sustainability:** Organic farming has a prolonged impact on biodiversity, ecosystem and human health. So it may be said that this method has a holistic approach to agricultural sector. There is a blessing of organic farming which is bestowed on us in the form of a more balanced and resilient food system for future generations. This kind of farm practice prioritizes sustainable development by reducing dependence on non-renewable resources.

#### 4. FINDINGS:

##### Benefits of organic farming system over several challenges

It is true that though organic farming gives us so many benefits, but it has some distinct problems too. Potentially lower yields compared to higher production costs are one of the major issues. However, it is believed by many organic farm producers along with the customers that the perpetual benefits of this cultivation method would prevail these critical challenges.

##### Eco friendly role of organic farming

We know that organic farming has a miraculous role on the promotion of eco-friendly agricultural practices. Let's have a glance at some key ways of organic farming towards its contribution to environmental sustainability.

- **Soil health:** Organic farming focuses on the environment friendly usage of bio compost, cover crops and manures instead of harmful synthetic chemicals. This helps in maintenance and improvement of soil structure, fertility and essential nutrient contents of soil. Healthy soils have much more water retention capacity which facilitates the reduction of soil erosion. These soils support multifarious microbial communities. This leads to long-term sustainability.



- **Reduction in chemical use:** Organic farming protects environment from harmful pollutants. It skips the use of hazardous chemical components. So, it plays a great role in protection of different wild lives. Above all it helps in maintenance of a fair balance in ecosystem which is severely needed for a sustainable development. This farming method leads us to an era of organic practice. We learn to adopt a chemical free food habit by this method. It may save our future generations from ill effect of environmental degradation too. Prolonged sustainability could be achieved by this.
- **Conservation of biodiversity:** We may have some miraculous greater plant and animal diversity by chemical free methods of organic farming. We may get some ecologically beneficial native species and pollinators too. Biodiversity conservation helps in preservation of genetic resources. Ecological resilience could be maintained by this. It supports natural pest control methods. Chemical agents have an adverse effect on vegetation and wild life. Harmful chemical agents are mostly avoided by organic farming and beneficial birds, insects etc. get rid of the hazardous effect of chemical practice. It brings a new dawn of biodiversity conservation.
- **Water conservation:** Organic farming techniques helps a lot in conservation of water resources. Various methods such as use of cover crops, organic mulches and different efficient irrigation methods are included here. Such organic practices take part in reduction of water runoff and in improvement of infiltration. The soil structure and water retaining capacity of soil could be improved by this. All of these may minimize soil erosion and leaching of essential nutrients into water bodies.
- **Mitigation of climate change:** Different practices in organic farming systems such as agro forestry, crop rotation, use of organic amendments etc. have major contribution in carbon sequestration in the soil. Higher organic matter content of organic farms enhances carbon storage in soils. There is another important fact that reduction of energy consumption and greenhouse gas emission required by the production and application process of chemical fertilizers, pesticides could be restricted in large scale.
- **Protection of human health:** Organic farming takes a crucial part in the reduction of chemical remnants in food and water resources as because it only prioritizes the use of different natural inputs and prohibits the application of harmful synthetic hormones, antibiotics etc. It promotes healthier diets and reduces health hazards of farmers and consumers. It has the potentiality to promote a more eco-friendly sustainable approach to agriculture. It reduces chemical inputs and preserves soil health along with the health of consumers and farmers too.

### Women in organic farming

It's a good sign for women empowerment that women have been actively involved in the organic farming industry for prolonged time period. As organic farming facilitates sustainable agricultural practices, it may be said that women have indirect engagement in sustainable development through their active involvement in organic agricultural practice. Now some important contributions of women to organic farming could be discussed as follows:

- **Farm Management:** Women have been taking up the role of perfect managers in the field of organic farming. They are playing the role of decision maker. Women are ardently engaged in organizing farm activities and are taking a great part in effective management of resources.
- **Organic Certification:** Women are very active to obtain organic certification for farms. They ensure the essential consents for organic farm practices with organic standards, record-keeping and documentation.
- **Production of crops:** We know that women participate in multiple aspects of crop production such as selection of seeds, planting, weeding, harvesting, storage and processing. It's a very positive note from their end that they often adopt different sustainable techniques such as companion cropping, crop rotation, biological pest control methods etc.
- **Livestock Rearing:** Women are actively engaged in proper animal welfare. They are involved in organic livestock management and implement organic feeding practices. They are also pioneering milk processing, cheese making and production cum processing of other value-added organic products too.
- **Organic Market and Sales:** Women are taking a leading role in marketing of organic products. They are expert to establish direct connections with consumers through organic farmers' markets. They participate in community-supported agriculture (CSA) programmes. Women farm practitioners use online platforms too for marketing of organic products. Besides, women have been taking initiatives to establish organic food cooperatives. They put their heartiest effort in development of value-added products. So women are taking a smart lead to explore organic markets and extract optimum economic benefit from these.
- **Education and Training:** Women are the significant contributors to organic farming education and trainings. They organize many seminars, workshops and multiple of training programmes to educate and train the farmers





about methods and benefits of organic farming system. Farmers come to know about such sustainable practices by the active initiatives of women.

- **Advocacy and Policy:** Women are playing a leading role in advocating for several policies of organic farming. They are pioneers in promoting gender equality in agricultural sector. It supports a mass of women farmers who are dedicated to continuous farm practice but neglected or deprived to get proper rights and recognitions. It is to be mentioned that women farm practitioners have active participation in networks, organizations, rural welfare, gender development and an eco-friendly sustainable agricultural practice.
- **Women Entrepreneurship Development:** We can see multiple examples of successful organic farming women entrepreneurs who have become the real motivation to the society by establishing their own organic farming business ventures. They have immense contribution to the integrated advancement of organic sector. Their specialization in niche markets plays a catalytic role to enhance the overall growth of this sector. Their unique specialization in specialty crops, organic skincare products, organic herbs etc. are the components those are leading the prosperous expansion of organic farming.

It is true that there are efforts for promotion of gender equality in organic farming nowadays. It gives birth in creation of opportunities for women in leading role in this sector. Such efforts are made to encourage more participation and contribution of women in the field of sustainable agriculture. Because women are quite capable to manage organic farming system in such a way that may generate a large amount of socio-economic profit.

## 5. RECOMMENDATIONS:

### Ways of overcoming the challenges of organic farming

Organic farming faces a multiple of challenges compared to conventional farming. These challenges could be overcome by proper planning and their implementations. We may focus on some strategies to overcome such critical challenges faced by organic farming as follows:

- **Soil Management:**

Regular soil testing should be arranged to understand the appropriate levels of pH and nutrients. Soil must be restructured according to the evaluation report. Cover crops should be used to improve the fertility of soil and to check soil erosion. Weed control could be possible by this method too.

Crop rotation is another way to prevent pest attack and it's also useful in enhancement of soil health. So soil management must be organized carefully.

- **Pest and Disease Management:**

Biodiversity could be encouraged on the farm by providing suitable habitat for pest consuming insects and birds. Pest control would be easier by this method. Intercropping, crop rotation and companion planting may be practiced to distract the lifecycles of pests and to minimize their attack too. Different physical barriers such as netting and row covers may be applied to protect crops and vegetables from ill impacts of pests.

Various biological pest control agents, bio-insecticides, insect traps etc. should be utilized for such pest management.

- **Weed Control:**

Cultural practices such as mulching, hoeing, hand weeding could be employed to control weeds.

Use of cover crops and green manure may suppress growth of weed and restrict the competition for resources.

Few mechanical weed control methods could be used too. Flame weeding or tractor-mounted implements could be involved in this process.

- **Nutrient Management:**

Soil health could be built well through proper crop rotation, composting and addition of organic matters.

Organic fertilizers such as bio compost, manure should be applied to restore soil nutrients.

Implementation of the specific nutrient management techniques is necessary to optimize the use of fertilizer along with minimization of nutrient runoff.

- **Marketing and Economics:**

Organic farm practitioners should identify and target the specific niche markets that give value the organic products and are ready to pay for these. The marketing initiatives should focus on building up of relationships with local farmers' markets, restaurants and different Community Supported Agriculture (CSA) programmes. Participation in several organic certification programmes should be initiated to get the access of broader markets by gaining consumer trust.



- **Education and Networking:**

We must stay updated always on the latest techniques, research, regulations in organic farming practices. Attending conferences, workshops and training programmes may help to get in touch with experienced organic farmers. Local organic farming networks have to be created and the organic practitioners may join such networks to uplift the status and fame of organic agricultural practice.

### Role of organic farming in prevention of disease

It is already known to us that organic farming is accepted because of its environmental friendly sustainable approach. We may get a healthy nation by the proper practice of organic farming system. It has a great positive impact in prevention of harmful diseases as follows:

- **Reduced Chemical Exposure:** Synthetic fertilizers, pesticides, herbicides may leave their residues on crops and in the environment. Such chemicals are hazardous for human and animal health. Different health risks may arise due to presence of such chemical elements in our body system. Organic farming avoids these chemicals and protects us from unhealthy fatal chemical substances. It helps us to minimize the risk of perilous diseases.
- **Enhanced Nutrition:** A nutrient-rich diet can enhance our body immune system and protects us from risk of chronic harmful diseases. The organic crops and vegetables may provide us such pure nutrient rich meal as these contain higher amounts of antioxidants and essential nutrients. So the main focus of organic farming i.e. maintenance of soil health through various natural methods such as crop rotation, biological pest control and composting guides us with a proper enhanced nutrition. So this method of farming is a strong weapon in the field of community health development.
- **Antibiotic Resistance Mitigation:** Conventional farmers apply antibiotics as growth promoters and those are also used as preventer of disease outbreaks in livestock. But the consequence is that such farm practice leads to develop antibiotic resistant bacteria which are severely harmful to human health system. Uses of antibiotics are strictly prohibited in organic livestock farming. So the major risk of spread of antibiotic resistant bacterial strains could be mitigated by such organic agricultural practice.
- **Biodiversity Conservation:** Organic farming promotes crop diversity, natural habitats and takes part to check the growth of genetically modified organisms (GMOs). It leads to the conservation of biodiversity. Such biodiversity conservation is majorly essential to maintain ecological balance. It has a great impact on beneficial insect populations and healthy ecosystem management. This would have an indirect impact on human health and prevention of harmful diseases.

Besides it should be mentioned that effects of organic farming on human and animal health care system is now part of ongoing scientific research. So more strong evidences are essentially required to recognize organic farming as disease preventer.

**Enhancement of Water and Soil Quality:** Soil fertility and structure are improved a lot by organic farming practices. The vigorous use of organic compost and fertilizers are the key catalyst to enhance the soil health. Its known to all that healthy soils promote healthier plant growth as because the soils are able to retain water more efficiently. This helps to check soil erosion. Organic farming is the method of practice which minimizes the leaching of harmful synthetic elements i.e. chemical fertilizers and pesticides into water resources. So it's a protector of water quality and takes a great part in reducing the risk of contaminated diseases.

It should be known to us that though the organic farming has major implicit benefits for disease prevention but the organic products can't prevent food borne pathogens. Those are not immune to such pathogens. So proper food handling, processing and storage must be practiced carefully likewise in case of conventionally grown foods.

### 6. CONCLUSION :

Organic farming focuses on natural or biological methods for crop cultivation and livestock rearing. The methods applied in organic farming, are ecologically balanced. This farming method has a great impact on enhancement of soil fertility and biodiversity conservation also. Organic farming is a popular and recognized useful method of farming having enormous beneficial effect on environment and health. Besides it should be mentioned that effects of organic farming on human and animal health care system is now part of ongoing scientific research. So more strong evidences are essentially required to recognize organic farming as disease preventer. It's true that a prolonged commitment is required for transitioning to organic farming from the era of conventional farming method. We should prepare ourselves



for facing of several challenges to achieve such goal in ultimate. We know that each farm is totally unique. So it's really necessary to adopt situation specific strategies required by overall condition.

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