



## Evaluating The Fundamental Concepts And Methods Of Modified Organic Farming

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### ABSTRACT

The foundational principles and methodologies of modified organic farming, offer insights into sustainable agricultural practices. Modified organic farming integrates traditional organic principles with innovative techniques to enhance productivity while maintaining environmental harmony. By examining the core principles, such as soil health optimization, biodiversity promotion, and minimal chemical usage, this research elucidates the essence of sustainable agriculture. Techniques like crop rotation, composting, and biological pest control are explored for their efficacy in bolstering crop yields and resilience. The adaptability and resilience of modified organic farming systems in diverse agricultural contexts. Ultimately, this exploration aims to contribute to the ongoing discourse on sustainable agriculture and provide practical guidance for farmers seeking to adopt or enhance their organic farming practices. Organic farming has been among the most popular concepts for more than many decades. Despite being a rapidly growing sector, certified organic agriculture occupies only less than 1 % of land and 1-2 percent of food sales in the world. Organic farming offers an alternative to more widespread, high-input farming practices that use synthetic fertilizers, fungicides, and pesticides. Organic agriculture relies on crop rotation, animal manures, crop residues, green manures, and the biological control of pests and diseases to maintain soil health and productivity. The environmental impact of organic farming is low and can be seen as a way of cleaning up and improving degraded agricultural land.

**Keywords:** Organic, farming, soil, pests and diseases, biological, techniques

### INTRODUCTION

Organic farming is a unique form of agricultural production, with its principles and rules. Another perspective is the market interpretation that sees organic agriculture as a set of market opportunities that originated changing consumer consciousness towards food safety (Kim *et al.*, 2018). On the other hand, there is a misconception and misunderstanding about what the real meaning of organic food is principle of health the principle indicates that the health of individuals and communities can't be differentiated from the ecosystem's health- healthy soils produce healthy crops which nourish the health of animals and people (Godlee & Waters, 2018). Principle of ecology this principle focuses on the ecological balance of the environment through organic agriculture. Organic management must be adapted to local permission, ecology, culture, and scale. The principle of fairness aims to produce a sufficient supply of good quality food and other products. Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Principle of care Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment. The objectives of environmental, social, and economic sustainability are the basics of organic farming. The key characteristics include protecting the long-term fertility of soils by maintaining organic matter levels, fostering soil biological activity, careful mechanical intervention, nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, effective recycling of organic materials including crop residues and livestock wastes, and weed, and diseases and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, and resistant varieties. Organic farming has advantages for both developed countries (environmental protection, biodiversity enhancement, reduced energy use, and CO<sub>2</sub> emissions) and developing countries like India (sustainable resource use, increased crop yields without over-reliance on expensive external inputs, environment, and biodiversity protection. The scope and prospects of potential organic farming in India are signified by the fact that the farm sector has abundant organic resources like livestock, crop residue, water, aquatic weeds, forest litter, urban, and rural solid wastes

and agro-industries, bio-products (Sastry, 2020). Organic farming is growing rapidly among Indian farmers and entrepreneurs, especially in low-productivity areas, rain-fed zones, hilly areas, and the northeastern states where fertilizer consumption is less than 25 kg/ha/year (Zahoor, 2018). North Eastern Region (NER) is considered home to some niche crops like Assam lemon, Joha rice, medicinal rice, and passion fruits which have high market demands and account for 45 percent of total pineapple production in India (Roy, 2018). Sikkim has become India's first fully organic state by implementing organic practices on approximately 75,000 ha of agricultural land. When evaluating the development of the organic farming movement from a historical perspective, it would be more explanatory to investigate this process into different stages. The beginning of the organic movement traced back to the early settled farming era. The period between this beginning and its efforts in realizing organic agriculture as an alternative to mainstream agricultural activities can be assumed as the first stage of the organic movement. Attempts in this stage have been reviewed into two main activity lines studies on soil fertility and activities as a reaction of industrial agriculture. The second stage has been coined as the institutionalization and commercialization period which includes the growth period of this movement in different lines.

### **CONCEPTUAL FRAMEWORK**

The basic idea of organic agriculture is to provide food with optimum nutritional value and minimum dangerous ingredients, with only permitted substances used. The principle also requires 100% natural forage for livestock and its further processing without synthetics. National Program on Organic Production (NPOP), India described organic agriculture in the following: "Organic agriculture is a system of farm design and management to create an eco-system which can achieve sustainable productivity without the use of artificial external inputs such as chemical fertilizers and pesticides." (Singh *et al.*, 2017)

### **METHODOLOGICAL APPROACHES**

Organic agriculture examples include crop rotation, where different crops are planted sequentially to enhance soil fertility, and the use of natural pest control methods, such as introducing beneficial insects, to avoid synthetic pesticides. Practices of organic farming play a vital role in a sustainable future.

### **MAJOR THEMES**

Traditionally, India is a country of organic agriculture, but unfortunately, the growth of modern scientific input-intensive agriculture has pushed it to the wall. Meanwhile, with the increasing awareness about safety and quality standards of food, the organic farming system can have long-term sustainability and also accumulate shreds of evidence of being equally productive. Organic farming emerged as an alternative system of farming that not only addresses quality and sustainability concerns but also ensures a debt-free and profitable livelihood option.

### **CONTEMPORARY RESEARCH TRENDS**

Biodynamic farming stresses biological methods regarding the humane treatment of animals, food quality, and soil health (such as green manures, cover crops, and composting). The other method is natural farming. There is no water, no pesticide, no fertilizer, and no herbicide utilization except seed sowing. It is also known as ecological farming solely established by a Japanese farmer. Another farming practice is principally 'bio-intensive,' which uses low energy input, fosters healthy soils, and conserves space while maximizing yields and increasing sustainability

### **CRITICAL ANALYSIS**

Compared with conventional agriculture, organic farming uses fewer pesticides, reduces soil erosion, decreases nitrate leaching into groundwater and surface water, and recycles animal wastes back into the farm. These benefits are counterbalanced by higher food costs for consumers and generally lower yields. Organic food is more expensive because farmers do not get as much out of their land as conventional farmers do. Production costs are higher because farmers need more workers. Marketing and distribution are inefficient because organic food is produced in smaller amounts (Rödiger & Hamm, 2019).

### **SYNTHESIS OF FINDINGS**

Compared with conventional agriculture, organic farming uses fewer pesticides, reduces soil erosion, decreases nitrate leaching into groundwater and surface water, and recycles animal wastes back into the farm. These benefits are counterbalanced by higher food costs for consumers and generally lower yields.

### **THEORETICAL IMPLICATIONS**

Theoretical implications that extend beyond the boundaries of farming practices. Ecological balance in contrast, the theoretical underpinning of organic farming embraces a holistic perspective, recognizing the intricate interconnections between soil health, biodiversity, and the broader ecosystem. Local Resilience conventional agriculture often relies on centralized production systems and global supply chains, leading to vulnerabilities in the face of environmental disruptions or Crises. Long-term sustainability goes beyond immediate concerns of crop yields and economic returns. It involves recognizing that agricultural practices should not compromise the ability of future generations to meet their needs.

## PRACTICAL APPLICATIONS

Organic farming is an important and valuable method of agriculture. By prioritizing soil health, natural processes, and human health, organic farmers can help to protect the environment, reduce our exposure to harmful chemicals, and support local economies.

## CHALLENGES AND FUTURE DIRECTIONS

The obstacles in organic farming are lower yields, difficulty maintaining soil fertility levels, gaining proper certifications, and market access. Maintaining flexible organic standards and certification processes to address issues such as nature conservation and regeneration. Equitable, affordable, and flexible access to certification services. Responsible labour relations and land tenure arrangements. Animal welfare. New inputs such as 'natural' biocides, and soil amendments. Incomplete or unscientific basis for including/excluding materials from organic standards.

## CONCLUSION

Organic farming is the best alternative to conventional farming to maintain an eco-friendly relationship with nature. The popularity of organic food is growing dramatically day by day as consumer seeks organic foods that are thought to be healthier and more nutritious. So, organic farming maintains soil health and environmental integrity thereby, promoting the health of consumers. Moreover, organic products now have the fastest-growing market all over the world including India. This involves using techniques to achieve good crop yields without harming the natural environment or the people who live and work in it and helps small-scale farmers to achieve food from their domestic production without the use of chemical fertilizers, pesticides, and herbicides.

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