Organic Farming: A Socio-Ecological Approach to Long-Term Survival

Moomal Bharadwaj, M.C. Jain and M.K. Sharma

College of Agriculture, Agriculture University, Kota (Raj.)

Corresponding author: moomalbharadwaja gmail.com

Abstract

The study delves into the dynamic interplay between social and ecological dimensions within the context of organic farming, aiming to elucidate its role in fostering long-term sustainability. The research explores the multifaceted benefits of organic farming practices, encompassing environmental conservation, human health, and community resilience. By adopting a socio-ecological lens, the paper analyzes the reciprocal relationships between organic farming methods and societal structures, emphasizing the potential of this approach to address contemporary challenges in agriculture and food systems. Furthermore, the study investigates the impact of organic farming on biodiversity, soil health, and carbon sequestration, underscoring its contribution to mitigating climate change The paper concludes by advocating for the widespread adoption of organic farming as a holistic and resilient strategy for ensuring the long-term survival of both ecosystems and human societies.

Key Words: Organic farming,

Introduction

Agriculture is the main source of income for half of Indian population. Farmers employ various agricultural strategies, based on the kind of soil, climate of the area, geographic location and irrigation facilities available, such as subsistence, shifting, plantation, intensive, dry and wet cultivation and terracing. Surprisingly, a diverse range of foods and agricultural products are cultivated employing various farming practices. In an era marked by rapid urbanization, industrialization and a growing disconnect from the organic world, the principles of organic farming offer a beacon of hope for humanity's long-term survival. Organic farming or regenerative agriculture is a holistic and sustainable approach that integrates traditional agricultural wisdom with modern ecological science. It goes beyond mere food production, emphasizing the harmonious coexistence of humans, flora and fauna This article explores the significance of organic farming as a socio-ecological approach to ensure our survival in the face of environmental challenges.

Agro ecological farming has recently gained popularity because it draws on traditional knowledge that is firmly embedded and connected with the land, its bio-resources, and climatic circumstances, while also reflecting socio-cultural demands. The concept of nutri- sensitive

agricultural innovation, which is meant to use organic farm inputs, can be a financially feasible method for cultivating nutrient-rich crops for community consumption to promote good health and well-being. This farming system is the most successful paradigm for increasing farmer income, improving health, protecting the environment, using less water, lowering production costs, eliminating the need for synthetic chemical inputs and restoring soil health

Organic farming, according to the Hon'ble Prime Minister, will benefit 80% of the

agricultural population with modest land holdings of 2 hectares or less.Groundwater, on the other hand, is utilized to irrigate approximately 60% of arable land in our country, making it a significant resource in times of environmental disaster. Organic farming would thereby promote groundwater recharge for future generations. More than 1.5 lakh farmers currently operate on more than 20,000 acres of land distributed throughout the state's various agroclimatic zones and practices organic farming under the Central Government's Prakritik Kheti Khushal Kisan Yojana (PK3Y) Scheme.

Organic farming approach

Organic farming is not a recent innovation, it draws from indigenous agricultural practices that have been used for centuries in our country. The core principles of organic farming are as follows:

1. No-till Farming: Unlike conventional farming, which often involves tilling the soil, Organic farming promotes minimal soil disturbance. Tilling disrupts the soil's organic structure, leading to erosion, loss of fertility, and increased carbon emissions. No-till farming retains the soil's integrity, promoting better water retention and carbon sequestration.

2. Biodiversity: Organic farming encourages the cultivation of diverse crops, mirroring the organic ecosystems. This diversity reduces the losses as well as need of chemical pesticides and fertilizers and creates a more resilient and sustainable agricultural system.

3. Crop Rotation: Rotating crops helps prevent soil depletion and reduces the risk of pests and diseases. By mimicking organic patterns, organic farming optimizes soil health and productivity

4. Composting and Mulching: Instead of synthetic fertilizers, organic farming relies on composting and mulching to enrich the soil. These practices promote the growth of beneficial microorganisms and increase organic matter, enhancing soil fertility.

5. Use of Beneficial Insects: Organic farming encourages the presence of beneficial insects that organically control pests, reducing the need for chemical pesticides.

6. Minimal Use of Chemicals: Chemical inputs are minimized or eliminated. This reduces the environmental impact and produces healthier and more nutritious crops.

Organic farming, often known as traditional farming, doesn't use any pesticides. The agricultural system employs a diverse, agroecology-based approach that includes agri- horticultural crops, forest trees, animals, and functional biodiversity. Other names for it include Zero Budget Organic Farming (ZBNF), Subhash Palekar Organic Farming (SPNF), Chemical Free Agriculture, minimal input, and so on. This alternative farming methods emphasizes soil productivity in an organic manner aimed at promoting long-term soil, plant, and human health. It is a new dimension for sustainability and enhanced farmer revenue, and it is recognized as the foundation of crop diversity in mixed farming in terms of fruits, vegetables, spices, medicinal plants, and fragrant plants. ZBNF stands for zero cost or zero input organic farming and the amount gathered is considered net profit to the farmer. This zero-cost farming uses organic inputs to maintain ecological balance and promote soil health. This technique requires native-breed cattle, which are an important component of rural farming families. One cow is enough to start farming on 30 acres of land, according to this strategy. SPNF holds a lot of promise for low-income farmers. This strategy advocates for the full elimination of manmade chemical inputs such as fertilizers and pesticides. It encourages the employment of mulching technologies, symbiotic intercropping and organic combinations made from cow dung, urine, jaggery, pulse flour, and other organic materials.

The four basic components of organic farming to rehabilitate the soil are Jeevamrit, Beejamrit, mulching (acchadan), and Waaphasa. Organic plant protection products such as Agniastera, Brahmastera and Neemasters are created from cow dung, cow urine, and green chillies, among other, things. Jeevamrit's formulation boosts the organic microbial biota and earthworm activity in the soil. Soil, water, jaggery, pulse flour, cow dung, and urine are all used to make it. The second formulation, Beejamrit, combines cow dung and urine and treats seeds, seedlings, and other planting material. The third variants known as achchodana, which is a mulching method that uses three different types of mulch including straw mulch, soil mulch, and live mulch. It serves as a barrier to water evaporation and aids in the development of soil humus. The fourth and last one is waaphasa, which is a way of maintaining the soil's air and water molecules. It aids in lowering the additional watering consumption. Organic farming methods can help farmers to become less reliant on external inputs and enhance their social and economic well-being. It encourages the use of locally accessible resources and increases crop diversification, it can also boost food security

Economic implications

The adoption of organic farming practices can have potential economic benefits for farmers. The practice can be a viable approach to reduce input costs through the maximum practices utilized in he quality crop Brahmastra Subh One of Brahmastra M Shree better tFaUsermore, it's crop reduce their reliance on a single crop. This diversification strategy offers a buffer against crop failures, providing farmers with a more stable income.

Way forward

The way forward for promoting organic farming can be accomplished by supporting and promoting it through various schemes and initiatives. Financial incentives, training programs and research grants can encourage more farmers to adopt organic farming practices. The government should collaborate with agricultural universities and research institutions to improve innovative practices and crop combinations that suit local conditions. Steps should be taken to facilitate market linkages for farmers practicing organic farming which creates a demand for organic and eco-friendly products in the markets. Highlighting and sharing success stories can also inspire and motivate others to adopt similar practices. By implementing these strategies, Rajasthan and other regions can further promote organic farming as a viable and sustainable alternative to conventional farming

Challenges and Future Prospects

Despite its many benefits, Organic farming faces several challenges, such as the initial transition period from conventional farming and potential yield fluctuations. However, as awareness of the socio-ecological benefits of organic farming continues to grow, it is gaining momentum worldwide. Governments, NGOs, and agricultural organizations are increasingly supporting and investing in organic farming practices.

In conclusion, Organic farming is not merely a means of food production, it is a socio-ecological approach that recognizes the intricate interplay between humans and their environment. By prioritizing the health of the land, the well-being of communities, and the preservation of traditional knowledge, Organic farming offers a path toward long-term survival in a world facing pressing environmental challenges. Embracing organic farming practices is not just an agricultural choice but a commitment to our collective future, where humans and nature coexist in harmony.

References

1. Beck, B., Fleige, H., Hom, R.2018. Compost quality and its function as a soil conditioner of recultivation layers - a critical review. Int Agrophys 32: 11-18

2. Celik, I., Gunal, H., Budak, M. and Akpinar, C .2010. Effects of long-term organic and mineral fertilizers on bulk density and penetration resistance in semi-arid Mediterranean soil conditions. Geoderma 160 :236-243

3. Dar, G.H., Bhat, R.. A., Mehmood, M.A. and Hakeem, K.M. 2021. Microbiota and Bio fertilizers, Vol 2, doi: 10.1007/978-3-030-61010-4

4. Dębska, B., Długosz ,J., Piotrowska ,D.A., Banach, S.M. 2016. The impact of a bio-fertilizer on the soil organic matter status and carbon sequestration results from a field-scale study. J Soils Sediments 16 :2335-2343