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Agricultural Economics

A STUDY ON THE IMPACT OF NATURAL FARMING IN INDIA: CHALLENGES, OPPORTUNITIES, AND FUTURE PERSPECTIVES

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ABSTRACT Natural farming is gaining recognition as a sustainable alternative to traditional agriculture in India, effectively addressing issues such as environmental degradation, increasing input costs, and diminishing soil fertility. This research investigates the effects of natural farming on agricultural productivity, farmer income, and ecological sustainability, while also exploring its challenges and future opportunities. The study employs secondary data sources, including government reports, academic research, and field observations. The results demonstrate that natural farming lowers cultivation costs, enhances soil organic carbon levels, boosts biodiversity, and reduces greenhouse gas emissions. Key practices such as the application of bio-inputs, mulching, intercropping, and water conservation are essential for promoting long-term sustainability. Furthermore, the implementation of carbon credit mechanisms presents new income opportunities for farmers. Nevertheless, challenges such as insufficient awareness, certification difficulties, initial yield variations, and restricted market access impede widespread adoption. Government initiatives like the and various support programs are crucial for addressing these challenges. The study concludes that natural National Mission on Natural Farming farming holds significant potential to transform Indian agriculture into a resilient, environmentally sustainable, and economically viable system.

KEYWORDS : Natural Farming, Greenhouse Gas Emissions, Agriculture, Soil Health, Low Cost, Sustainable, Farmers, Fruits, Vegetables , National Mission on Natural Farming (NMNF), Biodiversity, Crops, Ecosystem.

I. INTRODUCTION

Figure.1. Natural Farming

Agriculture is crucial to India's economy, providing employment to a significant portion of the population and playing a key role in ensuring food security. Nevertheless, the extensive application of chemical fertilizers and pesticides since the Green Revolution has resulted in severe environmental and economic issues, such as soil degradation, water contamination, loss of biodiversity, and rising production costs. In this scenario, natural farming has emerged as a sustainable alternative that fosters ecological balance and enhances the well-being of farmers. Natural farming is an environmentally friendly agricultural approach that eschews synthetic chemicals in favor of natural inputs like cow dung, cow urine, and organic biomass. It combines crops, livestock, and trees to establish a self-sustaining ecosystem.

Figure.1. Objectives National Mission on Natural Farming

Historical Indian agricultural texts, including Krishi-Parashar and Vrikshayurveda, illustrate that traditional farming methods were inherently sustainable and closely connected to nature. Despite its advantages, there is a lack of extensive research assessing the large-scale effects of natural farming in India, especially regarding its economic feasibility and environmental impacts. This study seeks to fill this void by examining the influence of natural farming on productivity, soil health, and farmer income, while also pinpointing challenges and future prospects. The study posits that natural farming can enhance sustainability and profitability, but its success is contingent upon institutional support, farmer awareness, and effective implementation strategies.

II. Review of Literature

Khadse, A et al (2019) examines the growth of Zero Budget Natural Farming (ZBNF) in India. Bharucha, Z. P et al (2020) found that it reduces farmers' direct costs. Kumar, R et al (2023) suggests that natural farming has the capacity to rejuvenate the ecosystem. Smith, J et al (2020) improves farm sustainability by lowering expenses. Fitzpatrick, I. et al (2022) observes that India is home to one of the largest alternative agriculture movements in the world: natural farming. Duddigan, S et al (2023) characterizes Zero Budget Natural Farming (ZBNF) as a grassroots agricultural initiative backed by the state in India.

Veluguri, D et al (2021) examine the significance of adopting the ZBNF program. Pandey P et al (2025) underscore the potential of transforming agriculture towards sustainability. Mishra, B. (2026) asserts that natural farming renders cultivation both economically viable and sustainable. Khadse, A et al (2018) characterize Zero Budget Natural Farming (ZBNF) as a grassroots peasant agroecology movement in India. Balla, J et al (2022) present key reasons for adoption, which encompass lower production costs, reduced farm size, alleviation of debt, and enhanced health for farmers. Nichols, C (2026) concludes that a structural agrarian transformation is essential for achieving equitable agroecological transitions.

Sidhu, A.S et al (2026) highlight that organic and natural nutrients contribute to improved soil health, increased crop productivity, and enhanced ecological resilience. Pandey, J et al (2025) assert that natural farming represents the most straightforward and practical approach to agriculture. K. M., S. M., Mishra, A. K et al (2025) demonstrate the beneficial adoption of practices that assist farmers in their shift towards natural farming. Galab, S et al (2026) indicate that this approach is generally advantageous for the less-resourced marginal farmers. Walker, G et al (2021) explore the fundamental reasons for adopting Natural Farming in India. Brown, T. (2013) describes natural farming as a method of agriculture that does not utilize chemicals. Balla, J et al (2026) discuss the advantages of natural farming in terms of long-term sustainability and environmental

benefits. Mastiholi, A. B et al (2023) address the limitations associated with chemical farming. In this context, this study examines the effects of natural farming in India: challenges, opportunities, and future perspectives

III. Methodology

This research employs a qualitative and descriptive methodology, utilizing secondary data obtained from government reports, scholarly articles, policy documents, and case studies related to natural farming practices in India. Key references include publications from the Ministry of Agriculture and the National Mission on Natural Farming. The study investigates aspects such as soil health, water management, pest control, productivity, and economic results. A comparative assessment with traditional farming methods examines costs, yields, and environmental consequences. Case studies of farmers offer practical perspectives on the subject. Data were meticulously analyzed to uncover patterns, advantages, challenges, and potential opportunities, thereby ensuring that the conclusions drawn are both reliable and comprehensive.

IV. RESULTS AND DISCUSSION

The research indicates that natural farming considerably lowers input expenses by removing the need for chemical fertilizers and pesticides, which in turn enhances farmers' net income and guarantees economic sustainability. The increased prices for chemical-free products further bolster profitability. Additionally, soil health is improved, as the rise in organic carbon levels and microbial activity contributes to long-term fertility and productivity. Water conservation methods, including mulching and crop diversification, enhance moisture retention and lessen the need for irrigation.

Figure.3. Objectives National Mission on Natural Farming

Sustainable practices such as intercropping and mixed cropping increase land productivity and resilience against pests and climate fluctuations. Natural pest management utilizing botanical extracts effectively manages pests without endangering beneficial organisms, thus maintaining biodiversity. The ongoing incorporation of organic matter aids in carbon sequestration and helps mitigate climate change. Government programs, such as the National Mission on Natural Farming, offer training, financial support, and certification assistance. Nevertheless, obstacles such as initial yield variability, restricted market access, and complicated certification processes persist, necessitating stronger policy backing and increased farmer awareness.

V. CONCLUSION

Natural farming represents a sustainable and holistic approach to agriculture that addresses critical environmental and economic challenges in India. This study highlights that natural farming improves soil health, reduces input costs, enhances biodiversity, and contributes to climate change mitigation. By promoting the use of locally sourced materials and traditional knowledge, it ensures long-term sustainability and farmer autonomy. Nevertheless, despite its benefits, challenges such as initial yield fluctuations, lack of awareness, and limited market access need to be tackled to encourage wider adoption. Government initiatives and support systems are essential for overcoming these obstacles and promoting natural farming on a larger scale. The integration of carbon credits and digital platforms offers new opportunities for income generation and knowledge dissemination. Future research should focus on comprehensive empirical studies, long-term yield evaluations, and policy assessments to strengthen the evidence base. In conclusion, natural farming has the potential to transform Indian agriculture into an environmentally sustainable, resilient, and economically viable system. With proper support, heightened awareness, and innovation, it can significantly contribute to sustainable development, food security, and environmental conservation in the future.

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