IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 15, Issue 2 Ser. 3 (Mar. – Apr. 2024)), PP 69-75
www.iosrjournals.org

The feasibility of organic Agriculture in India

Siddhartha Patro

I. Introduction

Organic farming has emerged as a compelling alternative to conventional agricultural practices globally, particularly in India, where its adoption promises solutions to pressing environmental and health concerns. There has been a notable shift towards organic farming methods in recent years, driven by increasing consumer awareness of the detrimental impacts of conventional agriculture. This essay seeks to explore the feasibility of organic farming in the Indian context, analyzing its current status, its challenges, and its potential benefits.

India's agricultural landscape is characterized by diverse climatic conditions and a rich cultural heritage deeply intertwined with farming practices. Despite the predominance of conventional farming methods, organic farming has gained momentum across various regions. The transition to organic practices is viewed as a sustainable approach to mitigate issues such as soil degradation, water pollution, and the harmful residues of chemical pesticides in food production. These problems pose significant threats to both environmental sustainability and public health, prompting a re-evaluation of farming practices.

Challenges to the widespread adoption of organic farming in India are multifaceted. They include the high initial investment costs associated with organic certification, limited access to organic inputs and technologies, and the need for extensive farmer education and training. Furthermore, the transition period from conventional to organic farming requires careful management to maintain productivity and economic viability, particularly for small-scale farmers who constitute a substantial portion of India's agricultural workforce.

Despite these challenges, the potential benefits of organic farming are substantial. Organic practices promote soil health and fertility through natural methods such as composting, crop rotation, and biological pest control. This not only improves the long-term sustainability of agricultural lands but also enhances the nutritional quality and safety of food products. Moreover, organic farming encourages biodiversity conservation, reduces greenhouse gas emissions, and fosters resilient farming communities by reducing dependency on external inputs.

Current Status of Organic Farming in India

India has a long history of traditional organic farming practices and methods like crop rotation, the use of organic manure, and natural pest control for centuries. However, the modern organic farming movement in India began to gain momentum in the 1990s due to growing concerns about the negative effects of chemical-intensive agriculture. Today, India is one of the world's largest producers of organic products, with more than 1.5 million hectares under organic cultivation.

Challenges of Organic Farming in India

Despite the growth of organic farming in India, several challenges prevent its widespread adoption. One of the biggest challenges is the lack of awareness and education among farmers about ecological farming practices. Many farmers are still dependent on chemical inputs and lack the knowledge and resources to switch to ecological farming methods. In addition, the certification process for organic products can be complicated and expensive, making it difficult for small farmers to obtain organic certification. Another challenge is the limited availability of organic production inputs such as organic seeds, biofertilizers, and biopesticides. High costs and limited availability of these inputs may prevent farmers from switching to organic farming. In addition, the lack of organic marketing and distribution infrastructure challenges organic farmers to enter the market and obtain premium prices for their produce. Benefits of organic farming in India: Despite these challenges, the potential benefits of organic farming in India are significant. Organic farming practices promote soil health and fertility, which increases yield and improves crop resistance to pests and diseases. Organic farming also helps conserve water resources, reduce greenhouse gas emissions, and improve biodiversity by avoiding the use of synthetic chemicals. In addition, organic farming can provide financial benefits to farmers by providing access to high-quality markets both domestically and internationally. Consumers are increasingly willing to pay a premium for organic products due to their perceived health and environmental benefits, creating opportunities for organic farmers to increase their incomes and improve their livelihoods. In conclusion, the feasibility of organic farming in India is promising due to the country's rich agricultural heritage and increasing demand for organic products.

How is organic farming a way forward to sustainable agriculture?

1) Fertilizers have a significant negative impact on the ecosystem, contributing to rapid climate change. Their use leads to soil degradation, water pollution, and the release of greenhouse gases. In contrast, organic farming offers a sustainable solution by avoiding synthetic chemicals, enhancing soil health, and promoting biodiversity. It also helps capture carbon dioxide and conserve water. Adopting organic farming practices can reverse the damage caused by conventional agriculture and mitigate climate change.

   These practices result in approximately 45 per cent less energy use compared to conventional farming. By avoiding synthetic fertilizers and pesticides, organic farming lowers the release of harmful gases, contributing to a more sustainable and environmentally friendly agricultural system.

   2). Organic farming is also a big help in achieving the sustainable development goals identified by the United Nations. These goals have significantly emphasized the dire need for sustainable practices like organic agriculture.

   3). Organic farming is also very beneficial to farmers. Firstly, it negates the cost of synthetic chemicals because fertilizers are produced organically and in-house. Organic farming also prevents the overuse of chemicals, which results in soil degradation, leaving the soil healthy for harvest every year.

Significance of agriculture in India

The contribution of agriculture during the first two decades towards the gross domestic product ranged between 48 and 60%. In the years 2001–2002, this contribution declined to only about 26%.

Agriculture plays a crucial role in generating employment. In India, at least two-thirds of the working population earns their livelihood through agricultural activities. This sector is essential for the employment generation in India, as other sectors have not been able to provide ample job opportunities for the growing workforce.

Furthermore, agriculture is vital in providing food for the ever-increasing population. Due to the excessive pressure of population in labour-surplus economies like India, the demand for food is rising rapidly. As a result, food production must increase at a fast rate. The current levels of food consumption in the country are very low, and even a slight increase in capital income leads to a steep rise in food demand. Therefore, unless agriculture continuously increases its market surplus of food grains, a crisis is likely to emerge. Many developing countries are experiencing this phase, and to meet the increasing food requirements, agriculture has been developed.

There is general agreement on the necessity of capital formation. Since agriculture happens to be the largest industry in a developing country like India, it can and must play an important role in pushing up the rate of capital formation. If it fails to do so, the whole process of economic development will suffer a setback.

Agriculture supplies raw materials to various agro-based industries like sugar, jute, cotton, textile, and vanaspati industries. Food processing industries are similarly dependent on agriculture. Therefore, the development of these industries entirely is dependent on agriculture.

Right from the first five-year plan, agriculture is considered the prime revenue-collecting sector for both central and state budgets. However, the governments earn huge revenue from agriculture and its allied activities like cattle rearing and animal husbandry, poultry farming, fishing, etc. Indian railways, along with the state transport system, also earn handsome revenue as freight charges for agriculture products, both semi-finished and finished ones.

A large number of skilled and unskilled labourers are required for construction work and in other fields. This labour is supplied by Indian agriculture.

Indian agriculture has a cost advantage in several agricultural commodities in the export sector because of low labour costs and self-sufficiency in input supply.

Is organic farming a feasible option?

Organic foods are a matter of choice for an individual or enterprise. If somebody wants to go in for organic farming, primarily on commercial consideration/profit motive to take advantage of the unusually high prices of organic food, they are free to do so.

Organic food is a marketing tool that won't be able to replace conventional farming for food security and the quantity of crop outputs. With a growing population and precarious food situation, the country cannot and won't be able to take a risk with organic farming.

According to BG Shivakumar, an eminent scientist at the Indian Agricultural Research Institute (IARI), New Delhi, division of agronomy, "Organic farming is not feasible as an alternative to conventional farming under all circumstances in the Indian context. The shortfall in inorganic nutrient supply, uneconomic returns to inorganic inputs under dryland and rainfed farming systems, and inherent better response to organic farming in crops like vegetables, legumes, and millets under traditional farming systems pave the way for the integration of conventional farming with organic farming."

"A transition period of 3 to 4 years is generally required to convert a conventional farm into organic farming. In this period, the produce is not considered organically produced. The reduced yields and lack of Benita premium for the produce is a double blow for farmers, leading to financial losses, which are substantial for small or medium farmers," he added. (The Financial Express, 2009)

Biodiversity:
Organic farming has less impact on hedge bottom vegetation, with hedges on organic farms displaying significantly higher species diversity than those on conventional farms.
Evidence from comparative studies under arable regimes indicated a general trend for higher earthworm abundance under organic management. There have been reports that the presence of grass-clover leys within organic rotations is the principal reason for the significantly higher non-pest abundance.

Air pollution and climate change:
A major theme in organic practices is to operate in tight nutrient cycles to minimize losses to the air and water reserves. There is a reduction in air pollution not just from the lower carbon footprint but also from the absence of chemical sprays that get into the atmosphere. There have been tremendous amounts of chemicals that are used to direct lands to yield only desired products and not pests and weeds; this especially can be tracked after the agricultural revolution through using planes and tanks of materials.

Agriculture is both the reuse and victim of climate change. According to the Intergovernmental Panel on Climate Change (IPCC), the annual amount of greenhouse gases emitted by the agricultural sector emitted about six gigatonnes of CO2 in 2005. This represents approximately 10 to 12 percent of the total greenhouse gases. An organic farming system is only a substitute for producing healthy products without any side effects.

Water and soil pollution:
Intensive aquaculture may leave a substantial amount of nutrients and poisons in water bodies. Water pollution is largely associated with the usage of and discharge of water in both animal and plant farming. For instance, in a fish pond, each time water is exchanged, wastewater is discharged to the surrounding surface water. The waste water carries several pollutants reflected in the selected indicators. These pollutants ultimately stem from chemicals, fertilizers, and feed added to the ponds. Therefore, in organic farming, water pollution is lower as there is much reduced eutrophication of chemical inputs. Soil structure on organic farms is much better, leading to less pollution from nitrate and is healthier for the crop plant, and environmentally, organic is better netted than the other forms and is chemical-free.

Economic benefit:
Organic farming has a mixed economic impact on farmers. On one hand, organic farming experiences lower costs and higher profitability compared to conventional farmers, resulting in a marginal increase in profitability compared to traditional agriculture. Additionally, organic farming is a more effective way to increase Indian farmers' income by 20 to 50 percent. On the other hand, organic farmers also face challenges such as lower yields compared to conventional farmers, which can lead to a reduction in producer and consumer surplus. However, if the shift to organic farming is limited to specific areas such as rainfed, hilly, and tribal regions, there can be an increase in both customer and producer surplus. Overall, organic farming has the potential to improve the livelihoods of farmers by increasing their income and providing access to premium pricing in the organic food industry.

There is a huge potential to increase exports of organic agriculture products, as the global market stood at about 135 billion USD and India's shipments are only over 700 million USD. India produced around 2.9 million metric tons from 2022 to 2023 of certified organic products, which include all varieties of food products like oil, seeds, fibre, etc.

Countries to which India exported were the USA, Canada, Great Britain, Switzerland, Turkey, Australia, and Japan, to name a few.

Social benefit:

Organic agriculture is a regenerative system that has the potential to address multiple crises facing our society, including climate change, health, and economic challenges. Organic regulations require farmers to use soil-building practices, such as crop rotations, cover crops, and pasture grazing for livestock, which have been proven to improve soil health and increase carbon sequestration. Organic is the non-federally regulated label that requires the use of these climate-smart farming practices. Organic agriculture also reduces the use of toxic pesticides, protects farmworker health, bolsters farm viability, increases biodiversity, protects water quality, enhances local food security and builds resilience to extreme weather events. Science demonstrates that organic agriculture creates a food system that generates nutritious food for growing populations around the world while promoting public health, economic opportunities, and the preservation of natural resources.

Organic farming challenges

There are 6 challenges to be discussed that put a strain on organic farming in India.

Problem 1: Lack of fertile land

It is estimated that by 2030, more than 30 million farmers in India won't have access to any fertile land, which makes it even more difficult to scale organic farming. This method requires large areas of fertile land, which is decreasing day by day due to various human activities like deforestation, slash-and-burn agriculture, and excessive ploughing.

Problem 2: Reduced yields

When a farmer switches to organic farming, a substantial loss in yield is observed. This is because it takes a lot of time for the soil to get used to biopesticides instead of chemical pesticides. Also, a significant amount of time is consumed to promote the growth of beneficial insects for pollination at the farm. Meanwhile, the farmer suffers a substantial loss of produce, which makes organic farming less preferable for the average Indian farmer.

Problem 3: Susceptible to pest attacks

The most common problem with organic farming is the frequency of pest attacks, which increases crop destruction. The reason behind the high frequency of pest attacks is the enriched quality of organic produce. To avoid the losses caused by pest attacks, farms spray huge amounts of biopesticides, which is another expensive input for them.

Problem 4: High input cost

Small-scale farmers often have issues with the rising prices of organic farming inputs. So, they end up using cheap and fake substitutes that promise to be organic but are not. Lack of knowledge and proper education in organic farming is also a major issue. So the organic vegetables that we eat are often not organic at all.

Problem 5: Shortage of supply of organic inputs

Organic farmers are not sure about the quality of raw materials and also doubt whether the composition of the inputs is organic or synthetic elements. Apart from this, raw material is not available in sufficient quantities to meet the nutritional requirements of the crops. This affects the production and results in low-quality produce.

Problem 6: Logistical strains

There is a lack of distribution networks as most of the organic farms are located far away from cities. This creates a lot of trouble for farms as organic harvest takes a lot of time to reach the market, which eventually makes the quality and texture similar to conventionally grown produce.

What is the Government Doing?

The government has 5 schemes to push clean agriculture in India and help organic farmers.

1. **Paramparagat Krishi Vikas Yojana (PKVY)**

   Paramparagat Krishi Vikas Yojana promotes cluster-based organic farming with PGS (participatory guarantee system) certification. Cluster formation, training, certification, and marketing are supported under these schemes. The assistance of Rs 50,000 per ha every 3 years is provided, out of which 62 percent (Rs 31,000) is given as an incentive to a farmer towards organic inputs.

2. Mission Organic Value Chain Development for the North-Eastern Region (MOVCDNER)
The scheme promotes third-party certified organic farming of niche crops for the northeast region through farmer-producer organizations (FPOs) with a focus on exports. Farmers are assisted with Rs 25,000 per hectare for three years for organic inputs, including organic manure and biofertilizers, among other inputs. Support for the formation of FPOs, capacity buying, and post-harvest infrastructure up to Rs 2 crore is also provided in the scheme.

3. Capital Investment Subsidy Scheme (CISS) under the soil health management scheme
Under this scheme, 100 percent assistance is provided to the state government and government agencies for setting up mechanized fruit and vegetable market waste and agro waste compost production units up to a maximum limit of Rs 190 lakh per unit (3000 total per annum TPA capacity). Similarly, for individuals and private agencies, assistance up to 33 percent of the cost limit to RS 63 lakh per unit as capital investment is provided.

4. National Mission On Oilseeds and Oil Palm (NMOOP)
Under the mission, financial assistance at a 50 per cent subsidy to the tune of Rs 300 per hectare is being provided for different components, including bio-fertilizers, supply of Rhizobium culture, phosphate solubilizing bacteria (PSB), zinc solubilizing bacteria (ZSB), Azotobacter, Mycorrhiza, and vermicompost.

5. National Food Security Mission (NFSM)
Under NFSM, financial assistance is provided for the promotion of biofertilizer (Rhizobium/PSB) at 50 percent of the cost, limited to Rs 300 per hectare.

The success stories of organic farming in the country

1) The success story of Dandu Bhulaxmi:
Dandu Bhulaxmi is a 56-year-old woman from Thimmapur village in Telangana, India, where she lives with her husband, three sons, and her daughter. She is also a farmer.

She joined a project called the Siddipet project that was designed to help farmers like Dandu improve soil health, increase yields, improve safety, and ultimately boost incomes. In January 2017, Dandu began receiving training from the tanager's team on organic farming, she was taught how to prepare and apply organic bio-fertilizers and natural peptides she also learned how to use pheromone sticky traps to control insects and adopted tested organic farming practices like the tomato staking method etc. Now she is thriving because of reduced low cultivation and the quality of vegetables she produces.

2) Didar Singh
Mr. Didar Singh started organic farming and developed many innovative techniques for pest control and management. He stores Gomutra or his Sahiwal cows in big drums, he uses this gomutra for seed treatment as an insecticide spray to control aphids, Jassid, and caterpillar attacks on different crops in his fields. He uses one-year-old cow dung cakes and mixes them with water. He sieves water from the mixture and sprays this water as " homemade Urea " which helps the fast growth of crop plants.

He heartily desires to popularize the use of his innovative techniques of organic farming for crop management to save our environment from soil, air m and water pollution. As organic far, as IMF is rapidly growing in India, he is spreading a healthy set-up for positive economic outcomes. He is a wonderful example of changing the mindset of farmers.

Quantitative Analysis of Organic Agriculture and its Positioning in the Indian Context

Natural cultivating in India speaks to a transformative move towards maintainable agrarian hones, driven by natural concerns, well-being contemplations, and financial openings. The travel started with Sikkim's spearheading announcement as the world's begin natural state in January 2016, setting a point of reference for other locales to take after suit. States like Himachal Pradesh, Uttarakhand, and Kerala have since grasped natural

cultivating, leveraging their normal assets and conventional information to move away from chemical-intensive horticulture.

Current Scene and Financial Elements

The financial practicality of natural cultivating in India has been a critical driving constraint behind its appropriation. Natural creation commands higher costs in both household and universal markets due to seen well-being benefits and natural supportability. This financial motivating force has energized more ranchers to investigate natural strategies despite beginning challenges such as higher venture costs and lower yields amid the move period.

In any case, the reasonableness of natural items remains a basic challenge. Whereas urban customers, especially in rich sections, are willing to pay premiums for natural products, the larger part of India's population—especially in provincial areas—struggles to bear these higher-priced things. This financial difference limits the adaptability of natural cultivating as a standard arrangement to nourishment security issues within the nation.

Challenges and Government Activities

Certification forms pose another critical jump for natural ranchers. Getting and keeping up natural certification includes following exacting rules and occasional reviews, which can be expensive and lumbering. Little and negligible ranchers regularly need the monetary assets to contribute to certification, subsequently barring them from getting to premium natural markets.

To address these challenges, government mediation is pivotal. Arrangements that give appropriations on natural inputs such as biofertilizers, natural seeds, and common pesticides can essentially diminish generation costs for ranchers. This money-related bolster makes a difference in cost crevice between natural and ordinary items, making natural nourishment more available to a broader section of the populace.

Moreover, disentangling and subsidizing the natural certification preparation would energize more ranchers to receive natural hones. Streamlining certification methods and giving monetary help for compliance seem to incentivize far-reaching appropriation of natural cultivating strategies over India.

Natural Benefits and Maintainability

Past financial contemplations, natural cultivating offers considerable natural benefits. By shunning engineered chemicals and advancing common pest control and soil ripeness administration, natural hones contribute to biodiversity preservation, water quality enhancement, and climate change relief. These environmental focal points adjust with worldwide supportability objectives and emphasize the significance of natural horticulture in India's natural stewardship endeavours.

Instruction and Customer Mindfulness

Teaching shoppers almost the benefits of natural cultivating is significant for expanding requests. Open mindfulness campaigns highlighting the well-being benefits, decreased chemical build-ups, and positive natural impacts of natural delivery can move customer inclinations towards maintainable nourishment choices. This demand-side mediation complements supply-side endeavors to grow natural cultivating in India.

II. Conclusion

Natural cultivation in India stands at an essential point, balanced for development despite impressive challenges. With steady arrangements, focused on speculations, and concerted endeavours to address reasonableness and certification obstructions, India can saddle the complete potential of natural farming. By prioritizing economical homes, the nation can guarantee long-term nourishment security, upgrade rancher vocations, and contribute to worldwide endeavors natural maintainability.

As more states take after the lead of Sikkim and other spearheading districts in grasping natural cultivating, the segment has the potential to not flourish but to revolutionize India's rural scene. By joining financial motivating forces with natural stewardship and buyer instruction, India can construct a versatile agrarian system that meets the wants of both display and future eras. Natural cultivating speaks to not just a cultivating strategy, but a pathway towards a more feasible and impartial nourishment framework for India.

To conclude with this research paper, I have found the growing population of India doesn’t allow the country to take a sudden shift to organic farming. It will be impossible to reach the required demand, but that doesn't mean organic farming is not possible. Organic farming provides a lot of benefits to our economy and also benefits to our society, and this is vital as even the soil health, etc. is affected by organic farming. In the current era, India provides a lot of help to farmers in terms of helping them start organic farming. Still, the government needs to provide tons of subsidies to the farmers and teach them about organic farming. It is still a rather new

concept in our country and not widely accepted by everyone. The country as a whole has to make it socially acceptable and move on from the conventional ways of cultivation.

Works Cited

[1]. "Benefits of Organic." National Organic Coalition, www.nationalorganiccoalition.org/organic-benefits.
[2]. Bhatt, Dhimant. "Is Organic Farming a Feasible Alternative ?" Financialexpress, 23 Mar. 2009, www.financialexpress.com/archive/is-organic-farming-a-feasible-alternative/437617/.
[3]. "Significance of Agriculture in Economy." INSIGHTSIAS, www.insightsonindia.com/agriculture/role-of-agriculture-in-indian-economy/significance/.
[4]. Singh, Maninder. "Organic Farming: A Solution and Way towards Sustainable Agriculture." The Times of India, 30 Apr. 2023, timesofindia.indiatimes.com/blogs/voices/organic-farming-a-solution-and-way-towards-sustainable-agriculture/.
[5]. Singh, Yashwant. Success Stories in Natural Farming Training Program on "Creating Awareness about Natural Farming."