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UNDERSTANDING FARMERS' INTENTIONS AND CHALLENGES IN ORGANIC FARMING: POLICY RECOMMENDATIONS FOR SUSTAINABLE TRANSITION

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ABSTRACT

This paper investigates farmers' intentions toward adopting organic farming practices and the associated challenges they encounter. Through a combination of surveys, interviews, and field observations, the study reveals a notable interest among farmers in transitioning to organic farming but identifies significant barriers that prevent this shift. Key challenges include limited availability and high costs of organic inputs, inadequate technical support, and financial constraints. The findings highlight the urgent need for policy interventions to address these issues effectively. Recommendations for policymakers include improving access to affordable organic inputs, expanding educational and technical support programs, and implementing financial assistance schemes to alleviate initial investment burdens. By addressing these challenges, policymakers can facilitate a smoother transition to organic farming, supporting farmers in their pursuit of sustainable agricultural practices and contributing to the overall resilience and sustainability of the agricultural sector.

Introduction:

Concept of Sustainability:

Sustainability has become a pivotal concept in contemporary environmental and socio-economic discourse, emphasizing the need for practices that do not compromise the ability of future generations to meet their own needs. Sustainability in agriculture focuses on practices that enhance productivity while preserving the environment and promoting social well-being. Historically, conventional farming methods, such as monocultures and excessive use of synthetic fertilizers and pesticides, have led to soil degradation, loss of biodiversity, and water pollution. To address these challenges, sustainable agriculture emphasizes practices that improve soil health, conserve water, and reduce chemical inputs. Organic farming can not only boost farm productivity but also mitigate environmental impacts. These methods help in maintaining soil fertility, conserving natural resources, and reducing greenhouse gas emissions, which are critical for long-term agricultural sustainability (Pretty et al. 2018).

Sustainable Development Goals (SDGs) and organic farming are intricately linked through their shared emphasis on environmental stewardship, social equity, and economic viability. Organic farming aligns closely with several SDGs, particularly Goal 2 (Zero Hunger) and Goal 12 (Responsible Consumption and Production). By avoiding synthetic pesticides and fertilizers and using natural methods and inputs, organic farming promotes environmental sustainability through improved soil health, water

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conservation, and biodiversity enhancement (Fliessbach et al. 2002). This is crucial for achieving Goal 12, which targets sustainable agriculture and resource management. Furthermore, organic farming supports Goal 15 (Life on Land) by reducing pollution and fostering ecological balance (Reganold & Wachter, 2016). A literature review by Seufert et al. (2012) highlights that organic farming can lead to more resilient farming systems, better adaptation to climate change, and improved food security, all of which are essential for meeting the SDGs. By integrating organic farming practices, the SDGs' vision of a sustainable future can be advanced through enhanced environmental health and more equitable food systems.

Concept of Organic Farming:

The Codex Alimentarius (FAO/WHO) defines organic agriculture as "a holistic production management system that promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity." According to FAO, it is a system that encourages health in agro-biological systems through the use of on-farm agronomic, natural, and mechanical techniques, excluding all synthetic off-farm inputs. The process of becoming an organic requires a mandatory time frame—usually three years—during which productivity may decline as the farm adjusts from conventional to organic farming (Chase, Delate, and Johanns, 2009).

Zulfiqar and Thapa, 2016 define organic farming as an agricultural production system dependent on exclusive organic inputs, avoiding synthetic pesticides and fertilizers to realize the goals of sustainable agriculture. This has given organic farming impetus in the past years, where organically grown foods become a preference for consumers and farmers alike as part of the go-green lifestyle, hence increasing its popularity in recent years. The word "organic" was originally coined by Northbourne in the year 1940, in his book "Look to the Land," where he used it to mean a farm as a living entity which had biological completeness with balanced organic life. Winter and Davis, 2006 added that organic farming involves minimal use of the so-called off-farm inputs and management practices aimed at restoring, maintaining, and enhancing ecological harmony.

Organic farming is a noticeable departure from conventional agriculture in India, in that it does not use any chemicals like pesticides and synthetic fertilizers, but rather natural pest control methods that emanate from organic matter such as manure, plant residues, and animal waste. This transition to organic farming helps to respond to environmental issues from the wide range of uses of chemical inputs. It seeks to correct the ecologic disorder caused by conventional farming and ensures better health to the ecosystem though difficult than doing conventional farming. Quality and safety of food have always remained the paramount concerns of the public, more so when environmental awareness is increasing and multiple food hazards like contamination, adulteration etc has drastically reduced consumer confidence in food quality in the last few decades.

Intensive conventional farming practices tend to contaminate food chains, thus consumers resort to safer and better-quality foods from more eco-friendly and authentic local systems. Organically grown food and foodstuffs prove to meet these needs (Rembialkowska, 2007).

Literature Review

Factors influencing Organic Farming:

Attitude of Farmers: The attitude of farmers plays a pivotal role in their adoption of organic farming practices, influencing their willingness to transition from conventional methods to organic approaches (Yanakittkul, & Aungvaravong, 2019). Positive attitudes towards organic farming can significantly enhance the likelihood of adoption. Borges, Tauer, and Lansink (2016) demonstrated that farmers with favorable attitudes towards innovative practices, such as improved natural grassland management, showed increased intention to adopt these practices. Lalani et al. (2021) found an even stronger effect when it comes to conservation agriculture, with attitudes influencing farmers' intentions. Overall, these findings suggest that positive attitudes towards farming practices are crucial in shaping farmers' intentions and behaviors.

Group–norm influences on farming behaviour - Group-norm influences play a crucial role in shaping farmers' behaviors and their decisions to adopt organic farming practices. Social norms and peer pressure within farming communities can significantly impact an individual farmer's choice to transition to organic methods. Research indicates that farmers are often influenced by the behaviors and opinions of their peers and local farming groups. Darnhofer et al. (2010) found that when organic farming is perceived as a norm within a farming community, individual farmers are more likely to adopt organic practices, driven by a desire to align with group expectations and gain social approval. Similarly, Mase et al. (2015) highlighted that social networks and group norms strongly influence the adoption of conservation practices, including organic farming, as farmers tend to follow the lead of respected peers. This influence is further supported by the work of Pannell et al. (2006), who observed that social norms and group dynamics can either facilitate or hinder the adoption of new farming practices, depending on whether the norms are supportive or resistant.

Costs Incurred in Organic Farming - One of the major factors impacting the economic viability of organic farming is the cost of inputs, especially organic compost, biofertilizers, and natural pesticides—all of which are normally more expensive than the conventional chemical inputs. Moreover, high costs for organic certification have always set a barrier to participation and sustainability for most small-scale farmers involved in this practice. The premiums for organic produce are very price irrelevant and unpredictable, thus affecting farmers' income and profitability. Farmers are more likely to adopt sustainable farming if they perceive that adoption would reduce the input cost and benefit human health and the environment (Sarker et al, 2009)

Support of government policy - Supportive policies and programs can considerably influence the adoption of organic farming (Yanakittkul, & Aungvaravong, 2019). These initiatives can include support in subsidy for organic inputs, certification help, and facilities such as markets for organic products and storage places of great importance to organic agriculture. Clear and supportive regulatory frameworks related to organic certification and labelling instil confidence in consumers and facilitate farmers' access to the market. Inconsistent legislation and bureaucracy can discourage growth in organic farming. Hinge on access to organic markets, fair trade practices, and effective marketing strategies for farmers to derive economic benefits out of organic farming.

Knowledge on Organic Farming - Specialized knowledge on organic practices with respect to soil health management, pest control, and crop rotation techniques forms an essential input in adopting organic farming successfully (Herath & Wijekoon, 2013). In that regard, training programs and extension services become very important in building up the capacity and confidence of farmers for adopting organic methods. Maintenance of soil fertility using organic means involves effective nutrient management, cover cropping, and composting techniques. Farmers need support in terms of reliable information for successfully adopting these practices.

Role of Mass Media - Media play a vital role in educating and enlightening the people and the government to protect and preserve natural resources in the interests of future generations and the limatic chaos. Majority of the organic farmers have a moderately favourable attitude towards organic farming. The mass media exposure helps the farmers in understanding the nature of organic farming & its importance (Paramasivam & Philip, 2017).

Protection of the Environment - In comparison with conventional agriculture, organic farming performs better in relation to the conservation of biodiversity, soil health improvement, and reduced pollution of the environment. Therefore, environmental stewardship is one of the reasons that drives most farmers to adopt organic methods. Among others, organic farming practices, which include water conservation, crop diversity, and organic soil management, , are relevant to climate resilience and adaptation since organic farming is at its most vulnerable in climate-sensitive regions (Pretty et al, 2018).

Challenges of Organic Farming:

Lack of Knowledge: A major limitation in organic farming is the relative lack of knowledge of management practices of organic crops among Indian farmers. In general, most farmers remain unaware of the advantages and principles of organic farming over conventional means (Rai et al, 2021). Integrated organic farming teaches farmers how to improve soil productivity; however, a general lack of awareness has prevailed about new composting technologies. Moreover, the majority of small-scale farmers are inexperienced with the requirements that need to be qualified as an organic farm.

***Low Yield During Conversion Period*:** The full biological benefits, regarding the accumulation of useful insects and soil microorganisms, take years to develop and lead to a transition period, characterised by lower yields and profitability. Most small farmers may not have the resources or infrastructures to endure the lower yields during such a transition period. Furthermore, the time needed for crops to achieve high yield under organic cultivation is uncertain, leading to loss and higher cultivation costs (Elayaraja, 2021).

Lack of Policy for Domestic Market: India's existing organic farming policy primarily focuses on export production, neglecting the development of policies for the domestic market and imports (Pathania, 2020). State governments in India have yet to develop and implement effective policies and mechanisms despite the state adopting NPOP way back in 2000. As a result, the lack of clear regulations on labelling standards and organic certification logos means that consumers and farmers may struggle to distinguish between organic and conventional products. This gap in regulation can lead to fraudulent practices, undermining the value of authentic organic products and preventing legitimate stakeholders from benefiting from consumer willingness to pay a premium for organic goods.

Lack of Certifying Agencies: Equipped only to handle a few products such as fruits, vegetables, tea, coffee, and spices, these accredited agencies are only four in number. The certifying agencies are few, the number of recognized green markets is lacking, the trade channels are not developed, and infrastructural facilities for farm certification are inadequate (Balo & Mahata, 2021). Government should build trust in product quality among producers, sellers, and consumers

through certification.

Marketing Problems: Besides these production-related problems, organic farming is also hampered by marketing problems. There is no well-built network for distribution of organic produce and retailers hesitate to buy organic produce because it is pricey and consumer demand is also less in comparison. Meena (2010) highlighted that inadequate marketing facilities are significant obstacles for organic farmers, necessitating prompt action from government agencies, extension services, and research institutions to facilitate wider adoption of organic farming. Similarly, Demiryurek and Ceyhan (2008) noted that marketing remains a critical challenge, recommending that farmers focus on strengthening local and domestic markets through cooperatives and associations, rather than relying solely on exports. Adigal and Singh (2015) emphasized the importance of warehousing and storage facilities, which allow farmers to store their produce until distribution, thereby improving their ability to wait for favourable market prices.

Managing Pests and Diseases: Managing pests and diseases without synthetic pesticides remains to be difficult. In this area, the availability and efficacy of organic alternatives are pretty poorer than among small-scale farmers. Soil fertility and nutrient management through organic means is, therefore, very complex and requires unique knowledge and skills. Normally, farmers are faced with problems relating to the optimization of organic fertilizers to meet crop requirements.

Unavailability of Organic Seeds: The use of chemical fertilizers and genetically modified seeds puts traditional, indigenous plant varieties at a disadvantage because these varieties are not adapted to respond well to such chemicals (Elayaraja, 2021). According to Bhujel, 2023, unavailability of organic seeds is a major hindrance to organic farming. Availability of quality organic seeds, are stopping farmers from adopting organic farming. Poor quality of seeds leads to less yield.

Research Methodology:

Study Area

This study aims to explore the needs of organic farmers in the state of Tamil Nadu, specifically for the growth of Organic Farming and Consumption. In the state of Tamil Nadu, agriculture is a predominant sector contributing to the economy of the state. The livelihood of around 60 percent of the population depends on agricultural and its allied activities. According to the Tamil Nadu Organic Farming Policy 2023, Tamil Nadu occupies the 14th position with 31,269 hectares of organic agriculture land – 14,086 organic and 17,542 under conversion period. The state of Tamil Nadu is looking at promoting Organic Farming and therefore has released new policies related to Organic Farming which looks forward to promoting not just organic farming but also certification of organic farmers and products, promotion of traditional varieties of seeds, and encouraging cluster-based dryland cultivation.

Interview Outline:

The interview questions were decided after a thorough literature review was done. The common theme of questions asked to the participants include –

1. Why did you choose organic farming?
2. Are you a certified farmer?
3. What are the challenges faced in organic farming?
4. What are the ways in which the government can support organic farmers by making changes in the policy?
5. What are the techniques you follow in organic farming?
6. What are the benefits of organic farming when compared to conventional farming?
7. Did you take any training for organic farming?
8. How is the yield in organic farming?
9. Are you doing organic farming successfully?
10. What facilities do you think would be best if you wanted to make organic farming more successful?

These were some of the common structured questions asked to the farmers. Other questions were asked based on the respondent's answers.

Data Collection and Analysis

For the purpose of this research, data was collected from farmers practicing organic farming in the district of Cuddalore and Kanyakumari districts. The inclusion criteria for this study were farmers practicing organic farming in these districts who were willing to participate in the interviewing process. The purpose and significance of the study was discussed in advance with the farmers and interviews were conducted whenever it was convenient for

the farmers. The interviews were conducted in a neutral setting, where the interviews were recorded and transcribed. The interviewer used active listening technique with minimal interruptions or prompts in order to encourage participants to be authentic and genuine with their answers. The number of required respondents by interviewing the farmers who met the inclusion criteria saturated at 200 interviews as there was no new information being generated after that. Apart from this, experts in the field of organic farming were also met and interviewed to understand the problems of the government officials undertaking the certification process of Organic farming.

This research used a qualitative approach with the help of ATLAS.ti.24 Windows Version to analyze the data collected from farmers. ATLAS.ti is a software designed to assist in the analysis of qualitative data, making it easier for researchers to explore and interpret unstructured data. It provides tools for locating, coding/tagging, and annotating various forms of data, including text, images, audio, video, and geospatial information. Additionally, ATLAS.ti offers visualization capabilities, making it a valuable resource for researchers across diverse disciplines.

The researcher reviewed the interview materials, summarized the data. Coding process was done by the researcher by reading the transcripts of all the interviews and making meaningful statements out of it. The researcher then organized similar codes into a single code group. ATLAS.ti was also used for developing word frequency of challenges, suggestions and factors impacting the intention towards organic farming in farmers were generated.

Findings:

Factors Influencing Adoption of Organic Farming:

Health: One of the major factors that pushed many farmers into organic farming is that organic products are beneficial for health. Consumption of chemically produced goods have had a detrimental impact on the health of the farmers and the consumers. So, farmers want to bring about a change for good health. Organic foods have higher nutritional value compared to conventionally grown foods. For example, organically grown fruits and vegetables may contain higher levels of certain vitamins, minerals, and antioxidants, which are beneficial for overall health.

Few direct quotations given by farmers when asked why they pursue organic farming:

"One of the reasons is for the health of the people, second reason is for my family's health, another reason is that I can be an example for people. This is what motivated me to do organic farming."

"Human health is good in natural fertilizers. Synthetic fertilizers are the cause of human disease. Now everyone is healthy till the age of 40, once they go above 40, there are diseases"

"I have a commitment to welfare life that suits me. This means that the use of these chemical fertilizers and pesticides greatly affects soil fertility, human health, and the lives of the world are being destroyed."

"Because India cannot become a superpower without organic farming. The body's ability will be good only if organic farming is done. If your body is healthy then you can win in everything, no matter how much money you have, if you have organic farming, you can live long."

Diseases: Another factor that emerged during the qualitative analysis is that farmers have identified the reason for the detrimental health of the society is due to the chemical laden foods. The commonly spread diseases and health problems can be solved by going back to the nature. Research suggests that that organic food consumption may support better immune function. This is thought to be due to the reduced chemical load and potentially higher levels of beneficial nutrients found in organic foods.

Few direct quotations given by farmers when asked why they pursue organic farming:

"Now we see a lot of cancer patients. Earlier, it was rare, but now we hear that it is prevalent even in people we know. The reason for this is eating chemical-laden foods. Diseases have increased, hospital costs have increased, and I wish to take care of my health without going to hospital."

"I am a diabetic, and the main reason is that I have seen a lot of relevance when researching whether there is a relation between diabetes and chemical farming. There are a lot of physical harms caused by chemical farming. So, I found out one of the reasons for diabetes is chemical farming. I wanted to encourage my patients by telling them about this organic agriculture and its benefits when I treat them."

"The reason I chose organic farming is because I have a lot of allergies and blood pressure; and food is the main cause and organic products have health benefits. Also organic is good for everyone – good for soil, society and government. If I consume inorganic vegetables I will get wheezing. Health will be spoiled when we consume chemical manure used in vegetables"

Taste: Taste has also emerged as a factor impacting the adoption of organic farming. Farmers believe that the absence of synthetic pesticides, herbicides, and fertilizers in organic farming contributes to a more pure and natural taste in the food. The use of synthetic chemicals in conventional farming can sometimes affect the flavour of the produce.

Few direct quotations given by farmers when asked why they pursue organic farming:

"After eating this rice, you will not find any other rice tasty. It feels like eating something plastic. This rice does not digest quickly. You won't get hungry soon. And you are able to work long hours."

"My product will differ from others. People buy these with so much of interest. If I go to market with fruits people will say that my fruits taste better and buy from me instantly."

"If we take these products to the market, people are buying them quickly due to the richness of taste. People say there is a separate market for these products. But I don't take them to that market as the products get sold here itself. Natural products taste better."

***Good for Soil, Society and Environment*:** Farmers place a huge importance on preserving the environment by taking care of soil, society and environment. Organic farming practices are designed to be more sustainable, protecting ecosystems, and ensuring the long-term health of the planet. A healthier environment, in turn, supports human health by maintaining clean air, water, and food resources. Organic farming prohibits the use of synthetic pesticides, herbicides, and fertilizers, which is good for the soil, society and environment.

Few direct quotations given by farmers when asked why they pursue organic farming:

"Our group has taken up organic farming as both the land and food have to be toxin free."
"We don't like to farm with medicine, so we do organic farming. And the cost of administering the drug is high, but for organic farming it is less."

"I started thinking that the soil needs to be changed to make it healthy for the body, these qualities are there in organic farming."

Influence from Others: Many NGOs focus on educating farmers and the public about the benefits of organic farming. They organize workshops, training sessions, and seminars that teach sustainable farming practices and the long-term benefits of organic agriculture. Nammazhvar, an Indian green crusader and an agricultural scientist is one such person who influenced others to follow organic farming. Apart from him, government officials and other NGOs influence farmers to adopt organic farming practices and provide them with necessary trainings.

Few direct quotations given by farmers when asked why they pursue organic farming:

"Kurinchipadi District Officer approached us and the government encouraged us to do organic farming as a group of 50 people. We have received all the subsidies from the department for 3 years and are doing well. Now 50 people are doing organic farming in our village."

"Nammazhwar had come to our town for a meeting. They had come and arranged at the Panchayat union in Kattumannarkovil. AO called me there. We attended there and started doing it."

"Nell Jeyaraman was the one who saved traditional paddy seeds and gave it us. He encouraged us to pursue organic farming"

"There is an organization called Green Agri Club. I am a member at that club. They will conduct classes regarding ways to grow crops organically. I have attended those classes. That created my interest to choose organic farming."

Micronutrients: Organic farming practices promote soil health and prevent contamination of water sources with harmful chemicals. Healthy soil and clean water are fundamental to human health, as they ensure the production of nutritious food. One of the necessities of produce being nutritious is the health of soil and the presence of micronutrients in the soil. Organic farming promotes micronutrients in the soil.

Few direct quotations given by farmers when asked why they pursue organic farming:

"The production capacity of the soil has decreased. Soil comes with biological properties. It contains a lot of micro-organisms. Now, when applying fertilizer, all microorganisms are down. That is why I have shifted to organic farming."
"A lot of earthworms will be in the field once we have started organic farming. Microbial proliferation is high. No vermicomposting is required."

Challenges Faced by Organic Farmers: ATLAS.ti was used to generate a word cloud of the words occurring frequently in challenges faced by organic farmers. Farmers are facing several dominant challenges that make it difficult for them to adopt and sustain these

organic practices. The challenges faced by the farmers along with the quotes given by them are as follows:

Marketing: Marketing organic problems is one of the major barriers in the adoption of organic farming. Farmers are willing to produce organic and are very interested in organic farming in general. But their problem starts when they are unable to sell their produce at a very good price which then leads to loss. Consumers do not know the authenticity of the produce without a statutory body governing the certification process, so they are suspicious about the quality of the products. There is no separate market for organic products which again raises the question in consumers mind as to the credibility of the produce. Organic farmers often face challenges in finding reliable buyers, marketing their products, and competing with conventional produce that may be cheaper. Especially small and isolated farmers have a huge difficulty in accessing markets.

Few direct quotations given by farmers about challenges in organic farming:

"The biggest problem with organic farming is marketing. People are not yet credible. I know I do one hundred percent organic farming. But there comes a suspicion that people think did he really do organic farming and bring in products organically? If you look at the second problem, these people are accustomed to buying vegetables that are good and shiny. The vegetables grown in organic farming will not be so shiny and the pests will be in the vegetable. Even if we explain that a vegetable with insects is good, consumers will not accept it."

Shortage of Water: Shortage of water is another problem in pursuing organic farming for farmers. Organic farming often emphasizes efficient water use through techniques like drip irrigation, mulching, and rainwater harvesting. These methods minimize water waste and make the most of available resources. Despite this, the use of compost and organic fertilizers can require additional water, particularly during application and integration into the soil. This might increase water demand. Organic farming often relies on manual weeding and the use of cover crops, which requires additional water. Organic farms often rely on natural rainfall or sustainable water sources. Another huge problem is that the availability of water does not coincide with the sowing of the seeds. These problems make it difficult for organic farmer to continue organic farming. Industrialization has also caused a severe water shortage as most of the water is being polluted by large industries in and around the farming fields.

Few direct quotations given by farmers about challenges in organic farming:

"We put eight inches deep well and put a 15 HP motor bore, but there is water problem"

"We used to put the coupled motor on the ground and we pump water. Now, even if the submersible motor is put below 600 feet, water is not available"

Shortage of Manual Labour and High Cost of Labour: Organic farming usually requires intensive labour, which leads to a higher cost as the availability of manual labour is less. Farmers have often blamed the 100-day work programme launched by the government for lack of labour as most of the labourers prefer going to the 100 day work programme rather than work on fields. Because of shortage of labour, farmers are often forced to leave organic farming or rather farming itself as it does not provide them with adequate income. Farmers have also complained about the lesser nutrition in food, due to which the stamina of the labourers have gone down which makes them work less and again increases the labour cost.

Few direct quotations given by farmers about challenges in organic farming:

"In Thovalai, only two third of the farming land is cultivated. One third is not cultivated due to labour shortage. Out of 200 labours in our area, 150 go for 100-day work scheme. The rest are elderly and diseased"

Canal Irrigation: In line with water shortage, another problem that is very particular to the state of Tamil Nadu, especially the Kanyakumari district is Canal irrigation. Due to the aplenty availability of water through the canals, the irrigation in Kanyakumari district usually takes place through canals. The National Programme for Organic Production (NPOP) Policy does not promote canal irrigation for organic

farming. If a farmer is using canal irrigation, they are not eligible for getting certificates.

Few direct quotations given by farmers about challenges in organic farming:

"We have canal irrigation. Everyone around us uses this water. There is a rule that canal irrigation should not be done to get the certificate."

Less Yield During Conversion Period: It is a well-known fact among all organic farmers that the yield is particularly less during the conversion period. The conversion period is the three-year period where a soil is being converted from chemically harvested soil to organically harvested soil. If the soil is good it can be converted to organic soil in three years, but not all soils are alike and some soils take more than 5 years to be converted. At this time, due to the yield being less many farmers get discouraged and give up on organic farming on the whole. Once this conversion period is over, the yield does increase, but by that time the organic farmers have suffered loss and are unwilling to participate in organic farming practices. A farmer whose income and livelihood totally depends on agriculture is unable to pursue organic farming. Farmers are unable to cope up financially to run their family during the first three years, and since they are unable to cover the initial loss, they are forced to give up. Only those farmers for whom farming is a supplementary income, or farmers who have other sources of income can follow it. This is very discouraging to farmers and poses as a great challenge.

Few direct quotations given by farmers about challenges in organic farming:

"Initial production output will be very low, insect attacks are also high and to maximize growth there are few more challenges. These are all important challenges."

"There is not much profit in this. For the first three years there will be nothing and the yield will be only 10 per cent. Then there are a lot of problems with selling. Doing this natural farming is not an easy thing."

Certification Barriers: There is difficulty in obtaining the certificate and there is a prevailing lack of awareness amongst many farmers about the certification process. The farmers also say that they don't know how to get certified, no proper guidance is provided. Small farmers don't get certified as they often do not know how to get certified and don't want to get certified. Although officers from the organic department meet and tell them how to take samples from soil, there is still lack of knowledge. There is another problem in certification that the cost of obtaining a certificate is very high for a layman farmer. The verification cost is very high for each sample. Apart from just obtaining a certificate, farmers have to pay a renewal fees every year, which discourages many farmers. In the first place, they don't have much income, and if they have to pay every year for the renewal they don't want to go ahead with certification itself.

Few direct quotations given by farmers about challenges in organic farming:

"I think we pay around ₹2800 in the first year, in the second year we pay around ₹2300. I have filed those bills. People are suffering to pay these bills. Government needs to rechange these."

High Cost: Organic farming often involves higher costs for inputs like organic seeds, natural fertilizers, and labor. Without access to subsidies or financial support, these costs can make it difficult for farmers to maintain profitability. Farmers often complaint about the high costs associated with organic farming. They feel that they are unable to cope with the costs as the profits earned are very less when compared to the cost. The costs associated with organic farming include the high costs of fertilizers and manures for which there is no subsidy given by the government. The price of organic fertilizer and organic manure is higher than the cost of chemical fertilizer and chemical manure, but there is not much difference in the selling price. Even the GST levied on organic fertilizers is higher. Manual labour is required for organic farming, especially for tasks like weeding, composting, and implementing pest control measures, which again costs more.

Few direct quotations given by farmers about challenges in organic farming:

"But according to NPOP standard, it can be done individually or in groups. Individual fee is Rs 2450. Fees for Group is Rs 2320. There must be at least five people to form a group. Small farmers have to pay the fee every time they renew. When they come for the first time, they are very interested. They will enquire about fee payment on renewals they will ask about the visits and fee payment. They get discouraged about the fees payment for renewal every year."

No Profit: Profit and loss risks are associated with each and every profession. But, the organic farming profession in itself is very susceptible to loss and the gains are very low and infrequent. Farmers struggle to achieve profitability in organic farming. Organic farming requires manual labour which leads to higher cost, reducing the profits of farmer. Other high costs like organic seeds, fertilizers, expensive certification costs also put a dent in the farmers profits. Although the cost is high in organic farming, the price of

conventionally produced products and organic products is same in the market. Organic farming produces lower yield when compared to chemical farming. Organic crops are prone to diseases, pests and losses due to them are higher.

Few direct quotations given by farmers about challenges in organic farming:

"The amount we receive from this is not sufficient. It's not sufficient to run their family. The ones who are doing in large scale levels are able to get some amount, but the ones who are doing in small scale levels like in one acre or ½ acres are suffering. They don't get that much profit in this."

Lack of Storage and Drying Space: Agriculture in the current times has become a very ardent task for farmers. Farmers have small lands which they sometimes get on lease and do not own. Organic produce has to be dried and stored in a proper manner for it to be usable. Without proper storage, organic produce can quickly degrade due to exposure to pests, moisture, and temperature fluctuations as there are no chemical pesticides attached to it. Crops like grains, spices, and certain fruits require proper drying to reduce moisture content and prevent mold growth. Without adequate drying space, farmers may struggle to properly dry their crops, leading to spoilage and quality degradation. Organic farmers may incur additional costs trying to mitigate storage issues, such as renting storage space, building makeshift facilities, or dealing with higher spoilage rates. Delta areas in Tamil Nadu are forced to dry their produce on highways or roads, whereas in rain prone areas do not have that facility as well.

Few direct quotations given by farmers about challenges in organic farming:

"In Delta district, the farmer dries his crop on the road. We can't put paddy on the road for even 5 minutes, because it is not allowed."

Machinery: One of the major problems with using machine is that the landholdings of farmers are very small, they operate on lands which are leased as well. Therefore, it is impossible for the machinery to go to the small fields in order to sow the seeds or harvest. Apart from the land being small, there is another problem of land having ridges and pits, so it's difficult for the machine to move around the farm. In group of farmers where they are sowing different times the harvesting time also differs. So, usage of machinery is not advisable.

Few direct quotations given by farmers about challenges in organic farming:

"Previously everything was manual work. We used to plow, reap whenever we want. Then, we will sow whenever it rains. Now after the arrival of this machinery, we have to rely on 10 people to sow the seeds. If I sow before the neighbouring farmer, my field will grow before his and if he sows after me, his field will grow before me, and with machinery it becomes difficult to cut. My field cannot be mowed. Only if he mows his field can I mow my field."

Traditional Seeds: It is a very difficult task for farmers to acquire traditional variety of seeds, as there are no farms specially dedicated to selling traditional variety of seeds. They often have to resort to their own acquaintances to acquire traditional seeds. Availability of inputs for organic farming is a very huge challenge in the spread of organic farming.

Few direct quotations given by farmers about challenges in organic farming:

"*In the horticulture department, there is a section for seeds. We need to be in contact with the farmers from that section. Farmers can't roam each department to acquire seeds."*

"It is difficult to get the seeds. If there is a store for country seeds it will be useful."

Wild Animals: There is no respite from farmers from wild animals. Especially wild boar. Wild animals such as deer, wild boars, rabbits, and birds may feed on crops, leading to significant damage. Organic farms, which often lack chemical deterrents, may be more attractive to these animals due to the abundance of natural, chemical-free food. Wild boars can trample crops, causing physical damage and reducing yields for farmers. Animals like rodents can damage irrigation systems, fences, and other farm infrastructure, leading to increased maintenance costs. The presence of wild boars poses as safety risks to farmers and livestock. This can limit the areas where farmers feel safe working and affect farm productivity.

Few direct quotations given by farmers about challenges in organic farming:

"The problem of animals is there. I am thinking of putting up pineapple fencing. Monkeys will pick all the coconuts from the coconut tree and throw them away. Nothing can be done about it. With groundnuts crows will disturb once it starts sprouting. Then, the peacocks would come, we would tie a rope around the field, the rope would stop them from going inside. They eat only rice. There are a lot of wild pigs and we can't do anything.:

"If you have seen here the wild boars are more. Chemicals can not be used at all to attack it because we do organic farming and therefore prevent it by tying rope.

Pest, Worms, Insects and Diseases: Organic crops can be more vulnerable to pests and diseases, especially in the absence of immediate and effective chemical interventions. This can lead to lower yields or crop loss. Organic farmers cannot use synthetic pesticides and herbicides, which are commonly relied upon in conventional farming. Instead, they must use natural pest control methods, such as crop rotation, biological pest control, and organic-approved pesticides, which may be less effective or require more labor and knowledge. There are techniques followed by many organic farmers which are still unknown to other farmers.

Few direct quotations given by farmers about challenges in organic farming:

"The biggest problem is occurrence of worms and insects in banana crops during rainy seasons"

Lab Facility: Although there are lab facilities available, farmers often complain about the lack of lab facility in specifically testing organic products. The process of testing the organic products takes a very long time, and farmers want some facility where the testing is quick and the machinery can identify the organic food easily. Farmers are also complaining about the high price of testing each sample separately.

Value Added Machinery: Most of the organic products produced by the farmers cannot be sold just like that, some kind of additional value has to be added to the products. There is unavailability of machinery to make value added products. Even if there is a machine, farmers have to wait for their turn to use it.

Discussion and Conclusion:

Suggestions to the Policy Makers

Government must ensure that farmers receive full support during the conversion period from inorganic to organic in every way, so that more farmers are encouraged to transition.

- Government should simplify the process of certification and ensure that all organic farmers are certified. Certification process should be designed in such a way that it suits the needs of every district.
- Government should ensure that all organic farmers are trained effectively in producing organic products, with appropriate tools and techniques.
- Government should also take steps to provide manpower to organic farming through its 100-day work programme, so more organic farmers are benefited out of it.
- Government should provide organic inputs like fertilizers, manures and seeds to organic farmers to encourage them to continue organic farming.
- Government should invest in infrastructure to create storage and drying facilities for organic farmers, as most farmers lack this space due to small land holdings.
- Government should create awareness amongst farmers about the benefits of organic farming for the health, soil and environment and discourage the use of chemical farming.
- Government should provide subsidies for organic farmers for – conversion, certification, organic inputs, etc.
- Government should fix a price band for organic products like MRP, and procure directly from farmers, so that they can benefit out of it rather than middlemen.
- Government should set up separate markets for organic farmers, so that it is easier for them to market and sell their products.
- Government should provide organic farmers with machinery for farming as well as adding value to their produce.

Conclusion:

This paper highlights the complexity of farmers' intentions towards organic farming and the significant challenges they face. Through comprehensive data analysis and firsthand insights, it is evident that while there is a growing interest in organic farming amongst farmers, there are several barriers to its widespread adoption. These challenges include limited access to organic inputs, lack of technical knowledge, and financial constraints. The findings of this paper explain the need for targeted policy interventions to support the transition towards organic farming. Specifically, policymakers should focus on enhancing access to affordable

organic inputs, providing comprehensive training and support programs, and facilitating financial mechanisms to mitigate the initial investment costs.

By addressing these key areas, policymakers can create a more conducive environment for organic farming, ultimately benefiting farmers, consumers, and the broader agricultural ecosystem. Supporting these recommendations will not only help overcome the current struggles faced by farmers but also promote a more sustainable and resilient agricultural sector for the future.

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