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Factors Influencing the Adoption of Organic Farming in India: A Multi-Criteria Analysis using Analytic Hierarchy Process (AHP)

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Abstract : *The term 'Organic' was coined by British agriculturalist Lord Northbourne in his book 'Look to the Land' in the year 1940. Organic Farming is the future of the world's Agricultural system. The worldwide fast-flourishing demand for organic produce indicates that people are more likely to consume organic foods over conventional agricultural produce to minimize the adverse impact of chemical fertilizers and pesticides. Despite being the highest organic producer in the world, the amount of area and the number of farmers engaged in organic farming in India is very low. However, the Government of India is trying to promote organic farming and motivate farmers to adopt organic farming by implementing several initiatives. Some economic and non-economic factors influence the adoption process. In the present paper, some driving factors mentioned by various researchers are selected on the basis of their importance in motivating farmers to adopt organic farming. Using these factors, a multi-criteria analysis has been done with the help of the Analytic Hierarchy Process (AHP). The key objective of this paper is to identify the priority percentage of individual factors and to find out their significance in the adoption of organic farming in India.*

Key words: *Organic Farming, Organic Certification, Organic Farming Adoption, AHP, NPOP, PGS-India.*

Introduction

Agriculture is considered the strongest pillar of a country's economic growth. Since ancient times, agriculture has been practiced as the primary occupation in India. Organic agriculture is not a new concept in this country. The primitive farmers used organic manures and natural fertilizers (cow dung, dried leaves and branches of trees, etc.) to ensure soil health and maintain environmental balance. After World War II, the entire world was devastated. Mass destruction affected the world economically as well as ecologically. People were homeless, and food scarcity greatly affected almost all countries all over the world. To subjugate this situation, American agricultural scientist Sir Norman Borlaug introduced and implemented the concept of the Green Revolution. The wave of the Green Revolution hit the Indian sub-continent in the late 1960s. As a result, agricultural production has increased multifold. The use of high-yielding seeds, chemical fertilizers, and chemical pesticides was prevalent at that time for optimum crop production, which led to significant degradation of soil health, the natural environment, and biodiversity. Most of

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the chemical fertilizers and pesticides contain harmful chemicals that are slowly absorbed by the human body through agricultural produce that we consume every day. To avoid such situations, organic farming is considered an effective alternative to conventional farming practices. Organic farming is a form of Sustainable agriculture where the term 'Sustainable' includes not only environmental sustainability but also social and economic sustainability (Padel, S. 2001). It is completely free from chemical fertilizers and pesticides (Roitner-Schobesberger, B., Darnhofer, I., Somsook, & Vogl, 2010).

According to the FAO, organic farming refers to an integrated production management system that stimulates and escalates agro-ecological health, including bio-geological cycles and bio-geochemical activities in soil and sustains the ecosystem and soil health by using green manure, compost instead of synthetic fertilizers and harmful pesticides (IFOAM). In the organic farming process, the farmers only maintain the traditional farming process depending upon local conditions (Reganold, & Wachter, 2016). For these reasons, a constant increase in organic farming processes is prominent globally. Additionally, worldwide demand for organic products also plays a pivotal role in the inclination toward organic farming.

India has diverse physiographical and climatic divisions from south to north and east to west, along with 46 different types of soil, which help to grow several types of crops. (Tyagi, & Shastri, 2016). With the proper method and support, India has enormous potential in Organic Farming. But apart from favourable climate, soil, relief, drainage, and land, organic farming requires some other parameters, as the farming procedure and techniques are more scientific and ecological than the conventional farming process. The first step towards adopting organic farming is the conversion of conventional farming land to organic farming, but there are several problems in the adoption process. At least three years are required for transforming from the conventional method to the organic method (Azam, & Shaheen, 2019). So, time is the key factor here during this foundational period; the profit remains very low, and the farmers require financial support and government subsidies. Lack of financial support, low yield, and unavailability of markets during the early conversion period may decrease farmer's interest in the adoption of organic farming (Dixit, Suvadarshini, & Pagare, 2024). Apart from this higher preparative cost, lack of trend labour, poor infrastructure facilities, etc., also affect the conversion process. To overcome the situation, government intervention through proper policy making, granting subsidies, providing financial support and training is required. Considering the potential of organic farming in India the government has taken various initiatives. Since 2015 the Government of India has started prioritizing organic farming. To promote organic farming the Government has exclusively launched several schemes, certificate systems, and agricultural models.

There are several factors that encourage farmers to adopt organic farming (Kallas, Serra, & Gil, 2010). These factors are broadly categorized into two groups, viz., socio-personal factors and economic factors (Singh, & Thakur, 2022). Socio-personal factors include farmers' age, gender, family size, education level, family type, total land holdings, training, etc. These factors are also

considered as the non-economic factors comprising social concern, environmental benefit, eco-friendly nature, health benefit, etc. Environmental perception and awareness are also very important in motivating farmers to adopt organic farming (Koesling et al., 2008). The economic factors mainly focus on the financial concerns of the farmers. Though the key features of organic farming are its low input cost, the adoption process requires a higher conversion cost. (Parvathi, & Waibel, 2013) Economic factors also include market demand, premium price and profit (Argilés Bosch, & Duch Brown, 2007). Sometimes consumers fail to differentiate between conventional farming products and organic produce due to a lack of promotion skills, which affects demand. To reduce financial constraint and to increase marketing opportunity and promote awareness, labour, ever liability and profit government intervention is highly required in the organic farming process (Bhattarai, Lyne, & Martin, 2013). Few studies stated that scientific planning, the ability to maximize the use of available resources, policy making, preparing fund requisition, fund distribution, etc., are also very important in organic farming (Yu, He, & Zhao, 2021). In India, there are two prominent certification schemes that are effectively functional to facilitate the farmers in the certification process. Also, there are 8875 Farmer Producer Organization (FPOs) in India registered under Part IX A of the Companies Act or under the Co-operative Society Act to provide end-to-end support to the farmers. According to Patil, Mehta, Pancholi, & Saxena (2025), the primary aims behind the formation of FPOs are capacity building, mobilizing financial stability, market participation and creating awareness.

According to *FiBL & IFDAM-Organic International* survey, 2025, the total global organic farming area has reached by 98.9 million hectares in 2023. The growth rate is about 2.6% from 2022 to 2023. About 188 countries throughout the world is actively practicing organic production. The same report claims that India ranks 2nd in total number of agricultural land (7.3 million Ha) under organic cultivation in the World and holds first position in total number of producers. Although India accounts for 53.49% of the total World's organic producers, it accounts for 4.5 million hectares of the total 98.9 million hectares of area under organic farming of the world, which accounts for only 4.55%. The percentage of total land under organic farming is very low compared to the organic production percentage.

In this paper, some specific factors are selected to analyze using the Analytic Hierarchy Process (AHP). The relative priority percentage of the factors is calculated manually. Later, the study sheds some light on the present scenario of the selected factors in the Indian organic farming process.

Objectives

There are several factors which influence farmers to adopt organic farming over conventional farming. The objective of the study is to identify the key factors that influence the conversion process based on an extensive literature review. Different scholars have identified several factors

in their studies, but some appear repeatedly across different analyses. These recurring factors are therefore considered as key factors. Another objective of the study is to analyze the importance of the key factors mathematically and rank them according to the priority percentages.

Methodology

In this study, five factors that are considered important attributes in the organic farming process are selected and analyzed using AHP. AHP is a decision-making tool proposed and developed by Thomas L. Saaty in the year 1980. It helps to prepare a hierarchical model for multi-attribute evaluation on the basis of Pairwise Comparison Matrix (PCM). Relative Priority Percentages derived from the PCM are used to analyze the significance and priority of the attributes in the PCM. (Mishra, Deep, & Choudhary, 2015).

Selection of the attributes: A detailed study of 21 relevant literature concludes that among various factors, there are five prominent factors that motivate Indian farmers to adopt organic farming.

i. Certification: It is a link between the consumer and production. It ensures quality and marketing standards along with the authenticity of organic goods for both the export and domestic markets.

ii. Farmer registration: The Government of India has exclusively launched two farmer registration schemes to promote organic agriculture. These schemes emphasize on end-to-end support to farmers associated with organic farming. Registration supports a farmer from Production to Processing. It simplifies the process of certification and helps in post-harvest management and marketing.

iii. Conversion subsidy: In India, 86% farmers are small and marginal, having less than 2.5 acres of land. Conversion subsidy is required for these kinds of farmers for initial investment and certification-related expenses (Mahendra Dev, S. 2014). Also, during the preparatory phase of conversion, the subsidy ensures the farmers' financial security.

iv. Accessibility and market orientation: demand for organic products is increasing worldwide. India is the highest exporter of organic goods. But the growth of the domestic market is not satisfactory. Many farmers from interior villages and hilly areas cannot make it to the market due to distance, lack of money and lack of knowledge regarding market orientation. The Government of India operates the *Jaivik Kheti* e-commerce portal to help the farmers by facilitating promotion and marketing of organic produces.

v. Literacy & awareness of farmers: Most of the Indian farmers are facing several problems, including lack of knowledge, high production cost, poor knowledge about the market, and lack of knowledge regarding policy measures *(ASSOCHAM 2018*). That is why Literacy and Awareness of the farmers is also opted as an attribute.

Table 1: Attributes mentioned by different authors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	Jitender Kumar et. all	*B. S. Meena*	*S. Papadoupolos et. all*	*Genius et.all.*	*Azam and Shaheen*	*Avinash and Vikas Batra*	*S. P Singh et. All*	*R. Nandi et. all*	*P. T. Raghu et. all*	*A. Joshi et. all*	*O. Chichongue et. all*	*L. N. Digal and S. G. P Placencia*	*C. Altenbuchner et. all*	*P. Parvati and H. Waibel*	*M. Koesling et. all*	*J. M. Argiles and N. D. Brown*	*L. Lohr and L. Salomonsson*	*K. G. Kshirsagar*	*A. Asadollahpour et. all*	*E. Wynen*	*N. Names*
Certification	√	√	√	√		√			√	√	√		√	√				√	√		
Farmer Registration	√	√	√	√		√				√	√		√	√				√	√		
Conversion Subsidy	√				√									√			√			√	
Accessibility & Market orientation	√	√		√	√		√	√								√				√	√
Literacy & Awareness	√			√	√	√	√					√			√			√			

Source: *Prepared by author*

Preparation of Pairwise Comparison Matrix for AHP: Saaty developed a 9-point scale of relative importance (Table 2) to understand the relative dominance or importance between two parameters. The decision maker can put a numerical value between 1 and 9 against a particular parameter according to its importance or dominance with respect to the goal. Here, PCM (Table 3) is prepared with the selected parameters.

Table 2: Saaty's Fundamental Scale of Relative Importance

Intensity of importance on an absolute scale	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance of one over another	Experience and judgment strongly favour one activity over another
5	Essential or strong importance	Experience and judgment strongly favour one activity over another
7	Very strong importance	An activity is strongly favoured, and its dominance is demonstrated in practice
9	Extreme importance	The evidence favouring one activity over another is of the highestpossible order of affirmation
2, 4, 6, 8	Intermediate values between the two adjacent judgments	When compromise is needed
Reciprocals	If activity *i* has one of the above numbers assigned to it when compared with activity *j*. then *j* has the reciprocal value when compared with *i*	
Rationales	Ratios arising from the scale	If consistency were to be forced by obtaining n numerical values tospan the matrix

Source: Saaty, T. L. (1990)

In this PCM, for instance, paired comparison between factor (a) and (b), if the value is placed for factor (a) as N_{ab}, then the value for factor B will be placed as $1/ N_{ab}$ for the same comparison to maintain the consistency in decision making (equation —— [i]). Further, the values in the matrix are normalised using particular mathematical calculations to derive the criteria weights against individual factors. Each criterion's weights are then multiplied by 100 to estimate the priority percentage for the factors.

Table 3: Paired Comparison Matrix (PCM) based on Saaty's Fundamental Scale

	Certification (a)	Farmer Registration (b)	Conversion Subsidy(c)	Accessibility & Market orientation (d)	Literacy & Awareness(e)
Certification (a)	1	1	5	3	3
Farmer Registration (b)	1	1	3	3	4
Conversion Subsidy (c)	1/5 = 0.20	1/3 = 0.333	1	1	3
Accessibility & Market orientation (d)	1/3 = 0.333	1/3 = 0.333	1	1	5
Literacy & Awareness (e)	1/3 = 0.333	1/4 = 0.25	1/3 = 0.333	1/5 = 0.20	1

Source: Prepared by author (based on Saaty's Pairwise Comparison Matrix 1990)

	(a)	(b)	. .	(x)
(a)	1	N_{ab}	. .	N_{ax}
(b)	$1/ N_{ab}$	1	. .	N_{bx}
.	.	.	. .	.
.	.	.	. .	.
(x)	$1/ N_{bx}$	$1/ N_{bx}$	. .	1

[i]

Saaty also incorporated Consistency Index (CI) and Consistency Ratio (CR) into the process of analysis to ensure the consistency of the study. To calculate the Consistency Index (CI) Saaty established the following equation (Equation [ii])

$$CI = \frac{\lambda\ \max - n}{n-1} \qquad \text{[ii]}$$

where, λmax = Principal Eigenvalue;

n = total number of factors.

Consistency Index (CI) is used to determine if the matrix is consistent or not. The level of consistency depends upon a constant threshold value. CI was advocated by Kendall and Smith in 1940. It is directly related to the elements (values) of the matrix. If any of the elements get altered, the value of CI will change (Aupetit, & Genest, 1993). If the CI exceeds the threshold value, then the judgment will be considered insignificant, and the decision maker has to reconsider the PCM elements. (Pant, et. al. 2022)

Table 4: Normalized Paired Comparison Matrix

	Certification (a)	$\frac{ai}{\sum a}$	Farmer Registration (b)	$\frac{bi}{\sum b}$	Conversion Subsidy (c)	$\frac{ci}{\sum c}$	Accessibility & Market orientation (d)	$\frac{di}{\sum d}$	Literacy & Awareness (e)	$\frac{ei}{\sum e}$	Criteria Weights (cw)	Priority percentage
Certification (a)	1	0.349	1	0.343	5	0.48	3	0.37	3	0.19	0.346	34.60
Farmer Registration (b)	1	0.349	1	0.343	3	0.29	3	0.366	4	0.250	0.320	32.00
Conversion Subsidy (c)	1/5 = 0.20	0.070	1/3 = 0.333	0.113	1	0.097	1	0.122	3	0.188	0.118	11.80
Accessibility & Market orientation (d)	1/3 = 0.333	0.115	1/3 = 0.333	0.113	1	0.097	1	0.122	5	0.313	0.152	15.20
Literacy & Awareness (e)	1/3 = 0.333	0.115	1/4 = 0.25	0.086	1/3 = 0.333	0.032	1/5 = 0.20	0.024	1	0.063	0.064	6.40
SUM	Σa = 2.866		Σb = 2.916		Σc = 10.333		Σd = 8.2		Σe = 16			100

Source: Prepared by author (based on Saaty*'s Normalized Paired Comparison Matrix 1990)*

Table 5: Calculation to derive Principal Eigenvalue (λ max)

	a × cw	b × cw	c × cw	d × cw	e × cw	Weighted Sum Value (ws)	Criteria Weight (cw)	ws/cw
Certification (a)	0.35	0.32	0.59	0.45	0.19	1.90	0.346	5.49
Farmer Registration (b)	0.35	0.32	0.35	0.45	0.25	1.72	0.320	5.38
Conversion Subsidy (c)	0.07	0.11	0.12	0.15	0.19	0.64	0.118	5.41
Accessibility & Market orientation (d)	0.12	0.11	0.12	0.15	0.32	0.81	0.152	5.34
Literacy & Awareness (e)	0.12	0.08	0.04	0.03	0.06	0.33	0.064	5.14
SUM								26.77
λmax = 26.77/5 = 5.35			CI = 0.0875					

Source: Prepared and calculated by author

Instead of setting a threshold value over the CI, Saaty introduced the Consistency Ratio (CR) and assigned the threshold value of 0.10 to CR. Consistency Ratio, also considered as the level of Inconsistency, is calculated as: (equation [iii])

$$CR = CI / RI \qquad [iii]$$

Where RI refers to Random Index or Consistency Random Index.

RI consists some pre-estimated values (Saaty's average CI) against the number of parameters taken for the PCM. (Saaty, 1990, Donegan, & Dodd, 1991). The Consistency Ratio of the present PCM is [0.0875/1.12] = 0.078, which signifies the judgment is consistent.

Table 6: Random Consistency Index (Saaty's Average CIs)

n	3	4	5	6	7	8	9	10
RI	0.58	0.90	1.12	1.24	1.32	1.41	4.45	1.49

Source: Saaty, T. L. (1990)

In the given PCM, the priority vectors are the principal eigenvectors of the matrix. These give a relative priority percentage for a particular factor in a Ratio scale. In the given study,

Certification has the highest relative priority with 34.6% of priority percentage, followed by Farmers Registration (32%), Accessibility & Market Orientation (15.2%), Conversion Subsidy (11.8%) and Literacy & Awareness (6.4%).

Discussion

It is clear from the AHP that certification and farmer registration are almost equally important for adoption and/or conversion to organic farming. Certification is beneficial for farmers as it helps in getting a premium price and marketing opportunity (Avi, & Batra, 2023). To promote organic farming, the Government of India exclusively launched two Certification systems, i.e. National Program for Organic Production (NPOP) and Participatory Guarantee System-India (PGS-India).

National Program for Organic Production is a third-party certification program operated by APEDA under the Ministry of Commerce and Industry. This program was launched in the year 2001 and implemented in 2016. NPOP is solely focused on exporting organic produce. It assures validation of organic produce as per national or international organic standards (as per requirement). (Darjee, 2023, Banerjee, & Shanthakumar, 2023). As a result, it requires thorough documentation and detailed paperwork. Hence NPOP certification is quite costly and unaffordable for small or marginal farmers.

To simplify the situation and make it available to marginal farmers, an affordable certification system is launched by the Government of India: The PGS-India system.

The Participatory Guarantee System or PGS-India system was launched by the Department of Agriculture and Cooperation and Farmers Welfare in the year 2011 under *Pradhanmantri Krishi Vikas Yojna* (PKVY). It was implemented through the National Centre of Organic Farming (NCOF), Ghaziabad (HQ).

PGS-India is based on the participatory approach where participation of all the stakeholders is mandatory. Stakeholders include organic producers, consumers, traders and retailers. It is a community-centric decision making system where each stakeholder must be involved in making decisions (Banerjee, & Shanthakumar, 2023). To be very specific, the base of the PGS system lies upon trust, horizontality, and knowledge exchange, constructive discussion among the participants, transparency and national networking. The focus of this certification process is the local or domestic market. It often comprises hands-on training, field trips and/or workshops.

Along with the implications of several schemes and programs, it is also very important to increase the land coverage area under organic farming. India has 1711107.27 hectares of area under organic cultivation and 2764729.64 hectares of area under conversion (2024) (Table 4).

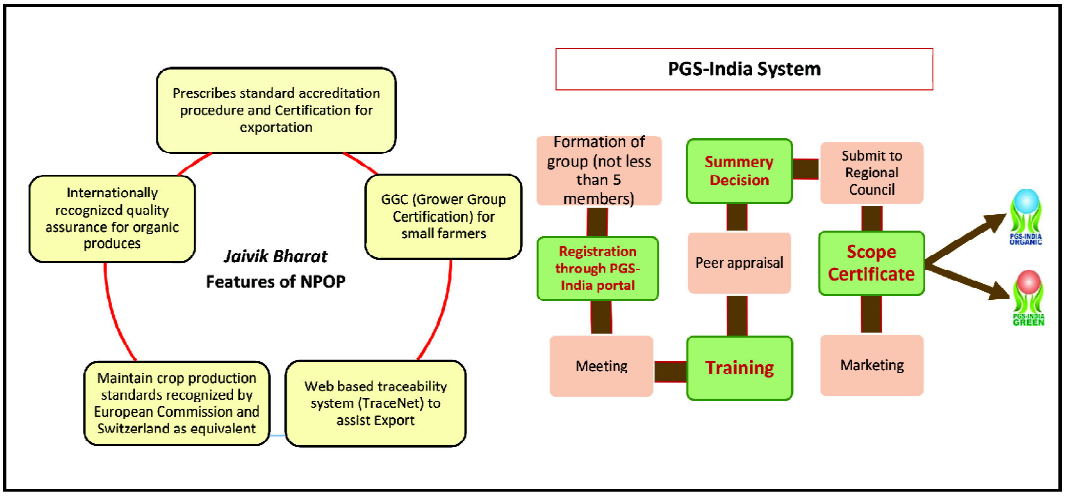

Fig. 1: Working model of NPOP and PGS-India Certification system

Source: APDEA, NPOP, data.gov.in

The main difference between organic area and conversion area is that the organic area refers to lands already certified as 'organic', whereas conversion lands are still transitioning from conventional farming to organic farming. Madhya Pradesh (612816 Ha) holds the largest organic area in the country, followed by Maharashtra (267229 Ha) and Rajasthan (215299 Ha). On the other hand, Maharashtra (733851 Ha) has the largest area under conversion, followed by Gujarat (588486 Ha) and Madhya Pradesh (535420). (Table 7)

The distribution of organic lands under the two different certification systems is also very distinctive. If we consider the state/UT-wise percentage of organically certified lands to total land cover under agricultural activities, then the scenario would not be very impressive, as in most of the states/UTs, the percentage is almost negligible for both the schemes, except Sikkim.

Being the first organic state of the country, only Sikkim shows a satisfactory outcome. 78% of the total agricultural land of Sikkim is certified under NPOP, and separately, around 64% of the total agricultural land is certified under the PGS-India certification system. Apart from Sikkim, Andaman & Nicobar, and Ladakh are also showing promising outcomes. In these two UTs, 51.75% and 37.43% of the total agricultural land is certified under the PGS-India certification system. (Table 4) Before getting certification from any authorized company, a farmer has to be registered as an organic farmer through NPOP and/or PGS-India. In both systems, there are some simple steps along with some document verification procedure that ensures the farmer's validation after completing the entire registration process.

Table 7: State/UT Wise Cultivated Area under Organic Certification during 2023-24

Sl No.	State/UT	Organic Area (In Ha)	Conversion Area (In Ha)	Total Area (In Ha)	Sl No.	State/UT	Organic Area (In Ha)	Conversion Area (In Ha)	Total Area (In Ha)
1	Madhya Pradesh	612816	535420	1148236	16	Assam	15434	11645	27079
2	Maharashtra	267229	733851	1001080	17	Chhattisgarh	11289	3855	15144
3	Rajasthan	215299	364793	580092	18	Goa	11180	1107	12287
4	Gujarat	92334	588486	680820	19	Himachal Pradesh	8182	1152	9334
5	Odisha	77696	103326	181022	20	Manipur	7172	25413	32585
6	Sikkim	75473	257	75730	21	West Bengal	7011	1106	8118
7	Uttar Pradesh	52889	13503	66391	22	Tripura	5884	14597	20481
8	Uttarakhand	51628	50192	101820	23	Arunachal Pradesh	5841	10696	16538
9	Kerala	36209	8055	44264	24	Telangana	5400	79465	84865
10	Karnataka	30612	40474	71086	25	Jharkhand	3524	50884	54408
11	Andhra Pradesh	25877	37802	63679	26	Nagaland	3340	12881	16222
12	Jammu & Kashmir	24963	9784	34747	27	Mizoram	3230	11008	14238
13	Meghalaya	20112	9592	29703	28	Haryana	2260	665	2925
14	Bihar	19087	9975	29062	29	Punjab	1009	10080	11089
15	Tamil Nadu	18099	24659	42758	30	Pondicherry	21	0	22
					31	New Delhi	5	4	10

Source: APDEA, NPOP, data.gov.in

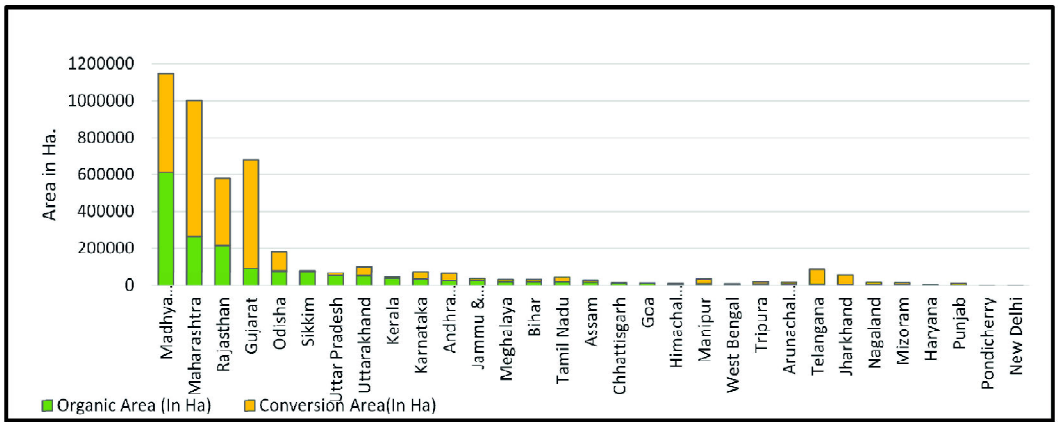

Fig. 2. State/UT Wise Cultivated Area under Organic Certification during 2023-24

Source: APDEA, NPOP, data.gov.in

The Government of India also prioritizes the inclusion of a maximum number of farmers in organic farming. In this regard, under PKVY, the government has enabled three types of registration processes, i.e. Farmers Registration, Local Group Registration and Supplier Group, in the *Jaivik Kheti* portal (www.jaivikkheti.in). Interested farmers can opt for any of the three processes as per their requirement. Farmers can register by following some simple steps by providing particular details such as Personal Information, Farm Details and Bank Account details.

Under MOVCD-NER, making commodity-based farmer clusters is given importance. A group of farmers accumulates themselves on the basis of commodity or crop type and Farmer Interest Groups (FIGs) are created at the village level. With multiple FIGs, a Farmer Producer Company (FPC) or Farmer Producer Organization (FPO) forms at the state level. Using Value chain Mode, these FPOs /FPCs not only create links between farmers and consumers but also provide necessary training, workshops, certification and aggregation and facilitate exports.

There are around 20.4 lakh farmers registered in the PKVY scheme and around 1.49 lakh farmers registered in the MOVCD-NER scheme since 2019. The state of Andhra Pradesh (648270) has the highest number of registered farmers under organic farming, followed by Kerala (285540) and Uttarakhand (271859) (*APDEA, NPOP, data.gov.in)*

Market orientation is also considered as an important parameter in the process of adoption. Certification not only facilitates farmers to gain access to market but also helps in getting a price premium for organic products (https://sapagro.in/). Indian organic production is mainly focused on export. In 2024-25 India has exported 368155 metric tons of organic products worth 665.97 USD million. The major exporters of Indian organic products are USA (131306.81 MT) and the

Table 8: State/UT-wise Cumulative Number of Registered Farmers under both PKVY and MOVCD-NER (2019-2024)

Sl. No.	State/UT	UNDER PKVY	UNDER-MOVCD-NER	Sl. No.	State/UT	UNDER PKVY	UNDER-MOVCD-NER
1	Andhra Pradesh	648270	0	17	West Bengal	42298	0
2	Bihar	28772	0	18	Himachal Pradesh	33768	0
3	Chhattisgarh	53454	0	19	Uttarakhand	271859	0
4	Gujarat	13314	0	29	Jammu &Kashmir	11500	0
5	Goa	12685	0	30	Ladakh	14070	0
6	Jharkhand	22507	0	31	Andaman & Nicobar	3590	0
7	Karnataka	11630	0	21	Assam	0	19723
8	Kerala	285540	0	22	Sikkim	0	10740
9	Madhya Pradesh	47360	0	23	Tripura	0	20689
10	Maharashtra	37173	0	24	Nagaland	0	23086
11	Odisha	59003	0	25	Manipur	0	37123
12	Punjab	1762	0	26	Meghalaya	0	12007
13	Rajasthan	159979	0	27	Arunachal Pradesh	0	11565
14	Tamil Nadu	33282	0	28	Mizoram	0	14000
15	Telangana	637	0		**Total**	**2035125**	**148933**
16	Uttar Pradesh	242672	0				

European Union (94230.22 MT). The foremost step towards barrier free export is proper certification through authorized certification agencies. In India every certified organic producer must incorporate a Jaivik Bharat logo in their packaging. As consumers are always change to choose authentic organic products and certification guarantee that authenticity. During the certification process, a very important step is inspection and quality check, which ensure that the product is free from synthetic pesticides genetically modified organisms (GMOs) and chemical fertilizers (https:// nfccertification.com/). This is also beneficial for environmental preservation. Organic farming incorporates crop rotation, soil and water conservation, ecosystem restoration, preservation of biodiversity and natural paste control all these leads to sustainable Agro-environment both NPOP and PGS-India offers multiple farmers' awareness programs to motivate them towards organic farming. Hence education is a very crucial factor in adoption. Higher education level in farmers leads to new ideas and ameliorate environmental perception (Digal, & Placencia, 2019).

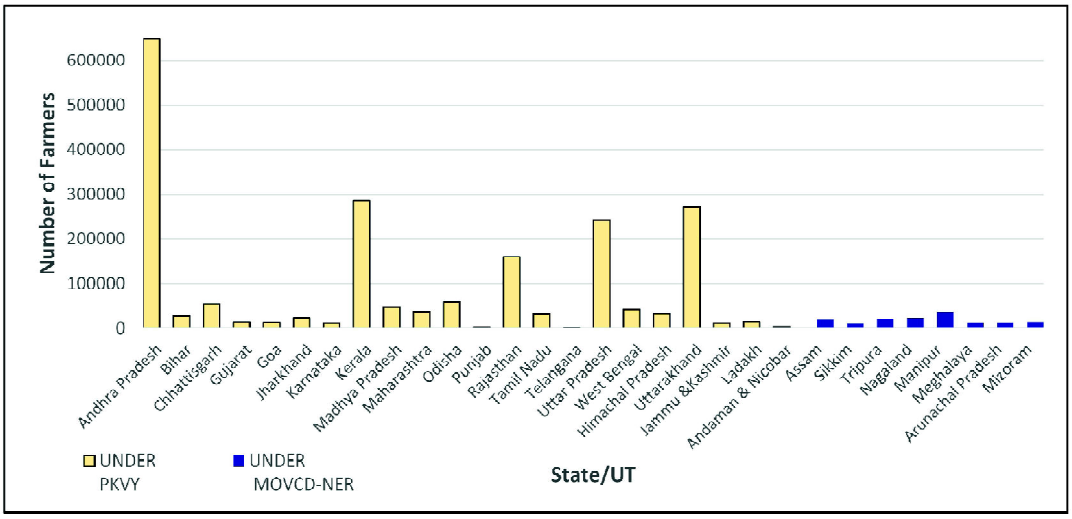

Fig. 3. State/UT wise Cumulative Number of Registered Farmers under PKVY and MOVCD-NER (2019-2024)

Source: Prepared by author

Conclusion

Despite several Government initiatives and programs, organic farming is not solely accepted by a huge number of farmers in India. They face different challenges during the conversion process. In a country like India where extreme population growth is a serious concern, the amount of organic production is not enough to feed the people (Schoonbeek, et. al. 2013). Also, Organic products are costlier than conventional farming produces due to low availability of organic Input and labor. Lack of extension services in the remote areas, unavailability of crop insurance and access to credit also affect the adoption process. The fundamental years for conversion take 3 to 5 years. During this period yield remains very low, so the farmers might face financial strain in this stage. This long term financial uncertainty is another barrier to the adoption also lack of awareness, illiteracy etc. affect the conversion process. Above all costly and complex criteria of certification process is also notable reason behind the reluctance of Indian farmers towards organic farming.

In recent times a new trend is emerging where youths from non-agricultural backgrounds are getting attracted towards Agri Business. Most of them are highly educated and always ready to adopt new technologies in agriculture. These agricultural newbies are mostly from urban background and very much aware of environmental sustainability. To achieve maximum benefit social interaction between the new commerce and existing farmers is important.

The study concludes that among all the driving factors, Government support is the most important key towards the adoption of organic farming. Certification and farmer registration along with different extension services, training programs, knowledge exchange, conversion compensation, stakeholders' participation, separate market for organic farming, crop rotation, community-based farming etc. should be the focus of motivating farmers towards conversion (Thapa, & Rattanasuteerakul, 2011). India has huge prospects in organic farming. Extensive research related work, along with proper planning and scientific implementation, will brighten up the future of Indian organic farming.

References

Argilés Bosch, J. M., & Duch Brown, N. (2007). A comparison of the economic and environmental performances of conventional and organic farming: evidence from financial statements. IEB Working Paper 2007/08. https://doi.org/10.22004/ag.econ.118577

Aupetit, B., & Genest, C. (1993). On some useful properties of the Perron eigenvalue of a positive reciprocal matrix in the context of the analytic hierarchy process. European Journal of Operational Research, 70(2), 263-268. https://doi.org/10.1016/0377-2217(93)90044-N

Avi, A., & Batra, V. (2023). Organic farming in India: evolution, current status and policy perspectives. Space and Culture, 11(2), 18-34. doi:10.20896/saci.v11i2.1328.

Azam, M. S., & Shaheen, M. (2019). Decisional factors driving farmers to adopt organic farming in India: a cross-sectional study. International Journal of Social Economics, 46(4), 562-580. https://doi.org/10.1108/IJSE-05-2018-0282

Banerjee, M., & Shanthakumar, S. (2023). International and National Policies on Organic Agriculture. In Transforming Organic Agri-Produce into Processed Food Products (pp. 97-112). Apple Academic Press. doi:10.1201/9781003329770

Bhattarai, S., C. Lyne, M., & K. Martin, S. (2013). Assessing the performance of a supply chain for organic vegetables from a smallholder perspective. Journal of Agribusiness in Developing and Emerging Economies, 3(2), 101-118. doi:10.1108/JADEE-12-2012-0031

Darjee, D. K. (2023). An Exploratory Study on the National Programme for Organic Production of India. International Journal of Creative Research Thoughts (IJCRT), 119-127.

Digal, L. N., & Placencia, S. G. P. (2019). Factors affecting the adoption of organic rice farming: the case of farmers in M'lang, North Cotabato, Philippines. Organic Agriculture, 9(2), 199-210. https://doi.org/10.1007/s13165-018-0222-1

Dixit, A., Suvadarshini, P., & Pagare, D. V. (2024). Analysis of barriers to organic farming adoption in developing countries: a grey-DEMATEL and ISM approach. Journal of agribusiness in developing and emerging economies, 14(3), 470-495. doi:10.1108/JADEE-06-2022-0111

Kallas, Z., Serra, T., & Gil, J. M. (2010). Farmers' objectives as determinants of organic farming adoption: the case of Catalonian vineyard production. Agricultural Economics, 41(5), 409-423. doi:10.1111/j.1574-0862.2010.00454.x

Koesling, M., Flaten, O., & Lien, G. (2008). Factors influencing the conversion to organic farming in Norway. International Journal of Agricultural Resources, Governance and Ecology, 7(1-2), 78-95. doi:10.1504/IJARGE.2008.016981

Mahendra Dev, S. (2014). Small farmers in India: Challenges and opportunities.

Mishra, A. K., Deep, S., & Choudhary, A. (2015). Identification of suitable sites for organic farming using AHP & GIS. The Egyptian Journal of Remote Sensing and Space Science, 18(2), 181-193. doi:10.1016/j.ejrs.2015.06.005

Padel, S. (2001). Conversion to organic farming: a typical example of the diffusion of an innovation. Sociologia ruralis, 41(1), 40-61. doi.org/10.1111/1467-9523.00169

Pant, S., Kumar, A., Ram, M., Klochkov, Y., & Sharma, H. K. (2022). Consistency indices in analytic hierarchy process: a review. Mathematics, 10(8), 1206. doi:10.3390/math10081206

Patil, S., Mehta, M., Pancholi, G., & Saxena, A. (2025). Unveiling the dynamics of farmer producer organizations in India: a systematic review of status, challenges, and future directions. Humanities and Social doi:10.1057/s41599-025-05063-9

Reganold, J. P., & Wachter, J. M. (2016). Organic agriculture in the twenty-first century. Nature plants, 2(2), 1-8. doi:10.1038/nplants.2015.221

Roitner-Schobesberger, B., Darnhofer, I., Somsook, S., & Vogl, C. R. (2010). Consumer perceptions of organic foods in Bangkok, Thailand. In Looking east looking west (pp. 195-209). Wageningen Academic. doi:10.1016/j.foodpol.2007.09.004

Saaty, T. L. (1990). How to make a decision: the analytic hierarchy process. European journal of operational research, 48(1), 9-26. doi.org/10.1016/0377-2217(90)90057-I

Schoonbeek, S., Azadi, H., Mahmoudi, H., Derudder, B., De Maeyer, P., & Witlox, F. (2013). Organic agriculture and undernourishment in developing countries: Main potentials and challenges. Critical reviews in food science and nutrition, 53(9), 917-928. doi.org/10.1080/10408398.2011.573886

Singh, A., & Thakur, R. K. (2022). Understanding the perception, constraints and reasons for the adoption of organic farming. Indian Research Journal of Extension Education, 22(5), 110-117. doi:10.54986/irjee/2022/dec_spl/110-117

Smith, B. B., & Kendall, M. G. (1940). On the method of paired comparisons. Biometrika, 31(3/4), 324-345. doi.org/10.1093/biomet/31.3-4.324

Thapa, G. B., & Rattanasuteerakul, K. (2011). Adoption and extent of organic vegetable farming in Mahasarakham province, Thailand. Applied Geography, 31(1), 201-209. doi:10.1016/j.apgeog.2010.04.004

Tyagi, S., & Shastri, M. (2016). Weather Derivatives: With Refernce to Agricultural Sector in India. International Journal of Research in Finance and Marketing, 6(12), 128-140.

Yu, Y., He, Y., & Zhao, X. (2021). Impact of demand information sharing on organic farming adoption: An evolutionary game approach. Technological Forecasting and Social Change, 172, 121001. doi.org/10.1016/j.techfore.2021.121001

Weblinks accessed

o*https://apeda.gov.in/ accessed on 12.8.2025*
o*https://nconf.dac.gov.in/uploads/books_manual/PGS_E-Module.pdf accessed on 12.8.2025*
o*https://npop.apeda.gov.in/ accessed on 12.08.2025*
o*https://pib.gov.in/PressReleaseIframePage accessed on 13.8.2025*
o*https://www.assocham.org/ accessed on 13.8.2025*
o*https://www.fao.org/home/en accessed on 13.8.2025*
o*https://www.fibl.org/fileadmin/documents/shop/1076-organic-world-2018-low.pdf accessed on 12.8.2025*
o*https://www.ifoam.bio/ accessed on 12.8.2025*