Understanding farmers' intentions to adopt organic farming in India

Abstract

This research paper explores the dynamics of organic farming adoption among farmers in the Konkan region of India, focusing on the districts of Ratnagiri and Raigad. Against the backdrop of the pivotal role the agricultural sector plays in India's economy, the study employs an ex-post-facto research design to investigate the intentions, attitudes, and perceived capabilities of 150 organic farmers across diverse cropping systems. The findings reveal a nuanced landscape of motivations, ranging from a desire for toxin-free food to cultural preservation. Farmers' attitudes towards organic agriculture, influenced by health considerations and social networks, underscore the complex interplay between traditional practices and modern influences. Moreover, the study delves into the perceived marketability of organic products, highlighting factors such as consumer willingness to pay premiums and the competitive advantage of organic over conventional produce. As India grapples with the need for sustainable agricultural practices, the study sheds light on the multifaceted factors influencing the adoption of organic farming and provides insights essential for policy formulation and sustainable agricultural development.

Keywords: agricultural development, organic farming, cropping systems, agricultural technologies

Introduction

The agricultural sector is of paramount importance to the Indian economy, as it supports over half of the population and significantly contributes to the country's GDP. Despite the presence of challenges such as fragmented land holdings, inadequate infrastructure, and climate change, efforts are being made to modernize the sector, enhance farmer income, and promote sustainable agricultural practices. The Green Revolution, which commenced in the mid-1960s and introduced high-yielding varieties and improved agricultural technologies, transformed India from a food grain deficit to a surplus nation. This transformation had a considerable impact on the socio-economic landscape of rural agricultural communities and the country as a whole. However, the efficacy of the Green Revolution has diminished over time, and it has been criticized by social

activists for its environmentally harmful use of inorganic fertilizers and chemical pesticides. The extensive use of inorganic inputs, such as chemical fertilizers, has significantly shaped the agricultural landscape in India. The extensive adoption of inorganic agricultural inputs has led to increased crop yields and enhanced agricultural productivity, by providing essential nutrients such as nitrogen, phosphorus, and potassium to address soil nutrient deficiencies and promote crop growth. However, the over-reliance on these inputs has raised concerns about long-term soil health and environmental sustainability. The excessive use of chemical fertilizers can contribute to soil degradation, water pollution, and negative impacts on biodiversity. To ensure a balanced and sustainable approach to agriculture, there is a growing emphasis on promoting integrated nutrient management, which incorporates organic practices and efficient use of inorganic inputs. Sustainable agricultural practices aim to optimize productivity while minimizing environmental impact, ensuring the long-term viability of India's agricultural sector. Growing concerns about the environmental, food safety, and human health implications of synthetic agricultural chemicals have led to a significant shift towards organic farming among farmers and policymakers. This collective concern underscores the complex relationship between agricultural practices, environmental sustainability, and human well-being, highlighting the need for a more holistic and ecologically balanced approach to farming**.** The growing concerns about the use of chemical fertilizers and pesticides in India have led to an increasing significance of organic farming. Although genetically modified crops offer high yields, their long-term effects are yet to be tested, causing hesitation among people to trust such foods. Additionally, there is a rising global demand for organic food. Recognizing these factors, the Indian government has introduced the Paramparagat Krishi Vikas Yojana (PKVY), a key initiative under the Soil Health Card (SHC) scheme, which is part of the National Mission of Sustainable Agriculture (NMSA). PKVY aims to develop sustainable models of organic farming by combining traditional knowledge with modern science, with the objective of ensuring long-term soil fertility, resource conservation, and contributing to climate change adaptation and mitigation. The primary focus of PKVY is to enhance soil fertility and promote the production of healthy food through organic practices, without the use of agro-chemicals. Moreover, PKVY seeks to empower farmers by fostering institutional development through a cluster approach, covering farm practice management, input production, quality assurance, value addition, and direct marketing through innovative means.

Methodology

The ex-post-facto research design was adopted for the present study. Two district of Konkan “Ratnagiri" from the southern Konkan zone, while "Raigad" from the northern Konkan zone were selected for present study. Utilizing a comprehensive list of organic farmer groups obtained from the Agricultural Technology Management Agency (ATMA) office, a carefully curated selection of 30 groups was made from two districts, with each district comprising 15 certified organizations. These selected groups encompass a subset of active farmer organizations engaged in various organic farming endeavors. A systematic random sampling methodology was implemented to select a representative cohort of farmers for the research, encompassing diverse rice-cropping systems. Thirty farmers were randomly chosen from each distinct rice-cropping system category, including rice-fallow land, rice-rice, rice-pulses, rice-oilseeds, and rice-vegetables. . Furthermore, to enhance the diversity of the sample, five organic farmers were randomly selected from each of the 30 organic groups identified in the previous sampling process. As a result, a total of 75 farmers were sampled from each district under investigation, resulting in an aggregate sample size of 150 farmers distributed across the five distinct cropping systems in both districts. Taking in to consideration the objectives of the study, a detailed interview schedule was prepared with the help of technical guidance from Chairman and Members of Advisory Committee and available literature. The questions related to farmers intention towards adoption of organic agricultural practices were prepared. The data were collected personally by the researcher with the help of structured interview schedule developed for this purpose. Organic farmers were contacted at their home or their work place. The collected data were examined for completeness and correctness before tabulation both qualitative and quantitative classes were formed

Results and discussion

Table 1 reveals that among the four statements of the intention construct 49.33 per cent of the respondent were agree to “I adopt organic agricultural practices to provide my family with toxin-free food”, majority 45.33 per cent the respondents were disagree to the statement “I only practice organic agriculture because I want to reap the benefits of government schemes.” Majority 38.00 per cent of respondent were agree to “I believe the adoption of organic agricultural practices improves the quality of farm produce.” Majority of 32.67 per cent of respondent agree to “Health-related factors influence my decision to engage in organic agriculture.”

Table 1: Frequency and percentage of statement of the model construct

Item Code	Item	Response=150				
		SA	A	UD	D	SD
Intention						
I1	I adopt organic agricultural practices to provide my family with toxin-free food.	19 12.67	74 49.33	32 21.33	16 10.67	9 6.00
I2	I believe the adoption of organic agricultural practices improves the quality of farm produce.	26 17.34	57 38.00	36 24.00	23 15.33	8 5.33
I3	I only practice organic agriculture because I want to reap the benefits of government schemes.	11 7.34	14 9.33	41 27.33	68 45.33	16 10.67
I4	Health-related factors influence my decision to engage in organic agriculture.	22 14.67	49 32.67	47 31.33	19 12.66	13 8.66
Attitude						
A1	Wherever I go, I emphasize the importance of practicing organic agriculture.	25 16.66	66 44.00	30 20.00	19 12.67	10 6.67
A2	I feel that transitioning from an ‘inorganic farm’ to an ‘organic farm’ is a waste of time. *	10 6.66	34 22.67	45 30.00	43 28.67	18 12.00
A3	I think organic agriculture is an only way to preserve our culture and traditions.	31 20.67	48 32.00	44 29.33	13 8.67	9 6.00
A4	I am sure that transitioning to organic agriculture means reducing your farm income*	14 9.33	26 17.33	51 34.00	49 32.67	10 6.66
Subjective norms						
SN1	I respect the opinions of those who think organic agriculture is advantageous.	20 13.33	57 38.00	37 24.67	24 16.00	12 8.00
SN2	There is a continuous demand from my family to adopt organic agriculture.	23 15.33	49 32.67	39 26.00	26 17.33	13 8.67
SN3	The concept of group farming has influenced me to adopt organic agriculture.	29 19.33	58 38.67	19 12.66	28 18.67	16 10.67
SN4	When I talk with fellow farmers about organic agriculture, I get positive responses.	24 16.00	64 42.67	33 2200	8 5.33	11 7.33
Perceived Behavioral Control						
PBC1	I am capable of managing my farm in accordance with the prescribed organic standards.	28 18.67	29 19.33	51 34.00	26 17.33	16 10.67
PBC2	I have a social network that supports successful engagement in organic agriculture.	17 11.33	36 24.00	46 30.67	34 22.67	15 10.00

Item Code	Item	Response=150				
		SA	A	UD	D	SD
PBC3	I believe that adopting organic agricultural practices is beyond my economic condition. *	18 12.00	21 14.00	40 26.67	42 28.00	29 19.33
PBC4	I have trust in my ability to overcome obstacles while adopting organic agriculture.	24 16.00	41 27.34	35 23.33	30 20.00	20 13.33
Health Consciousness						
HC1	My family can consume safe food if I practice organic agriculture.	37 24.67	55 36.67	32 21.33	12 8.00	11 7.33
HC2	I like to eat organic food due to its distinct taste.	28 18.67	52 34.67	40 26.66	16 10.67	14 9.33
HC3	I believe that practicing organic agriculture is incompatible with my health-conscious lifestyle. *	15 10.00	27 18.00	37 24.67	50 33.33	21 14.00
HC4	Our forefathers had long lives because they consumed organic food.	51 34.00	39 26.00	25 16.67	30 20.00	5 3.33
Food Security Concern's						
FSC1	I feel that engaging in organic agriculture has helped me enough food for my family.	20 13.33	32 21.33	44 29.33	38 25.33	16 10.67
FSC2	I think relying solely on organic agriculture could lead to food crises in the country. *	12 8.00	31 20.67	53 35.33	41 27.33	13 8.67
FSC3	Promoting organic agriculture is essential to ensure food security for next-generations.	32 21.33	43 28.67	38 2533	27 18.00	10 6.66
FSC4	Organic agriculture can enhance food security by fostering local food systems.	13 8.67	33 22.00	57 38.00	37 24.67	11 7.33
Marketability						
M1	Consumers are willing to pay a premium for organically grown agricultural products.	34 22.67	54 36.00	32 21.33	22 14.67	8 5.33
M2	The rising market demand for organic products led me to adopt organic agriculture.	23 15.33	46 30.67	32 21.33	30 20.00	19 12.67
M3	There is a high demand for organic agricultural products in food malls and supermarkets.	26 17.33	39 26.00	40 26.67	29 19.33	16 10.67
M4	Organic agricultural products have a competitive advantage over conventional products.	29 19.33	49 32.67	23 15.33	34 22.67	15 10.00

*Figure in parentheses indicates percentage. SA- strongly agree, A- agree, UD- Undecided, D - disagree, SD- strongly disagree. *=reverse score.

Among the four statements of the attitude constructs majority 44 per cent of the respondent were agree to "Wherever I go, I emphasize the importance of practicing organic agriculture," followed by 34 per cent of respondent were undecided to statement "I am sure that transitioning to organic agriculture means reducing your farm income." Majority of 32 per cent of respondent were agree to statement "I think organic agriculture is an only way to preserve our culture and traditions". 28.67 per cent of respondent were disagree to statement "I feel that transitioning from an 'inorganic farm' to an 'organic farm' is a waste of time." A majority of 42.67 per cent of respondent agree to statement "When I talk with fellow farmers about organic agriculture, I get positive responses." The majority of (38.67 per cent) respondent agrees to statement "The concept of group farming has influenced me to adopt organic agriculture." The majority of 38 per cent and 32.67 per cent of respondent ere strongly agree to statement "I respect the opinions of those who think organic agriculture is advantageous" and "There is a continuous demand from my family to adopt organic agriculture" respectively.

A majority of 34 per cent and 30.67 per cent of the respondent were agree to statement "I am capable of managing my farm in accordance with the prescribed organic standards" and "I have a social network that supports successful engagement in organic agriculture" respectively. The majority of 28 per cent and 23.33 per cent respondent were disagree to "I believe that adopting organic agricultural practices is beyond my economic condition" and "I have trust in my ability to overcome obstacles while adopting organic agriculture" respectively. A majority of 36.67 per cent of respondent agrees to statement "My family can consume safe food if I practice organic agriculture", followed 34.67 per cent were agree to "I like to eat organic food due to its distinct taste". "Our forefathers had long lives because they consumed organic food" statement was agreed by 34 per cent. Majority of 33.33 per cent of respondent disagree to statement "I believe that practicing organic agriculture is incompatible with my health-conscious lifestyle".

A majority of 35.33 per cent of respondent were disagree to "I think relying solely on organic agriculture could lead to food crises in the country." The majority of respondent 29.33 per cent and 28.67 per cent of respondent were agree to statement "I feel that engaging in organic agriculture has helped me enough food for my family" and "Promoting organic agriculture is essential to ensure food security for next-generations" respectively. Further, 38 per cent respondent were undecided to statement "Organic agriculture can enhance food security by fostering local

food systems". Among four statement of marketability majority 36 per cent and 32.67 per cent were agree to statement "Consumers are willing to pay a premium for organically grown agricultural products" and "Organic agricultural products have a competitive advantage over conventional products" respectively. A majority 30.67 per cent of respondent were agree to "The rising market demand for organic products led me to adopt organic agriculture". The majority of 26.67 per cent of respondent were undecided for statement "There is a high demand for organic agricultural products in food malls and supermarkets".

Conclusion and implications

The study underscores the diverse motivations, attitudes, and perceived capabilities of farmers in the Konkan region, particularly in Ratnagiri and Raigad districts, toward adopting organic farming. With health considerations serving as a primary motivator, there is a notable inclination toward providing toxin-free food and preserving cultural traditions. The findings emphasize the importance of targeted awareness programs on health benefits and support mechanisms for economic conditions. Additionally, the positive perception of marketability suggests potential economic gains for organic farmers. Policymakers should prioritize capacity-building, promote social networks, and implement market access initiatives while fostering integrated farming approaches to address food security concerns. These insights provide actionable recommendations for policymakers and practitioners aiming to bolster sustainable and organic farming practices in India, ensuring a balanced and holistic approach to agricultural development.

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