

Factors Influencing Organic Farming Adoption in Nanded District of Maharashtra

Mr. Nagnath B. Bembde¹, Dr. Balaji S. Mudholkar²

¹ Assistant Professor, Department, D. B. Institute of Management & Research, Latur, Maharashtra, India

² Professor, School of Commerce and Management Sciences, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India

Abstract - Organic farming and natural farming are sustainable farming method than not only improve the farming practices with environmental protection, but also it enhances the productivity. Nanded district or the like district have adoption of organic farming remains limited to various challenges such as fear of low yield, lack of awareness, low market linkages etc. the current research work aims to address the challenges the farmers have been facing which implementing the organic farming practices, what constraints they have been faced, and what is the difference between profit they could obtained and what is the expected profit after selling the organically cultivated vegetables, fruits and cereals. The study involved collecting primary data through structured and non-structured standardized questionnaires. This instrument of the study was used to conduct the interview of the farmers through which the present status of the organic farming practices and adoption was addressed. The study also investigates the important role of demographic features of respondents, awareness and perception level, training programs availability, input availability, certification process, market access, and government financial and non-financial assistance, which are influencing the adoption of organic farming.

Key Words: sustainable agriculture, profitability expectations, market access, adoption factors, Natural farming.

1. INTRODUCTION

BACKGROUND OF THE STUDY

Organic farming is a method that primarily or entirely forgoes the utilization of synthetic inputs like hormones, pesticides, fertilizers, and feed additives. Instead, it depends on crop residues, animal manures, legumes, green manures, off-farm organic wastes, crop rotations, and biological pest control techniques. Organic and natural farming is defined by scholars like Padmashree Subhash Palekar of Zero Budget Natural Farming as "cow-based farming" in which indigenous breeds supply urine and dung, which are essential components of nutrient cycles. Organic farming is a political and social movement in India, according to the Organic Farming Association of India (OFAI), with the goals of promoting environmental justice and farmer autonomy.

The farmers of the Nanded district have always trusted traditional farming and natural farming also, but due to low yield from the organic farming, many farmers revert back adopted the traditional farming and chemical farming. Very few farmers have successfully implemented organic farming. Such farmers

are now adopting natural farming, which can enable them to reduce the cost to negligible.

Natural farming and organic farming are the only methods that not only reduce the input cost, but also improve the farm productivity and profitability. The study aims to investigate the farmers' way of practicing organic as well as natural farming. The study has collected information regarding every challenge the farmers have faced during the practice of organic farming. The factors such as delivery time (time required to transport the goods from the place of harvesting to the place of market), fair price or higher price for the organically produced or naturally produced vegetables, fruits, or cereals are investigated and discussed with farmers to know it from the perspective of business and economics.

OBJECTIVES

1. To identify the factors influencing the awareness of organic farming among the farmers
2. To examine the factors influencing the choice of organic farming

HYPOTHESES

Null Hypothesis (H_0): There are no significant factors of influence on organic farming

Alternative Hypothesis (H_1): There are significant factors of influence on organic farming.

RESEARCH GAP

The study has analyzed the literature in which many researchers have explored the benefits, soil health improvement, profitability, and input cost, but very few researchers have critically examined the factors that practically influence the farmers to adopt organic farming or natural farming. The study has also observed that the literature has not addressed the Nanded district of Maharashtra. The study analyzed the past research work on the factors that influence farmers' interest in adopting organic farming was not sufficient to focus on those factors only in order to convert the farmers towards organic or natural farming. The present study has critically observed the experience and expectations of the farmers. The study also studied the journey of farmers from traditional farming to organic or natural farming.

PROBLEM DEFINITION

Organic or natural farming is the system of agriculture that enables farmers capable of producing healthy food along with environment. This system also makes farmers capable of

creating more revenue by reducing the input cost to negligible. Most farmers of the Nanded district have not been adopting natural or organic farming due to a lack of awareness and wrong perception about organic farming or natural farming. The study has conducted the interview of the farmers who have experience with organic and natural farming, through which the study found actual factors that influenced the farmers' interest in adopting organic farming. Therefore, a localized study can identify the socio-economic, environmental, institutional, market related factors that make farmers adopt the organic farming practices.

2. REVIEW OF LITERATURE

NITI Aayog(2020), titled “Adoption of Natural Farming and its Effect on Crop Yield and Farmers' Livelihood in India,” is a Government Research Report addressed the way natural farming or organic farming significantly reduces the input cost of farming and enhances the profitability.

The research titled “Impact of Sustainable Agricultural Practices on Farmers' Income in India” (2019) observed that the profitability, low input cost, and increased soil fertility have positively influenced the farmers’ adoption of organic farming.

The research work done by Patel, N. and Verma, S (2023) titled “farmers’ perception and adoption of natural farming technologies” found that awareness about environmental protection, soil health improvement, long-term sustainability, and profitability significantly influenced the farmers to adopt the natural or organic farming.

The study conducted by Kumar, D. Sing P., and Rani S(2024) on “Drivers of Natural farming adoption among Indian farmers” found that the social influence, peer learning, extension support, and economic viability are the significant factors that influence the adoption of natural farming.

3. RESEARCH METHODOLOGY

The study is conducted with a field survey directed by appropriate sampling methods and a structured or standardized questionnaire.

SAMPLE SIZE

As per Census 2011 statistics and the report of Sakal, the population of farmers who hold land size and cultivate is 754508 farmers. To determine the sample size that represents every farmer, the Cochran's formula is used. It gives 385 as the sample size for a large population. To enhance accuracy and precision and to provide a buffer to account for any losses, the sample size is increased to 500

PROFILE OF SAMPLE

Profile of the sample includes retailers, wholesalers, farmers, distributors, government officers, agriculture experts, etc.

Sampling methods

Sampling Methods

Stratified Sampling

Geographical area, farm size, and socio-economic factors are used as strata to collect the required representation of farmers or respondents. The stratified sampling enables the researcher to get a representative sample of all the farmers across the district.

Purposive sampling

To ascertain the business perspective of organic farming, it is important to get primary data from additional respondents. The responses comprise distributors, merchants, and consumers of organic food items who might impact the demand for organic goods, hence affecting organic farming. In the future, the demand for organic food will be substantial; however, it is crucial to educate the public on the importance of organic food and to inform farmers on the necessity and profitability of organic agricultural practices.

Snowball sampling

The study utilized the snowball sampling method as a result of the unavailability of a fixed list of farmers who engage in organic farming. Actually, there is no record of farmers who practice organic farming. This method allows researchers to obtain the references of respondents and readily communicate with farmers who engage in organic farming or have experience with it. They can also engage in interactions through the standardized questionnaire. The snowball sampling technique allows researchers to determine

4. DATA ANALYSIS AND INTERPRETATION

The study addressed the various factors that influence various perspectives of organic farming. Table I illustrates how the awareness of organic farming is influenced by the various factors mentioned in the table. Table I also represents the percentage of total respondents or farmers whose awareness about organic farming is influenced by the various factors. Table I explores the effective factors that contribute to aware the farmers and make interest in adopting organic farming practices.

Table I: Factors influencing the awareness of organic farming

Response	Frequency	Percentage
Farmer Group / NGO / Institute	45	9
Media	89	17.8
Government Program	125	25
Self-initiated research	189	37.8
Other	52	10.4
Total	500	100

Source: Field Survey

The farmers who have been adopting organic farming due to several factors vary with the influence. Table II illustrates the factors that influenced the farmers' choice of organic farming. The table also shows the percentage of respondents or farmers who said which factors influenced them to select the organic farming methods.

Table II describes the farmers' various perspectives on selecting the organic farming methods. The factors that actually made the farmers adopt organic farming. Table 6.14 illustrates that the Market demand for organic products is a significant factor influencing farmers to adopt organic farming. 203 farmers or respondents, which is 40.6 percent of the total sample size, have adopted organic farming, considering market demand, which can increase their revenue. Only 56 farmers, that is 9 percent, said demand is not the influencing factor. 55 farmers, which is 11 percent of total respondents, said the demand is a slightly influential factor. 89 farmers or 17.8 percent of the total respondents, said that moderately, the demand can influence. 108 farmers are positive and said the market demand is influenced factors that attracted farmers to adopt organic farming, and it is 21.6 percent of the total respondents.

Table II: Factors influencing the choice of organic farming

Influencing Factor		1	2	3	4	5	Tot .
Market demand for organic products	f	45	55	89	108	203	500
	%	9	11	17.8	21.6	40.6	100
Higher Price for organic produce	f	49	39	201	111	100	500
	%	9.8	7.8	40.2	22.2	20	100
Government support	f	44	46	200	110	100	500
	%	8.8	9.2	40	22	20	100
Availability of organic inputs	f	60	61	80	181	118	500
	%	12	12.2	16	36.2	23.6	100
Knowledge and training	f	45	45	111	119	180	500
	%	9	9	22.2	23.8	36	100
Peer/farmer network influence	f	91	90	108	110	101	500
	%	18.2	18	21.6	22	20.2	100
Risk perception (yield uncertainty)	f	54	56	89	175	126	500
	%	10.8	11.2	17.8	35	25.2	100
Long-term soil fertility	f	27	49	115	124	185	500
	%	5.4	9.8	23	24.8	37	100
Health/environmental awareness	f	145	124	85	90	56	500
	%	29	24.8	17	18	11.2	100

Source: Field Survey

5. TESTING OF HYPOTHESES

Typically, the data is easily and appropriately measured with the Likert Scale method. The Likert scale data are ordinal in nature. It means that while ranking is possible, the appropriate differences between values are not strictly measurable.

NATURE OF TEST

The parametric test, such as the T-Test, considers or assume interval data and a normal distribution. Whereas the Wilcoxon Signed-Rank Test does not need interval data, which makes this test more appropriate and suitable.

The research in management science, which belongs to social science research, does not follow a normal distribution due to variability in awareness, perception, and experience.

The Wilcoxon test is a non-parametric method that does not need to consider or assume normality. Hence, this test is more robust and reliable for this research data.

In the Excel sheet whole 500 responses for the 8 Likert Scale Questions were taken, and then the total value, mean, and Difference value were obtained. The difference value is obtained by deducting the median value 3 from all the average values. After getting the difference values, the rank values will be calculated in Table III.

Test Median Differences

The hypothesis of the study evaluates whether the median response is significantly different from the hypothesized value (for example, a neutral value score like 3)

The Wilcoxon Signed - Rank Test specifically involves the in testing whether the median of the total responses is significantly different from the specified value.

Sensitivity and Reliability

Unlike other non-parametric tests, the Wilcoxon Signed-Rank Test uses signed as well as Ranked differences, due to which it provides greater statistical power than the signed test. Hence, it produces more reliable results for large samples like this research sample size of 500 or 482.

The Excel sheet calculation of Signed Rank for 500 respondents can not be placed in this paper, so the further calculation table is taken from this research. The next calculations of the Wilcoxon Signed Rank Test are mentioned in Table II.

Table III: Wilcoxon Signed-Rank Method Calculations

Diff. (Xi-3)	Absolute Value	Freq. (f)	Rank	f*Rank	Signed Rank	W- VALUE	W+ VALUE
-0.125	0.125	7	11	77	-77	-77	
0.125	0.125	14	11	154	154		154
-0.25	0.25	24	34.5	828	-828	-828	
0.25	0.25	2	34.5	69	69		69
-0.375	0.375	18	70.5	1269	-1269	-1269	
0.375	0.375	28	70.5	1974	1974		1974
-0.5	0.5	1	117	117	-117	-117	
0.5	0.5	46	117	5382	5382		5382
-0.625	0.625	3	152.5	457.5	-457.5	-457.5	
0.625	0.625	21	152.5	3202.5	3202.5		3202.5
-0.75	0.75	9	181	1629	-1629	-1629	
0.75	0.75	24	181	4344	4344		4344
-0.875	0.875	3	210	630	-630	-630	
0.875	0.875	22	210	4620	4620		4620
1	1	10	228	2280	2280		2280
-1.125	1.125	10	251	2510	-2510	-2510	
1.125	1.125	27	251	6777	6777		6777
1.25	1.25	15	267.5	4012.5	4012.5		4012.5
-1.375	1.375	19	314.5	5975.5	-5975.5	-5975.5	
1.375	1.375	50	314.5	15725	15725		15725
-1.5	1.5	11	363	3993	-3993	-3993	
1.5	1.5	7	363	2541	2541		2541
-1.625	1.625	1	395	395	-395	-395	
1.625	1.625	45	395	17775	17775		17775
-1.75	1.75	4	439	1756	-1656	-1656	
1.75	1.75	40	439	17560	17560		17560
-1.875	1.875	6	466.5	2799	-2799	-2799	
1.875	1.875	4	466.5	1866	1866		1866
-2	2	48	495	23760	-23760	-23760	
Sum of negative and Positive ranks						-46096	88282

Source: Field Survey data

Using the W values obtained above, the z was employed to calculate the test results. The obtained z-test value after calculation was 2.78, and the critical or table value at 5% significance level was 1.96. Since the calculated value is greater than the critical value, the null hypotheses rejected and the alternative hypothesis accepted, which says “there are significant factors of influence on organic farming”.

6. CONCLUSIONS

Farmers group or NGO or institutes are major factors that contribute to the growth of organic farming. Farmers' groups such as Arya Natural farming in Nanded district's Loha Taluka Dapshed village are working significantly for the promotion and growth of the organic or natural farming methods among the farmers. 45 farmers were involved in a farmers' group. 89 farmers or respondents were influenced by social media. 125 farmers or respondents were influenced by various programs or schemes of the government to promote and support organic or natural farming. 189, that is, the maximum number of all have been influenced by the self-initiated efforts they have taken. These 189 respondents are purposefully practicing natural farming, which can also be termed organic farming.

The study has collected the primary data through structured and non structured questionnaire asked to the farmers. From the data collection, the study found that many factors are there which make farmers adopt organic farming. 203 farmers strongly agree with market demand, and 108 farmers also agree with market demand, which influenced them to adopt organic farming. 100 and 111 farmers or respondents were influenced by the higher price of organic produce. 100 and 110 respondents or farmers are practicing due to the government support of subsidies. Some farmers, 181 and 118, have started implementing organic farming due to the availability of organic inputs.

Knowledge and training are also significant factors for 180 and 119 farmers to practice organic farming. 221 farmers were influenced to adopt organic farming due to other farmers' experience or their peer network influence. 185 and 125 farmers found that the improvement in soil fertility is the major factor in adopting organic farming. 56 and 90, which is a small number of respondents practicing from the perspective of environmental protection or eco-friendly practice.

ACKNOWLEDGEMENT

First and foremost, I express my deep sense of gratitude to my **Research Guide, Dr. B. S. Mudholkar, Professor, SCM, SRTMU, Nanded**, for his valuable guidance, constant encouragement, continuous motivation, and insightful suggestions throughout the research journey. His support has been instrumental in shaping this work. I also express my heartfelt gratitude to farmers and all respondents, who have cooperated with me and shared their experiences and opinions, which contributed to the completion of this research work.

REFERENCES

- H. Philip and P. Sivaraj, “Perception of Certified Organic Farmers towards Organic Farming Practices – An Ex Post Facto Study”, International Journal of Current Microbiology and Applied Sciences, Volume 7 Number 12 (2018).
- Pavitra P(2016) “A Study On Consumers Perception And Satisfaction Towards Organic Farm Products With Special Reference To Tirupur District.”
- Khanzode Priyanka(2020) “Economic Viability of Organic Farming in India: A Comparative Study of Conventional and Organic Farming” University of Mysore.
- Swarna R., (2016)“Prospects and problems of Organic farming in Tirunelveli district”(2016), Manonmaniam Sundaranar University
- Dr. Patidar S. , Patidar H. “A Study of Perceptions of Farmers Towards Organic Farming” International journal of Application or innovation in Engineering & Management(IJAEEM) Vol. 4 Issue 3 March 2015.
- Kole N. V.(2012) “Contract Farming in India: A Case Study of Maharashtra” (2012) Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
- Soumya. K.M, 2016. “Organic agriculture in Kerala: An evaluation of certified organic spices producers”, Cochin University of Science and Technology
- Online References
- Participatory Guarantee System for India online portal <https://pgsindia-ncof.gov.in/>
- Agricultural and Processed Food Products Export Development Authority(APEDA) <https://apeda.gov.in/apedawebsite/>

- Sapna E. Thottathil, India's Organic Farming Revolution: What It Means for Our Global Food System, 2014, University of IOWA Press, USA.
- Narayanan S., Organic Farming in India: Relevance, Problems and Constraints, 2005, Published by National Bank for Agriculture and Rural Development.
- Charyulu, Kumara D., and Subho Biswas. Economics and Efficiency of Organic Farming vis-à-vis Conventional Farming in India, 2010, IIMA Working Papers Series, no. WP2010-04-03, Indian Institute of Management, Ahmedabad, Research and Publication Department.
- Amitava Rakshit and HB Singh. ABC of Organic Farming, 2015, Jain Brothers.
- Handbook of Agriculture, New Delhi, Indian Council of Agricultural Research. Sridhar V and Amarnath Surendranath, An Economic Analysis of Organic
- Farming in Tamil Nadu, Lap Lambert Academic Publishing, 2013.
- N. B. Bembde(2019) "Impact of Contract Farming on Price and Quality of Agriculture Produce in Selected Districts of Maharashtra" Bembde N. B., International Journal of Advanced Scientific Research and Management, Volume 4 Issue 5, (3-4), May 2019
- Nammalvar K., Ennaadudaiya Iyarkaiyea Pottri, Viketan Publishers.
- Nammalvar K., Kalai Edu !, Kizhaku Pathipagaham