Educational Administration: Theory and Practice
2024, 30(4), 6295-6303
ISSN: 2148-2403
https://kuey.net/

Research Article

Barriers In The Pathway Of Adoption Of Organic Farming By Conventional Farmers Of Jammu District

Taruna Dubey[1*], Tawheed Nabi[2]

[1*]Research Scholar, Lovely Professional University, Jalandhar, Punjab- 144411, India,
[2]Assistant Professor, Lovely Professional University, Jalandhar, Punjab- 144411, India,

***Corresponding author:** Email: tarunadubey@gmail.com

Citation: Taruna Dubey, et al. (2024) Barriers In The Pathway Of Adoption Of Organic Farming By Conventional Farmers Of Jammu District, *Educational Administration: Theory and Practice*, 30(4), 6295-6303
Doi: 10.53555/kuey.v30i4.2383

ARTICLE INFO

ABSTRACT

The purpose of the study is to find barriers in the pathway of adopting organic farming. The structured questionnaire was used to collect the primary data from 101 conventional farmers to address the objectives of conventional farmers in the Jammu district producing basmati rice. In this study, a quantitative method and multinominal regression analysis were used to analyse the barriers faced by conventional in adopting organic farming. The results revealed that economic barriers are showing negative and significant results for farmers choosing never to switch to organic farming, and institutional barriers as well as production barriers and economic barriers are showing positive and significant results in adopting organic farming. While adding variables like age, type of cultivating land, farming experience, and education, in the barrier factors, it was found that production barrier and infrastructural barrier are significantly contributing towards adopting organic farming.

Keywords: Organic, adoption, inorganic, barrier

JEL Codes: Q01, Q10, Q15, Q19

Introduction

Organic foods showed lower or no pesticide and cadmium concentrations and were higher in some important nutrients like polyphenols (Baranski et al., 2014). Organic farming aims to collaborate as closely as possible with natural ecosystems to enhance the underlying health of soils, crops, and livestock. (Beharrell and Crockett, 1992). Reliance on synthetic inputs, such as insecticides, chemical fertilizers, growth promoters, antibiotics, as well as a variety of post-harvest chemicals, is a defining characteristic of conventional farming.

Conventionally cultivated foods contain heavy metals, hormones, antibiotic residue, nitrate, pesticide residue, and genetically modified organisms, which are harmful to health. Conventional foods lack antioxidants and nutrients (Das et al., 2020). Degradation of the ecology results from farmers' overuse of chemical pesticides and fertilizers in their addiction to a high yield (Wicaksono et al., 2017; Woittiez et al., 2018; Sujanto et al., 2022). Conventional farming uses synthetic pesticides and fertilizers to accelerate growth while eradicating insects, weeds, and pests (Worthington, 2001; Das et al., 2020).

Agriculture's massive commercialization has also had a highly damaging impact on the environment (Swarna, 2016). Large amounts of chemicals have accumulated as a result of pesticide use in our environment, which includes soil, water, air, wildlife, and even our bodies. Although fertilizers have a short-term effect on output, they have a long-term negative effect on the ecosystem. Years after leaking and flowing off, they can be detected there, polluting water bodies and groundwater.

Farmers were hesitant to switch to organic farming in organic farming because they believe that fighting illness is difficult (Cukur, 2015; Rashidpour, 2019). Lack of institutional support, farmers' financial capacity, knowledge and information are the root causes of independent barriers that have a significant impact on other barriers. The moderate restrictions faced by conventional farmers for conversion were difficulty in controlling pests, a poor yield, risk-taking, a lack of market demand, a labor shortage, land tenure, a deficiency in

infrastructure, a lack of financial compensation, and the complexity of certification (Sujianto et al., 2022). Deterrents to farmers' adoption of organic farming include a lack of financial support, lower production levels, a lack of markets, and anticipated low earnings (Singh et al, 2023). Lack of human resources, lengthy certification processes, poor productivity and market prices, and issues with soil management are the obstacles perceived by uninterested farmers in adopting organic farming (Rayamajhi and Acharya, 2023). Inorganic farmers' views on organic farming show their ignorance and desire for further information (Midmore et al., 2001; Fairweather, 1999; Wynen, 1990) and lacking information as a major obstacle to organic conversion (Khaledi et al., 2011; Midmore et al., 2001; Fairweather, 1999; Blobaum, 1983;). Organic farming benefit the country in a lot of ways, like meeting rising need for organic food, promoting sustained food security, keeping ecosystems green and clean, improving health, and striking a balance between environmental protection and human livelihoods (Bhujel et al., 2023). Organic agriculture is a potential alternative agricultural production method ensuring sustainability and human welfare (Ferdous et al., 2020).

The adulteration of food with pesticides has been directly related to deadly diseases like cancer in the modern world (My et al., 2020; Rodgers et al., 2018; Horrigan et al., 2002). The low rate of organic farming is partly because farmers don't know enough about the risks of chemical goods and the benefits of organic farming (Vandercasteelen et al., 2020; Conley and Udrey, 2010).

Agriculture innovations like organic farming are adopted gradually, and a number of socioeconomic and institutional factors might have a significant impact on this process (Thapa and Rattanasuteerakul, 2011). The transition towards organic farming may be hindered by perceptions like the public's perception about organic farmers, market size, and the availability of technical and financial information, institutional obstacles such as loan application issues and certification limitations, and social obstacles (Sharifi et al., 2010; Padel, 1994; Padel and Lampkin, 1994). The various obstacles that farmers face during conversion to organic farming influence farmers' decision to adopt organic farming (Liu et al., 2019; Issa and Hamm, 2017; Soltan iet al., 2014).

The findings indicated that while social and cultural barriers limited farmers' participation, economic constraints resulted in a high cost of producing organic products (Altarawneh, 2022). Lack of transportation for manure, high labor needs, poor knowledge, and a lack of material incentives were the four most mentioned reasons for the non- adoption of conservative agriculture (Habanyati et al., 2020). Lack of knowledge about organic farming, in particular regarding appropriate agroecological practises, the certification process, and essential marketing information, were significant barrier factors to conversion (Jouzi et al., 2017; Rashidpour, 2020;). Lack of institutional support, a lack of farmers' financial ability, and a lack of knowledge and information were independent barriers that can significantly impact on other barriers and the dependent barriers that mostly impacted farmers were lack of premium pricing, age, attitudes, and beliefs, as well as the unavailability of organic inputs (Dixit et al., 2022).

The most significant element influencing a farmer's desire to practice organic farming is the signal to action along with perceived hurdles, general opinions, and perceived benefits, account for 54% of the variance in farmers' inclination towards organic farming. (Yazdanpanah et al., 2022). Social networks scepticism and doubts about the environmental benefits of organic farming, farmer's ideology against organic farming, financial risks were barriers to the conversion of farming to organic practises (Laura and Nicholas, 2018).

Less selling opportunities, a lack of premium prices, and a lack of subsidies are some of the economical obstacles to implementing organic practices (Niemeyer and Lombard, 2003). The hindered factors in the conversion of farming to organic farming encompass unwillingness to take a risk low yield, lack of monetary assistance, lack of cash compensation, low level of expertise, unsuitable topography and climate, shortage of organic fertilizer, trouble controlling pests, buyers, and labour. Sujanto et al. (2022) identified several other challenges, such as land tenure, inadequate infrastructure, remuneration in cash, intricate certification procedures, and scarcity of organic fertilizer. Male, educated, and young farmers all had a favourable opinion of switching to organic farming (Rayamajhi and Acharya, 2022).

The issues with the conversion process include yield decreases, increased stress from weeds, pests, and diseases, poor livestock performance, few marketing opportunities, no premium prices, denial of loans or insurance for organic production, and a dearth of rules, subsidies, and certification bodies were among the issues with the conversion process (Niemeyer and Lombard, 2003; Duram, 2000; Rigby et al. 2000). More experienced rice growers are inclined to convert to organic farming practices and larger-scale farms are less likely to convert to organic methods. All organic rice farmers work on a much smaller scale than conventional growers. Longer-term rice farmers are likely to be more open to implementing organic farming techniques in rice production (Okon and Idiong, 2016).

Deterrents to farmers' adoption of organic farming include a inadequate funding, decreased output, a dearth of markets, and expectedly low profits (Singh et al, 2023). Lack of human resources, lengthy certification processes, poor productivity and market prices, and issues with soil management are the obstacles perceived

by uninterested farmers in adopting organic farming (Rayamajhi and Acharya, 2023). There is positive relationship of farm experience with adoption of organic farming (Sapbamrer and Thammachai, 2021) and other researchers showed that farming experience negatively influences adoption of organic farming (Sapbamrer and Thammachai, 2021; Ma et al., 2017; Pinthukas, 2015; Karki et al., 2011; Genius et al., 2007). Age (Dixit et al., 2022), farming experience (Sapbamrer and Thammachai, 2021) were also studied for knowing about intention of farmer to adopt organic farming categorised into never adopt, uncertain to adopt, adopt in future. The hindering factors for organic farming includes old age, low level of education, inadequacy of technical structures (Canavari et al., 2022). The factors influencing organic farming were educational level, gender of the head of the household, organisation member, household income, land tenure, experience in farming, and perception significantly and positively influence farmers in adopting organic farming **(**Okon & Idiong, 2016).

The is no influence of age on the adoption of organic farming (Hattam and Holloway, 2005; Best, 2010; Mzoughi, 2011;; Thapa and Rattanasuteerakul, 2011; Tiffin and Balcombe., 2011; Jayawardana and Sherief, 2012; Djokoto et al., 2016). Young farmers are ready to adopt new technology than older ones (Djokoto et al., 2016; Anderson et al. 2005) and farming experience is negatively related to adoption (Burton, 1999; Padel, 2001; Hattam and Holloway, 2005). The findings indicate that the adoption of organic farming is influenced by education, socioeconomic category, training, farming experience, and monthly income of the household (Singh et al., 2023). The results showed the neutral effect of formal education on adoption (Latruffe and Nauges, 2014; Mzoughi, 2011; Takagi, 2010; Kassie et al., 2009; Genius et al., 2006).

Method

A cross-sectional research approach was used to gather the data for our descriptive study. The purposive sampling method was used for questionnaire distribution. The data was collected from 101 farmers practising inorganic farming. The present study included 20 items on a five-point Likert scale (Allen and Seaman, 2007; Likert, 1932) that ranged from strongly disagree to strongly agree. Checking for the normality of data and important statements only 18 items (Sharifi et al., 2010; Altarawneh, 2022; Sujianto, 2022) are selected on the basis of results of Cronbach Alpha. The questionnaire comprised 18 items based on 5 points Likert scale where 1 reprsents Strongly Disagree and 5 represents Strongly Agree. The respondents were asked to rank the barriers to it. A survey was conducted among 101 non-organic farmers in the Jammu district to gather primary data. Multinomial logistic Regression was applied by using SPSS (Statistical Package For The Social Sciences) software.

Hypotheses

1. There is no statistically significance difference between adoption decision and barrier factors in the adoption of organic farming.
2. There is no statistically significant difference between adoption decision and barrier factors, age, farming experience, type of cultivating land, education in the adoption of organic farming.

The objective of the study is to know barrier factors and adoption decision of farmers practising inorganic farming.

Methodology

Multinomial logistic regression permits more than two categories of dependent or outcome variables. It predicts membership on a dependent variable based on many independent variables (Naveen kumar et al., 2022).

$$\ln(\pi j / \pi j) = \alpha \beta + X$$

$$\pi = 1/\ 1 + e^{\alpha j + \beta j X} + e^{\alpha j + \beta j X} \ldots \quad e^{\alpha J-1 + \beta J-1 X}$$

$$= \sum e^{\alpha j + \beta j X}$$

For a single predictor, the predicted probability can be computed by generalizing the above equation for standard logistic, using the following equation with as many additional $J - 1$ terms in the denominator for every comparison to the reference category.

Results and Discussion

Using parametric tools Cronbach's α value was calculated which is reliable with value of 0.799 (Cronbach, 1951; George and Mallery, 2003). Multicollinearity was calculated with the help of Variance Inflation factor having acceptable cut off of less than 10 but in this study VIF is less than 5 of all variables (Singh et al., 2023). The calculated value for Durbin-watson test was 1.962 .

The results of likelihood ratio in the Table 1 depicts that the model contains full set of predictors representing a significant improvement relative to null model comprising likelihood chi-square value (14) = 75.938, p < 0.01. This means there is significant relationship between dependent and independent variables in the final model.

Table 1: Model Fitting Information

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	215.145	220.375	211.145			
Final	167.207	209.049	135.207	75.938	14	.000

Source: *Author's estimations*

The Pearson (164.866) and deviance (135.207) statistics test proves that the model is fit, as the p value is greater than 0.05 in the table 2.

Table 2: Goodness of Fit

	Chi-Square	df	Sig.
Pearson	164.866	186	.865
Deviance	135.207	186	.998

Source: *Author's estimations*

The Pseudo-R square measures are Cox and Snell (0.223), Nagelkerke (0.254) and McFadden (0.120) in the table 3. The model counts for 34% to 39% of the variance and represents relatively decent sized effects.

Table 3: Pseudo R- Square

Cox and Snell	.349
Nagelkerke	.399
McFadden	.206

The likelihood ratio test in the table 4 proves that the independent or predictor variables like production barrier , economic barrier, infrastructural barrier contributes significantly to the final model. The barriers are significant at 5% level of significance.

Table 4: Likelihood Ratio Tests

Likelihood Ratio Tests

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	212.646	243.908	188.646	23.649	2	.000
prodbarrier	201.012	232.274	177.012	12.015	2	.002
akbarrier	189.092	220.354	165.092	.095	2	.954
insbarrier	191.816	223.078	167.816	2.820	2	.244
economicbarrier	198.476	229.738	174.476	9.479	2	.009
infsbarrier	196.680	227.942	172.680	7.683	2	.021
nabarrier	193.368	224.630	169.368	4.371	2	.112

Source: *Author's estimations*

Among the different categories farmers choosing never to adopt organic farming, production barrier, infrastructure are showing positive and significant impact whereas economic barrier depicts negative and significant impact at 5% level of significance in the table 5. Production barrier is positive and significant (b= 1.752, Wald = s.e= 0.538, p<0.001) . The regression slope for production barrier among farmers who never want to adopt farming shows that each one unit increase on this variable, the log-odds of case falling into never adopt category relative to adopt in future category is predicted to increase by 1.752 as its sign is positive. The odds ratio is 5.765, indicating that with increasing score on this predictor, odds of falling into the never adopt category as changing by a factor of 5.765. The probability of choosing never to adopt organic farming due to production barrier is 5.765/ 1+ 5.765 = 85.21 % and the probability to adopting organic farming in future is 14.79 %. Similarly, we can analyse the chance of choosing never adopt due to infrastructural barrier (74.33%), economic barrier (81.25%) and the probability of adopting organic farming in future for productive barrier and economic barrier is 25.67% and 18.75 respectively. The other barrier closer to 5% significance level is institutional barrier by obtaining value of 0.089, b= -0.885, Wald=2.895, s.e = 0.520.Overall, these results suggest that farmers believing more strongly that production barrier, economic barrier, infrastructural is a reason for not adopting organic farming than to adopt organic farming in future. Among the different categories

farmers choosing never to adopt organic farming and uncertain to adopt organic farming, production barrier (b= .963, Wald =4.644 , s.e =. 447, p<0.001 and infrastructure (b= 1.064, Wald = .419, s.e = 6.450, p<0.001) are showing positive and significant impact in the table 5.

Table 5: Parameter Estimates

adoption[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
never adopt	Intercept	-13.258	3.729	12.643	1	.000			
	prodbarrier	1.752	.538	10.605	1	.001	5.765	2.009	16.544
	akbarrier	-.010	.423	.001	1	.981	.990	.432	2.268
	insbarrier	-.885	.520	2.895	1	.089	.413	.149	1.144
	economicbarrier	1.467	.660	4.937	1	.026	4.334	1.189	15.802
	infsbarrier	1.064	.419	6.450	1	.011	2.897	1.275	6.582
	nabarrier	.736	.688	1.144	1	.285	2.088	.542	8.045
uncertain to adopt	Intercept	-1.788	2.601	.472	1	.492			
	prodbarrier	.963	.447	4.644	1	.031	2.621	1.091	6.294
	akbarrier	-.109	.353	.095	1	.757	.897	.449	1.792
	insbarrier	-.577	.449	1.655	1	.198	.561	.233	1.353
	economicbarrier	-.021	.525	.002	1	.968	.979	.350	2.738
	infsbarrier	.748	.336	4.946	1	.026	2.112	1.093	4.082
	nabarrier	-.157	.615	.065	1	.798	.855	.256	2.850

a. The reference category is: adopt in future.

Source: *Author's estimations*

The results of likelihood ratio in the Table 6 depicts that the model contains full set of predictors representing a significant improvement relative to null model comprising likelihood chi-square value (20) = 80.489, p < 0.01.

Table 6: Model Fitting Criteria and Likelihood RatioTest

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	215.145	220.375	211.145			
Final	174.656	232.189	130.656	80.489	20	.000

Source: *Author's estimations*

This means there is significant relationship between dependent and independent variables in the final model. Chi-square goodness of fit tests for the model and in the table 7 explains about evidence of good fit model as it is non- significant obtaining 0.850 value of person chi square test and 0.998 of deviance chi- square test. The p-value is greater than 0.05.

Table 7: Goodness of Fit

	Chi-Square	df	Sig.
Pearson	160.390	180	.850
Deviance	130.656	180	.998

Source: *Author's estimations*

The Pseudo R- Square measures are Cox and Snell (0. 549), Nagelkerke (0.627) and McFadden (0.381) in the table 8.

Table 8: Pseudo R- Square

Cox and Snell	.549
Nagelkerke	.627
McFadden	.381

Source: *Author's estimations*

The model accounts for 54% to 62% of the variance and represents decent sized effects. The likelihood ratio test in the table 9 proves that the independent or predictor variables like production barrier and infrastructural barrier contributes significantly to the final model. The barriers are significant at 1% level of significance.

Table 9: Likelihood ratio tests

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	212.219	264.522	172.219	41.563	2	.000
prodbarrier	183.933	236.236	143.933	13.277	2	.001
akbarrier	171.349	223.652	131.349	.693	2	.707
economicbarrier	175.077	227.379	135.077	4.421	2	.110
nabarrier	174.240	226.542	134.240	3.584	2	.167
age	173.796	226.099	133.796	3.140	2	.208
EducationLevel	171.618	223.920	131.618	.961	2	.618
typeofcultivatingland	171.191	223.493	131.191	.534	2	.766
insbarrier	172.677	224.979	132.677	2.021	2	.364
infsbarrier	178.593	230.895	138.593	7.936	2	.019
fmexp	174.048	226.350	134.048	3.392	2	.183

Source: *Author's estimation*

Among the different categories farmers choosing never to adopt organic farming, production barrier and infrastructure are showing positive and significant impact in the table 10. As the productive barrier (b=2.381, Wald=10.097, p<0.05) and infrastructural barrier (b= 1.315, Wald= 5.302, p<0.05) increased by 1 unit the odd ratio / probability to increase farmers intention to never adopt and uncertain to adopt increase by 10.819 times and 3.724 times respectively. When farmer has only two options available i.e never adopt and adopt in future than the probability that they choose never adopt due to production barrier is 10.819/(1 + 10.819)= 91.53% and probability they choose to adopt in future is 8.47 %. The probability that they choose to never adopt due to infrastructural barrier is 3.724/ 1+3.724 = 78.83% and probability that they choose to adopt in future is 21.17 %. Institutional barrier, attitude and knowledge barrier, institutional barrier, natural barrier, education level, farming experience, age, type of cultivating land shows non- significant results among farmers choosing to never adopt organic farming than adopting organic farming in future. Some of the variable shows positive sign of coefficients like infrastructural barrier (1.315), natural barrier (1.110), education Level (.281), age (0.155), type of cultivating land (.193), farming experience (.193) and some depicts negative sign of coefficients i.e attitude and knowledge barrier (-0.074) institutional barrier (-0.852).

Among the conventional farmers choosing never to adopt organic farming, production barrier and infrastructure are showing positive and significant impact at 5 % level of significance in the table . As the productive barrier (b=1.123, Wald=5.164, p<0.05) and infrastructural barrier (b= .855, Wald= 5.457, p<0.05) increased by 1 unit the odd ratio / probability to increase farmers intention to never adopt and uncertain to adopt increase by 3.074 times and 2.352 times respectively. When farmer has only two options available i.e. never adopt and adopt in future than the probability that they choose never adopt due to production barrier is 3.074 /(1 + 3.074)= 75.45% and probability they choose to adopt in future is 24.55%. The probability that they choose to never adopt due to infrastructural barrier is 2.352/ (1+2.352)= 70.16% and probability that they choose to adopt in future is 29.84%. Institutional barrier, attitude and knowledge barrier, institutional barrier, natural barrier, education level, farming experience, age, type of cultivating land shows non- significant results among farmers choosing to never adopt organic farming than adopting organic farming in future. Some of the variable shows positive sign of coefficients like infrastructural barrier (0.855), education Level (.281), age (0.82), type of cultivating land (0.518), farming experience (0.060), economic barrier (-0.161) and some depicts negative sign of coefficients i.e attitude and knowledge barrier (-0.277) institutional barrier (-0.502), economic barrier (-.161), natural barrier (-.147).

Table 10: Parameter Estimates

adoption[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
never adopt	Intercept	-28.796	6.750	18.198	1	.000			
	prodbarrier	2.381	.749	10.097	1	.001	10.819	2.490	47.003
	akbarrier	-.074	.535	.019	1	.890	.928	.325	2.652
	economicbarrier	1.135	.815	1.940	1	.164	3.112	.630	15.373
	nabarrier	1.110	.867	1.638	1	.201	3.034	.555	16.600
	age	.155	.092	2.854	1	.091	1.168	.975	1.398
	EducationLevel	.281	.479	.344	1	.557	1.325	.518	3.389
	typeofcultivatingland	.193	1.140	.029	1	.866	1.213	.130	11.316
	insbarrier	-.852	.643	1.756	1	.185	.427	.121	1.504
	infsbarrier	1.315	.571	5.302	1	.021	3.724	1.216	11.402
	fmexp	2.017	1.363	2.189	1	.139	7.516	.519	108.766
	Intercept	-5.833	3.695	2.492	1	.114			

	prodbarrier	1.123	.494	5.164	1	.023	3.074	1.167	8.098
	akbarrier	-.277	.370	.560	1	.454	.758	.367	1.565
	economicbarrier	-.161	.586	.075	1	.784	.851	.270	2.687
	nabarrier	-.147	.609	.058	1	.810	.864	.262	2.852
uncertain	tage	.082	.074	1.244	1	.265	1.086	.940	1.254
adopt	EducationLevel	-.078	.377	.042	1	.837	.925	.442	1.937
	typeofcultivatingland	.518	.808	.411	1	.522	1.679	.344	8.183
	insbarrier	-.502	.448	1.253	1	.263	.606	.252	1.458
	infsbarrier	.855	.366	5.457	1	.019	2.352	1.148	4.820
	fmexp	.060	.960	.004	1	.951	1.061	.162	6.960

a. The reference category is: adopt in future.

Source: *Author's estimations*

Conclusion

The present study emphasis on finding the barriers faced by conventional farmers in adopting organic farming. Conventionally cultivated foods also lack antioxidants and nutrients (Das et al., 2020). Its important to know barriers faced by farmers so that more farmers can be engaged in organic farming. The barrier factors like infrastructural , economic , institutional, production barrier, natural barrier, attitude and knowledge barriers (Habanyati et al., 2020; Sujanto et al., 2022; Altarawneh, 2022; Singh et al., 2023) were studied in the model. Farmers were not ready to convert to organic farming as well as some are uncertain about adoption. The results explained that production barrier, economic barrier, infrastructural barrier significantly contribute towards adoption decision . While adding other variables like age, type of cultivating land, farming experience, education production barrier and infrastructural barrier positively and significantly contributing towards adoption decision.

This study is helpful for administrators, policymakers to plan according to the barriers faced by farmers and engage more farmers in the organic farming. There were lot of myths in the mind of farmers and more awareness of organic farming is the need of the hour. The present study ensure such policies that can impact more adoptability of farmers and farmer get interested in organic practices by handholding of farmers. Our study points out that reluctant farmers should be focused as more farmers are currently engaged in non-organic farming and more farmers should be encouraged to adopt organic farming. The awareness regarding empirical evidence of problems associated with health by using inorganic inputs should spread across farmers and government officials should actively participate in channelising this farming properly from production to marketing. Based on the results, it is suggested to work on the barriers for gaining fruitful results. The future research can be on other demographic variables as well as more barriers like personal and psychological barriers can be included in the study. The sample for the study can be increased as well as more areas can be covered to know effectively about view point of farmers.

Social implications – This study suggests that without removing barriers, the adoption of organic agriculture seems to be a highly challenging task in a situation, where majority of the farmers fall under the small and marginal category. Hence, to promote organic farming in a developing country like India, the government has to invest more in schemes where farmers should get exclusive training and support to strengthen their intention behind the adoption of the organic farming. The various stakeholders with an interest in organic agriculture may develop necessary strategies to advance organic farming based on the studies' collective insights.

Reference

1. Altarawneh, M. (2016). Determine The Barriers of Organic Agriculture Implementation In Jordan**.** Bulgarian Journal of Agricultural Science, 22 (1), pp 10-15.
2. Baranski, M., D. Srednicka-Tober, N. Volakakis, C. Seal, R. Sanderson, G. B. Stewart, C. Benbrook, B. Biavati, E. Markellou, C. Giotis, J. Gro-madzka-Ostrowska, E. Rembialkowska, K. Skwarlo-Sonta, R. Tahvonen, D. Janovska, Niggli, U., Nicot, P & Leifert. C. (2014). Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: A systematic literature review and meta-analyses. *British Journal of Nutrition*. 112, 794–811.
3. Beharrell, B., & Crockett, A. (1992). New age food! New age consumers. British Food Journal. *94*(7):5-13.
4. Best, H. (2010). Environmental Concern and the Adoption of Organic Agriculture. *Society & Natural Resources*, *23*(5), 451–468. https://doi.org/10.1080/08941920802178206.
5. Bhujel, R. R., & Joshi, H. G. (2023). Organic Agriculture in India: A Review of Current Status, Challenges, and Future Prospects. *Universal Journal of Agricultural Research*, *11*(2), 306 - 313. DOI: 10.13189/ujar.2023.110208.
6. Canavari, M., Gori, F., Righi, S., & Vigano, E. (2022). Factors fostering and hindering farmers' intention to adopt organic agriculture in the Pesaro-Urbino province (Italy). *AIMS Agriculture and Food*, *7*(1): 108–129. DOI: 10.3934/agrfood.2022008

7. Conley, T. G. & Udry, C. R. (2010). Learning about a new technology: Pineapple in Ghana. *American Economic Review*, 100 (1), 35–69.
8. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests, *Psychometrika*, 16 (3), pp. 297-334.
9. Das, S., Chatterjee, A., & Pal, T. K. (2020). Organic farming in India: a vision towards a healthy nation. *Food Quality and Safety*, 4(*2*), 69–76. doi:10.1093/fqsafe/fyaa018.
10. Dixit, A., Suvadarshini, P. and Pagare, D.V. (2022), Analysis of barriers to organic farming adoption in developing countries: a grey-DEMATEL and ISM approach, *Journal of Agribusiness in Developing and Emerging Economies*, doi: https://doi.org/10.1108/JADEE-06-2022-0111.
11. Djokoto, J. G., Owusu, V & Awunyo-Vitor, D. (2016). Adoption of organic agriculture: Evidence from cocoa farming in Ghana. *Cogent Food & Agriculture* (2016), 2: 1242181. doi.org/10.1080/23311932.2016.1242181.
12. Duram, L. A. (2000). Agents' Perception of Structure: How Illinois Organic Farmers view Political, Economic, Social and Ecological Factors, *Agriculture and Human Values*, 17, 35-48.
13. Fairweather, J. R. (1999). Understanding how farmers choose between organic and conventional production: results from New Zealand and policy implications. *Agriculture and Human Values*, 16, 51-63.
14. Ferdous, Z., Hayat, U., Avishek, D., Ahmed, A., Amitava, R., & Samim Hossain Molla. (2020). Application of Biogas Slurry in Combination with Chemical Fertilizer Enhances Grain Yield and Profitability of Maize (*Zea Mays* L.). *Communications in Soil Science and Plant Analysis, 51*(19), 2501-2510.
15. George, D. & Mallery, P. (2003). Using SPSS for Windows Step by Step: A Simple Guide and Reference, 4th ed., Pearson Education, London.
16. Genius, M., Pantzios, C., & Tzouvelekas, V. (2006). Information acquisition and adoption of organic farming practices: Evidence from farm Operations in Crete, Greece. *J. Agric. Resour. Econ. 31*, 93–113.
17. Hattam, C. E., & Holloway, G. J. (2005). Adoption of certified organic production: Evidence from Mexico. Retrieved from http://orgprints.org/4367/4/4367-Hattam_Holloway_4p_ revised-ed.pdf.
18. Habanyati, E. J., P, H. N, P. H., & Umar, B. B. (2020). Factors contributing to disadoption of conservation agriculture among smallholder farmers in Petauke, Zambia. *Kasetsart Journal of Social Sciences*, 41, 91–96.
19. Horrigan, L., Lawrence, R. S., & Walker, P. (2002). How sustainable agriculture can address the environmental and human health harms of industrial agriculture. *Environmental Health Perspectives*. 110 (5), 445–56.
20. Jayawardana, J. K. J. P. & Sherief, A. K. (2012). Influence Of Socio-Psychological Characteristics In Adoption Of Organic Farming Practices In Coconut Based Homesteads In Humid Tropics, *Cocos*, *19* (2). pp 101,
21. Jouzi, Z., Azadi, H., Taherie, F., Zarafshani, K., Gebrehiwot, K., Van Passel, S., & Lebailly, P. H. (2017). Organic farming and small-scale farmers: Main opportunities and challenges. *Ecological Economics*, *132* , 144-154.
22. Kunzekweguta, M., Rich, K. M., & Lyne, M. C. (2017) Factors affecting adoption and intensity of conservation agriculture techniques applied by smallholders in Masvingo district. Zimbabwe Agrekon *56*(4), 330–346. https://doi.org/10. 1080/03031853.2017.1371616.
23. Karki, L., Schleenbecker, R., & Hamm, U. (2011). Factors influencing a conversion to organic farming in Nepalese tea farms. *J. Agric. Rural Dev. Trop*, *112*, 113–123.
24. Kassie, M., Zikhali, P., Manjur, K., & Edwards, S. (2009). Adoption of organic farming techniques: Evidence from a semi-arid region of Ethiopia (Discussion Paper Series, EfD -09-01). Gothenburg: Environment for Development.
25. Latruffe, L., & Nauges, C. (2014). Technical efficiency and conversion to organic farming: The case of France. *European Review of Agricultural Economics*, 41, 227–253. http://dx.doi.org/10.1093/erae/jbt024
26. Laura, S., & Nicholas, K. A. (2018). German Winegrowers' Motives and Barriers to Convert to Organic Farming. *Sustainability*. *10*, 4215; doi:10.3390/su10114215.
27. Mzoughi, N. (2011). Farmers' adoption of integrated crop protection and organic farming: Do moral and social concerns matter? *Ecological Economics, 70*, 1536–1545. http://dx.doi.org/10.1016/j.ecolecon.2011.03.016.
28. Naveenkumar, G. S., Mallikarjun, B .,Hanji, M. J., Chandregowda, K. N., Krishnamurthy, D. M., Gouda, K. B., Umesh, K. P., Suresh & Dolli, S. S. (2022). Analysis of socio-economic and other farm level factors for farmers decision making pattern in adopting agricultural innovations in Karnataka. *The Pharma Innovation Journal*, *11*(11), 811-814.
29. Meda, Y, J. M., Egyir, I. S., Zahonogo, P., Jatoe, J. B. D., & Atewamba, C. (2018). Institutional factors and farmers' adoption of conventional, organic and genetically modified cotton in Burkina Faso, *International Journal of Agricultural Sustainability*, *16*(1), 40-53, DOI: 10.1080/14735903.2018.1429523.
30. Midmore, P., Padel, S., McCalman,., Lampkin, H. N. H., Fowler, S & Isherwood, J (2001). Attitude to organic production: a survey of producers. UK: Institute of Rural Studies, University of Wales.
31. My, K. B., Nguyen-Van, P., Pham, T. K. C., Stenger, A ., Tiet, T. & Nguyen. T. T. (2020). Drivers of organic farming: Lab-in-the-field evidence of the role of social comparison and information nudge in networks in Vietnam. *The Bureau of Theoretical and Applied Economics*.

32. Niemeye, R K, & Lombard. J. S. (2003). Identifying problems and potential of the conversion to organic farming in South Africa. Paper presented at the meeting of the Agricultural Economic Association of South Africa (AEASA), Pretoria, South Africa.
33. Ma, W., Ma, C., Su, Y., & Nie, Z. (2017). Organic farming: Does acquisition of the farming information influence Chinese apple farmers' willingness to adopt? *China Agricultural Economic Review* , *9*, 211–224.
34. Okon, U. E., & Idiong, I. C. (2016). Factors influencing adoption of organic vegetable farming among farm households in south- south region of Nigeria. *Am Eurasian J Agric Environ Sc.si,* 16(5), 852–859. https://doi.org/10.5829/idosi. aejaes.2016.16.5.12918
35. Padel, S., & Lampkin, N. (1994). Conversion to organic farming: An overview. In Lampkin NH, Padel S (eds.): The economics of organic farming. An international perspective: CAB International, Wallingford, 295-310.
36. Padel, S. 2001. Conversion to organic farming: A typical example of the diffusion of an innovation? *Sociologia Ruralis*, 41, 40–61.
37. Pinthukas, N. (2015). Farmers' perception and adaptation in organic vegetable production for sustainable livelihood in Chiang Mai Province. *Agriculture and Agricultural Science Procedia, 5*, 46–51.
38. Rashidpour, L. **(**2020). Barriers of Conversion to Organic Farming in the West Azarbaijan Province. *International Journal of Agricultural Management and Development, 10*(2), 135-147.
39. Rayamajhi K, & Acharya A. (2022). A perceptive study of organic agriculture in Baglung municipality: farmers' barriers to and factors influencing adoption. *MOJ Ecology and Environmental Sci*ence, *7*(4):115-119. DOI: 10.15406/mojes.2022.07.00256.
40. Rodgers, K. M., Udesky, J. O., Rudel, R. A., & Brody, J. G. (2018). Environmental chemicals and breast cancer: An updated review of epidemiological literature informed by biological mechanisms. *Environmental Research 160*, 152–182.
41. Rigby, D., Young, T., & Burton. M. (2000). Why do Farmers opt in or opt out of Organic Production? A Review of the Evidence. Symposium paper for the Annual Agricultural Economics Society Conference, Manchester.
42. Sharifi, O., S A Sadati, S, A., Ghobadi, F, R., Sadati, S, A., Mohamadi, Y., and Parastoo T Del, T. T. (2010). Barriers to conversion to organic farming: A case study in Babol County in Iran, *African Journal of Agricultural Research*, *5*(16), pp. 2260-2267.
43. Singh, S.P., Priya & Sajwan, K. (2023). Factors influencing the adoption of organic farming: a case of Middle Ganga River basin, India. *Organic Agriculture*, *13*, 193–203 (2023). https://doi.org/10.1007/s13165-022-00421-2
44. Sujianto, E. G., Saptana, S, Valeriana, D, A. M., Syukur., Ening. A., H, P. S., & Sudi ,M, M. (2022). Farmers' perception, awareness, and constraints of organic rice farming in Indonesia. *Open Agriculture*, 7, 284–299.
45. Swarna, R. (2016). Prospects and Problems of organic farming in Tirunelveli district. Thesis. Manonmaniam Sundaranar University.
46. Thapa, G. B., & Rattanasuteerakul, K. (2011). Adoption and extent of organic vegetable farming in Mahasarakham province, Thailand. *Applied Geography*, 31, 201- 209.
47. Tiffin, R & Balcombe, K. (2011). The determinants of technology adoption by UK farmers using Bayesian model averaging: the cases of organic production and computer usage. *The Australian Journal of Agricultural and Resource Economics*, *55*(4), 579–598. doi:10.1111/j.1467-8489.2011.00549.x
48. Vandercasteelen, J., M. Dereje, B. M., and Taffesse, A. S. (2020). From agricultural exper- iment station to farm: The impact of the promotion of a new technology on farmers' yields in Ethiopia. *Economic Development and Cultural Change, 68*(3), 965–1007.
49. Worthington, V. (2001). Nutritional quality of organic versus conventional fruits, vegetables, and grains. *Journal of Alternative and Complementary Medicine*, 7, 161–173.
50. Wynen, E. (1993). Conversion to organic agriculture: problems and possibilities in the cereal livestock industry.
51. Wicaksono, M. T., Winarto, Y. T., & Stigter K. (2017). Farmers' worst enemy . Jakarta: Inside Indonesia. http://www.insideindonesia.org/farmers- worst-enemy-2.
52. Woittiez, L. S., Slingerland, M., Rafik, R., & Giller, K. E. (2018). Nutritional imbalance in smallholder oil palm plantations in Indonesia. *Nutrient Cycling in Agroecosystem*, *111*(1), 73–86. doi: 10.1007/s10705-018-9919-5.
53. Yazdanpanah, M., Maryam, T. M., Tahereh, Z., Ana, P. D. T., Luca, E., & Stefan, S. (2022). What factors contribute to conversion to organic farming? Consideration of the Health Belief Model in relation to the uptake of organic farming by Iranian farmers. *Journal of Environmental Planning and Management*, *65*(5), 907-929, DOI: 10.1080/09640568.2021.1917348.