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A Study of Perception of Farmers towards Organic Farming

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ABSTRACT

Organic farming is gaining popularity all over the world, as it can diversify agricultural production systems towards attaining improved productivity, farm income and food, as well as environmental safety. The aim of this study was therefore to evaluate farmers perception of organic farming and issues associated with it. The present study was conducted in Madhya Pradesh, India. The state of Madhya Pradesh consists of 39 districts; out of these a convenient and purposive sampling technique was used to select 100 respondents from 50 villages of Khargone district of Nimar region. Descriptive statistics and factor analysis were used to present the findings of the study while the Chi-square analysis was used to test the study hypotheses. Study revealed that 67% of respondents have positive perception towards organic farming. Also, 5 out of 9 variables selected, affects respondents perception towards organic farming. There were significant relationships (p≤ 0.05) between respondents' age, educational background, farm size, benefits, social aspects and perception of organic farming.

Key Words:- Organic Farming, Perception, Agriculture, Productivity, Production

1.INTRODUCTION

Sustainable development has caught the imagination and action all over the world for more than a decade. Sustainable agriculture is necessary to attain the goal of sustainable development. According to the Food and Agriculture Organization, sustainable agriculture" is the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of environment and conserving natural resources". All definitions of sustainable agriculture lay great emphasis on maintaining an agriculture growth rate, which can meet the demand for food of all living things without draining the basic resources.

Organic farming is one of the several approaches found to meet the objectives of sustainable agriculture. Many techniques used in organic farming like inter-cropping, mulching and integration of crops and livestock are not alien to various agriculture systems including the traditional agriculture practiced in old countries like India. However, organic farming is based on various laws and certification programs, which prohibit the use of almost all synthetic inputs, and health of the soil is recognized as the central theme of the method.

Adverse effects of modern agricultural practices not only on the farm but also on the health of all living things and thus on the environment have been well documented all over the world. Application of technology, particularly in terms of the use of chemical fertilizers and pesticides all around us has persuaded people to think aloud. Their negative effects on the environment are manifested through soil erosion, water shortages, salination, soil contamination, genetic erosion, etc.

Organic farming is one of the widely used methods, which is thought of as the best alternative to avoid the ill effects of chemical farming. There are several definitions of organic farming and the one given by the US Department of Agriculture (USDA) is considered the most coherent and stringent. It is defined as 'a system that is designed and maintained to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumer. This is accomplished by using substances, to fulfill any specific fluctuation within the system so as to maintain long term soil biological activity, ensure effective peak management, recycle wastes to return nutrients to the land, provide attentive care for farm animals and handle the agricultural products without the use of extraneous synthetic additives or processing in accordance with the act and the regulations in this part'. The origin of organic farming goes back, in its recent history, to 1940s. During this period, the path breaking literature on the subject published by J.I. Rodale in the United States, Lady Balfour in England and Sir Albert Howard in India contributed to the cause of organic farming.

The farming being practiced for the last three decades in India has increasingly been found non-sustainable. The system is oriented towards high production without much concern for ecology and the very existence of man himself.

Organic agriculture is developing rapidly and at least countries produce organic food commercially (Reddy, 2010). As a result, there is enormous potential in practicing organic farming in coconut growing lands, because organic agriculture is productive and sustainable (Reganold et al., 1993; Mader et al., 2002). The most popularly accepted definition of organic farming is; "Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity". This is accomplished by

using wherever possible agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system (FAO, 1999). Organic cultivation is attracting farmers the world over due to its various advantages over modern agricultural practices. Essentially it is a farming system which supports and strengthens biological processes without recourse to inorganic remedies such as chemicals or genetically modified organisms (Reddy, 2010).

Modern agricultural farming practices, along with irrational use of chemical inputs over the past four decades have resulted in not only loss of natural habitat balance and soil health but have also caused many hazards like soil erosion, decreased groundwater level, soil salinization, pollution due to fertilizers and pesticides, genetic erosion, ill effects on environment, reduced food quality and increased the cost of cultivation, rendering the farmer poorer year by year. Farmers do not find agriculture a viable proposition any more and in fact, a large number of farmers have committed suicides. Some of the factors that contributed to the present crisis in farming could be the shooting-up of the price of factory-made external inputs and the government's slow withdrawal of investment as well as market intervention and more significantly, shifting of subsistence farming (mainly with homegrown inputs) to commercial farming (largely with purchased inputs). In other words, local indigenous farm techniques have been wiped out and replaced by the modern techniques, resulting in an unviable and unsustainable farm enterprise. It is in this context that alternative farm techniques and strategies for growing crops ought to be found in the larger interest. The principle of organic cultivation is attracting farmer's world over due to its various advantages over modern agricultural practices. Essentially, it is a farming system which supports and strengthens biological processes without recourse to inorganic remedies such as chemicals or genetically modified organisms. Organic agriculture is productive and sustainable (Reganold et al., 1993; Letourneau and Goldstein, 2001; Mader et al., 2002). Many state-supported agencies, non-governmental organizations (NGOs) and individuals have started experimenting with organic methods of food production in the recent past.

India has traditionally practiced organic agriculture, but the process of modernization, particularly the green revolution technologies, has led to the increased use of chemicals. In recent years, however, limitations of agriculture based on chemical use and intensive irrigation have become apparent and there has been a resurgence of interest in organic agriculture. Renewed interest in organic agriculture is mainly due to two concerns, falling agricultural yield in certain areas as a result of inter alia excessive use of chemical inputs, decreased soil fertility and environmental awareness. Exports also played a role but perhaps lesser than in other countries. The Government of India has also launched the National Programme for Organic Production (NPOP) in the year 2001. The NPOP standards for production and accreditation system have been recognized by the European Commission and Switzerland as equivalent to their country standards. Similarly, the United States Department of Agriculture (USDA) has recognized NPOP conformity assessment procedures of accreditation as equivalent to those in the US. With these recognitions, the Indian organic products duly certified by the accredited certification bodies of India are accepted by the importing countries.

The major goal of organic farming is sustainable production of quality food with little or no effect on the environment. This goal has not been fully achieved by current agricultural practices, i.e. inorganic farming, hence the need to encourage organic farming which is capable of providing solutions to the current agricultural problems and help to achieve optimal production of quality food sustainably (IFOAM, 2005). Despite the global awareness of environmental degradation and climatic change that could result from the continuous practice of inorganic farming and the threats it poses to sustainable agricultural production, most of the farmers in Nimar region are practicing agriculture inorganically.

Therefore, the objective of this study is to determine the important influencing factors for adoption of organic coconut farming and compare the perceptions of growers who have and have not adopted organic coconut farming.

Objectives

This study was designed to examine farmers' perception of organic farming by providing answers to the following research questions:

- What are the demographic characteristics of the selected farmers in Nimar region of MP?
- What are the major crops grown by the farmers?
- What are the farmers' present sources of information on organic farming?
- Do the farmers have the knowledge required for practicing organic farming?
- What are farmers 'attitude and perception about organic farming?
- What are the factors that contribute to formation of attitude and perception about organic farming?

Theoretical Framework

Behavior of an individual

According to Ajzen and Fishbein (1980), the behavior of an individual is basically determined by two factors; one is the individual's nature and the other reflects perceived social pressure. The individual factor is the individual's positive or negative evaluation of performing the behavior. Since it deals with personal feelings, this factor is termed the "attitude towards the behavior" (Ajzen and Fishbein 1980). The other factor is the individual's perception of social pressure put on him/her to perform or not perform the behavior. Since it deals with perceived prescription, this factor is termed the "subjective norm" (Ajzen and Fishbein, 1980). Generally, people will intend to perform a behavior when they both

have a favorable evaluation of the behavior and they believe that a significant number of other people wish they would do it. Considering these arguments, Ajzen and Fishbein developed the Theory of Reasoned Action (TRA) in 1980. This theory assumes that people are normally quite rational, in that they make systematic use of available information, consider the implications of their actions, and thus behave in a sensible manner. TRA argues that behavior is best predicted by a person's intentions which are in turn affected by his/her attitude and perceived social pressure. Thus the TRA provided a theoretical framework for examining the influence of attitudes and goals on volitional behaviors (Willock et al. 1999).

Although the TRA has been successful in predicting and understanding many behaviors, it fails to predict behavior which is not entirely under individual volitional control. Thus the TRA restricts itself to volitional behaviors; skills, resources or opportunities not freely available are not considered to be within the domain of the TRA or are likely to be poorly predicted by the TRA (Fishbein, 1993). Hence the Theory of Planned Behavior (TBP) was developed to improve the TRA. The extension called the perceived behavioral control was added as an extra construct to the TRA to reflect any constructing or encouraging factors that may affect an attempted behavior being carried out (Beedell and Rehman, 2000). The TPB states that a person's behavior results from his/her goals and intentions, attitudes, perceived behavioral control and social norms (Bergevote et al. 2004).

Attitude towards organic farming

Attitude is determined by the beliefs that are salient or important to a person. Attitudes are formed by what an individual perceives to be true about the attitude-object. This perception may or may not be based upon information and knowledge and an emotional reaction towards the object. Many beliefs and values may underpin an object. Attitude simply refers to "a person's evaluation of any psychological object". These evaluation judgments are represented as items of knowledge, which are based on three general classes of information; cognitive information, emotional information and information about past behavior. The beliefs underlying an individual's social pressure are termed normative beliefs and represent the perception of the preferences of 'a significant number of others" about whether one should perform the behavior (Chetsumon, 2005). The third factor added to the TRA is an individual's perceived control over performance of a behavior. This factor is termed "Perceived Behavioral Control"; it refers to the perception of the ease or difficulty of performing the behavior.

TPB was used to develop the theoretical framework of this study as shown in Figure 1.

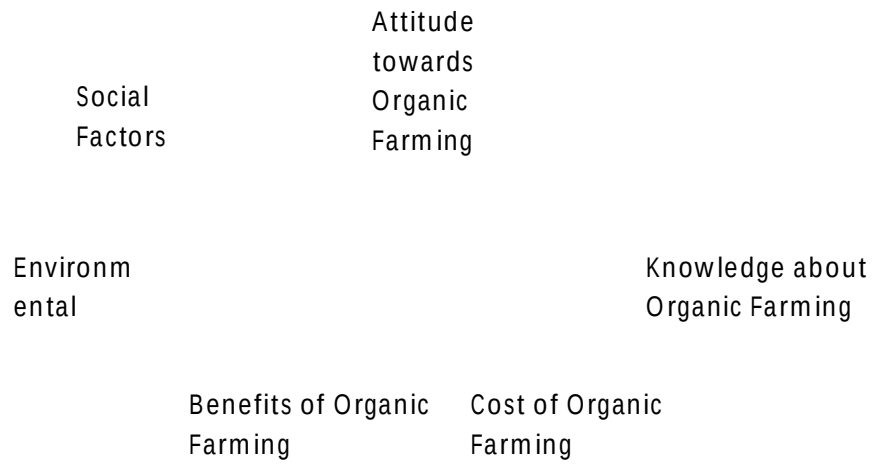


Figure 2: Factors affecting attitude towards organic farming based on Theory of Planned Behavior (TBP)

According to the theoretical framework, a farmer's behavior is guided by five kinds of considerations; knowledge about organic farming, cost associated with organic farming, benefits of organic farming, environmental aspects, and social factors.

Literature Review

Howard's (1940) Agricultural Testament draws attention to the destruction of soil and deals with the consequences of it. It suggests methods to restore and maintain the soil fertility. The study contains a detailed deposition of the famous Indore method of maintaining soil health. The reasons and sources of the erosion of soil fertility and its effect on living things are discussed. The criticism of the agriculture research and examples of how it had to be carried out to protect soil and its productivity are discussed in detail.

Bemwad Geier (1999) is of the opinion that there is no other farming method so clearly regulated by standards and rules as organic agriculture. The organic movement has decades of experience through practicing ecologically sound agriculture and also in establishing inspection and certification schemes to give the consumers the guarantee and confidence in actuality. Organic farming reduces external inputs and it is based on a holistic approach to farming. He describes the worldwide success stories of organic farming based on the performance of important

countries in the west. The magnitude of world trade in organic farming products is also mentioned. To the question of whether the organic farming can feed the world, he says that neither chemical nor organic farming systems can do it; but the farmers can.

Save and Sanghavi (1991) are of the view that after their intensive experiments with organic farming and narrating the results to the informed, it is time that the governments and farmers are brought around. They firmly state that the economic profitability of organic farming can be proved. Four crops of banana grown by the natural way on the same farm by them are compared with those produced by the conventional way. While the natural farm yielded 18 kg of banana in the first round, the conventional one gave 25 kg. 30 kg was the yield at the second round on both the farms. However, on the third round, the natural farm gave 25 kg, the conventional one yielded only 20 kg. The results on the fourth round were stunning - the plants on the conventional farm died out; but the natural ones gave 15 kg on an average. Thus, the aggregate output was 88 kg on the natural farm and 75 kg on the conventional one.

Kaushik (1997) analyses the issues and policy implications in the adoption of sustainable agriculture. The concept of trades off has a forceful role to play in organic farming both at the individual and national decision making levels. Public vis-a-vis private benefits, current vis-a-vis future incomes, current consumption and future growths, etc. are very pertinent issues to be determined. The author also lists a host of other issues. While this study makes a contribution at the conceptual level, it has not attempted to answer the practical questions in the minds of the farmers and other sections of the people.

Sharma (2001) makes a case for organic farming as the most widely recognized alternative farming system to the conventional one. The disadvantages of the latter are described in detail. Other alternatives in the form of biological farming, natural farming and permaculture are also described. The focus is on the organic farming, which is considered as the best and thus is discussed extensively. The work is not addressing the relevant issues in the adoption of organic farming on ground.

Singh and others (2001), recording the experiments on rice-chick pea cropping sequence using organic manure, found the yields substantially higher compared to the control group. Similar results were obtained for rice, ginger, sunflower, soyabean and sesame.

Ahn Jongsung opines that organic agriculture is economically viable (Anon, 1998). The author gives emphasis on marketing the organic products on the basis of reputation and credibility. In Japan, the farmers sell the produces directly to the consumers. The Kenyan farmers have seen that in organic farming, costs go down and profits increase. A farmer from UP who allotted a portion of his land exclusively for organic farming found that the yields of sugarcane, rice, wheat and vegetables were lower than those under chemical farming. An Englishman, settled in Tamil Nadu, who runs an organic farm in 70 acres planted with coffee, citrus, other fruits, rice, pepper and vegetables says that he does not earn a profit and does not have confidence in organic farming.

Somani and others (1992) have published a collection of 42 papers presented at a National Seminar on Natural Farming. Korah Mathen recounts several problems in evolving representative and rigorous yardsticks for comparison between modern and alternative farming. Yields cannot be compared, because of monoculture nature of chemical farming with those of multi crops raised under organic/natural farming. Economic analysis is also problematic because one has to quantify the intangibles. He advocated the resource use efficiency analysis. But the question of profitability of different systems of farming seems difficult to be examined in the absence of an economic analysis although the author does not rely upon it.

Rahudkar and Phate (1992) narrate the experiences of organic farming in Maharashtra. Individual farmers growing sugarcane and grapes, after using vermi compost, saw the soil fertility increased, irrigation decreased by 45 per cent and sugarcane quality imp-roved. The authors say that net profits from both the sugarcane and grape crops are high in organic farms.

The foregoing overview of the literature makes it clear that opinions about organic farming are divided both among the farmers and experts. Disputes about the profitability and yield increases in organic farming are acute, but there is a consensus on its eco-friendly nature and inherent ability to protect human health. There are strong views for and against organic farming (the latter, mainly on the grounds of practicability of feeding a billion people, financial and economic viability, availability of organic inputs and the know-how). Those who are totally against it are prepared to ignore the ill effects of the conventional farming system. There are many who while approving organic agriculture, want a mixture of both the systems or advocate a careful approach by proceeding slowly towards the conversion of the conventional farms into organic. The questions about the yield and financial viability are crucial from the point of view of farmers; but they remain unanswered to a large extent. The study of a geographical area in the country endowed with a large number of resources for organic farming, but has not made any significant stride towards it, is also not found in the literature overview.

Research Methodology

Study Area

The study was conducted in selected villages in Khargone district (Western Nimar region) of Madhya Pradesh, India. The choice of this region for this research was due to its well known agricultural activities in the state. The state is located at latitude 23.25°N and longitude 77.41°E. Madhya Pradesh has a subtropical climate. Like most of north India,

it has a hot dry summer (April–June), followed by monsoon rains (July–September) and a cool and relatively dry winter. The average rainfall is about 1,370 mm (53.9 in). It decreases from west to east because monsoon wind moves from west to east and drained clouds in western part takes less quantity of water vapours with them to eastern part. The south-western districts have the heaviest rainfall, some places receiving as much as 2,150 mm (84.6 in), while the western and north-western districts receive 1,000 mm (39.4 in) or less. Agriculture is the predominant occupation of the people in West Nimar region. Their major produce includes cotton, wheat, soyabean, red chilli, groundnut, chana, vegetables etc.

Sampling procedure

The population involved in this study consisted of farmers in selected villages of West Nimar region of MP. The list of villages selected for the study is shown in Annexure 1 and the map is shown in Annexure 2. A multi-stage convenient sampling technique was used for this study because of the two stages that were involved in selecting respondents. The first stage involved the selection of villages from Khargone district of West Nimar region. The second stage involved convenient selection of respondents. Two farmers were selected from each village to make a total of 100 respondents which constituted the sample size for the study.

Research type

The type of research design followed for the study will be exploratory research design. When the purpose of research is to gain familiarity with phenomenon or acquire new insights in order to formulate a more precise problem or develop hypothesis, the exploratory research comes in handy. If the study happens to be too general or too specific, hypothesis cannot be formulated. Therefore need for exploratory research is felt to gain experience that will be helpful in formulating relevant hypothesis for more detailed investigation. This research is mainly based on quantitative research, method which deals with use of statistical tools and numbers. A part of this research is also based on qualitative research which emphases on in depth analysis of information and finding a conclusion from the information gathered.

Data collection

The data were collected using a structured questionnaire consisting of five main aspects of organic coconut farming namely; attitudes, knowledge, environment, marketing and benefits and cost. Questions related to the above five aspects were assessed based on a five point Likert scale and the background variables were collected from the open-ended questions. The responses were recorded as Strongly Agreed, Agreed, Undecided, Disagreed, Strongly Disagreed, which were 5, 4, 3, 2, and 1 respectively.

The actual information was received by the researcher for study from the actual field of research. This research is mainly based on quantitative pattern; hence the data was obtained by means of structured questionnaires. The structured questionnaires will be formed in consideration with the view of variables by help of experts of the respective field and the research guide. The data will be collected from farmers by doing field visit.

Data analysis tools

Statistical techniques like data validity test, reliability test, frequency distribution, factor analysis, were used. . Data were analyzed with the IBM SPSS 17.0 software package and Microsoft Excel.

Hypothesis

- H1: Age of the respondent does not affect his/her attitude towards organic farming.
- H2: Gender of the respondent does not affect his/her attitude towards organic farming.
- H3: Education of the respondent does not affect his/her attitude towards organic farming.
- H4: Farm size of the respondent does not affect his/her attitude towards organic farming.
- H5: Knowledge of the respondent does not affect his/her attitude towards organic farming.
- H6: Cost aspects do not affect respondent's attitude towards organic farming.
- H7: Benefits aspects do not affect respondent's attitude towards organic farming.
- H8: Environmental aspects do not affect respondent's attitude towards organic farming.
- H9: Social aspects do not affect respondent's attitude towards organic farming.

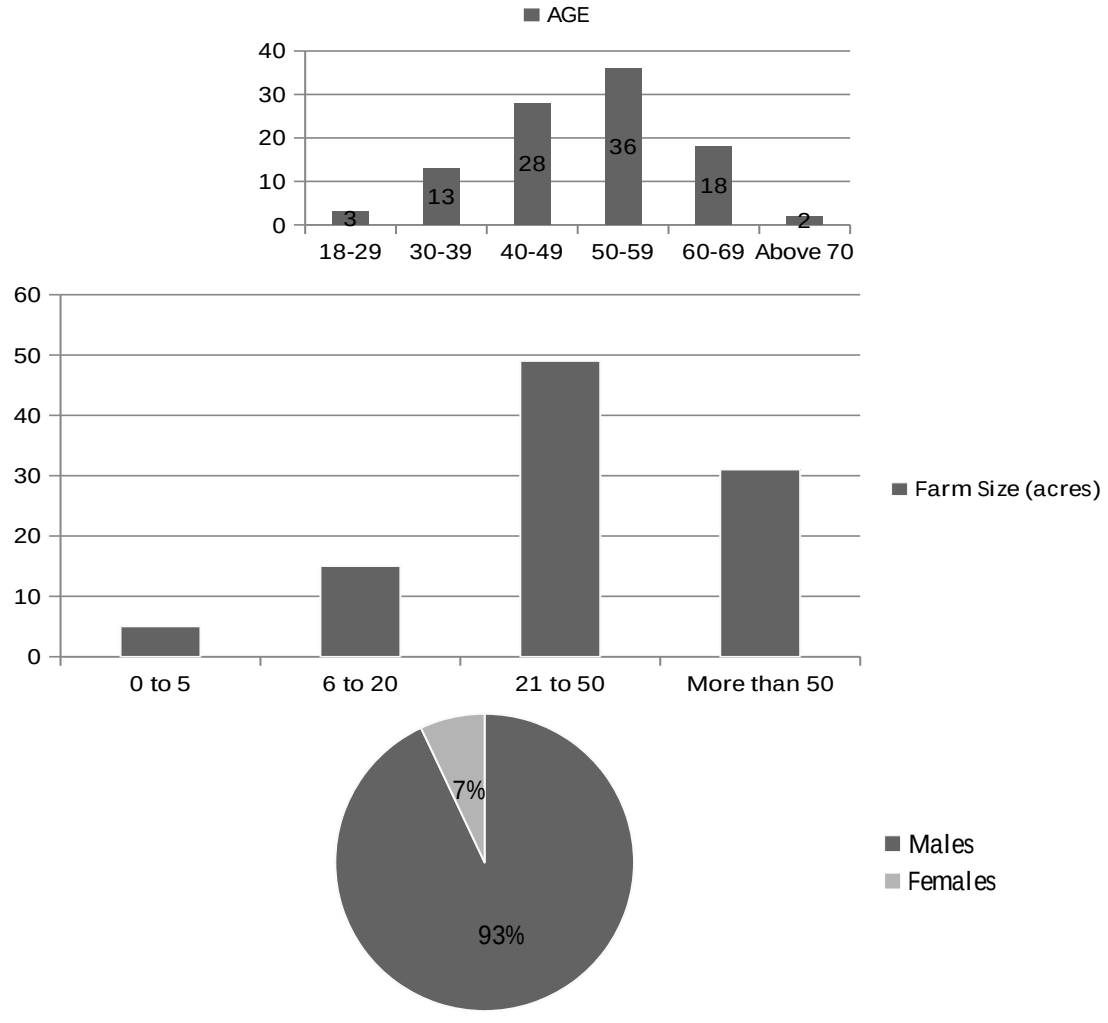
Analysis and Discussions

In this research, Statistical Package for Social Science programs (SPSS) 16.0 is used for the data analysis. The methods used in data analysis are including descriptive analysis, factor analysis, and multiple regression analysis. Descriptive analysis is used to summarize the characteristic of respondents. Factor analysis is conducted to determine the factor underling the 22 variables that affect the attitude and perception of farmers towards organic farming. To test the hypothesis H1, H2, H3… H9, Chi square analysis is used to determine the relationship between the explanatory variables and dependent variable.

Demographic Characteristics

Table 1. Demographic characteristics of respondents (n =

Variables	Frequency	Percentage
Age (years)		
18 – 29	03	03
30 – 39	13	13
40 – 49	28	28
50 – 59	36	36
60 – 69	18	18
Above 70	02	02
Gender		
Male	93	93
Female	07	07
Farm size (acre)		
0-5	5	5
5-20	15	15
21-50	49	49
More than 50	31	31
Educational background		
Less than high school	57	57
High school	34	34
College Undergraduate	07	07
Post graduate	02	02



Reliability Test

In this section, it is investigated whether all the factors are reliable. Reliability analysis can be test the homogeneity or cohesion of the items that comprise each scale and the reliability coefficients as Cronbach's Alpha coefficients is reflects the average correlation among the items that constitute a scale. A reliability coefficient of 0.60 or higher is considered "acceptable" in most research situations. In this study, all of the variables are over 0.60, the variables of Environmental aspects and Cost aspects have achieved the very higher score, which Cronbach's Alpha coefficients average 0.776. Beside, knowledge, benefit, and social aspects have 0.647, 0.680, and 0.622 values.

Table 2: Cronbach's alphas of the variables in the model.

No.	Variable	Cronbach's alpha
1	Knowledge about organic farming	0.647
2	Environmental aspects	0.768
3	Cost aspects	0.784
4	Benefit aspects	0.680
5	Social aspects	0.622

Chi Square Test

Chi square tests were run for 9 factors, as shown in the table above, against the attitude scores of the individual respondents. Each of the respondents given a score based on his/her attitude towards organic farming. "0" was assigned for negative attitude and "1" for positive attitude. In this way chi square tests were run for individual factors against Attitude score.

CHI-SQUARE TEST RESULTS

	Variables	No. of cases (n)	Chi-square (X2)	p value
1	Age	100	6.85	0.043
2	Gender	100	14.58	0.333
3	Education	100	15.65	0.030
4	Farm Size	100	18.21	0.029
5	Knowledge	100	14.98	0.257
6	Cost	100	8.32	0.566
7	Benefit	100	9.65	0.008
8	Environment	100	19.75	0.150
9	Social	100	11.32	0.014

The tests were run on the data generated from this study. Results of the test indicated that there was a significant relationship ($p < 0.05$) between respondents' age, educational background, farm size, benefits associated with organic farming, and social factors and attitude/perception towards organic farming. On the other hand, 4 variables i.e. gender, knowledge, cost, and environment have no significant relationship ($p > 0.05$) with attitude scores of the respondents. Thus, out of 9 variables 5 shows significant variance for the attitude and perception towards organic farming, and 4 variables remain insignificant.

HYPOTHESIS RESULTS

Null Hypothesis	Result
H1: Age of the respondent does not affect his/her attitude towards organic farming.	Reject
H2: Gender of the respondent does not affect his/her attitude towards organic farming.	Accept
H3: Education of the respondent does not affect his/her attitude towards organic farming.	Reject
H4: Farm size of the respondent does not affect his/her attitude towards organic farming.	Reject
H5: Knowledge of the respondent does not affect his/her attitude towards organic farming.	Accept
H6: Cost aspects do not affect respondent's attitude towards organic farming.	Accept
H7: Benefits aspects do not affect respondent's attitude towards organic farming.	Reject
H8: Environmental aspects do not affect respondent's attitude towards organic	Accept

farming.	
H9: Social aspects do not affect respondent's attitude towards organic farming.	Reject

2.CONCLUSION

The findings of this study revealed positive perception of organic farming with significant relationships between age, educational background, farm size, benefits of organic farming, and social factors. This indicates that the communities will have high adoption rate of innovations related to organic farming and other agricultural policies. The concern, however, is that recent studies in the same geopolitical zone report low practice of organic farming. This gap between knowledge or perception and practice can be bridged by better understanding of the system and government provision of enabling environments (e.g. provision of credit facilities, training on technicalities) to farmers. This study also revealed some unexpected outcomes such as cost associated with organic farming does not affect farmer's attitude. May be farmers focus is on yield and profit (benefit aspect) but not cost of inputs in the agriculture. Other factors like knowledge, environment and gender have no explanatory significance towards attitude of the farmers.

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Annexure 1: List of villages selected for the study.
State- Madhya Pradesh
District- Khargone
Tehsil- Maheshwar

Karondia	Nandia	Samraj
Choti khargone	Koganwa	Dhapla
Dhargaon	Kodlakhedi	Thangaon
Gogawa	Hodaria	Gandhi nagar
Sulgaon	Bhudari	Itawadi
Dagdi	Gulawad	Matmur
Nandra	Somakhedi	Samaspur
Pathrad	Kawdia	Mahetwada
Katargaon	Kundia	Kharadi

Kumbhya	Jhapdi	Badvi
Bandera	Moganwa	Dhamnod
Karahi	Mod	Sundrel
Padlya	Mandori	Bagdipura
Kawana	Chundaria	Dongargaon
Bardia	Harasgaon	Patlawad
Astaria	Sangi	Chandawad
Zakrud	Bikhron