Factors determining the adoption of Organic Farming among the farming community in Tamil Nadu

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Abstract-The organic products available in the domestic market are rice, wheat, tea, coffee, pulses and vegetables. On the other hand, in addition to the products available for export market include cashew nuts, cotton, oilseeds, various fruits and medicinal herbs. The major markets for Indian organic products are the EU, the USA, Canada, Australia and Middle East Asian countries, in India, according to a YES Bank report in 2012, it was estimated that the market for organic food including exports is currently valued at Rs. 1,000 crore ($ 170 million) of which Rs. 700 crore came from exports, and is growing at 30 to 40 per cent annually. In comparison, the US organic foods market is worth $26 billion, the European $ 10 million. The global organic food and beverages market is expected to grow from $ 57.2 billion in 2010 to $ 104.5 billion in 2015 at an estimated CAGR of 12.8 percent. Germany is the biggest consumer in Europe with a share of 32 percent of organic food and beverages in the European region. Japan leads the Asian countries in terms of organic food consumption with nearly 54 percent in 2010. Fresh produces (fruits and vegetables) are the highest selling organic food categories with 37 percent of the organic food segment in terms of revenue.

India's organic export products include, tea, honey, cashew, cotton, processed fruits, coffee, basmati rice, sesame, spices, walnuts, pulses and wheat. Key organic items of export importance are fruits and vegetables, sesame, basmati rice, fruit pulp, fruit juices, spices, cashew, tea, coffee, cotton and wheat. Hence, against this backdrop an attempt is made in this study to analyse the factors determining adoption of Organic farming among the farming community in Tamil Nadu.

Key Words: Organic farming, factors.

ORGANIC FARMING- AN INTRODUCTION

Organic farming is the form of agriculture that relies on techniques such as crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and control pests on a farm. Organic farming excludes or strictly limits the use of synthetic fertilizers and synthetic pesticides, plant growth regulators, livestock antibiotics, food additives, and genetically modified organisms.

In India organic farming is not new to farming community. Several forms of organic farming are being successfully practiced in diverse climate, particularly in rain fed, tribal, mountains and hill areas of the country. Among all farming systems, organic farming is gaining wide attention among farmers, entrepreneurs, policy makers and agricultural scientists for varied reasons. Hence, against this backdrop an attempt is made in this study to analyse the factors determining adoption of Organic farming among the farming community in Tamil Nadu.

BOOMING ORGANIC PRODUCE MARKET

The organic products available in the domestic market are rice, wheat, tea, coffee, pulses and vegetables. On the other hand, in addition to the products available for export market include cashew nuts, cotton, oilseeds, various fruits and medicinal herbs. The major markets for Indian organic products are the EU, the USA, Canada, Australia and Middle East Asian countries, in India, according to a YES Bank report in 2012, it was estimated that the market for organic food including exports is currently valued at Rs. 1,000 crore ($ 170 million) of which Rs. 700 crore came from exports, and is growing at 30 to 40 per cent annually. In comparison, the US organic foods market is worth $26 billion, the European $ 10 million. The global organic food and beverages market is expected to grow from $ 57.2 billion in 2010 to $ 104.5 billion in 2015 at an estimated CAGR of 12.8 percent. Germany is the biggest consumer in Europe with a share of 32 percent of organic food and beverages in the European region. Japan leads the Asian countries in terms of organic food consumption with nearly 54 percent in 2010. Fresh produces (fruits and vegetables) are the highest selling organic food categories with 37

percent of the organic food segment in terms of revenue.

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OBJECTIVES

- ♠ To study the various reasons for adopting organic farming among the organic farmers.
- ♠ To analyse the reasons for adopting organic farming among the organic farmers.

METHODOLOGY

A sample of 300 organic farmers were selected for the study by adopting Snowball sampling. The sample respondents were selected from various districts of Tamil Nadu. An elaborative interview Schedule was prepared and administered to the sample respondents.

MATERIALS AND METHODS

Rotated Factor Matrix for Reasons for Adopting Organic Farming

An attempt was made to extract specific factors and define variables, which constitute each factors, based on the strength and direction of factor loadings in reasons for adopting organic farming. The rotated factor matrix for reasons for adopting organic farming is given in Table-1.

Factor Analysis

Table-1

Variables	Component			
	F1	F2	F3	F4
Organic farming improves the soil's chemical properties such as supply and retention of soil nutrients and promotes favourable chemical reactions	**0.791**	-0.076	0.182	0.107
Production of clean foods	**0.642**	0.432	0.034	0.046
Organic farming improves the soil physical condition properties such as granulation and good tilth, good aeration and easy root penetration	**0.575**	-0.017	0.567	0.055
Organic farming improves water holding capacity	**0.521**	0.419	0.147	0.330
Sustaining production system dependent largely on on-farm resources	**0.518**	0.283	0.164	0.299
Organic farming helps in reconnecting the public with farming and food	**0.441**	-0.094	-0.057	0.414
Organic farming helps in maintaining environment health by reducing the level of pollution	**0.422**	0.365	0.286	-0.003
Organic farming ensures optimum utilization of natural resources for short term benefits and helps in conserving them for future generations	**0.392**	0.312	0.336	0.232
Organic farming reduces the cost of agricultural production and improves the soil health	-0.100	**0.823**	0.104	0.130
Organic farming reduces human and animal health hazards by reducing the level of residues in the product	0.126	**0.609**	0.321	-0.237
Organic farming helps in keeping agricultural production at a higher level and makes it sustainable	0.237	**0.600**	-0.171	0.287
Green manures acts as a green amendments	0.183	**0.563**	0.330	0.137
Organic farming helps in empowering farmers and growers	0.191	0.043	**0.783**	0.209
Organic farming not only saves energy for both animal and machine, but also reduces the risk of crop failure	0.051	0.345	**0.779**	0.152
Prospects of exports of organically produced foods	0.105	0.106	0.164	**0.896**
Reduction of entry of toxicants in the food chain	0.130	0.131	0.200	**0.535**

Source: Primary data

Reasons for adopting organic farming

Extraction Method : Principal Component Analysis

Rotation Method : Varimax with Kaiser Normalization

Source : Primary Data

The above table exhibits the rotated factor loading for the sixteen statements (variables) of reasons for adopting organic farming. It is clear from table that all the sixteen statements have been extracted into four factors.

Table-2

Reason for adopting organic farming – Factor wise Analysis

Sl. No	*Factors*	*Eigen Value*	*Percentage of Variance*	*Cumulative Percentage of Variance*
1.	Environment health	5.648	33.110	33.110
2.	Low cost of agricultural production	1.675	9.819	42.928

3.	Save energy	1.368	8.018	50.947
4.	Export prospects	1.322	7.749	58.696

Kaiser-Meyer-Olkin measure of Sampling Adequacy : 0.744

Bartlett's Test of Sphericity Chi-Square : 1703.233

Degrees of freedom : 120

Significance : 0.000

It is observed from table that four factors were extracted out of sixteen variables. These factors accounts for 58.696 percentage variance in the data. Environment health, low cost of agricultural production, save energy and export prospects these are important reasons for adopting organic farming.

High value of Kaiser – Meyer – Olkin (KMO) test of sample adequacy (0.744) indicates the correlation between the pairs of variables explained by other variables and thus factor analysis is considered to be appropriate in this model.

The Bartlett's test of sphericity chi-square indicates the population correlation matrix. It is an intensity matrix. The test of statistics for sphericity is based on X^2 test, which is significant. The value is 1703.233.

The variable defining factor 1 with their factor loading and communality for the reasons for adopting organic farming is given below.

Factor 1

Variables in Environment health

Sl. No	***Variables***	***Factor Loading***	***Communality (H2)***	***Cronbach's Alpha***
1.	Organic farming improves the soil's chemical properties such as supply and retention of soil nutrients and promotes favourable chemical reactions	0.791	.980	0.782
2.	Production of clean foods	0.642	.933	
3.	Organic farming improves the soil physical condition properties such as granulation and good tilth, good aeration and easy root penetration	0.575	.920	
4.	Organic farming improves water holding capacity	0.521	.879	
5.	Sustaining production system dependent largely on on-farm resources	0.518	.857	
6.	Organic farming helps in reconnecting the public with farming and food	0.441	.833	
7.	Organic farming helps in maintaining environment health by reducing the level of pollution	0.422	.798	
8.	Organic farming ensures optimum utilization of natural resources for short term benefits	0.392	.736	

	and helps in conserving them for future generations			

It is observed from the above table that the variables of reasons for adopting organic farming constituted factor 1 with higher factor loading. The higher value of communality for the eight variables indicated that higher amount of variance is explained by the extracted factors. The included eight variables explain this factor to the extent of 78.20 per cent.

The variable defining factor 2 with their factor loading and communality for the reasons for adopting organic farming is given below.

Factor 2
Variables in Low cost of agricultural production

Sl. No	***Variables***	***Factor Loading***	***Communality (H2)***	***Cronbach's Alpha***
1.	Organic farming reduces the cost of agricultural production and improves the soil health	0.823	.894	0.724
2.	Organic farming reduces human and animal health hazards by reducing the level of residues in the product	0.609	.868	
3.	Organic farming helps in keeping agricultural production at a higher level and makes it sustainable	0.600	.846	
4.	Green manures acts	0.563	.804	

Among the variables of reasons for adopting organic farming such as organic farming reduces the cost of agricultural production and improves the soil health, organic farming helps in keeping agricultural production at a higher level and makes it sustainable and green manures acts as a green amendments constituted factor 2 with higher factor loading. The higher factor loading of the variables indicate that factor 2 underlies that variable. The higher value of communality for the four attributes indicates that the variables within the factor 2 have very high association among them. The included four variables explain this factor to the extent of 72.40 per cent.

Factor 3
Variables in Save Energy

Sl. No	***Variables***	***Factor Loading***	***Communality (H2)***	***Cronbach's Alpha***
1.	Organic farming helps in empowering farmers and growers	0.783	.734	0.675
2.	Organic farming not only saves energy for both animal and machine, but also reduces the risk of crop failure	0.779	.636	

Among the variables of reasons for adopting organic farming such as Organic farming helps in empowering farmers and growers and organic farming not only saves energy for both animal and machine, but also reduces the risk of crop failure constituted factor 3 with higher factor loading. The higher factor loading of the variables indicate that factor 3 underlies that variable. The higher value of communality for the two attributes indicates that the variables within the factor 3 have very high association among them. The included two variables explain this factor to the extent of 67.50 per cent.

The variables defining factor 4 with their factor loadings and communalities for reasons for adopting organic farming is given below.

Factor 4

Variables in Export Prospects

Sl. No	***Variables***	***Factor Loading***	***Communality (H2)***	***Cronbach's Alpha***
1.	Prospects of exports of organically produced foods	0.896	.549	0.621
2.	Reduction of entry of toxicants in the food chain	0.535	.522	

Among the variables of factors motivating towards banks such as proper customer services/recognition of customers and convenient working hours constituted factor 4 with higher factor loading. The higher factor loading of the variables indicate that factor 4 underlies that variable. The higher value of communality for the two attributes indicates that the variables within the factor 4 have very high association among them. The included two variables explain this factor to the extent of 62.10 per cent.

RESULTS AND DISCUSSIONS

The results of the study are presented below

- The first factor accounts for 33.110 per cent of variance and its Eigen value is 5.648 which indicates that the factor contains very high information that other factors. Organic farming improves the soil's chemical properties such as supply and retention of soil nutrients and promotes favourable chemical reactions, production of clean foods, organic farming improves the soil physical condition properties such as granulation and good tilth, good aeration and easy root penetration, organic farming improves water holding capacity, sustaining production system dependent largely on on-farm resources, organic farming helps in reconnecting the public with farming and food, organic farming helps in maintaining environment health by reducing the level of pollution and organic farming ensures optimum utilization of natural resources for short term benefits and helps in conserving them for future generations are important reasons for adopting organic farming.
- The second factor accounts for 9.819 per cent of variance and its Eigen value is 1.675. Organic farming reduces the cost of agricultural production and improves the soil health, Organic farming helps in keeping agricultural production at a higher level and makes it sustainable and green manures acts as a green amendments are important reasons for adopting organic farming.
- The third factor accounts for 8.018 percentage variance and its Eigen value is 1.368. Organic farming helps in empowering farmers and growers and organic farming not only saves energy for both animal and machine, but also reduces the risk of crop failure are important reasons for adopting organic farming.
- The fourth factor accounts for 7.749 percentage variance and its Eigen value is 1.322. Prospects of exports of organically produced foods and reduction of entry of toxicants in the food chain are important reasons for adopting organic farming.

CONCLUSION

More farmers are adopting organic methods of cultivation due to the various benefits associated with it. Organic farming with its export potential and increasing market size is attracting farmers to use the organic inputs. It is highly essential to analyse the reasons for adopting organic farming among the farmers as it presents a clear idea about the potentials of the organic agriculture. Hence, it is evident that the farmers find the above reasons as the main factors influencing them to adopt organic farming as it provides improvements in poor farmers' livelihoods within the framework of the global food supply chain and the increased urbanisation.

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