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Research Article

Farmer's Preference of Producing the Organic Products on In-Organic Products: An Empirical Study

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ABSTRACT

Organic farming is the agriculture method that does not use synthetic pesticides & fertilizers. The emphasis in organic farming is on using resources in such a way which encourages the natural process of existing nutrients & safety against pests, i.e., the resource "nature" is manipulated to encourage process that support to raise & sustain farm productivity. Organic agriculture depends mainly on rotation of crop, crop deposits, manure of animals, legumes, green manures, organic residues off-farm, mineral bearing rocks, biological pest control & natural pesticides to maintain soil efficiency and supply important nutrients. The farmers were chosen from Haryana (selected districts) who are working on both organic and inorganic farming to conduct the study survey and know the factors that determines the Preferences for Producing the Organic Products. It is found that Demand and Trend, Soil Fertility and Nutrients, Health and Nutrition and Policy and support are the factors that shows the Preferences for Producing the Organic Products.

Keywords: Organic Farming, Agriculture, Crop, Organic Agriculture, Farm Productivity.

Introduction

The "International Federation for Organic Agricultural Movements (IFOAM)", is set up 1970 & involves more than 600 members & related institutions in more than 100 countries. IFOAM (1996) refer term organic as specific system of farming defined in its Basic Standards. Major objectives of Organic Agriculture & its Processing depend on the following important ideas & principles i.e. production of high nutritional quality food in adequate amount along with positive & quality life developing way with the help of all natural systems. It also encourages and improves biological cycles inside the method of farming along with plants & animals, soil flora & fauna, microorganisms. The increasing demand for organic goods increases the opportunity to farmers to sell their organic produce at higher prices, support organic producers to continue & grow more **(Wang, Liu, Zhao, Zhang & Liu, 2019)**. Organic farming also supports in sustain & enhance long term soil fertility, promote better way to use water & care for water resources i.e. conservation of water & soil.
Organic practices lead to minimize the pollution that occur due to agricultural activities. It sustains the general variety of agricultural surroundings & systems. It also supports in protection of wildlife & plant habitats. It provides a safe working environment as well as fulfil the basic needs with sufficient return. It considers the bigger ecological & social impact of farming system at present as well as for future. In organic agriculture, soil has more power to retain water capacity that results in more yields in farms even at the time of drought **(Smith, et al. 2019).** Organic farming is also capable to produce products other than food from renewable resources that are biodegradable fully. It encourages organic farming associations to perform along with democratic lines as well as principle of powers division. Organic agriculture is a progress for whole chain of organic production that is socially as well as ecologically responsible. In India, need of organic farming arises due to non-sustainability of agriculture produce & the harm occur to ecology due to practices of conventional farming. With the advent of 1970 green revolution, agriculture in Indian shifted to conventional type of production. This change was necessary for national interest at that time as India suffered set-backs due to over dependence on foreign food sources. Determination of country was so intense that huge attention was given to enhance production in agriculture.
In India, Significant development for organic farming is possible with the increase awareness of bad impacts of modern or non-organic farming system that nations have adopted around 50 years ago. The negative

impacts of conventional food products to health of people & the harm occur to ecology are being seriously viewed. Efforts are being done by government and farmers to generate healthy foods and their demand is increasing. Marketing of organic products are directly associated with promotion of organic farming. Many people & associations have adopted organic products & organic farming **(Grover, 2022)**. Technologies that enhance green revolution like pesticides, high yield varieties & chemical fertilizers along with area expand under irrigation changes India to be self-sufficient country from importer of food. India's green revolution changes whole scenario. Production of agriculture achievement is marvellous and was possible due to input such as pesticides, farm machinery, HYV seeds, pesticides & fertilizers. Long time dependence on pesticides & fertilizers reflected its dark side. Land started losing its fertility & demand a greater number of fertilizers, pests become resistant to pesticides & so-called guaranteed spray frequently results in residues.

Presently issues generated after green revolution are threatening Indian agriculture sustainability & raise serious concerns regarding country's food security i.e. making situation stagnant or even decrease in production or increasing major crops rate, losing ground water tables in many important places of agriculture, weakening of fertility of soil, decrease in factor productivity, less variety of production methods & increase cost of production, leave agriculture as reasonably non feasible business for poor farmers. Hence due to these issues nature or eco-friendly agriculture becomes the need of country **(Das et al., 2017).** Organic production not only avoids chemical inputs used in conventional agriculture but also provided substitute to synthetic inputs with natural inputs. Farmers used techniques of organic farming since thousands of years ago like rotation of crop, utilized composted manures of animals & green manure crop. In production of organic products, whole system health is improved & the management interaction activities are major concern. Producers of organic products are implementing huge range of strategies to enhance & sustain biological diversity & reload fertility of soil. To meet the need of expanding population & to enhance production in agriculture in India, it becomes important to alter the methodologies to use. It uses high fertilize dosages, high yield varieties, increase the irrigation area & make intensive cropping & bring large part under one crop, grow crops in areas that were non-conventional & change the sequence of crop. Green revolution follows the progress of commercial farming in developed countries **(Deshmukh & Babar, 2015)**. Organic product is more expensive as compare to non-organic produce. Prices of organic products are more due to expensive practices of farming, strict regulations of policies & low yield of crops. Even though there is not much proof to support the point that non organic are less nutrition as compare to organic products but there is definitely long-term advantages of organic products. Organic method is more effective in storing nitrogen & lead to positive impact on quality of soil along with high activities of biological & double of organic produce in coming future.

Organic farming enhances access of food by escalating production, diversity & preservation of natural resources by increasing income & by decreasing risk for farmers. Improvements also can be seen by sharing awareness among farmers. These advantages results in reduction of poverty & turnaround of rural external migration.

Review Literature

Awareness in organic farming is increasing day by day, particularly in locations where the existing system of farming has ruined essential resources to production of agriculture mainly land. Factors that are not directly linked with production like health of farmer are also an important reason of shift to organic farming. Consumers are also now a day's showing interest in organic farming. Consumers are becoming more & more aware on cost that environment has to paid due to agriculture such as decreasing quality of soil & drinking water & the impact on wildlife & landscape. The knowledge & information of environmental health & quality are also encouraged by environmental groups, particularly in developed countries.

Meena, Meena & Meena (2013) revealed that Organic farming operates in agreement with nature, emphasizing practices enhancing yields of crops without causing harm to the environment or its inhabitants. Those who are involved in organic farming are growing vegetables, fruits, cereals, or raise livestock without depending on chemical fertilizers, pesticides, or herbicides. This approach of agricultural emphases on providing consumers with fresh, flavourful, and reliable food while respecting natural life cycles. In addition to the health benefits for consumers, organic farming has significant environmental advantages. It contributes to biodiversity conservation and helps mitigate environmental pollution, including air, water, and soil contamination. Rooted in the deliberate efforts of dedicated individuals, organic agriculture seeks to establish an optimal relationship between the Earth and humanity.

Paul & Rana (2012) found that consumers express a high level of satisfaction with organic food, driven by various factors. Prime among these is the perceived health benefits, followed by considerations for environmental friendliness, evolving taste preferences, consumer attitudes, and the desire to maintain a certain social status. Product quality is a key aspect influencing consumer choices in favour of organic food. Overall, consumers show greater level of satisfaction with organic food compared to conventional alternatives. Although consumers acknowledge the higher cost associated with organic products, they are willing to pay a premium for the perceived health benefits and eco-friendly nature of these products.

Buragohain (2020) found that Organic agricultural dependent on environmental methods, such as cultural and biotic pest management, it rejects synthetic chemicals in crop and animal production both. It avoids using of antibiotics and hormones in livestock farming, emphasizing natural components like soil organisms,

nutrient cycling, and species distribution for farm management. The Green Revolution in India of 1960 has boosted agricultural production with chemical inputs, but proved damaging in the long term. The movement of organic farming has appeared as a sustainable alternative, addressing ecological concerns and revitalizing the agricultural landscape.

Dey, Achar & Dey (2021) stated that Organic farming stands as a sustainable method of production establishing a harmonious connection with the environment, placing a high value on the welfare of both soil and human health. This approach depends on on biodiversity, ecological processes, and natural cycles, avoiding the use of harmful chemical inputs that could make negative effect on the ecosystem. As a more environmentally friendly option compared to conventional farming, organic agriculture is gaining high acceptance. The growing popularity of organic farming and food reflects consumer preferences for what is perceived as more healthy and more nutritious. By preserving soil health and maintaining environmental integrity, organic farming make contribution towards the overall well-being of consumers. The global market for organic products, including in India, is witnessing rapid growth. Organic agriculture not only supports the health of consumers and the environment but it is playing important part in the economic growth of economy by generating income.

Singh (2021) found that Organic agriculture not just produces goods but promotes biodiversity as well at different levels. While some might perceive it as a disturbance in natural areas because of human involvement, it stands as important initiative that mitigates the threats to conventional agriculture poses to biodiversity. Instead of seeing it as a complete solution, organic agriculture should be acknowledged as a fundamental beginning. Its wide-ranging acceptance might serve as an economical strategy to encourage the conservation of biodiversity. Farmers and inhabitants of forests, being the main custodians of natural resources, play a crucial role in land management and nurturing self-regenerating food systems that encompass both cultivated and wild biodiversity.

Bhujel & Joshi (2023) revealed that reliance of India on agriculture as a means of sustainable livings and driving the nation stresses imperative to embrace sustainable practices of agricultural fostering societal well-being, environmental preservation, and economic advancement. The adoption of organic farming, featured with natural and biological processes, becomes essential in striking a harmonious balance between environmental conservation and livelihood enhancement, though simultaneously promoting production efficiency and product quality. In the 21st century, the organic lifestyle is gaining importance as a central concern, as it seeks to make positive impact on human health and contribute to the well-being of the planet. The pressing global challenge of climate change underscores the imminent threat to our environment, necessitating interventions like widespread acceptance of organic agricultural in the agricultural sector to ensure a thriving and unpolluted natural world.

Kumar & Kumar (2018) studied that; several advantages are offered to small farmers by growing organic vegetables not only in terms of financial viability as well as in promoting environmental well-being. The potential for success in organic vegetable production is significantly higher due to factors such as higher cropping intensity, effective weed control through natural mulching, compatibility with various multiple and inter-cropping systems, and the capability to yield abundantly. Haryana, being in close proximity to the national capital, has a unique opportunity to capitalize on organic vegetable farming.

Bhutani, Kahlon & Monika (2018) concluded that Organic farming has deep roots in India, with farmers practicing it for centuries. However, the modern approach to organic farming represents an evolved form of this age-old agricultural tradition. It concentrates on production of high-quality and sufficient crop yields while at the same time enhances soil fertility. In India, there are currently three distinct categories of organic farmers. Firstly, there are those who have a traditional commitment to organic farming, employing low inputs and lacking the resources for non-organic alternatives.

Haryana has always been an agriculture-driven state. Its proximity to Delhi, the national capital of India has given it a supremacy over other states. Delhi-NCR has been a high consumption area for farm products, and the proximity of Haryana with Delhi makes it convenient for the farmers of Haryana to supply the farm products at a competitive price due to economies in transportation. The organic farming in Haryana began with vegetable and slowly it has grown to the mainstream food like wheat, rice and pulses. The farmers have also started taking keen interest in the use of compost and fertilisers made of cow and goat dung.

Objective

To know the factors that determines the Preferences for Producing the Organic Products.

Methodology

The farmers were chosen from Haryana (selected districts) who are working on both organic and inorganic farming to conduct the study survey and know the factors that determines the Preferences for Producing the Organic Products. “Purposive sampling method” and “Factor Analysis” were used to collect data and analyse the data.

Data Analysis and Findings

Table 1 "KMO and Bartlett's Test"

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.929
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	15024.555
	"df"	190
	"Sig."	.000

The "Kaiser-Meyer-Olkin (KMO)" value was 0.929 and "Bartlett's Test of Sphericity" was significant, confirming the data's suitability for EFA.

Table 2 "Total Variance Explained"

"Component"	"Initial Eigenvalues"			"Rotation Sums of Squared Loadings"		
	"Total"	"% of Variance"	"Cumulative %"	"Total"	"% of Variance"	"Cumulative %"
1	8.566	42.831	42.831	4.646	**23.231**	23.231
2	5.125	25.623	68.454	4.608	**23.039**	46.270
3	2.434	12.169	80.622	4.560	**22.799**	69.069
4	2.066	10.329	90.952	4.377	**21.883**	**90.952**
5	.301	1.505	92.456			
6	.214	1.072	93.528			
7	.166	.830	94.358			
8	.131	.657	95.015			
9	.129	.646	95.661			
10	.124	.621	96.282			
11	.110	.548	96.830			
12	.105	.527	97.357			
13	.099	.493	97.850			
14	.087	.434	98.284			
15	.076	.379	98.663			
16	.069	.345	99.008			
17	.061	.305	99.313			
18	.056	.279	99.592			
19	.045	.223	99.814			
20	.037	.186	100.000			

Table 2 presents the number of factors derived with the corresponding variation like Demand and Trend (23.231%), Soil Fertility and Nutrients (23.039%), Health and Nutrition (22.799%) and Policy and support (21.883%). Four factors all together explains total variance of 91 percent.

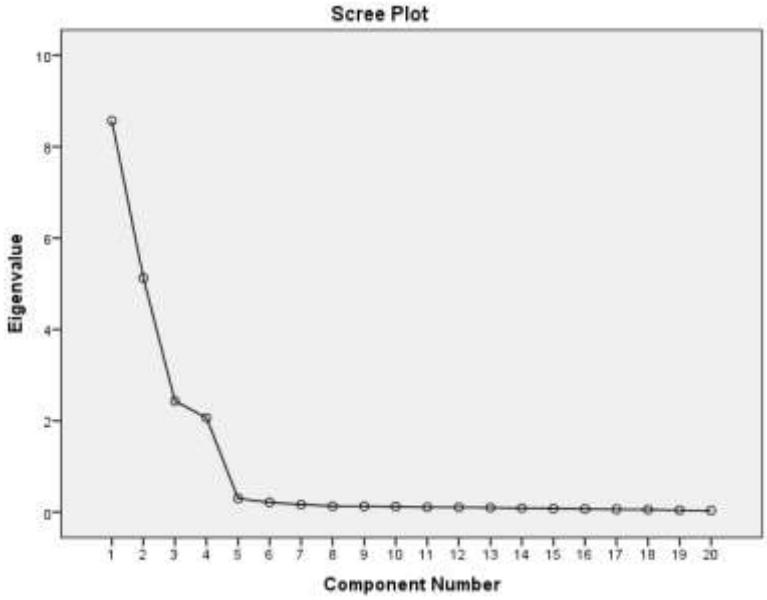

Figure 1 Scree Plot

The graph above depicts the Eigen values generated from the "Total Variance Explained table" for an elbow with 4 components.

Table 3 Factors, Factor Loading and Reliability (Cronbach's Alpha)

S. No.	Statements	Factor Loading	Factor Reliability
	Demand and Trend		0.982
1	I'm interested in organic farming because it's popular in my area	.909	
2	Because of the great demand for its products, I prefer to practice organic farming.	.934	
3	Organic food is in high demand both locally and globally	.934	
4	Organic food commands a higher price from consumers	.936	
5	Organic food is preferred by consumers over non-organic food	.918	
	Soil Fertility and Nutrients		0.977
6	Organic farming preserves soil fertility better than inorganic farming	.936	
7	Organic farming will keep the nutritional status and agricultural eco-system in equilibrium for a long period	.933	
8	Correct technique to safeguard soil quality, which was deteriorating owing to the unrestricted use of pesticides	.933	
9	Organic farming is more drought-resistant and holds more moisture	.921	
10	Animals prefer straw from organic agricultural systems over straw from conventional farming systems.	.912	
	Health and Nutrition		0.976
11	Organic goods' health advantages and nutritional worth are generally recognized.	.915	
12	Organic farming safeguards the health of a farmer and his or her family	.894	
13	hazardous residues are not found in Organic food	.910	
14	Organic food has better nutritional value than non-organic food	.924	
15	Organic food consumption leads to better health	.908	
	Policy and support		0.962
16	The government supports and encourages organic farming	.879	
17	Government assistance for organic farming is more than for conventional farming	.942	
18	Organic farming contributes to the creation of jobs in rural areas	.796	
19	Government regulations Assist organic producers with low-interest financing	.933	
20	Government policy encourages the use of advanced growing methods to increase the output of organic goods	.919	

Table 3 presents the Factors, Factor Loading and Reliability Value (Cronbach's Alpha). The obtained factors were labelled Demand and Trend, Soil Fertility and Nutrients, Health and Nutrition and Policy and support. This information has been used to develop the factors.

Development of factors

Demand and Trend is the first factor and its supporting variables are I'm interested in organic farming because it's popular in my area, Because of the great demand for its products, I prefer to practice organic farming, Organic food is in high demand both locally and globally, Organic food commands a higher price from consumers and Organic food is preferred by consumers over non-organic food. Soil Fertility and Nutrients is second factor which consists of variables like Organic farming preserves soil fertility better than inorganic farming, Organic farming will keep the nutritional status and agricultural eco-system in equilibrium for a long period, Correct technique to safeguard soil quality, which was deteriorating owing to the unrestricted use of pesticides, Organic farming is more drought-resistant and holds more moisture and Animals prefer straw from organic agricultural systems over straw from conventional farming systems. Third factor is Health and Nutrition and its associated variables are Organic goods' health advantages and nutritional worth are generally recognized, Organic farming safeguards the health of a farmer and his or her family, hazardous residues are not found in Organic food, Organic food has better nutritional value than non-organic food and Organic food consumption leads to better health. Policy and support which consists of variables like the government supports and encourages organic farming, Government assistance for organic farming is more than for conventional farming, Organic farming contributes to the creation of jobs in rural areas, Government regulations Assist organic producers with low-interest financing and Government policy encourages the use of advanced growing methods to increase the output of organic goods.

Table 4 "Reliability Statistics"

"Cronbach's Alpha"	"N of Items"
.929	20

Table 4 shows the total reliability of the factor related to preferences for organic Farming is 0.929 which includes altogether 20 items.

Conclusion

Organic agriculture involves various benefits as compare to conventional farming along with safety of both human & environment health. It enhances fertility of soil, better quality of water, soil erosion prevention, enhancement of rural employment etc. Market for organic produce has grown rapidly all over the world in past

decade. International dealings in organic produce have reflected a yearly growth rate of approximately 20 to 22 percent in this time period. Various supermarkets & retail chains in developed nations are labelled with "green status" to sell organic products. This organic produce processing sector has been considered as friendlier to nature & thus been encouraged. Practice of organic farming main focus on more harmonious association with environment with the objective of non-destruction of nature. The developed countries are more concerned on spread of contamination of toxic chemicals in food, fibre, fodder & food. Hence, this system of organic farming is found as important remedy of these complications. Although, the biggest issue in India is the pitiable productivity of soil due to low content level of organic matter. Organic farming attains optimal economic outcomes with secure, safe & healthy environment for working. It also acknowledges the qualities of home-grown information & traditional system of farming **(Bodapti & Chander, 2013)**. Organic products are produced without using chemicals & pesticides that are usually common in conventional items. Consumer and farmers believe that this makes organic products safe. Although it is not since proved that food grown organically leads to less health risks to consumers.

The study was conducted to know the factors that determines the Preferences for Producing the Organic Products and found that Demand and Trend, Soil Fertility and Nutrients, Health and Nutrition and Policy and support are the factors that shows the Preferences for Producing the Organic Products.

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