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Research Article

Impact Of Reasons For Organic Farming On Future Intention For Organic Farming: An Empirical Study

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ABSTRACT

Organic farming involves production management that enhances & promotes health of agro ecosystem along with soil biological activity, biological cycles & biodiversity. It prefers to utilize management activities that involve off farm inputs, considers local conditions to adopt system regionally. Whenever possible, it uses mechanical, biological & cultural method and avoids use of synthetic products or methods to perform any particular activity in the system. Organic agriculture is considered as safe option. Chemicals are not used in this technique of farming instead they use organic products like cow dung etc. In this technique, no external inputs like bio fertilizers are utilized. It includes zero budget natural farming that is always motivated by government of India. study survey was conducted among the farmers from Haryana (selected districts) who are working on both organic and inorganic farming to know the Impact of Reasons for Organic Farming on Future Intention for Organic Farming and found that the "future intentions for organic farming" is significantly influenced by Soil Fertility and Nutrients, Health and Nutrition and Demand and Trend.

Keywords: Organic Farming, Intention, Natural farming, Pesticides, Fertilizers.

Introduction

India is an agricultural country & has lot of potential to become biggest organic producer & able to fulfil the international demand. It involves regions that involves different agro climate for cultivation for variety of crops. The size of domestic market in India is very huge & in addition India had long tradition of environment friendly living & farming. It is important that proper national policy for agriculture must be there that provide well-known place to organic agriculture & address the challenges associated to its coverage, financial help at the time of conversion, inspection & its certification. Awareness among public regarding advantages of organic farming & bad impact of conventional farming is also important. Organic farming provides the biggest benefit to health of public along with benefit of biodiversity. Food taste, freshness & its nutritional value has been increased. Success of organic farming depends on many factors like type of landscape in which farm are situated. Organic farming or natural farming is very old in India but due to some reasons farmers has to adopt non organic methods of agriculture but now again the whole world including India is shifting towards organic or natural farming. Organic farming is such an approach of agriculture in which the main purpose is to make environmentally, integrated & economically continuous system for agricultural production. It preserves fertility of soil & stability of system. With the preservation of fertility of soil, farmers are able to enhance content of humus of soil that in return will enhance physical properties of soil & support microorganism life present in the soil. This will increase pore spaces in soil & therefore enhance drainage that support the steadiness of soil components & structures. India has been gifted a different type of organic nutrients available naturally in various regions of country & this steadily support the organic cultivation **(Singh, 2013)**. India country has lots of potential to produce various types of organic goods as it has various types of agro climatic regions.
Organic farming method is reported as less dangerous to environment as it does not use synthetic pesticides that are potentially harmful to soil, water & local & aquatic wildlife. In addition, due to practice of crop rotation, organic farming method is better as compare to inorganic farming method at sustainable biodiversity. As compare to inorganic farming, organic farming enhances properties of soil physic biological like more organic content, high enzyme, better stability of soil, biomass, enhanced percolation of water, capacity to hold water, use less water & wind erosion **(Rai, Ashiya & Rathore, 2014)**. Fertilizers & pesticides use in inorganic

farming increases the production cost & also leads to negative impact on health of farmers, influencing economic imbalance in community with advantages only given to makers of these pesticides. Constant deprivation of fertility of soil due to chemical fertilizers leads to less production & therefore increases cost of production, making farming unsustainable economically. Execution of strategies about food security, generation of employment in rural regions, alleviation of poverty, conservation of natural resources, acceptance of production system that is export based, sound infrastructure, active government participation & public-private sector will be advantages to revive sustainability of agriculture economically **(Hugar & Shivappa, 2022)**. Cost of organic produce is usually 10-40 percent high as compare to crops produces in inorganic farming method & the price is decided by various factors like both output & input matters. In terms of input, factors those results in increase of organic food prices are high expenses to get organic certification, high labor cost on field & shortage of subsidies provided by Indian government as compare to chemical inputs. Organic product has long shelf life as compare to inorganic food as it has more antioxidants & few nitrates. Nitrates increase speed of spoilage of food while antioxidants support in extension of shelf life of food.

Haryana in India is considered as "breadbasket of India" & globally is a biggest example of the way "Green Revolution" & "Industrial agriculture" increases greatly the food crops yield. Haryana not only able to fulfil its own need of food grains but also stand in second rank in terms of wheat contribution to "Central Pool" irrespective of small land under agriculture. The production of agriculture can be improved with enhanced intensity of cropping, change in pattern of cropping, upgrading in seeds of high yield varieties, better practices of cultivation & technologies of post harvesting etc. In Haryana, awareness on organic farming is increasing & even small farmers also have been converted & begin organic agriculture. But still most of the farmers in Haryana are still involved in commercial & inorganic agriculture method & they believe that practice of organic farming is not noteworthy. There are various factors that influence the farmers to adopt organic farming like culture is an important factor that is responsible of existing miserable condition of organic farming in Haryana. Demographic & cultural factors play important role in acceptance & rejection of novel techniques or alternative method. Therefore, there is a need that there should be adequate socio culture surroundings for organic farming promotion in Haryana **(Aparna & Thomas, 2017)**. In Haryana state, 37 mandis are linked with "e-NAM (National Agricultural Market)" scheme to make the organic farming system for smooth marketing of agriculture produce, transparent & farmer friendly. Rice is an important and common crop of Haryana followed by Jowar & Maize is at third place. Wheat is fourth common crop & Barley is at fifth place **(Shehrawat, Mukteshawar & Saeed, 2016).** According to Report on Haryana Agriculture & Farmers Welfare sugarcane, cotton, bajra, mustard, wheat & rice are the important crops with substantial range for agriculture diversification along with other than farm opportunities.

In India, the movement of natural & organic farming has mostly been directed by movements of farmer & civil society. In Past few years, state & central governments have initiated various programs & promote organic farming. Central government increases their efforts for organic farming by inducing "Paramparagat Krishi Vikas Yojana (PKVY) (2015–16)." Different states also have come forward with different level of focus over past few years. India's state Sikkim has become first hundred percent organic state. Himachal Pradesh & Andhra Pradesh has also set their aim to be hundred percent organic farming states. Some other also from North east states has intention to be hundred percent natural farming. Organic agriculture has attained substantial attention in Haryana state in recent past years **(Devi, 2019)**. Haryana popularly known as "Bread Basket of India", has also been in the front position in acceptance of most recent technologies in farming & is also considered as foremost states for production of agriculture in country.

Organic farming method provides qualitative food without leading any adverse impact on environment & health of soil. Although the major concern is that population of India is very huge & it will be difficult to practice organic farming at large scale. Organic products that are certified involves all types of products of food such as tea, herbal medicine, coffee, basmati rice, cereals, pulses, oil seeds, fruits, honey, spices & their value-added products are produced in India.

Literature Review

Organic farming method provides qualitative food without leading any adverse impact on environment & health of soil. Although the major concern is that population of India is very huge & it will be difficult to practice organic farming at large scale. An important objective to select organic produce is the health factor involved along with animal &environmental welfare factors. Some people prefer organic products as they believe that there is quality of food & in its nutritional value. Some particular factors observed are related to senses along with nutrients & safety. Organic products are found as tastier as compare to other non-organic products according to some consumers. They believe that it is good for health, environment & has good nutrition value. There are also other concerns related to usage of pesticides & chemicals in non-organic farming, land erosion & animal welfare concerns. Number of studies are conducted to know the intentions of the farmers to go for organic farming, some are discussed in the paper below:

Yanakittkul & Aungvaravong (2020) examined the determinants of intentions towards organic farming that poses a significant challenge. This study employs the theory of planned behaviour to identify the factors influencing farmers' decisions. Six key causal factors that are considered: attitudes towards farming behaviour, group-norm influences on farming behaviour, perceived behavioural control of farmers, comparative

usefulness of behaviours, perceived risk of farming, and support for government policy. The aim of this study is to examine the significant factors shaping the adoption of organic farming practices, drawing comparisons between organic and conventional rice farmers. The findings offer government agencies insights into strategies to promote organic farming, particularly among smallholder farmers. The long-term benefits include reducing toxic contamination and enhancing human health.

Dinh et al. (2023) revealed that the findings of the study highlight the positive effect of beliefs of farmers in the potential of organic farming on their purposes to increase their agricultural operations. Farmers having positive views about the future of organic farming are more motivated to upsurge the scale of their farming endeavours. Variations in perspectives of farmers on organic markets are featured with the quality and diversity of the information they possess. To foster the growth of sustainable farming practices, it is recommended that local authorities concentrate on providing farmers with complete market information, that enables them to hold the global shift toward organic farming and the rising consumer demand for clean and safe agricultural products. The study suggests that intention of farmer is not meaningfully influenced by government support. This indicates that current government initiatives may not be adequate to stimulate expanded farming.

Manish et al. (2023) revealed that Organic farming is extended beyond the sheer avoidance of agrochemicals; it represents a methodology for cultivating a robust agro-ecosystem on a farm. This approach has its roots in the intentional endeavours of individuals driven by a desire to foster an optimal relationship between humanity and the land. The main purpose of organic agriculture is to withstand and improve productivity by prioritizing improvements in health of soil and the overall agro-ecosystem. This research was conducted in the districts of Karnal and Sirsa in Haryana with the aim to assess the association between the social and personal characteristics of farmers and their level of knowledge with regards to organic farming. The findings highlight the importance of establishing effective communication channels to disseminate information about organic farming among farmers.

Das, Chatterjee & Pal (2020) revealed that the demand for organic food has surged due to its perceived nutritional and safety advantages, leading to a substantial increase in its popularity among consumers. Organic farming, known for its eco-friendly practices, not only ensures food safety from farm to plate but also fosters soil health and environmental integrity, ultimately contributing to consumer well-being. The organic produce market is experiencing rapid growth globally, including in India. In addition to its environmental benefits, organic farming can enhance social sustainability by empowering rural communities. This involves leveraging indigenous knowledge alongside modern technologies, promoting gender equality in agricultural labour, encouraging the active participation of rural communities, and addressing mental health concerns, thereby reducing farmer suicide rates.

Sangeetha & Mathivanan (2020) revealed that consumption habits of Indian consumers are experiencing a gradual shift from Westernized food to traditional options, with a notable emphasis on organic rice. Traditional Indian food products, precisely those that are derived from organic rice, are gaining prominence on every Indian dining table. This shift is significant due to the rich nutrients and medicinal values associated with organic rice, such as its ability to regulate blood circulation, reduce obesity, act as a sugar-free alternative, and serve as a remedy for hypertension.

Uhunamure, Kom, Shale, Nethengwe, & Steyn (2021) studied that organic farming embraces significant potential and benefits for smallholder farmers, provided certain key factors are addressed. According to this study, organic farming offer substantial advantages in terms of food security, income generation, improved health, and environmental sustainability. The study supports to the view that farmers' willingness to involve in organic farming is affected by their perceptions, socio-economic conditions, and institutional factors. Despite the hopeful outlook, there are identified challenges that must be tackled to foster a more robust organic sector. The research emphasizes the importance of addressing specific obstacles and proposes policy options and recommendations for enhancement of acceptance and success of organic agricultural. Findings indicate that farmers hold favourable perceptions towards organic farming, signalling a potential willingness to transition to organic practices.

Sharma & Varma (2021) found that organic food industry in India is experiencing significant growth, primarily driven by export-oriented production. The main element that influences behaviour of consumer towards organic foods is increasing awareness and knowledge. Organic farming practices, characterized by cultural, biological, and mechanical methods, aim to facilitate resource cycling, support ecological balance, and preserve biodiversity. The cultivation of major crops, including soybean, wheat, grains, pulses, cotton, vegetables, fruits, and other economically significant fibre crops, follows low external input regimes. The main purpose of organic farming is to produce organic food while establishing an ecological balance to prevent soil fertility and pest issues.

Daniel et al. (2021) studied that organic farming signifies an environmentally friendly approach to agricultural production, ensuring food safety, reducing health issues, and foster environmental conservation, and creating employment opportunities for local communities. Farmer's attitude towards this method varied, but it is crucial to consider their willingness to explore alternative approaches to make organic farming economically viable. Survey results indicate that farmers are open to adopting organic practices to enhance the market value of their products, leading to sustainable livelihoods. The study concludes that embracing organic farming can positively impact farmers' lives in terms of profitability, compatibility, productivity, and

sustainability. To further enhance market value, there is a pressing need for organic certification at both local and international levels.

Organic farming is not an easy task. This process is costly. Finding labours for organic farming is also not easy. High seed cost, higher cost of supervision and unstable demand make it more challenging. Though organic farming can produce good results in the long-run, but farmers remain worried about the uncertainties of future.

Objective

To know the Impact of Reasons for Organic Farming on Future Intention for Organic Farming.

Methodology

The study survey was conducted among the farmers from Haryana (selected districts) who are working on both organic and inorganic farming to know the Impact of Reasons for Organic Farming on Future Intention for Organic Farming. Convenient sampling method is used to collect the data and Confirmatory Factor Analysis (CFA) & Structural Equation Model (Path Analysis) is used to analyse the data.

Data Analysis and Findings

For validation of the scale on factors related to Reasons for organic farming the Confirmatory Factor Analysis (CFA) has been applied.

H_1(i) Policy and Support influence the future intention for their production
H_1(ii) Soil Fertility and Nutrients influence the future intention for their production
H_1(iii) Health and Nutrition influence the future intention for their production
H_1(iv) Demand and Trend influence the future intention for their production

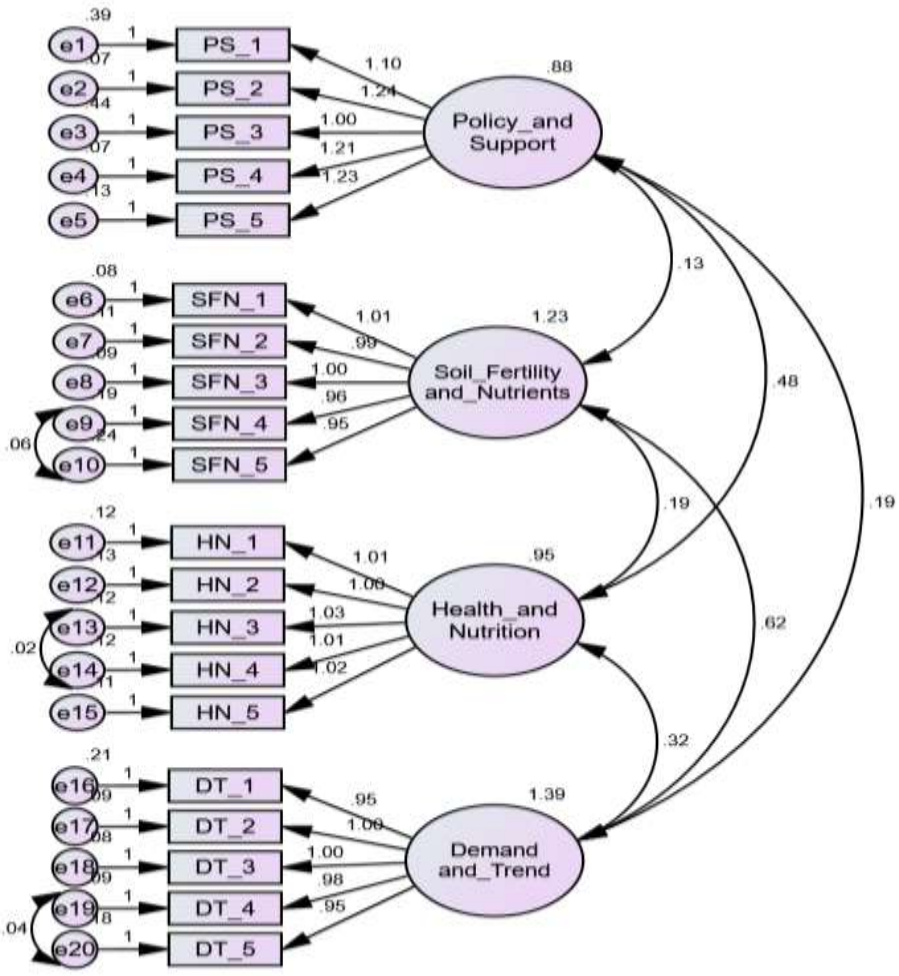

Figure 1 Measurement Model: First Order CFA

Figure 1 shows the measurement model for the factors related to Reasons for organic farming.

Table 1 Model Fit Indices

Indices	Recommended Value	Model Value	Fulfilment of the Criteria
CIMIN/DF	< 3	1.797	"Yes"
CFI	> .95	0.99	"Yes"
IFI	> .95	0.992	"Yes"
NFI	>.90	0.981	"Yes"
TLI	> .95	0.990	"Yes"
RMSEA	<.06	0.041	"Yes"

CIMIN "Chi-square Statistics in AMOS", DF = "Degree of Freedom", CFI = "Confirmatory Fit Index", IFI = "Incremental Fit Index", NFI = "Normed Fit Index", TLI = "Tucker Lewis index (TLI)", RMSEA= "Root Mean Square Error of Approximation".

Table 1 shows the model fit indices, it may be observed from the table after comparing with the recommended values, that all the specifications of the Model Fit indices have been fulfilled.

Table 2 Validity Measures of 1st Order CFA "Measurement Model"

Reasons for organic farming	Composite Reliability (CR)	Average Variance Estimate (AVE)	Maximum Shared Variance (MSV)	Average Shared Variance(ASV)
Policy and support	0.976	0.890	0.276	0.128
Soil Fertility and Nutrients	0.964	0.843	0.276	0.107
Health and Nutrition	0.981	0.911	0.229	0.112
Demand and Trend	0.976	0.891	0.229	0.092

Table 2 shows the validity measures of measurement model. It is found from the table that composite reliability is above 0.7. It establishes the "convergent validity". Similarly, ASV is above 0.5 which also determines the convergent validity. However, AVE is above MSV and ASV which establishes the discriminant validity.

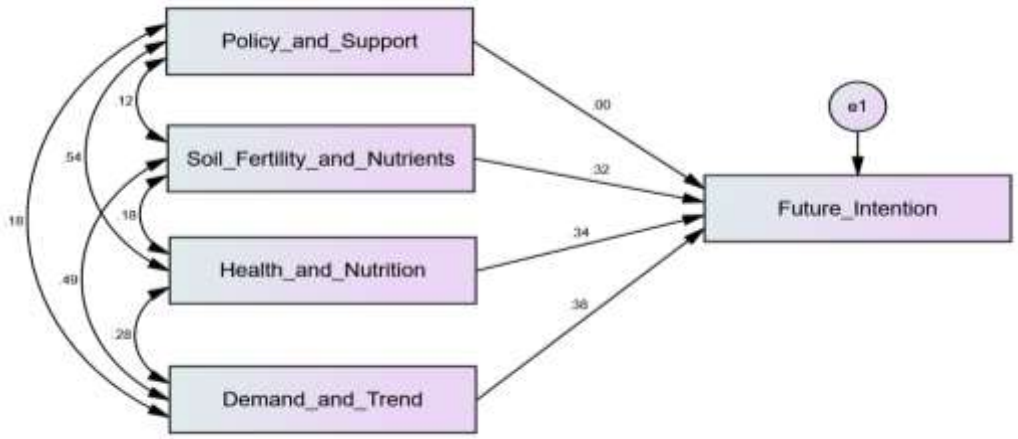

Figure 2 Structural Equation Model (Path Analysis)

Figure 2 presents the results of the "Structural Equation Modeling" (SEM). SEM establishes the causal relationships among the constructs (Dependent and Independent). The p values for all the corresponding relationships are below 0.05 except policy and support, which means that all alternate hypotheses have been supported and it was found that the "future intentions for organic farming" is significantly influenced by Soil Fertility and Nutrients, Health and Nutrition and Demand and Trend.

Table 3 Impact of Reasons for Organic Farming on Future Intention for Organic Farming

Independent Variable	Dependent Variables	Estimate	S.E.	C.R.	P	Result
Future Intention for Organic farming	Policy and Support	.005	.047	.112	.911	Not Supported
	Soil Fertility and Nutrients	.376	.039	9.695	***	Supported
	Health and Nutrition	.455	.047	9.727	***	Supported
	Demand and Trend	.417	.037	11.160	***	Supported

Table 3 presents the Unstandardized coefficient under the 'Estimate' column and the figure shows the standardized estimates. From both the sources of values it is apparent that Future Intention for Organic farming have the maximum impact by Health and Nutrition followed by Demand and Trend & Soil Fertility and Nutrients. There is no significant impact of Policy and Support.

Conclusion

Organic agriculture is an approach in farming in which the main function is to generate economically, integrated & environmentally sustainable farming methods. Organic agriculture supports in conserving fertility of soil & stability of system. With preservation of fertility of soil, farmers are able to enhance the humus involved in soil that will ultimately enhance the soil physical properties & support microorganism life in soil & increases pore spaces & enhance drainage that support soil structure stability & its components. India is a country that involves different types of natural organic form available of nutrients in various parts of country & it will substantially enlarge the organic cultivation. Vegetarianism, alternative medicine & Environmentalism are way for substitute lifestyle and organic utilization is also associated to it. Making of organic produce is without antibiotic, growth hormones, herbicides, chemical fertilizers & pesticides. Users are ready to make higher payments for organic produce that are friendly to environment & are due to ecological friendly behaviour of consumer. The biggest purpose of Organic food is that it is healthy & environment friendly. India has different agro climate areas and therefore has lots of potential to grow different types of organic food. Organic agriculture is an approach in which components interaction such as soil, insects, animals & crops are significant as the whole farm itself. Rather than using chemical fertilizers, organic producers utilize rotation of crops, cover crops & manure to sustain or increase the fertility of soil. In addition, rather than using synthetic pesticides, organic producers use cultural, biological & physical ways to restrict the expansion of pest & enhance population of valuable insects. Organic agriculture is an important method of production that supports the environment The study was conducted to know the Impact of Reasons for Organic Farming on Future Intention for Organic Farming and found that the "future intentions for organic farming" is significantly influenced by Soil Fertility and Nutrients, Health and Nutrition and Demand and Trend.

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