Gujarat Journal of Extension Education Vol. 37 : Issue 2 : June 24 https://doi.org/10.56572/gjoee.2024.37.2.0025

COMPARATIVE ANALYSIS AMONG PROPONENTS OF ORGANIC AND NON-ORGANIC FARMING PRACTICES

Chandrika Sharma[1], Seema Naberia[2] and Kamini Bisht[3]

1 Lab Technician, Department of Extension Education, College of Agriculture, JNKVV Jabalpur - 482004
2&3 Assistant Professor, Department of Extension Education, College of Agriculture, JNKVV Jabalpur - 482004
Email : chandrikasharma1991@gmail.com

ABSTRACT

The adverse repercussions of agrochemicals, prevalent during the Green Revolution, alongside heightened awareness regarding health and environmental concerns, have propelled organic farming to the forefront as a prominent sustainable agricultural method. Various governmental and state- sponsored initiatives in India aim to foster the adoption of organic farming among farmers, exemplified by programmes such as the Paramparagat Krishi Vikas Yojana. Within the context of a study conducted with the aim to compare the attributes of the farmers in four blocks of Jabalpur district, Madhya Pradesh, in 2021-22, encompassing farmers practicing both organic and non-organic farming, significant disparities across eighteen variables were observed through applying Z test. Notably, seven variables, including farm size, livestock possession, information sources, innovativeness, training in organic farming, environmental orientation and attitude towards organic farming, exhibited positive significant differences between the two groups, necessitating targeted policy interventions to further incentivize organic farming adoption whereas four variables i.e. scientific orientation, risk orientation, market perception and decision making ability had revealed negative significant difference.

Keywords: *organic, disparities, significant, differences and non-organic.*

INTRODUCTION

The escalating trajectory of organic agriculture within the agricultural landscape, notably evident in the United States, underscores a paradigmatic shift towards sustainable farming methodologies (Bader et. al., 2021). Organic farming, distinguished by its utilization of organic fertilizers such as compost manure, green manure and bone meal, coupled with techniques like crop rotation and companion planting (Bankar and Lihitkar, 2023), embodies a holistic approach to agricultural production aimed at conserving natural resources. In contrast, conventional agricultural practices, reminiscent of factory farming, prioritize input-driven strategies for maximizing crop productivity (Sharma et. al., 2022). Indian farmers are ensnared in an intricate web of indebtedness, stemming from exorbitant production expenditures, elevated interest rates on credit facilities, fluctuating market valuations of agricultural commodities, escalating outlays on fossil fuel-derived inputs and the prevalence of proprietary seeds. The indiscriminate application of chemical fertilizers and pesticides presents a looming peril to soil integrity and environmental equilibrium. Numerous inquiries have shown their deleterious ramifications, manifesting in alterations to soil composition, soil pollution, groundwater degradation and diminishment of soil microbial biodiversity (Korat et. al., 2022). The ascent of organic agriculture from its erstwhile peripheral status in numerous nations mirrors a growing recognition of the environmental ramifications of agricultural production (Els and David, 2000).

The proliferation of organic agricultural production and the burgeoning sales of organic food underscore a palpable surge in market demand, propelled by consumer perceptions and an augmented public endorsement of organic produce and its purveyors (Nguyen et. al., 2019, Soroka and Wojciechowska Solis, 2019). The escalating demand for organic food products finds impetus in heightened purchasing power and an escalating consciousness regarding health among consumers (Sharma et. al., 2022).

Despite India's noteworthy standing as the second-largest host of certified organic farms, totaling 44,926 establishments, its rank plummets to 13th concerning the proportion of land devoted to organic cultivation, constituting a mere 0.3% of the nation's total agricultural expanse (Baraiya et. al., 2022). Organic farming, deeply rooted in India's agricultural heritage, traces its origins to ancient farming communities characterized by nature-friendly practices such as mixed farming, mixed cropping and crop rotation. The seminal contributions of Sir Albert Howards precipitated the organic movement in India, accentuating the primacy of compost and other organic sources of plant nutrients to the

exclusion of chemical fertilizers. Notably, there has been a substantial expansion in the acreage devoted to certified organic farming over the past decade (Gopinath et. al., 2016).

The GOI has proactively championed organic farming as a means to safeguard the environment and natural resources through sustainable agricultural practices. India boasts the highest number of organic farmers globally and ranks ninth in terms of land under organic cultivation (Banker and Lihitkar, 2023). This study endeavors to juxtapose the characteristics of farmers engaged in organic versus non-organic farming to elucidate the determinants driving the adoption of organic farming practices, thereby informing policy makers and fostering the continued advancement of organic agriculture in the country.

OBJECTIVE

To study the differences in attributes of farmers practicing organic and non-organic farming

METHODOLOGY

The research, conducted within the timeframe of 2021-2022, focused on Jabalpur district as the study area. Specifically, four blocks within Jabalpur district, namely Sihora, Jabalpur, Patan and Majholi were identified as locations with active clusters of farmers engaged in organic farming under the Pramparagat Krishi Vikas Yojana initiative. From a total pool of 250 farmers practicing organic farming within these blocks, a purposive selection method was employed to identify 120 farmers to constitute the target population for the study. In parallel, an equivalent number of 120 farmers engaged in conventional or non-organic farming practices were purposively selected to serve as the comparative group for the study. Structured interview schedule was developed and pre tested for the data collection. Eighteen common independent variables and one dependent variables among farmers practicing organic and non-organic farming were studied with different methods of measurement and Z test was used to compare the means of the different variables under study.

RESULTS AND DISCUSSION

Difference in attributes of farmers

The study brought in light the results that eleven variables from the eighteen variables for comparison between farmers practicing organic and non-organic farming had significant difference which can be observed in Table 1.

Table 1: Difference between profile attributes of farmers practicing organic and non-organic farming (n=240)

Sr. No.	Profile attributes	Mean values		Mean score difference	Z value
		Farmers practicing organic farming (n1=120)	Farmers practicing non-organic farming (n2=120)		
1	**Age**	47.90	46.38	1.52	1.121^{NS}
2	**Education**	2.18	2.00	0.18	0.826^{NS}
3	**Farm size**	1.77	1.35	0.42	2.944**
4	**Social participation**	0.94	1.13	-0.19	-1.333^{NS}
5	**Occupation**	1.88	1.73	0.15	1.881^{NS}
6	**Annual family Income**	253775.83	216814.17	36961.66	1.847^{NS}
7	**Livestock possession**	3.56	1.21	2.35	6.730**
8	**Mass Media exposure**	1.55	1.64	-0.09	-0.467^{NS}
9	**Information sources**	4.14	2.67	1.47	4.716**
10	**Scientific orientation**	36.67	40.47	-3.8	-6.691**
11	**Risk orientation**	10.28	12.03	-1.75	-7.508**
12	**Market perception**	6.15	7.64	-1.49	-9.149**
13	**Decision making ability**	12.24	15.13	-2.89	-8.959**
14	**Innovativeness**	7.65	6.01	1.64	6.115**
15	**Trainings received on organic farming**	5.41	0.36	5.05	23.917**
16	**Farming experience**	32.48	29.78	2.7	1.849^{NS}
17	**Environment orientation**	6.10	4.73	1.37	5.960**
18	**Attitude towards organic farming practices**	34.13	25.58	8.55	25.907**

**Significant at 1 per cent level of probability, NS- Non-Significant

Table 2. revealed a notable discrepancy in the knowledge levels between farmers engaged in organic and non-organic farming, with the former demonstrating superior knowledge compared to the latter. This disparity was quantified by a mean score difference of 1.81 and a Z-value of 4.506. Several contributing factors elucidate this outcome: organic farming practitioners exhibited superior livestock possession, larger farm sizes, enhanced utilization of information sources, greater participation in organic farming trainings, heightened environmental orientation and a more positive attitude towards organic practices. Additionally, they implemented a diverse array of recommended and self-developed organic farming techniques aimed at enhancing soil and plant health management. These findings are consistent with the research conducted by Jaganathan et. al. (2012) and Jaganathan (2009).

Table 2: Significant difference in knowledge of farmers practicing organic and non-organic farming (n=240)

Sr. No.	Variable	Mean values		Mean score difference	Z value
		Farmers practicing organic farming (n=120)	Farmers practicing non-organic farming (n=120)		
1.	Knowledge level	60.79	58.98	1.81	4.506**

**Significant at 1 per cent level of probability

Among the eleven variables examined, seven, including farm size, livestock possession, information sources, innovativeness, trainings in organic farming, environmental orientation and attitude towards organic farming exhibited a statistically significant positive divergence at the 1 per cent level between farmers practicing organic and non-organic farming practices. Conversely, four variables- scientific orientation, risk orientation, market perception and decision-making ability manifested a significant negative disparity at the 1 per cent level of probability.

Amid the examined variables, seven encompassing age, education, occupation, annual family income and farming experience, did not exhibit a statistically significant disparity between farmers engaged in organic and non-organic farming practices. Within this subset, education, occupation annual family income and farming experience displayed a positively non-significant association, while social participation and mass media exposure demonstrated a statistically significant negative correlation during the investigation.

Among these eleven variables, livestock possession, farm size, information sources, innovativeness, trainings received on organic farming, environment orientation and attitude towards organic farming practices exhibited elevated mean values among farmers practicing organic farming compared to those practicing non-organic farming. Conversely, scientific orientation, risk orientation, market perception and decision-making ability demonstrated higher mean values among farmers practicing non-organic farming in contrast to their organic farming counterparts.

The mean score difference in livestock possession between the two farmer categories was 2.35 (Z=6.730), indicating superior livestock possession among organic farming practitioners compared to those engaged in non-organic methods. It is empirically evident that livestock and organic farming are intricately liked, suggesting a symbiotic relationship. This correlation suggests that either farmers with a higher livestock count opt for organic farming, or organic farming practitioners tend to possess more livestock. This phenomenon can be attributed to the fecal matter of livestock, which serves as a vital component in various organic inputs.

The mean score difference among farmers was 0.42, with a Z-value of 2.944,indicating a larger farm size among practitioners of organic farming compared to those employing non-organic methods. Abrupt and total transition of land from non-organic to organic practices may not necessarily result in immediate benefits and could incur losses for farmers during the initial stages. Consequently, farmers with larger land holdings may opt to begin organic farming on a portion of their land, mitigating potential risks and allowing for a smoother transition process.

A notable disparity exists in the utilization of information sources between the two groups of farmers, evidenced by a mean score difference of 1.47 (Z=4.716). This discrepancy suggests that practitioners of organic farming exhibit a greater inclination towards seeking information on organic farming practices from various sources such as mobile platforms, social media, the internet, familial connections and scientific sources.

The scientific orientation of farmers engaged in non-organic farming surpassed that of their organic farming counterparts, as indicated by a mean score difference of -3.80 (Z=-6.691). this discrepancy underscores the preference among non-organic farming practitioners for scientific methodologies in crop production, buoyed by the success of the green revolution, which validated the efficacy of scientific cultivation practices in achieving higher yields.

Additionally the risk orientation of non-organic farming practitioners also outstripped that of organic farmers, with a mean score difference of -1.75 (Z=-7.508). This inclination towards embracing novel and scientifically-driven cultivation techniques reflects the proactive approach adopted by non-organic farming practitioners in pursuit of increased productivity and enhanced income generation from agricultural activities.

The market perception among farmers engaged in non-organic farming surpassed that of their organic farming counterparts, with a mean score difference of -1.49 (Z=-9.149). This disparity is attributed to the firm conviction held by non-organic farming practitioners regarding the superior value proposition of organic produce, not only within local markets but also on a global scale, provided it adheres to rigorous standardization and certification protocols.

Farmers engaged in non-organic farming demonstrated superior decision-making abilities, as evidenced by a Z-value of -8.959 and a mean score difference -2.89, compared to their organic farming counterparts. This discrepancy arises from the differing decision-making processes employed by the two groups: organic farmers tend to adopt a more cautious approach. Consulting with family, relatives and progressive farmers before committing to organic practices. In contrast, non-organic farming practitioners, having long-standing experience in the field, exhibit greater confidence in their decision-making, often acting independently due to their entrenched familiarity with non-organic farming methodologies.

Farmers engaged in organic farming demonstrated greater innovativeness compared to those practicing non-organic methods, as indicated by a Z-value of 6.115 and a mean score difference 1.64. Organic farming inherently fosters a culture of innovation, with practitioners often devising solutions to challenges through local resources and indigenous knowledge. This innate creativity and problem-solving aptitude among organic farmers distinguish them as more innovative than their counterparts in the non-organic farming sector.

Indeed, farmers engaged in organic farming exhibited a significantly higher frequency of attendance in organic farming training sessions compared to their counterparts practicing non-organic methods. This disparity was evident with a mean score difference of 5.05 and Z-value of 23.917, underscoring the advantageous position of organic farmers in terms of training acquisition within the domain of organic farming practices.

Farmers engaged in organic farming regard the earth and environment as living entities, adhering to ancestral farming methods aimed at minimizing harm to the ecosystem. Consequently, their environmental orientation surpassed that of farmers practicing non-organic methods, evidenced by a mean score difference of 1.37 and a Z-value of 5.960. this commitment to sustainable practices underscores the superior environmental consciousness among organic farmers compared to their counterparts in the non-organic farming sector.

Given their heightened belief in the sanctity of the earth and environment, along with greater participation in organic farming trainings and increased livestock possession, farmers engaged in organic farming exhibit a significantly more positive attitude towards organic practices compared to their counterparts in the non-organic farming sector. This discrepancy is underscored by a mean score difference of 8.55 and Z-value of 25.907. The findings of the study conducted by Kalasariya *et al.* (2023) and Jaganathan (2009) partially align with these observed differences in the attributes of farmers practicing organic and non-organic farming.

CONCLUSION

In conclusion, the discourse underscores the imperative shift towards sustainable agricultural practices, particularly organic farming, amid growing concerns over the adverse health and environmental impacts associated with agrochemicals. As highlighted by scientific literature, the Green Revolution's diminishing returns necessitate a transition towards organic methodologies to ensure the preservation of natural equilibrium and agricultural productivity. Notably, India's endeavors in promoting organic agriculture, evidenced by state declarations and governmental initiatives, reflect a concerted effort towards this transition. Furthermore, empirical studies reveal significant disparities between farmers practicing organic and in organic farming, emphasizing the advantages of organic practices in livestock possession, farm size, information utilization and environmental orientation. These findings corroborate existing research and underscore the multifaceted benefits of organic farming, advocating for its wider adoption to foster sustainable agricultural systems and enhance food security.

RECOMMENDATIONS/POLICY IMPLICATION

Based on our study findings, key variables such as farm size, livestock possession, access to information, innovativeness, participation in organic farming trainings, environmental orientation and attitude towards organic farming practices emerge as crucial determinants. To enhance the adoption of organic farming, governmental initiatives should focus on expanding the organic farming area by

utilizing pastures and barren lands. Introducing subsidies for livestock aimed at small and marginal farmers can incentivize organic farming adoption. Moreover, fostering indigenous farming methods through farmer innovation can contribute significantly to promoting organic practices. Policy makers are encouraged to prioritize organizing training programmes with field demonstrations, both by governmental and non-governmental agencies, to enhance farmers' knowledge and skills in organic farming techniques. These measures are essential for sustainable agricultural development and environmental conservation.

ACKNOWLEDGEMENT

Heartful gratitude is expressed to Jawaharlal Nehru Krishi Vishwa Vidyalaya Jabalpur, Department of Extension Education, College of Agriculture, Jabalpur and all the committee members for providing the research platform, needful guidance and resources for this study.

CONFLICT OF INTEREST

The authors declare "no conflict of Interest".

REFERENCES

Bader A.A., Edgar Y., Mark A.B. and Hazem S.K. (2021). Perception of organic farmers towards organic agriculture and role of extension. *Saudi J. of Biol. Sci*. 28(5):2980-2986.

Banker R.S. and Lihitkar S.R. (2023). Trends in organic farming research in India (2002–2021). Current Sci. 125(5):483-489.

Baraiya K.P., Lakhani S.H. and Baraiya A.K. (2022). Assessing knowledge level and analysing constraints of organic farmers in Jamnagar district of Gujarat. *Guj. J. Ext. Edu*. *Special Issue*. Pp:58-66.

Els W. and David V. (2000). Research in organic agriculture: Assessment and future directions. Invited paper in Conference on 'Organic Agriculture faces its development- the future', organized by Jacques Cartier Centre, Lyon, France 2000.

Gopinath K.A., Rao S., Ramanjaneyulu A.V., Jayalakshmi M., Chary G.R. and Venkatesh G. (2016). Organic farming research in India: Present status and way forward. *Int. J. of Eco. Plants*. 3(3): 98-101.

Jaganathan, D. (2009). A multidimensional analysis of organic farming in Tamil Nadu. Ph.D. Thesis. Indian Agricultural Research Institute, New Delhi.

Jaganathan, D., Bahal, R., Burman, R.R. & Lenin, V. (2012). Knowledge level of farmers on organic farming in Tamil Nadu. *I. Res. J. of Ext. Edu.* 12(3):70-73.

Kalasariya, Neeta, Naik, R. M. and Karravula, Rakesh (2022) Knowledge of tribal farmers towards organic farming practices. Guj. J. Ext. Edu. 33(2): 16-18. https://doi.org/10.56572/gjoee.2022.33.2.0004

Korat H.V., Mathukia R.K. and Faldu M.R. (2022). Influence of low cost natural farming, organic farming and conventional farming on performance of wheat and chickpea. *Guj. J. Ext. Edu*. *Special Issue*. Pp:33-37.

Nguyen H.V., Nguyen N., Nguyen B.K., Lobo A. and Phuong A.V.(2019). Organic food purchases in an emerging market: The influence of consumers' personal factors and green marketing practices of food stores. *Int. J. Environ. Res. Public Health.* 16(6):1037.

Sharma Chandrika, Khare N.K., Naberia Seema, Raut Ajay. (2022). Communicational behaviour of farmers of Jabalpur district. *Biol. Forum- An Int. J*. 14(1):1303-1307.

Sharma Chandrika, Khare N.K., Naberia Seema, Raut Ajay. (2022). Identification and documentation of organic farming practices in wheat crop in Jabalpur district. *Asian J. of Agril. Ext., Eco. & Sociology.* 40(4):47-53.

Soroka A. and Wojciechowska-Solis J. (2019). Consumer motivation to buy organic food depends on lifestyle. *Foods.* 8(11):581.

Received : April 2024 : Accepted : June 2024