P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 1; Jan 2024; Page No. 581-585

Received: 24-10-2023
Accepted: 25-11-2023

Indexed Journal
Peer Reviewed Journal

Farmer's attitude towards organic vegetable cultivation practices in Western zone of Tamil Nadu

[1]Murugan PP, [2]Sree Madhumitha G, [3]Anu Pria Lashmi and [4]Janaki Rani A

[1]Director of Extension Education, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India

[2]Ph.D. (Ag), in Agricultural Extension and Communication, Department of Agricultural Extension & Rural Sociology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India

[3]Assistant Professor, Sethu Bhaskara Agricultural College and Research Foundation, Karaikudi, Tamil Nadu, India.

[4]Professor, Department of Agricultural Extension & Rural Sociology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i1h.258

Corresponding Author: Murugan PP

Abstract

After the COVID-19 pandemic, there is an increased concern about the nutrition and health status of the individuals. This, in turn changed the attitude of individuals towards their food consumption pattern and preference over organic produces. As the consumer's preference shifted from commodities of conventional agriculture to organic agriculture, it influences the attitude of farmers towards organic cultivation either directly or indirectly. Since, vegetables are the important source of nutraceuticals that poor can afford this study focus on the attitude of farmers towards organic vegetable cultivation practices in Coimbatore and Tiruppur districts. This study discusses the exiting vegetable cultivation practices and interprets the attitude of farmers towards organic vegetable cultivation practices. It will enable the policy makers to identify the areas that need to be strengthening in order to improve the attitude of the farmers and facilitates framing of programmes and policies for the development of farmers.

Keywords: Farmer's attitude, organic vegetable cultivation, nutritional security, indigenous knowledge, traditional farming, organic farmers

Introduction

Vegetables are popularly called as nutraceuticals, since they contain rich source of essential vitamins, minerals, carbohydrates and proteins. But, they are cheaper and affordable by poor; so that it could supplement their balanced diet. Further, it ensures food and nutritional security for the underprivileged and growing population of the country. In addition to this, vegetables can be cultivated all around the year i.e. in different seasons of year and it produces very high yield in a short time. They can be sold at higher price and results in increased income for the farmers.

India secures 2nd rank in fruit and vegetable cultivation in the world. According to National Horticultural Board (2021-2022) [8], India produced 204.61 million MT of vegetables under 11.28 million ha. FAO (2021) [4] pointed out that, India stood first rank in production of ginger and okra and second rank in production of brinjal, cabbages, cauliflower, onions & potatoes. Among the 187 countries of the World, India holds a unique position in practicing organic agriculture. It is because of the fact that, India acts as the home for 30 percent of the total organic producers who possess 2.30 million ha of land under organic cultivation (FiBL survey, 2021) [13]. In India, Madhya Pradesh, Maharashtra and Rajasthan were the top three states that contribute about half of the area under organic cultivation.

Conventional agriculture requires heavy doses of plant protection chemicals (pesticides, fertilizers and plant growth regulators) to increase the yield and to protect the plants. But, high dose of pesticide can be potentially toxic to humans and may cause adverse health issues like cancer, problems in reproductive systems, nervous and immune system (WHO, 2016) [12]. Though pesticides are used to control pest and ensure food security, pesticide exposure can cause Alzheimer, Parkinson, asthma, bronchitis, birth defects, autism, diabetes, attention deficit hyperactivity disorder, amyotrophic lateral sclerosis, infertility, obesity, organ diseases, respiratory diseases and system failures (Shah, 2020) [11]. While, Ali *et.al.*, (2021) [1] pointed out that paternal exposure to pesticides can increase the risk of leukaemia, lymphoma and brain cancer in children upto 50 per cent. Thus, it can be understood that, its time to switch over from conventional agriculture to organic agriculture.

Similar studies by Assis and Ismail (2011) [3], Meena *et.al.*, (2014) [7], Mohan and Helen (2014) [6], Patidar and Patidar (2015) [10] highlighted that more than two-third of the farmers reported favorable attitude towards organic farming. Whereas, indicated that farmers answered the most important attitudinal statement (4.55), 'organic agriculture strengthens the use of indigenous knowledge' and added that farm size, farming experience, household size, membership in organization and information sources

reported positive and significant relationship with the attitude of farmers towards organic farming practices. While, Ghosh (2019) [5] observed that cosmopoliteness (0.461) and extension contact (0.377) of organic farmers had positive and significant relationship with their attitude. Eventually, Alotaibi *et al.*, (2021) [2] highlighted that other than identifying viable information sources, factors like adaptive capacities to climate change and certification play a crucial role for successful production in organic systems.

Statement of the problem

Fertilizers and pesticides were introduced to increase the yield, but their residues in the crop leads to new disease and disorders. Growing health consciousness among the individuals, shifted their food consumption pattern from conventional agriculture to organic agriculture commodities. Further, it is a well-known fact that changes in the attitude of the consumers will change the attitude of producers as well. Meanwhile, vegetables are the cheapest source of essential nutrient and vitamins, that poor can afford and supplement their diet. Hence, it become important to analyse the attitude of farmers towards organic vegetable cultivation practices. In the light of the context, this study was formulated to document the organic vegetable cultivation practices adopted by the farmers and their attitude towards organic vegetable cultivation practice.

Methodology

As maximum numbers of certified organic farmers are located in Coimbatore and Tiruppur, these districts were purposively selected in the Western zone of Tamil Nadu. Since, vegetable cultivation is predominant in these district, organic vegetable growers were selected as the primary respondents of the study. Exploratory research design was used to document the existing organic vegetable cultivation practices. An ex-post facto research design was employed to assess the attitude of 120 organic vegetable growers. A list of certified organic vegetable growers was collected from the Joint District Agriculture office and respondents were selected irrespective of blocks and villages. Attitude of organic vegetable growers was operationalized as the favorable or unfavorable attitude of farmers towards organic vegetable cultivation practices as a result of the information sources (information seeking behaviour & extension contact) and farmer's exposure to external environment (cosmopoliteness & awareness level) In order to assess the attitude of the organic vegetable growers, a set of 16 statements from the attitudinal scale the attitudinal scale followed by Jaganathan (2012) was adopted with necessary modifications. With the help of modified, the information was gathered & the attitude of organic vegetable growers was assessed with suitable statistical tools.

Findings and Discussion

Documentation of organic vegetable cultivation practices in Western Zone of Tami Nadu

The various organic vegetable cultivation practices adopted by the organic farmers were documented and enlisted as follows:

- **For controlling pests and diseases**

a. Siriyanangai (*Sida acuta*), 'Arivalmanaipondu' (in Tamil) is used as spray (5%) to control leaf worms, stem borers, boll worms and other sucking pests
b. Ploughing of soil up to fine tilth (two to three ploughings to remove debris, stubbles and stones) prevents ant and termite infestation
c. Cultivation of eco-friendly and pest & disease resistant cultivars
d. Growing trap crops like marigold & sesbania to reduce pest population
e. Practices like balanced crop rotation, mechanical cultivation techniques, protection of natural enemies, release of predators and parasites
f. Employing botanical and biological pest control approaches like spraying of plant-based preparations usch as injipoondukaraisal, leaf extracts of pungam, neem, tulsi, notchi and erukku & 3G (Green chilli, Ginger & Garlic) with Neemastra
g. Karpooravalli is used as natural disinfectant

- **For improving soil fertility**

a. Amirthakaraisal (an organic formulation derived by combining fresh cow dung (10 kg), cow's urine (10 litres), jiggery (1 kg) and water (100 litres))
b. Organic cakes prepared from neem (*Azadirachata indica*), groundnut (*Arachis hypogea*), pongamia (*Pongamia pinnata*) and castor (*Euphorbia* spp)
c. Use of Farm Yard Manure (FYM), chicken manure, fish manure, etc. @25-38 tonnes/ha for vegetables
d. Mulching of soil enables soil moisture conservation and improves soil fertility
e. Cultivation of legumes, green manure crops
f. Practicing crop rotation, inter-cropping, mixed cropping
g. Multi seeding technique (sowing legumes with green manure crops) to improve soil fertility and nitrogen fixation as well

- **For improving crop yield**

a. Adopting recommended spacing and plant population reduces crop competitions and ensures good yield
b. Usage of bio-fertilizers such as azospirillum, phosphobacteria and mycorhizza, as substitution for nitrogenous and phosphorous fertilizers
c. Incorporating organic elements or crop waste, compost and Farm Yard Manure (FYM)

In addition to this, natural growth promoters were prepared by the farmers. They were Pazhakkadi and Arappu buttermilk solution. Pazhakkadi is a fermented mixture of rotting/rotten fruits mixed with jaggery (Half kg of jaggery/ kg of fruits). The prepared mixture is left to ferment for 15 days and sprayed over young crops to get better nourishment through leaves. While, arappu buttermilk solution is prepared by churning 2 litres of curd with 3 litres of water and left to ferment for 7-10 days. Later, the 1 litre of fermented buttermilk is mixed with 10 litres of water and used for spraying in flowering stage. The lactobacillus bacterium in the buttermilk induces the development of more female fruits and increase size & quality of fruits. Simultaneously, it strengthens the flower nodes and prevents them from falling.

Attitude of organic farmers towards organic vegetable farming practices

Table 1: Item-wise analysis of farmer's attitude towards organic vegetable cultivation practices (n=120)

S. No.	Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Organic farming improves fertility status of the soil	98 (81.67)	22 (18.33)	0 (0.00)	0 (0.00)	0 (0.00)
2	It is worthful to adopt organic farming practice even by borrowing money	54 (45.00)	5 (4.17)	17 (14.17)	6 (5.00)	38 (31.67)
3	Use of organic farming practices is only a waste of time and money	0 (0.00)	31 (25.83)	0 (0.00)	1 (0.83)	88 (73.33)
4	The way our forefathers cultivated seems to be good	69 (57.50)	20 (16.67)	29 (24.17)	0 (0.00)	1 (0.83)
5	Adoption of organic farming practices is practically not feasible	20 (16.67)	30 (25.00)	0 (0.00)	24 (20.00)	46 (38.33)
6	One need not bother about undesirable consequences when chemicals are used in organic farming practices	53 (44.17)	0 (0.00)	0 (0.00)	10 (8.33)	57 (47.50)
7	It is possible to get good yield by adopting organic farming practices	26 (21.67)	62 (51.67)	32 (26.67)	0 (0.00)	0 (0.00)
8	It is not profitable to adopt organic farming practices in vegetable cultivation	38 (31.67)	13 (10.83)	12 (10.00)	42 (35.00)	15 (12.50)
9	Organic farming practices should be practiced by all	40 (33.33)	56 (46.67)	24 (20.00)	0 (0.00)	0 (0.00)
10	Cultivation of organic vegetables has brought a new light in the field of agriculture	64 (53.33)	14 (11.67)	10 (8.33)	0 (0.00)	32 (26.67)
11	Adoption of organic farming practices is highly risky and hence it is not adviceable to follow the same	24 (20.00)	10 (8.33)	15 (12.50)	5 (4.17)	66 (55.00)
12	It is better to give more importance to other occupation than following organic farming	1 (0.83)	32 (26.67)	8 (6.67)	40 (33.33)	39 (32.50)
13	Use of organic farming practices is essential for better quality of vegetables	73 (60.83)	31 (25.83)	1 (0.83)	0 (0.00)	15 (12.50)
14	It is not correct to support organic farming practices	7 (5.83)	32 (26.67)	0 (0.00)	14 (11.67)	67 (55.83)
15	It is possible to solve our environmental problems through organic farming	49 (40.83)	71 (59.17)	0 (0.00)	0 (0.00)	0 (0.00)
16	Organic farming practices have no advantage over conventional practices	17 (14.17)	0 (0.00)	31 (25.83)	15 (12.50)	57 (47.50)

Note: Figures in parenthesis indicates the percentage of total number of farmers

Table.1 depicts the farmer's attitude towards organic vegetable cultivation practices. Majority of the organic vegetable growers strongly agree for the statement, 'Organic farming improves fertility status of the soil' (81.67%), more than half of the farmers had strongly agree to the statement, 'use of organic farming practices is essential for better quality of vegetables' (60.83), 'the way our forefathers cultivated seems to be good' (57.50%), 'cultivation of organic vegetables had brought a new light in the field of agriculture' (53.33%). Less than half of the farmers had strongly agree to the statement, 'it is worthful to adopt organic farming practice even by borrowing money' (45%), 'one need not bother about undesirable consequences when chemicals are used in organic farming practices' (44.17%) and one third-of the farmers strongly agree that, 'organic farming practices should be practiced by all' (33.33%).

Less than one-third of the farmers strongly agree that, 'it is not profitable to adopt organic farming practices in vegetable cultivation' (31.67%), 'it is possible to get good yield by adopting organic farming practices' (21.67%), 'adoption of organic farming practices is highly risky and hence it is not advisable to follow the same' (20%), 'adoption of organic farming practices is practically not possible' (16.67%), 'Organic farming practices have no advantage over conventional practices' (14.17%). Whereas, higher percentage of organic farmers strongly disagree that, 'use of organic farming practices is only a waste of time and money' (73.33%), 'it is not correct to support organic farming practices' (55.83%) and 'it is better not to give more importance to other occupation than following organic farming' (32.50%). The findings were in accordance with the studies of Assis and Ismail (2011) [3], Meena *et.al.*, (2014) [7], Mohan and Helen (2014) [6], Patidar and Patidar (2015) [10].

Farmers strongly believe in the fact that adoption of organic farming practices like crop rotation, mulching and application of biofertilizers, oil cakes, FYM and vermicompost enhances the inherent soil fertility. Farmers were satisfied with the productivity, yield and quality of the harvested organic produce on comparing with produce of conventional agriculture. Hence, by adopting suitable marketing strategies, the farmers were able to make profit out of it. After realizing the harmful effects of conventional agriculture such as reduced soil fertility and residues of agro-chemicals in agricultural produce, farmers become aware of the need of organic farming to restore soil fertility and ensure nutritional security. Though initial conversion period and organic certification of land consumes more time and money, organic farming is more feasible & economical than conventional farming. In addition to this, to ensure nutritional security of consumers, to restore soil fertility and for self-satisfaction of farmers, farmers are avoiding usage of chemicals in organic farming. Even, if the yield of the produce is low or in small quantities, it fetches good and

reasonable price for the farmers. So, it increases confidence among the farmers and motivate them to adopt organic farming.

Greater proportion of the farmers felt that organic farming was convenient and compatible than conventional farming and has less risks associated with it. Farmers preferred to have organic farming as their sole occupation, than possessing a secondary occupation or second-income occupation; as it involves number of management practices such as farming, livestock production, input production & supply, etc. which provides more profit on surplus production. Since, vegetable cultivation can be done all around the year; it provides continuous income. In addition to this, if vegetable is cultivated organically, farmers are able to get higher profit. Apart from improving the living standard of farmers, organic farming ensures food & nutritional security, restores soil health & fertility and prevents environmental degradation and assures sustainability to a greater extent. Eventually, farmers had favorable attitude towards organic farming as it was more advantageous than conventional farming in terms of quantity & quality and less risks associated with it.

Table 2: Overall attitude of organic farmers towards organic vegetable cultivation practices (n=120)

S. No.	Category	Number	Per cent
1	Less favorable	2	10.00
2	Favorable	101	84.17
3	More favorable	7	5.83
Total		120	100.00

Table.2 depicts the overall attitude of organic vegetable growers towards organic vegetable cultivation practices. Higher proportion of the organic vegetable growers had favorable (84.17%) & more favorable (5.83%) attitude towards organic vegetable cultivation practices. While, only 10 per cent of the organic vegetable growers had less favorable or unfavorable attitude towards organic vegetable cultivation practices. The findings of the study are in line with the studies of Assis and Ismail (2011) [3], Meena *et al.*, (2014) [7], Mohan and Helen (2014) [6], Patidar and Patidar (2015) [10].

For successful implementation of a technology, participation of the community members becomes essential. Similarly, to obtain good yield, farmers should have positive or favorable attitude towards a technology, which in turn encourages them to participate or adopt a technology with full involvement. Thus, to have such a positive attitude, increased awareness and knowledge about organic farming practices develops that favorable attitude. Since, most of the farmers were concerned about consumer's nutritional security, restores soil health and fertility, prevent environment degradation; they became concise about organic farming. Hence, it develops positive attitude among the farmers.

Conclusion

Though most of the farmers were aware of the organic farming and its advantages, the increased time and money consumed during initial conversion period and organic certification process makes it difficult for the farmers to adopt organic farming practices. Hence, in order to attract more farmers towards organic farming, subsidies or monetary funds should be provided to encourage them during these periods. Simultaneously, the time taken during organic certification can be reduced by implementing necessary monitoring steps. Eventually, a separate institution can be established to monitor and regulate the quality & price of the organic produce that were being sold to the consumers.

References

1. Ali S, Ullah MI, Sajjad A, Shakeel Q, Hussain A. Environmental and Health Effects of Pesticide Residues. In: Inamuddin, Ahamed MI, Lichtfouse E, editors. Sustainable Agriculture Reviews. Springer, Cham; c2021. p. 189-212. https://doi.org/10.1007/978-3-030-54719-6_8
2. Alotaibi BA, Yoder E, Brennan MA, Kassem HS. Perception of organic farmers towards organic agriculture and role of extension. Saudi J Biol Sci. 2021;28(5):2980-2986.
3. Assis K, Mohd Ismail HA. Knowledge, Attitude and Practices of Farmers towards Organic Farming. Int J Econ Res. 2011;2(3):1-6.
4. FAO. Statistical Yearbook. 2021. https://www.fao.org/3/cb4477en/online/cb4477en.html
5. Ghosh MK, Sohel MH, Ara N, Zahara FT, Nur SB, Hasan MM. Farmer's attitude towards organic farming: a case study in Chapainawabganj District. Asian J Adv Agric Res. 2019;10(2):1-7. https://www.researchgate.net/publication/334214018_Farmers_Attitude_towards_Organic_Farming_A_Case_Study_in_Chapainawabganj_District
6. Mohan DJ, Helen S. Attitude of farmers towards organic vegetable cultivation. Agric Update. 2014;9(3):364-367. http://researchjournal.co.in/online/AU/AU%209(3)/9_364-367_A.pdf
7. Meena C, Patel VT, Chauhan NB. Attitude of the farmers towards integrated pest management. In: Proceedings of the National Seminar on "Dimensions of Extension Education in Holistic Development of Farmers", organized by Society of Extension Education, Gujarat and Anand Agricultural University at Anand on April 5th 39; c2014.
8. National Horticultural Board. First advance estimates; c2021-22. https://agricoop.nic.in/sites/default/files/2021-22%20%28First%20Advance%20Estimates%29%20%281%29_0.pdf
9. Oluwasusi JO. Vegetable farmers' attitude towards organic agriculture practices in selected states of South West Nigeria. J Agric Ext Rural Dev. 2014;6(7):223-230.
10. Patidar S, Patidar H. A study of perception of farmers towards organic farming. Int J Appl Innov Eng Manag. 2015;4(3):269-277.
11. Shah R. Pesticides and Human Health. In: Nuro A, editor. Emerging Contaminants. Rijeka: Intech Open; c2020. https://doi.org/10.5772/intechopen.93806
12. WHO (World Health Organization). 2016. https://www.who.int/news-room/questions-and-answers/item/food-safety-pesticide-

residue#:~:text=They%20may%20induce%20adverse%20health,assess%20any%20risks%20to%20humans
13. Willer H, Travnicke J, Meier C, Schlatter B. The world of organic agriculture 2021-statistics and emerging trends; c2021. https://www.fibl.org/fileadmin/documents/shop/1150-organic-world-2021.pdf