Asian Journal of Agricultural Extension, Economics & Sociology

40(10): 451-457, 2022; Article no.AJAEES.90124
ISSN: 2320-7027

Assessment of Profile Characters and a Study on the Extent of Adoption of Farmers in Organic Vegetable Cultivation in the Western Zone of Tamil Nadu, India

K. S. Anuprialashmi [a*], P. P. Murugan [b#], R. Jansirani [c], M. Nirmala Devi [a¥] and Patil Santhosh Ganapati [d]

[a] Department of Agricultural Extension and Rural Sociology, Tamil Nadu Agricultural University, Coimbatore, India.
[b] Tamil Nadu Agricultural University, Coimbatore, India.
[c] Nammazhvar Organic Farming Research Centre, Tamil Nadu Agricultural University, Coimbatore, India.
[d] Department of Physical Sciences and Information Technology, Tamil Nadu Agricultural University, Coimbatore, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2022/v40i1031095

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/90124

Original Research Article

Received 20 May 2022
Accepted 25 July 2022
Published 28 July 2022

ABSTRACT

The human community all over the world are growing consciousness over poisonous residues of agrochemicals in the food they consume and also on the health and environmental hazards associated with it. This therefore lead to a re-invention of an alternate form of agriculture devoid of contaminants. Organic agriculture is one among the broad spectrums of production systems which avoids the use of synthetic agrochemicals and ensures safety and sustainability. An Ex-post facto research design was used for the study. The study was conducted in Coimbatore and Tirupur districts to study the extent of adoption of farmers towards organic vegetable cultivation. The

[#]Directorate of Extension Education;
[¥]Professor;
**Corresponding author: E-mail: anuprialashmi@gmail.com;*

analysis of the data inferred that two-fifths of the respondents (40.83%) belonged to old aged category. Regarding the belief of farmers in organic farming it was found that nearly half of the respondents (49.17%) had belief only in organic farming and avoided conventional farming methods. It was interesting to note that almost all the respondents (100%) had full adoption towards timely irrigation and mulching practices.

Keywords: Adoption; farming methods; organic vegetable; cultivation; organic farming.

1. INTRODUCTION

Globally, 1.5% of the world`s agricultural land is found to be organic with Australia, Argentina and China being the leading countries. India ranks 9th position in area with 78 million hectares of land. Also, India contributes to 30% of total organic producers of the world which is 1st position in terms of producers. Madhya Pradesh, Rajasthan and Maharashtra are some of the leading organic producing states in India and Sikkim is now the world`s first 100 percent organic state. Tamilnadu has 10,000 certified organic farmers with a total area of 2,765 ha of land under organic farming.

An average Indian consumes much fewer vegetables (252 g) per day than is advised (300 g). Our vegetable consumption will surpass 250 million tonnes by 2020. Due to the restricted amount of accessible land and water resources, the only method to feed the people is to grow vertically or improve productivity per unit area per unit time.

Food that is organic is highly sought after both domestically and abroad. Each year, the market for organic products is expanding at a rate that is faster (20–25%) than that of conventional products (5%). The fastest-growing economies are those in Japan, the US, Australia, and the EU. For a nation like India, which has been practising organic farming since the beginning of time, export preferences for organic vegetables open up a lot of options.

Present scenario in India shows that, a major problem is lack of nutrition in diet due to adulteration, pesticide and herbicide residues etc., which is causing a reverse effect on food safety. Hence, adopting an organic diet free from harmful components and more nutritious which is sustainable in the long run is the need of the hour. The farmer's participation in agriculture sector has become a prominent issue as they have become disenchanted with agriculture worldwide. Therefore, it is necessary to increase the involvement and engagement of farmers in organic farming to ensure food and nutritional security which in turn would also create a wider opportunity for our future generation in attracting and retaining them in agriculture. This might be achieved by creating awareness, inculcating knowledge and skill through various capacity development programs. Optimizing this utility may also include considerations such as health benefits, environmental concerns, food security and risk [1].

With the above facts into consideration, the present study was designed with the following objectives:

- To assess the profile characteristics and to study the extent of adoption of farmers in organic vegetable cultivation

2. MATERIALS AND METHODS

Coimbatore and Tirupur districts from the western zone were selected purposively for the study hence organic vegetable cultivation is predominant and also considering the maximum number of farmers registered under the category of individual certified vegetable growers. Organic Vegetable growers were the respondents for the present study. The list of farmers growing organic vegetables was collected from the Department of Agriculture Officials of the selected villages. An Ex-post facto research design was used for the study. A sample of 120 vegetable growers was considered for the study. Based on the list of organic vegetable growers, irrespective of blocks and villages the data has been collected from 120 farmers who has adopted organic vegetable cultivation by using a random sampling method. The data for analysis was collected using a pretested structured interview schedule. The collected data were coded, tabulated, analyzed and interpreted according to the objective of the present study with the help of appropriate statistical techniques. The descriptive statistical tools such as mean, standard deviation, frequency and percentage analysis were used to draw the inference from the study.

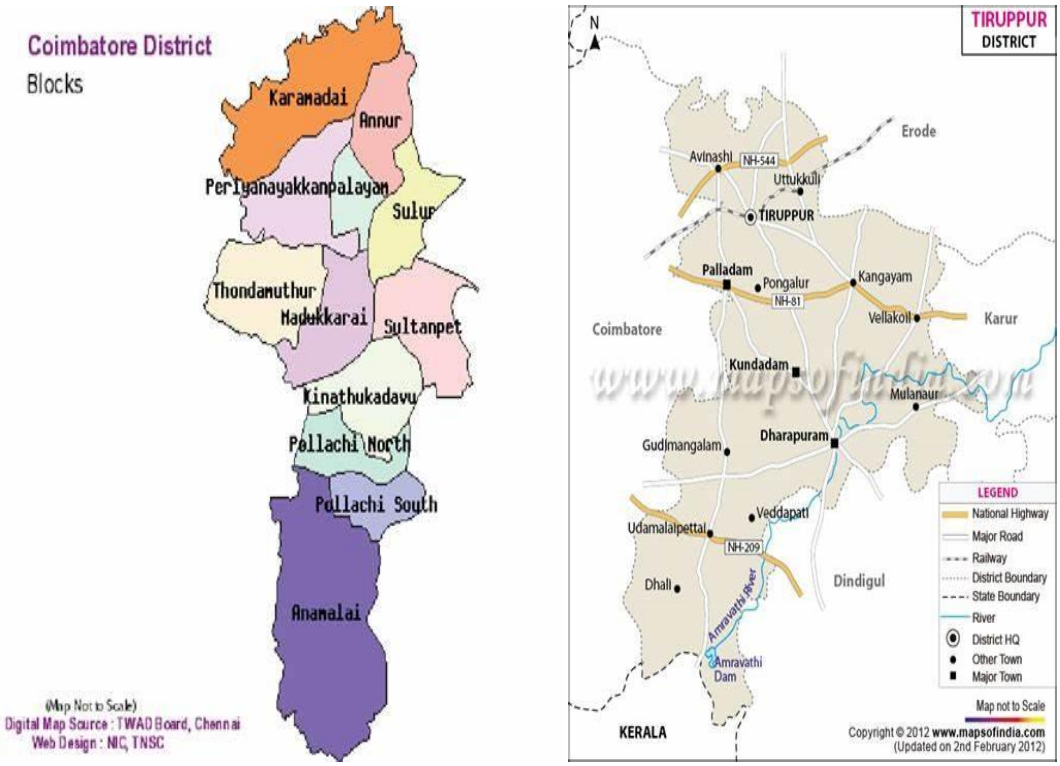

Fig. 1. Map of the study area

3. RESULTS AND DISCUSSION

3.1 Profile Characteristics

3.1.1 Socio – personal characteristics

From the Table 1, it can be concluded that two-fifths of the respondents (40.83%) belonged to old aged category followed by middle (35.83%) and young aged (23.33%). This is in accordance with the findings of Monikha [2]. In case of literacy none of them were illiterates and most of them were literates with 30.83 per cent having middle school education followed by higher secondary education (24.17%), collegiate (22.5%), primary education (17.5%) and high school level (5%). In case of occupation status, nearly two–thirds (85.84%) of the farmers were doing farming as their only occupation since most of them belonged to old age category and still wanted to continue them, followed by 14.16 per cent of the respondents were doing farming as a subsidiary occupation.

Furthermore, inference can be made from Table 1 that 49.17 per cent of the farmers had medium farming experience followed by 34.17 per cent had high experience in farming and 16.67 per cent had low experience in farming. Regarding the trainings undergone two-fifths of the farmers (40%) had undergone various training programs followed by medium and low with 37.5 per cent and 22.5 per cent respectively. The findings are in line with the findings of Priya (2003). In the case of extension agency contact nearly three fourth of the respondents (70.83%) had medium level of extension contact with the extension agents followed by low and high with 19.17 per cent and 10 per cent respectively. The findings are in accordance with Elakkiya (2007).

3.1.2 Socio – economic characteristics

From Table 2, it is evident that more than three-fourth of the organic farmers (77.50%) had a medium level of annual income followed by 19.17 per cent with high and 3.33 per cent with low income respectively. The findings are coinciding with (Jayalakshmi 2004). The analysis clearly revealed that nearly two-fifths of the respondents (41.67%) were big farmers with land holding of above 5.00 acres, 30 per cent of them being medium farmers, 24.17 per cent and 4.16 per cent being small and marginal farmers respectively. Anithamary (2006) has revealed the same. Regarding livestock possession the farmers shared medium level of livestock possession (58.33%) followed by low and high with an equal proportion of 20.83 per cent.

3.1.3 Socio – Psychological characteristics of organic farmers

It is evident from Table 3 that nearly half of the respondents (49.17%) had belief only in organic farming, while 38.33 per cent had belief in both organic and inorganic practice, and 12.50 per cent had belief only in inorganic farming practices. The results were in tune with Jaganathan et al., (2012). Regarding economic motivation, the organic farmers selected for the study had medium level of economic motivation (17.83 %) followed by 15.83 per cent and 13.33 per cent with low and high level of economic motivation respectively. It is clear from the analysis that more than two-thirds of the organic farmers (68.33%) had medium level of risk orientation, 21.67 per cent had high orientation towards risk and 10 per cent of them had low risk orientation. This is in accordance with the findings of Krishnakumar (1996) [3,4].

3.1.4 Extent of Adoption of farmers in organic vegetable cultivation

Regarding the adoption of organic farming 27.50 per cent had full adoption towards summer ploughing followed by 60.00 per cent who had full adoption towards in situ incorporation of crop residues. The analysis clearly reveals that more than half of the respondents 65.83 per cent and 67.50 per cent had full adoption towards raising green manure and incorporation and application of FYM respectively. Regarding adoption of resistant/tolerant variety 58.33 per cent had full adoption, 48.33 per cent had full adoption towards treating seeds with bio-fertilizers. Regarding application of poultry manure and oil cakes 35.83 per cent and a majority of the population of 85.00 per cent had full adoption respectively. It was interesting to note that almost all the respondents (100%) had full adoption towards timely irrigation and mulching practices. They also acknowledged that mulching was found to be highly beneficial for crop management as well as for crop nourishment and nitrogen fixation. Nearly three-fourth of the population, 73.33 per cent and 74.17 per cent fully adopted crop rotation and intercropping system which are one of the major components of organic farming. An overwhelming population i.e., 95% had full adoption towards hand/mechanical weeding practices and nearly half of the respondents (54.17%) had fully adopted spraying of ash or cowdung slurry. Only a minimum number of respondents viz., 20 per cent, 0.83 per cent and 9.17 per cent had full adoption towards use of light traps, use of botanical pesticides and collection and destruction of pests and disease affected plants respectively while none of them had adopted conservation of natural enemies. According to Singh et al*.,* [5], 55 percent had medium level adoption, followed by high (25%), and low level adoption (20%). Similar results were reported by Singh [6] and Chauhan [7] and Singh [8].

Table 1. Socio – personal characteristics of the organic farmers (n=120)

S. No.	Variables	Category	Frequency	Percentage
1.	Age	Young	28	23.33
		Middle	43	35.83
		Old	49	40.83
2.	Educational status	Illiterate	0	0
		Primary Education	21	17.50
		Middle Education	37	30.83
		High School	6	5
		Higher Secondary	29	24.17
		Collegiate	27	22.50
3.	Occupational status	Agriculture as main occupation	103	85.84
		Agriculture as subsidiary occupation	17	14.16
4.	Farming experience	Low	20	16.67
		Medium	59	49.17
		High	41	34.17
5.	Trainings Undergone	Low	27	22.50
		Medium	45	37.50
		High	48	40.00
6.	Extension agency contact	Low	23	19.17
		Medium	85	70.83
		High	12	10

Table 2. Socio – economic characteristics of organic farmers (n=120)

S.No.	Variables	Category	Frequency (f)	Percentage (%)
1.	Annual income	Low	4	3.33
		Medium	93	77.50
		High	23	19.17
2.	Farm size	Marginal farmer (Upto 1.25 acres)	5	4.16
		Small farmer (1.26 – 2.5 acres)	29	24.17
		Medium farmer (2.51 to 5.00 acres)	36	30
		Big farmer (Above 5.00 acres)	50	41.67
3.	Livestock Possession	Low	25	20.83
		Medium	70	58.33
		High	25	20.83

Table 3. Socio – Psychological characteristics of organic farmers (n=120)

S. No.	Variable	Category	Frequency (f)	Percentage (%)
1.	Belief in organic farming	Belief in organic farming and not in inorganic farming practice	59	49.17
		Belief in both organic and inorganic farming practice	46	38.33
		Belief only in inorganic farming practices	15	12.50
2.	Economic Motivation	Low	19	15.83
		Medium	85	17.83
		High	16	13.33
3.	Risk Orientation	Low	12	10
		Medium	82	68.33
		High	26	21.67

Table 4. Adoption of organic farming practices in vegetable cultivation (n=120)

S.No.	Practice	Extent of Adoption					
		Adopted		Partially adopted		Not adopted	
		F	%	F	%	F	%
1.	Summer ploughing	33	27.50	33	27.50	54	45
2.	In situ incorporation of crop residues	72	60	17	14.17	31	25.83
3.	Raising green manure and incorporation	79	65.83	41	34.17	-	-
5.	Resistant / tolerant variety	70	58.33	12	10	38	31.67
6.	Seed treatment with bio-fertilizers	58	48.33	56	46.67	6	5
7.	Application of FYM	81	67.50	39	32.5	-	-
8.	Application of vermicompost / compost	66	55	47	39.17	7	5.83
9.	Application of Poultry manure	43	35.83	54	45	23	19.17
10.	Application of oil cakes	102	85	12	10	8	5
11.	Timely irrigation	120	100	-	-	-	-
12.	Crop rotation	88	73.33	32	26.67	-	-
13.	Intercropping system	89	74.17	31	25.83	-	-
14.	Mulching	120	100	-	-	-	-
15.	Hand / mechanical weeding	114	95	6	5	-	-
16.	Collection and destruction of pests (egg, larvae and pupae) and diseased affected plants	-	-	52	43.33	68	56.67
17.	Use of light traps	24	20	58	48.33	38	3.67
18.	Ash / cowdung slurry spray	65	54.17	42	35	13	10.83
19.	Use of botanical pesticides	1	0.83	25	20.83	94	78.33
20.	Conservation of natural enemies	11	9.17	42	35	67	55.83

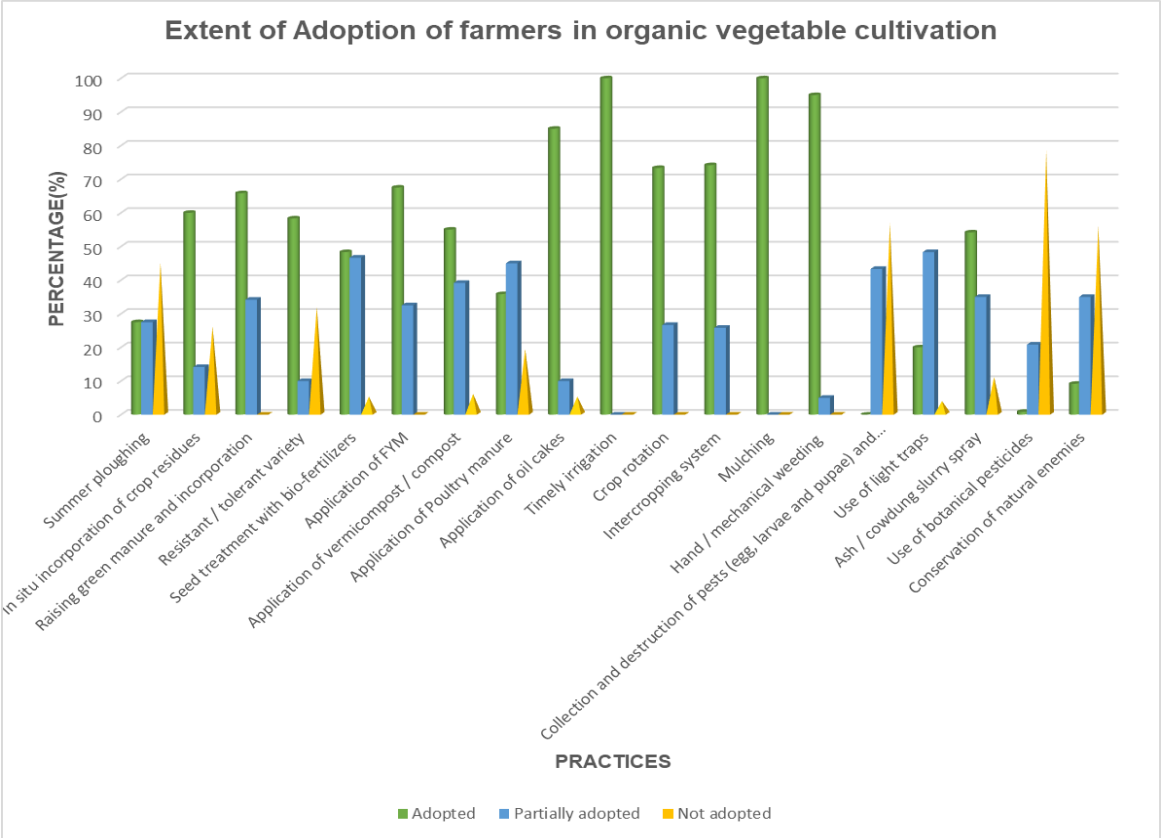

Fig. 2. Extent of adoption of farmers in organic vegetable cultivation

4. CONCLUSION

Farmers have gained timely and relevant information regarding the production of organic vegetables as a result of their participation in trainings and visits. Therefore, by creating awareness to conventional farmers regarding organic farming, we can encourage them to switch to organic farming methods. Farmers perceived organic practices as being in line with their current ideals, past knowledge, and current demands. Therefore, switching from inorganic to organic vegetable cultivation was not difficult for them. Creating awareness and introducing various capacity-building programs could also be a driving force in helping the conventional farmers adopt organic farming. Since both farmers and consumers are becoming more aware of the consequences of agrochemicals and the residues they leave in food, organic farming especially the cultivation of organic vegetables, could usher in a new revolution in terms of environmental, dietary, and health considerations. The assumption is that organic farming may produce veggies with greater quality, better nutritional content and no pesticide residues, hence creating a better satisfaction for farmers in terms of production as well as consumers in terms of consumption.

ACKNOWLEDGEMENTS

I would like to acknowledge my farmer friends who are the respondents of the study for their kind co-operation and support that they rendered in the data collection process.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Napier TL. Adoption of conservation tillage production systems in three Midwest watersheds. J. Soil Cons. 2000;53:123-134.
2. Monikha CR, Jansirani R. Adoption of organic farming practice among certified organic farmers in western zone of Tamil Nadu. J Pharmacogn Phytochem. 2019; 8(4):658-660.

3. Adesope O, Matthews-Njoku E, Oguzor N, Ugwuja V. Effect of socio-economic characteristics of farmers on their adoption of organic farming practices. In P. Sharma, and V. Abrol (Eds.), Crop Production Technologies; 2012.
4. Baskaur, Rashmi Tyagi, Vinod Kumari. Knowledge and adoption level of organic vegetable farmers in Haryana. The Pharma Innovation Journal. 2021;10(5S): 07-11.
5. Singh Bhagwan, Sharma AK. Factors Affecting Adoption of Organic Farming Technology in Arid Zone. Annals of Arid Zone. 2019;58 (3&4):1-5.
6. Singh Bhagwan, Chauhan TR. Factors influencing the adoption of moth bean production technology in arid zone of Rajasthan. Journal of Arid legumes. 2006;3(1):34-38
7. Singh Bhagwan, Chauhan TR. Adoption of mung bean production technology in arid zone of Rajasthan. Indian Research Journal of Extension Education. 2010;10(20):73-77.
8. Singh Bhagwan. Association between farmer's characteristics and adoption of moth bean production technology in arid zone. Indian Journal of Extension Education and Rural Development. 2015;23:15-18.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/90124