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Impact of organic farming training programmes on adoption in Dharmapuri district of Tamil Nadu, India

[1]P Ayyadurai, [2]PS Shanmugam, [3]M Sangeetha, [4]R Thangadurai and [5]MA Vennila

[1]Assistant Professor, Department of Agronomy, Agricultural College and Research Institute, Vazhavachanur, Tiruvannamalai District, Tamil Nadu, India

[2]Associate Professor, Department of Agriculture and Entomology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India

[3]Associate Professor, Department of Soil Science and Agriculture Chemistry, Regional Research Station, Paiyur, Krishnagiri, Tamil Nadu, India

[4]Assistant Professor, Department of Veterinary and Animal Science, ICAR-Krishi Vigyan Kendra, Papparapatti, Dharmapuri, Tamil Nadu, India

[5]Associate Professor, Department of Agriculture Extension, ICAR-Krishi Vigyan Kendra, Papparapatti, Dharmapuri, Tamil Nadu, India

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Corresponding Author: P Ayyadurai

Abstract

The impact of organic farming training was studied in Dharmapuri district, Tamil Nadu. The chemical-based substances such as fertilizers, pesticides, growth regulators, and livestock feed additives were refrained in organic farming. This research was carried out consciously in Dharmapuri, Pennagaram, Karimangalam, Palacode, and Pappireddipatti blocks in Dharmapuri district because they had the highest number of farmers trained in organic farming. A total of 300 farmers who had received training were selected for the study. Before the training, only 8.88% of the respondents had a positive impression of organic farming. After the training, this percentage climbed to 28.88%. All the chosen characteristics of the educated farmers, excluding age, caste, and family size, were discovered to have a substantial correlation with their viewpoint on organic farming. The farmer faced significant limitations due to the expensive inputs and challenging preparation methods.

Keywords: Environment, activities organic farm, training, agriculture, farmers, India

Introduction

In India, more than 70 percent of the total population lives in villages, which are fully dependent on agriculture and allied activities for their livelihood. Agriculture is the largest sector and the backbone of the Indian economy (Singh *et al*., 2019) [12]. The environmental cost of chemically intensive agricultural production methods, which our nation adopted after the first Green Revolution, must be taken into consideration when discussing environmentally friendly agriculture. The availability of agrochemicals is declining since they are not renewable and are made from fossil fuels. It may also cost heavily on our foreign exchange in the future. It is true that the increasing use of fertilizers and pesticides at high rates has boosted agricultural production in the country. However, it has also had negative effects on soil and water, as well as the environment. The heavy metals present in fertilizers, pesticides, and sewage sludge leach into groundwater. Farmers have started to cultivate plants and domesticate animals to create an agro-ecosystem balance on farms. Many of them have succeeded in organic farming management that helps to generate organic or green products, creating health benefits for farmers and consumers as well as income for farmers in long-term operations (Tokeeree *et al*., 2010) [16].

The global concern for safe foods has introduced the concept of organic farming. Organic agriculture is an eco-friendly production system that promotes and enhances biodiversity, biological cycles, and biological activities. The principle is based on minimal use of off-farm inputs and management practices that help to maintain and enhance ecological balance. Producing organically is a commitment to a system that ensures that healthy, nutritious food can be produced year after year. The primary goal of organic farming is the health and productivity of interdependent communities of soil life, animals, and millions of human beings.

In addition to being a particular agricultural production system, organic farming is also a comprehensive and systemic approach to sustainable livelihoods in general, taking into consideration pertinent factors that affect vulnerability and sustainable development at the physical, economic, and sociocultural levels. The farming system of organic farming has a long history and has been tailored to various local conditions and climate zones. It concentrates

on soil fertilization and paying respect to the natural capabilities of plants, animals, and agro-ecosystems (IFOAM, 2008; Arnut, 2006) [5, 1].

The numerous extension organisations work tirelessly to raise farmers' awareness of organic farming. Government institutes, non-government organizations, private agencies, and Krishi Vigyan Kendras (KVK) are playing a major role in promoting organic farming through training, exhibitions, Kisan Mela, Sangosthi, and other programs for the dissemination of information about organic farming with low costs and environmentally safe conditions. (Soni *et al*., 2012) [14]. Any training program's ability to succeed is largely determined by how its participants view it. The concept of a training programme on scientific methods of organic input preparation and its usage in the farming community through KVKs grew well due to the greater demand for promotion of organic farming among farmers at the field level. The major impediment to the adoption of organic farming is lower yields in the initial years. The proper training on scientific background in each organic practice will enable the farmers to understand better and apply a combination of practices for a better result. In this context, ICAR - Krishi Vigyan Kendra, Dharmapuri, organized a week-long training porogramme on "_____" with the financial assistance of NABARD. It is necessary to conduct a follow-up study on the training programme after a few years in order to assess the spread of technology and make any necessary adjustments to the training methodology.

Materials and Methods

The study area, hypotheses, variables, and their measurement are all covered in this chapter, along with the techniques and protocols used to gather the data needed for the investigation.

Background information about the study area

The total land area of Dharmapuri district is 9,24,500 hectares. The organic farming area totals 415 hectares. The primary agricultural products of the district are rice and peanuts during the *kharif* season, and chickpeas during the *rabi* season.

The problem

Persistent utilization of chemical fertilizers results in a decrease in soil fertility and productivity, in addition to generating deficiencies and imbalances of micronutrients. The primary focus of the agriculture department currently lies in transferring organic farming methods to farmers and ensuring their acceptance and use. Examining this, an effort has been made to carry out this research investigation.

Selection of areas and respondents

The study was conducted in Dharmapuri district, namely in the blocks of Dharmapuri, Karimangalam, Pappireddipatti, Palacode, and Pennagaram. Two villages were selected at random from each block. Thus, a total of 10 villages, namely Thippampatti, Jakkasamudram, Makkanur, Pikkili Kollapatty, Erupalli, Indoor, K. Chettihalli, Palavadi, Thalanatham, and Venkadatharahalli, have been chosen. A list of farmers who practice organic farming was generated for each of the 10 selected villages. Using the sampling approach, 30 farmers were chosen at random from each village. As a result, 300 individuals in all, drawn from ten distinct villages, participated in interviews for this study.

The major organic practices selected for the study are discussed below.

Integrated plant nutrient management

In situ incorporation of crop residues, selection of good seeds, seed inoculation, application of FYM/compost, Vermi compost, raising green manure and incorporation, use of biogas slurry, press mud, poultry manure, tank silt, and cow horn manure.

Integrated pest management

Summer ploughing, hand weeding, use of neem oil, leaf extract, tobacco decoction, light trap, pheromone trap, sticky traps, biocontrol agents, cow urine,

Instruments of data collection

An interview schedule that was created based on the study's objectives was used to help collect the data.

Method of data collection

The data was collected through a well-structured and pre-tested interview schedule. The researchers personally met the respondents and explained to them the purpose of this study.

Results and Discussion

The current analysis looked at how the trained farmers perceived the training program's coverage of organic farming methods. The data shown in Table 2 indicated that when it came to using FYM or compost, most of the trained farmers (53.67%) had a strong perception of its application. Following this were 30.67 percent of trained farmers who had a moderate perception and only 15.67 percent of trained farmers who had a weak perception of using FYM or compost. Concerning green manure, the majority of the educated farmers (45.33%) possessed a moderate understanding of green manure, while 32.00 percent of educated farmers had a strong understanding, and 22.67 percent of educated farmers had a weak understanding of green manure. The majority of trained farmers (48.33%) had a moderate perception of vermin compost, while 25.00% of trained farmers had a low perception. In the case of biogas slurry, the majority of trained farmers (55.00%) had a medium perception of it, while 26.67% of trained farmers had a low perception and 18.33% of trained farmers had a high perception.

Azola and blue green algae were perceived as having a medium level of importance by the majority of trained farmers (57.33%), followed by low and high perceptions (31.0%) and azola and blue green algae (11.67%) of trained farmers, respectively. The majority of trained farmers (46.00%) had a medium perception of using neem oil, followed by 32.67 percent of trained farmers with a high perspective and 21.33 percent of trained farmers with a low perception. Regarding the usage of cow urine, the majority of trained farmers (51.33%) had a medium opinion of its use, followed by 24.67 percent of trained farmers who had a high perception and 24.00 percent of trained farmers who had a poor perception. When it came to the use of

panchagavya, the majority of trained farmers (57.33%) had a medium perception of its application, followed by trained farmers who had a low impression (29.33%) and trained farmers who had a high perception (13.33%). Regarding the use of fish amino acids, the majority of trained farmers (58.33%) had a medium perception of their use, followed by high perceptions (31.67%) and low perceptions (10.00%). In terms of the usage of traps, the majority of skilled farmers (54.67%) had a medium impression of their use, followed by low and high perceptions of the use of traps, 23.00 and 22.33 percent, respectively.

Table 1: Variables and their measurement

S. No.	Variables	Measurement
(A) Independent variables		
(a) Personal and socio-economic variables		
1.	Age	Actual chronological age
2.	Education	Venkataramaiah (1983)
3.	Size of land holding	Trivedi and Pareek (1963)
4.	Annual income	Structure schedule
5.	Livestock possession	Number
(b) Communicational variables		
1.	Information seeking behaviour	Nandapurkar (1982)
2.	Change agent contact	Structure schedule
3.	Exposure to training	Structure schedule
(c) Psychological variables		
1.	Innovativeness	Maulik (1965)
2.	Management orientation	Samantha (1977)
3.	Scientific orientation	Supe (1969)
4.	Attitude towards improved technology	Singh (1990)
5.	Knowledge of organic farming practices	Self-scoring
(B) Dependent variable		
1.	Extent of adoption towards organic farming	Structure schedule

Table 2: Extent of perception regarding organic farming practices among the trained farmers

S. No.	Organic farming practices	Extent of perception		
		Low	Medium	High
1.	Application of FYM/Compost	47 (15.67)	92 (30.67)	161 (53.67)
2.	Green manure	68 (22.67)	136 (45.33)	96 (32.00)
3.	Vermicompost	75 (25.00)	145 (48.33)	80 (26.67)
4.	Biogas slurry	80 (26.67)	165 (55.00)	55 (18.33)
5.	Azolla and blue green algae	35 (11.67)	172 (57.33)	93 (31.00)
6.	Use of neem oil	64 (21.33)	138 (46.00)	98 (32.67)
7.	Use of cow urine	72 (24.00)	154 (51.33)	74 (24.67)
8.	Use of panchagavya	88 (29.33)	172 (57.33)	40 (13.33)
9.	Use of fish amino acids	95 (31.67)	175 (58.33)	30 (10.00)
10.	Use of traps	69 (23.00)	164 (54.67)	67 (22.33)
	Mean	69.30	151.30	79.40

Assessment of training programs as perceived by trained farmers with regards to organic farming practices

The information provided in Table 3 showed that prior to participating in the training program, the majority of the beneficiaries (52.67%) had a low perception of organic farming. Additionally, 36.00 percent of them had a medium perception, while only 11.33 percent had a high perception of organic farming. After taking part in the training session, the majority of respondents (48.33%) had a medium level of perception of organic farming. This was followed by 29.00% of respondents who had a low level of perception and 22.67% who had a high level of perception regarding organic farming practices.

Thus, it may be inferred that, following the training programme, a majority of the participants had a moderate to high perception of organic farming. This discovery aligns with the discoveries made by Saxena and Singh (2000) [11], Kanel (2005) [6], Soni *et al*. (2012) [14], Kumar *et al*. (2018) [7], and Singh *et al*. (2019) [12].

Table 3: Distribution of respondents according to their perception in relation to organic farming practices before and after participating in training programme

S. No.	Categories	Respondents (n=300)			
		Before Training		After Training	
		No.	%	No.	%
1.	Low	158	52.67	68	22.67
2.	Medium	108	36.00	145	48.33
3.	High	34	11.33	87	29.00
	Total	300	100	300	100

Relationship between attributes of the trained farmers and their perception of the training programme about organic farming practices

The zero-order correlation coefficient comparing the characteristics of experienced farmers with their opinions regarding organic agricultural practices is furnished in Table 4. The table shows that the trained farmers' perceptions of organic farming practices at the 5% probability level were

found to be positively and significantly correlated with the following factors: education (0.458), social participation (0.352), credit availability (0.352), source of information (0.347), contact with extension personnel (0.367), innovativeness (0.363), and knowledge about organic farming (0.413). Additionally, the trained farmers' perceptions of organic farming practices were found to be significantly correlated with the size of their land holdings (0.219), annual income (0.284), and cosmopoliteness (0.217) at the 5% probability level. Finally, the trained farmers' perceptions of organic farming practices were found to be non-significantly correlated with age (0.034), caste (0.063), and family size (0.032). This finding supports the views expressed by Badodiya *et al*. (2009) [3], Borkar *et al*. (2000) [4], Soni *et al*. (2012) [14], and Kumar *et al*. (2018) [7].

Table 4: Relationship between attributes of trained farmers and their perception about organic farming practices

S. No.	Particulars	Correlation co-efficient	Rank
1.	Age	0.034NS	(X1)
2.	Education	0.458**	(X2)
3.	Caste	0.063NS	(X3)
4.	Size of family	0.032NS	(X4)
5.	Social participation	0.352**	(X5)
6.	Size of land holding	0.211*	(X6)
7.	Credit availability	0.352**	(X7)
8.	Annual income	0.284*	(X8)
9.	Source of information	0.347**	(X9)
10.	Contact with extension personnel	0.367**	(X10)
11.	Innovativeness	0.363**	(X11)
12.	Cosmopoliteness	0.219*	(X12)
13.	Knowledge about organic farming	0.413**	(X13)

*Significant at 1% level of probability; ** Significant at 5% level of probability; NS Non-Significant

Constraints perceived by farmers during the adoption of organic farming practices

The information provided in Table 5 suggests that the farmers in the research area faced a significant issue with the high cost of inputs, which was experienced by 77.33% of them and regarded as the major problem. The difficulty of preparation procedures was the second most prevalent worry, according to 66.33% of the respondents. 57.33 percent of the respondents reported a shortage of input and raw resources. 'Deteriorating financial situation' and delayed access to loans were the most significant issues faced by the recipients (56.00% & 51.67%) and were placed fourth and fifth. The issue was logically valid since 48.67% of the participants indicated 'insufficient training at the basic level'. The remaining limitations were placed sixth in terms of importance, including the lack of suitable literature (44.0%). The results fall in line with Soni *et al*. (2012) [14].

Table 5: Distribution of respondents according to various constraints faced by them in using organic farming practices

S. No.	Constraints	Beneficiaries		Rank
		No.	%	
1.	High cost inputs	232	77.33	I
2.	Difficult methods for preparation	199	66.33	II
3.	lack of inputs & raw materials	172	57.33	III
4.	Poor financial condition	168	56.00	IV
5.	Non-availability of loans in time	155	51.67	V
6.	Lack of proper training at grass root level	146	48.67	VI
7.	Non availability of appropriate literature	132	44.00	VII

Conclusion

The results of this study showed that only 8.88% of the participants had a positive opinion of organic farming before the training. This percentage increased to 28.88%, though, after taking part in the training programme. Nine factors - education, land holding size, social participation, availability of credit, annual income, source of information, contact with extension personnel, innovativeness, cosmopoliteness, and knowledge about organic farming—among the thirteen independent variables were found to have a significant correlation with the dependent variable, trained farmers' perceptions of organic farming. A major obstacle to the adoption of organic farming practices was the high cost of inputs and the intricate preparation techniques.

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