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Adoption of organic farming practice among certified organic farmers in western zone of Tamil Nadu

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Abstract
Agriculture is the driving force of economy of our country. There is growing awareness of health and environmental issues associated with the indiscriminate use of pesticides and fertilizers. The alternative form of production such as organic farming is the spectrum of production methods that is supportive of the environment. Three districts viz., Coimbatore, Erode and Tirupur were selected based on maximum number of certified organic farmers for the study purpose. A sample of 90 farmers was selected by using proportionate random sampling technique. The respondents were interviewed personally by a well-structured and pre-tested interview schedule. The results of the study revealed that cent per cent of the certified organic farmers had adopted application of farmyard manure, panchagavya and jeevamruth two third of the respondents adopted seed treatment with panchagavya and jeevamruth, multiple cropping, drip irrigation, mulching with crop biomass, intercropping system and spraying herbal repellant like ingi poondu karaisal and five leaf extracts. For pest management of the organic farming.

Keywords: Adoption, organic farming practice, certified organic farmers

Introduction
Organic farming is the pathway that leads us to live in harmony with nature and key to a sound development and sustainable environment. Now a day, there is a growing awareness among farmers about the importance and protecting the soil and environment so that the natural resource base could satisfy the needs of both present and future generations. The need for organic farming arises from the sustainability of agriculture production and the damage caused to ecology through the inorganic as well as conventional farming practices. Certified organic farmers are different from conventional farmers because they choose not to use any chemicals and fertilizers on their farms. They are more concerned about environmental safety, nutritional food security, soil health, biodiversity etc. The certified organic farmers are selling their produces as certified organic products. However, the adoption of organic farming practices varies among the certified organic farmers. Therefore, the study was conducted to assess the extent of adoption of organic farming practices by the certified organic farmers.

Methodology
Ex-post facto research design was evolved for the research study. The study was conducted in Coimbatore, Erode and Tirupur district of Tamil Nadu. These districts were selected purposively for considering the maximum numbers of respondents registered under the category of individual certified organic farmers. A sample of 90 farmers were selected by using proportionate random sampling technique. The respondents were interviewed personally by a well-structured and pre-tested interview schedule. Percentage analysis, correlation and multiple regression analysis were used to analyze the collected data.

Findings and Discussion

Table 1: Distribution of respondents according to their overall adoption of organic farming practices (n=90)

Adoption category	Number	Per cent
Low	17	18.88
Medium	41	45.56
High	32	35.56

The data in Table 1 revealed that less than half of the respondents (45.56 per cent) had medium level of adoption followed by high (35.56 per cent) and low (18.88 per cent) level in adoption of organic farming practices.

All the respondents selected for the study were certified organic farmers and their organic farming experience coupled with participation in training programs on organic farming might be the reasons for medium to high level of adoption. Besides this, higher educational status and better utilization of information sources like mass media and contact with extension agency are also determined as important influential factors in adoption of organic farming practices.

This findings were in accordance with Jaganathan *et al*. (2012) and Sasidharan (2015) [4].

Table 2: Practice wise adoption of organic farming practices (n=90)

S. No.	Farmers practice	Adopted	
		Number*	Per cent
1.	**Field preparation**		
	Incorporate the crop residues after the harvest of previous crop.	85	94.44
	Apply FYM @ 12.5 t ha^{-1}	90	100.00
	Apply vermicompost @ 5 t ha^{-1}	78	86.66
	Apply 200 lit Jeevamruth / ha	72	80.00
2.	**Seed treatment**		
	Seeds are treated with biofertilizers	21	23.33
	Seed treatment with Panchagavya/Beejamruth/Jeevamruth	76	72.22
3.	**Selection of crops**		
	Multiple cropping	78	86.67
	Mono cropping	12	13.33
4.	**Irrigation management**		
	Drip irrigation	88	97.78
	Conventional method	02	2.22
5.	**Growth promoting measures**		
	Panchagavya	90	100.00
	Jeevamruth	90	100.00
	Amudhakaraisal	56	62.22
	Arappu more karaisal	48	53.33
	The more karaisal (Diluted butter milk solution)	69	76.67
	Fish amino acid	17	18.89
	Fermented fruit mixture	66	73.33
6.	**Weed management**		
	Manually by cutting/ uprooting the weeds	56	62.22
	Mulching with crop biomass	78	86.67
7.	**Pest and disease management**		
	Intercropping system	78	86.67
	Trap cropping	18	20.00
	Herbal insecticides		
	Neem based products (neem leaf and seed kernal)	65	72.22
	Neemastra	30	33.33
	Agniasthira	34	37.78
	5 leaf extract (Neem, Pungam, Nochi, Erukku and Tulsi)	77	85.55
	Ingi Poondu karaisal (Ginger garlic extract)	84	93.33
	3 G Extracts (Green chilli, Garlic, Ginger)	56	62.22

Field preparation

Generally organic crops are produced by using naturally available materials like organic manures, compost, green and green leaf manures. The Table 30 inferred that cent per cent of the certified organic farmers had adopted the recommended quantity of farm yard manure during the main field preparation which is an important component in organic farming practices. Most of the respondents (94.44 per cent) followed the incorporation of green manures as either grown or used in situ. In the in situ method, green manure crops like sun hemp, daincha etc. Majority 86.66 per cent of the certified organic farmers adopted compost/vermicompost as nutrient management. Further, majority (80.00 per cent) of the certified organic farmers applied Jeevamruth at the time of main field preparation for additional nutritional resources.

Seed treatment

More than two-third of the respondents (72.22 per cent) treated seed with panchagavya / beejamruth / Jeevamruth followed by one-fifth of the respondents (23.33 per cent) were treated seeds with biofertilizers and biocontrol agents such as Pseudomonas fluorescens, Trichoderma viride for controlling seed borne pathogens.

Selection of crops

Majority of the respondents (86.67 per cent) adopted multiple cropping and the rest (13.33 per cent) adopted mono cropping viz., coconut or fruit crops. In the diversified farming system, crop rotation and multiple cropping are considered as the important components in organic agriculture.

Irrigation management

An overwhelming majority of the respondents (97.78 per cent) adopted drip irrigation. The rest (2.22 per cent) adopted the conventional irrigation. In the study areas, the certified organic farmers adopted the application of panchagavya, Jeevamruth and liquid biofertilizers and biocontrol agents mixture, were found to be effective through drip irrigation.

Growth promoting measures

Cent per cent of the respondents applied growth promoting substances like Panchagavya and Jeevamruth. Majority of them applied the more karaisal (76.67 per cent) followed by fermented fruit mixture (73.33 per cent) and amudhakaraisal (62.22 per cent). More than half of the respondents (53.33 per cent) applied arappu more karaisal. Only 18.89 per cent of the certified organic farmers followed spraying of fish amino acid. The organic inputs like Panchagavya, Jeevamruth, Amudhakaraisal etc. were prepared by the respondents at their own farm either one of the karaisals were mixed with the irrigation water or by sprinkling.

Weed management

Majority of the respondents (86.67 per cent) followed mulching with biomass followed by 62.22 per cent were found to manually did the weed removal by cutting or uprooting the weeds and kept in ridges as a mulching material. Weeds were controlled by using a number of methods like crop rotation, green manures and cover crops to compete the weed competition.

Pest and disease management

Majority of the respondents (86.67 per cent) were followed intercropping system. The practice of intercropping can reduce pest problems by making it more difficult for the pests to find a host crop. Only 20.00 per cent of the respondents were followed trap cropping to reduce the pest attack.

Herbal insecticides

Majority (93.33 per cent) of the certified organic farmers were spraying insect herbal repellent like ingi poondu karaisal followed by five leaf extracts (85.55 per cent) which contains

the leaves of neem, pungam, nochi, erukku and tulsi and further followed by adopting neem based products (72.22 per cent). More than half (62.22 per cent) of the certified organic farmers sprayed 3 G extract (green chilli, ginger and garlic) followed by agniasthira (37.78 per cent) and neemastra (33.33 per cent). The extracts of the plants or solution were sprayed to the crops for releasing the strong odour. Because of the strong odour, the insects were disturbed and found difficulty in identifying the host plant.

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