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Organic Farming Technologies and Practices Followed by the Farmers

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ABSTRACT

The study mainly focused on organic farming technologies and practices followed by the farmers for coconut, millets, sugarcane and turmeric. The study was conducted in Coimbatore, Erode and Dharampuri districts of Tamil Nadu. A sample of 100 organic farmers was the respondents for the present study. The data were collected from each respondent through personal interview method with the help of interview schedule. The data were analyzed using percentage analysis. The results revealed that, majority of the respondents followed seed treatment with Azospirillum, beejamrutha and panchakavya, application of jeevamruthum and panchakavya through drip irrigation, application of farm yard manure and insitu ploughing of green manure crops, mulching with crop leaf residues and weeds, spraying of agni astram to repel pests, post harvest technology like oil extraction and jaggary preparation, storage techniques like using neem and pungam leaves. The result of the present study shows that, the farmers have the inclination for adoption of organic production practices. Hence it may be concluded from the study that, there is an imperative need to raise the level of adoption of these organic farming practices in order to reduce the quantum of environmental hazards by inorganic farming.

In India green revolution in agriculture has made a significant contribution on aggregate supply of food grains, ensuring food security to the growing population. However, the momentum gained during the period of green revolution slowly declined. Now, agricultural growth faces a serious challenge in terms of sustainability. Excessive use of chemical fertilizers, pesticides, and herbicides has long lasting and deleterious effects on soil health, on the quality of food produce, health of farm workers, consumers of agricultural produce and other terrestrial and aquatic life and environment. In order to mitigate these health hazards and bring out natural balance and protection of ecosystem, organic movement has started in several parts of the world, in which no chemical fertilizers and plant protection chemicals are used in the cultivation of field crops, vegetables and fruits. The farmers follow most effectively the traditional practices of crop rotation with legumes, tillage practices to improve soil texture, application of adequate organic matter to sustain and retain soil moisture, nutrient to match crop needs and correction factors of soil health. Keeping these facts in mind the present study was designed to study the organic farming technologies followed by the farmers in selected crops.

Siddaraju and Rajendran (2006) indicated that organic agriculture system is based on

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ecological principles and applying ecological practices to maintain soil fertility, to manage crop and animal health and to keep soil and water in a good condition without the use of chemical inputs.

Noorjehan (2004) in a study on extent of adoption of organic farming practices in sugarcane observed that, cent per cent were found to adopt of farm yard manure, green manure, bio fertilizers and bio pesticides. Weed compost was adopted by 63.33 per cent, followed by application of neem cake /castor oil cakes (50.00%) and Neem oil 3% Neem seed kernal extract 5% was applied by cent per cent of respondents as a bio pesticides. Release of *Trichogramma japanicum* was followed by cent per cent of the respondents.

METHODOLOGY

A diagnostic cum exploratory research design was used for the research study. Based on interaction with officials from Tamil Nadu Organic Seed Certification Department (TNOCD), Coimbatore and MYRADA KVK, Gobichettipalayam the researcher came to know that the farmers in the three districts, namely, Coimbatore, Erode and Dharampuri have been successfully practising organic farming. Moreover organic farming association has been functioning effectively in Coimbatore, Erode and Dharampuri. Hence these three districts were selected. By reviewing the record and documents from TNOCD, Coimbatore and MYRADA KVK Gobichettipalayam, a list of farmers practising was prepared and a total of 100 farmers were selected and personally interviewed and data were collected using and semi structured interview schedule.

FINDINGS AND DISCUSSION

Organic farming technologies and practices followed by the farmers

The results on organic farming technologies and practices followed by the farmers for coconut, millets, sugarcane and turmeric are presented in Table1.

(Multiple Response Obtained) An exam ination of Table 1 projects the organic farming technologies and practices followed by the farmers for coconut, millets, sugarcane and turmeric. The data show that 52.00 per cent, 28.00 per cent and 20.00 per cent of the farmers followed seed treatment for millets with *Azospirillum*, *Trichoderma viride* and cow urine respectively, in which the seeds were treated for half an hour, shade dried and broadcasted in main field.

In the case of sugarcane 30.00 per cent, 16.67 per cent and 53.33 per cent of the respondents followed setts treatment with panchakavya, *Pseudomonas fluorescens* and *Trichoderma viride* mixture and beejamurutha respectively, in which the seedling materials were dipped for 30 minutes and planted in the main field.

In the case of turmeric 28.00 per cent , 28.00 per cent and 44.00 per cent of the farmers followed seed treatment with panchakavya, *Pseudomonas fluorescens and*

Table 1.
Organic Farming Technologies and Practices followed by the Farmers in Four Crops

Sl. No.	Organic farming technologies and practices followed	Coconut (n=20)		Millets (n=25)		Sugarcane (n=30)		Turmeric (n=25)	
		No	%	No	%	No	%	No	%
1.	**Seed Treatment**								
a)	Seed treatment with *Azospirillum*	-	-	13	52.00	-	-	-	-
b)	Seed treatment with *Trichoderma viride*	-	-	7	28.00	-	-	-	-
c)	Seed treatment with cow urine	-	-	5	20.00	-	-	-	-
d)	Seed treatment with panchakavya	-	-	-	-	9	30.00	7	28.00
e)	Seed treatment with *Pseudomonas fluorescens and Trichoderma viride* mixture	-	-	-	-	5	16.67	7	28.00
f)	Seed treatment with beejamurutha	-	-	-	-	16	53.33	11	44.00
2.	**Irrigation management**								
a)	Application of jeevamruthum	17	85.00	-	-	23	76.67	15	60.00
b)	Application of panchakavya	7	35.00	-	-	12	40.00	7	28.00
c)	Application of effective microorganism	4	20.00	-	-	4	13.33	-	-
d)	Application of fish amino acid	3	15.00	-	-	6	20.00	-	-
e)	Application of liquid bio fertilizers and bio control agents	6	30.00	-	-	3	10.00	7	28.00
f)	Application of amirtha karaisal	-	-	12	48.00	-	-	-	-
3.	**Manuring**								
a)	Application of farm yard manure	20	100.00	21	84.00	16	53.33	16	64.00
b)	Application of goat manure	11	55.00	6	24.00	4	13.33	2	8.00
c)	Application of poultry manure	8	40.00	7	28.00	2	6.67	2	8.00
d)	Application of vermi compost	6	30.00	-	-	3	10.00	4	16.00
e)	Application of neem seed cake	8	40.00	-	-	-	-	-	-
f)	Application of neem seed cake, groundnut cake, castor cake and pungam cake mixture	-	-	15	60.00	-	-	11	44.00
g)	Application of neem seed cake, groundnut cake, castor cake and illupai cake mixture	-	-	15	60.00	-	-	15	60.00
h)	Green manure	9	45.00	7	28.00	24	80.00	22	88.00
i)	Application of bio fertlizers and bio control agents mixture	4	20.00	3	12.00	5	16.67	3	12.00
j)	Spraying of panchakavya	-	-	12	48.00	-	-	10	40.00
4.	**Weed Management**								
a)	Mulching with coconut leaves/ husks	20	100.00	-	-	-	-	-	-
b)	Mulching with weeds	20	100.00	25	100.00	30	100.00	25	100.00
c)	Cattle grazing	7	35.00	-	-	-	-	-	-
d)	Intercropping with legumes	-	-	-	-	30	100.00	15	60.00
e)	Sugarcane trash mulching& mulching with turmeric leaves	-	-	-	-	30	100.00	25	100.00

Sl. No.	Organic farming technologies and practices followed	Coconut (n=20)		Millets (n=25)		Sugarcane (n=30)		Turmeric (n=25)	
		No	%	No	%	No	%	No	%
5.	**Pest and disease management**								
a)	Releasing of parasitoids	2	10.00	-	-	7	23.00	-	-
b)	Spraying of pest repellent solution"Eindhu ilai karaisal"	-	-	18	72.00	-	-	-	-
c)	Spraying of pest repellent solution "Agni astram "	-	-	9	36.00	6	20.00	7	28.00
d)	Spraying of pest repellent solution "neem, pungam and illupai oil mixture"	-	-	3	12.00	9	30.00	7	28.00
e)	Spraying of pest repellent solution	-	-	-	-	15	50.00	8	32.00
6.	**Post harvest technology**								
a)	During copra processing 1 litre of jaggary solution and 300 ml lemon juice are added	5	25.00	-	-	-	-	-	-
b)	During jaggary prepartion, 300 ml lemon juice and 100 ml of coconut oil are added.	-	-	-	-	8	26.67	-	-
7.	**Storage**								
a)	The pungam and neem leaves are mixed with harvested grains and leaves bunch are kept in between gunny bags.	-	-	25	100.00	-	-	-	-
b)	The leaves bunch of pungam and neem are kept in between gunny bags.	-	-	-	-	-	-	4	16.00
c)	Methane gas is released at three months once intervals to kill storage insects.	-	-	-	-	-		4	16.00

Trichoderma viride mixture and beejamurutha respectively, in which the seedling materials are dipped for 30 minutes and planted in main field.

Under irrigation management techniques in coconut, application of jeevamruthum, panchakavya and liquid bio fertilizers and bio control agents mixture through drip irrigation was followed by 85.00%, 35.00% and 30.00 % of the respondents, respectively. In the case of sugarcane the same practices were followed by 76.67%, 40.00% and 10.00% of the respondents and in turmeric 60.00%, 28.00% and 28.00 % of the respondents. In millets, application of amirtha karaisal through drip irrigation was followed by nearly half (48.00%) of the respondents.

Regarding manuring, the following inference can be drawn from the Table 1. In coconut application of farm yard manure, goat manure, poultry manure, *in situ* ploughing of green manure crops and bio fertilizers and bio control agents mixture at various intervals, namely, monthly once in six months and yearly once were followed by 100.00%, 55.00%, 40.00%, 45.00% and 20.00 per cent of the of the respondents, respectively. In the case of millets it was noticed among, 84.00%, 24.00%, 28.00%, 28.00% and 12.00 percent of the respondents. In sugarcane it was observed among 53.00%, 13.33%. 6.67%, 80.00% and 16.67 per cent of the respondents and in turmeric by 64.00%, 8.00%, 8.00%, 88.00% and 12.00 per cent of the respondents.

As regard weed management technique, cent percent of the farmers followed mulching

with weeds in coconut, millets, sugarcane and turmeric in which the weeds were removed using hand hoe and kept in ridges as a mulching material.

Similarly, the practices like mulching with dried coconut leaves, trash mulching and mulching with turmeric leaves were also followed by all the respondents. In the case of mulching for coconut, dried coconut leaves, fronds, fallen immature flowers and husks were kept around the basin of coconut tree.

For sugarcane, cent percent of farmers practised mulching the ridges with sugarcane trashes from next day after planting. Similarly, in the case of turmeric also, the turmeric leaves residues were spread as a mulching material in ridges from next day of sowing.

With regard to the intercrop under weeds management, intercrop with legumes was also one of the techniques to control weeds effectively followed by cent percent of the sugarcane growers in which they practised sowing the seeds of black gram, cow pea, sunhemp and thakkapondu at the rate of 15 kg per acre along the centre of ridge on the next day of sugarcane planting. After 45 days the crops were removed and kept in ridges as a mulching material which prevents the growth of weeds.

With regard to turmeric, it was observed among 60.00 per cent of the respondents, who practised intercrop with narripayiru at the rate of 15 kg per acre. The seeds were sown next day after turmeric sowing. After 45 days the crops were removed and kept in ridges as a mulching material which prevented the growth of weeds.

Under pest and disease management for coconut, release of larval parasitoids namely (*Bethylid*, *Goniozus nephantidi*) and pupal parasitoid namely (*Eulophid*) to control black headed caterpillar were followed by 10.00 per cent of the respondents.

Similarly in the case of sugarcane also release of parasitoid namely *Trichogramma chilonis* for control of internode stem borer was followed by 23.00 per cent of the respondents.

Spraying of pest repellent solution namely “Agni astram” for millets at monthly once interval to repel pests was followed by 36.00% of the respondents. Likewise for sugarcane and turmeric also it was observed among 20.00% and 28.00 % of the respondents respectively. The agni astram solution was sprayed at monthly once intervals in evening time to repel caterpillars and sucking pests.

Spraying of pest repellent solution namely “neem, pungam and illupai oil mixture” was followed by 12.00% for millets, 30.00% for sugarcane and 28.00% for turmeric in which 100 ml each of neem oil, pungam oil, illupai oil and 50 ml kadhi soap solution were added in 10 litres of water, mixed and sprayed at monthly once intervals in the evening time to repel beetles, caterpillars and sucking pests.

Half (50.00%) of the respondents in sugarcane and 32.00 per cent of the respondents in turmeric followed spraying of pest repellent solution at monthly once intervals to control sucking pests.

Further, in post harvest technology 25.00 % of the respondents extracted coconut oil in which 1 litre of jaggary solution and 300 ml lemon juice were added during the process of copra crushing. Similarly in the case of sugarcane 26.27 per cent of the respondents prepared jaggary in which 300 ml lemon juice and 100 ml coconut oil were added during the process of jaggary preparation.

In the case of storage techniques, cent percent of the respondents in millets followed storage method in which the pungam and neem leaves were mixed with harvested millets grains and then stored in gunny bags. The leaves bunch of pungam and neem were kept in between the gunny bags to prevent attack from storage insects.

For turmeric, the leaves of pungam and neem were kept in between gunny bags to prevent attack form storage insects and to kill the storage pest methane gas was released at three months once intervals. This practice was followed by 16.00 percent of the respondents.

Thus it is evident from the results that majority of the farmers successfully practised organic farming by adopting various practices and technologies. They efficiently utilized various on farm resources such as crop residues, dried leaves and weeds as a mulching material. They used cow dung and cow urine as the main input sources under organic farming.

CONCLUSION

The increasing awareness among both producers and consumers for organically grown commodities has the challenge to create favourable situation for greater acceptance of organic cultivation in agriculture. The results of the present study show that, the farmers have the inclination for adoption of organic production practices. The organic inputs are mostly produced on the farms by the farmers themselves. Proper practising will lead to higher net return to the farmers because of the premium price offered for the organic products. Hence, the agricultural development agencies need to make all concentred efforts to validate and disseminate organic production practices and technologies for large scale adoption.

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