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ORGANIC FARMING FOR SUSTAINABLE DEVELOPMENT IN CAUVERY DELTA REGION: AN ANALYSIS

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Abstract
In agriculture, most of the farmers are finding difficult to earn for their livelihood. Hence any growth in their occupation has become an inevitable one. There are lot of issues and constraints in the conventional farming against which suitable remedial measures are yet to be taken. Government, Agricultural Universities and NGO's are working different methodologies to overcome the problems in Conventional Farming. Among them Organic Farming is one which is accepted and practices all over India. Currently India ranks 33rd in terms of total land under organic cultivation and 88th position for agriculture land under organic crops to total farming area in the world. Data required for the study was collected through field survey in the Nagapattinam district of Tamil Nadu during 2015-16. From the analysis although the adoption was good in all the categories of farms, it was more prominent to Marginal Farmers compared to Small and Large Farmers. Climate, non- availability of quality inputs, bio fertilizers lack of proper technical guidance and certification were found to be the major constraints to adoption of organic farming. Thus organic farming can be considered as the suitable option for healthier soil, environment enhancing quantity and quality of agricultural productivity and improving the livelihood of the rural farmers. The efforts should be directed to enhance the adoption of organic farming by providing technical guidance and quality bio-inputs at a subsidized price, stabilizing the agricultural prices and enhancing the returns.

Prelude

Conventional agriculture witnessed the use of basic organic inputs were obtained from plant and animal sources. During 1950s and 1960s, to meet the ever growing demands of the population New Agricultural Strategy have been introduced. The Green Revolution marked with expansion of agricultural land, use of hybrid seeds, chemical fertilizers and pesticides drove our country to become an exporter of food grains. In due course of time however, the lands started losing its fertility and demanding larger fertilizer and pesticides. Realizing such side effects of Conventional Farming the Ministry of Commerce launched the National Organic Programme in April 2000. Organic Farming is a method of farming system which aims at cultivating the land and raising crops in such a way so as to keep the soil alive and in good health. It also emphasizes the use of off-farm inputs. Organic farming is gaining gradual momentum across the world, organic agriculture is now practices in more than 130 countries with a total area of 30.4 million hectares in 0.7 million number of organic farms.

This constitutes about 0.65% of total agricultural land of the world. In India, about 528,171 hectare area is under organic farming with 44,926 numbers of certified organic farms. This accounts for about 0.3% of total agricultural land. Indian organic farm industry is estimated at US$ 78 million and is almost entirely export oriented. According to Agriculture and Processed Food Products Export Development Authority (APEDA), a nodal agency involved in promoting Indian organic agriculture, about 5,85,970 tonnes of organic products worth of Rs 301 million are being exported from India. Growing awareness, increasing market demand, increasing inclination of farmers to go organic and growing institutional support have resulted in more than 200% growth in certified area during the last two years. In present day farming, the cost of cultivation has disproportionately increased as compared to the revenue generation. The increase in usage of external inputs in agriculture to meet the emerging requirements could be the reason attributed for above phenomenon.

Statement of the Problem

There has been a lot of debate in recent years about the feasibility of organic farming under Indian conditions. The most often debated questions related to organic farming include its production potential , economic feasibility and the possible environmental benefits like improved soil quality and health.. Hence this survey was undertaken with an objective to know the socio economic aspects of organic farmers in the study area. Organic farming is a production system of crops, which avoids the use of synthetic and chemical inputs like fertilizers, pesticides, growth regulators and livestock feed additives. India is bestowed with lot of potential to produce all varieties of organic products due to its agro- climatic regions. In several parts of the country, the inherited tradition organic farming is an added advantage. This holds promise for the organic producers to tap their market which is growing steadily in the domestic market related to the export market. Currently India ranks 33rd in term of total land under organic cultivation and 88th position for agriculture land under organic crops to total farming area in the world.

However, there is considerable latent interest among farmers in conservation to organic farming in India. But, some farmers are reluctant to convert because of the perceived high costs and risks involved. Those who have converted earning equal

income to their conventional counterparts, if premium markets are exist for organic produce. Despite the attention which has been paid to organic farming over the last few years, very little accessible information actually exists on the costs and returns of organic farming in India. Similarly, there are only a few attempts to organic production systems and hence the present study tries to focus mainly on organic Farming of paddy cultivation in Nagapattinam District of Tamil Nadu.

Objectives

The core objective of the present research is to study the Organic Farming of paddy cultivation in one of the Cauvery deltaic region of Tamil Nadu, Nagapattinam district. The specific objectives are to study the Farm Size wise and Component wise Cost and Returns of Organic Paddy Cultivation in the study area; to explore the Problems and Prospects of Organic Farming in the Study area; and to suggest possible policy measures for strengthening Organic Farming in the Study area.

Hypotheses

≠There is a significant difference registered among the farm size in relation to cost, production and yield. It is also assumed that the farm size and yield is directly related.

≠The productivity of paddy under organic farming is directly associated with the level of education and farming experience of the farmers.

Methodology

Data required for the study was collected through field survey in the Nagapattinam district of Tamil Nadu during 2015-16. A representative taluk from the district was purposively selected for data collection, since the concentration of farmer's practicing organic farming is higher in the taluk. Random sampling was then applied to select five revenue villages from the taluk. By this technique a total of 97 farmers were selected and interviewed. To facilitate the study, relevant statistical tools have been used.

Scope of the Study

The present micro level attempt tries to analyse the economic aspects of organic paddy cultivation in one of the paddy intensity areas of Tamil Nadu. It mainly focuses on the socio economic profile of farming communities; the cost of and returns from cultivation of paddy cultivation among the three different farm sizes;; tries to explore the problems in the paddy cultivation; and renders possible suggestions for enhancing the quality of organic paddy cultivation in the study area. By considering all these issues pertaining to paddy cultivation, it is found hope that the present study may pave the way for addressing all these agricultural issues in one side and ensure for promoting organic farming on the other.

Results and Discussion

The present study makes an attempt to study the socio economic profile of the sample farmers and it is found from the analysis that regarding age it is inferred that neither old aged farmers nor young aged farmers dominate the farming operations in the study area since about 39 percent of the total farmers belong to the age group of 40- 50 years. Out of the 97 sample farmers in the study area 89 respondents are Hindus followed by 06 respondents are Christians and 2 of them belong to Muslim.

Regarding the educational status of the respondents 38 respondents are Secondary educated and followed by 26 have under gone Higher Secondary Education, 9 farmers have been Primary educated. About 09 farmers are illiterates whereas it is appreciable to note that remaining 15 farmers are Higher Educated.

Sources wise value of asset of the sample respondents in the study area in the entire farm sizes the majority about 37.44 percent from land and it is followed by jewels 36.23 percent and house value accounts to 21.34 percent.

With regard to Labour Cost, the average cost of labour per acre was Rs. 1,736/- for Marginal Farmers, Rs. 2,041/-, and Rs 2,170/- for Small Farmers and Large Farmers respectively.

The relative amount of components wise cost distribution of organic cultivation reveals that among the various costs, farmers have spent 14.14 percent on farmyard manures and 14.08 percent on nurse pulling followed by 13.52 percent on weeding and 12.76 percent on transplanting and 10.64 percent was spent on field preparation works. Further, about 9.63 %, 5.30 %, 4.09 % 3.52 % and 3.12 % of amount was spent on harvesting, seed cost, nursery preparation, manure and threshing. It is also found that the percentage spent on sowing cost was about 2.21 percent and it was followed by plant protection and growth regulator which account to 1.93 percent and 1.75 percent. 1.56 percent was spent on irrigation and 1.70 percent was spent on marketing.

It is found that there is a direct relationship between the farm size and cost of cultivation since the overall average cost of cultivation per acre is calculated as Rs 19,800/-, it is Rs 18,905/- per acre for Marginal Farmers and it is Rs 20,064/- and Rs 20,430/- for Small Farmers and Large Farmers respectively.

It is also known that maximum number of farming experience is identified in Marginal Farmers of about 80.64 percent and it is less in the case of small (65.63 percent) and Large Farmers (64.70 percent) and they come under the category of experience below five years.

It is found that there is a relationship between education and returns of cultivation. The average returns of cultivation of the organic farmers who are illiterate accounts to the maximum of Rs 42,733/-. For primary educated it is Rs. 41,933/-Farmers. Who have done their Secondary education it is Rs. 42,684/-. In the case of Higher secondary and Higher education it is Rs.40, 369/- and Rs 39, 720/- respectively. The farm size wise returns of cultivation of the sample respondents in the study area are. Rs.45, 361/-, Rs. 41,275/- and Rs. 38, 306/- for Marginal Farmers, Small Farmers and Large Farmers respectively.

Suggestions

From the analysis it is known that in spite of the socio economic status of the organic farmers, it is not familiarized sufficiently in the study area. Hence, proper measures must be taken by the State Government through the Department of Agriculture by encouraging the farmers through provision of Special Financial Subsidy.

It is also suggested that the Government should supply the necessary inputs of organic farming at subsidized rate and without any interruption.

From the observation it is noted that the price of organic rice is exorbitant and hence the state government should give price subsidy which can stimulate the demand.

It is also found that among the inputs used, next to machinery the cost of Farm Yard Manure is high which accounts about 21% of the cost of cultivation. But, today it is very difficult to procure the Farm Yard Manure since the problems in the cattle maintenance even in the rural areas. Hence, combined subsidy measures i.e. Cattle Subsidy along with Organic Inputs Subsidy may be a highly desirable measures to strengthen the Organic farming in the study area.

Further, it is also observed that the labour is intensively used in the farming, to avoid the problem of lack of availability of labour during the peak season, alternative substitute may be identified which can reduce the cost of cultivation also.

In the study area, since the cost of cultivation for Marginal Farmers is comparatively lower than that the Large Farmers, the Intensive Cultivation practice may be suggested rather than the Extensive Cultivation.

It is also suggested that technologies have to be developed further to produce large quantities of manure/compost.

Arrangements should be made for funding of organic goods, for which special marketing facilities through Women SHGs may be arranged in the study area.

Further, the separate Market for Organic Products with Government Support like Uzhavar Sandhai may be created in the study area as a pilot project.

From the existing literatures it is come to know that the procedures for registration and certification of organic products are very complex and it is suggested that it should be simplified.

A price premium is needed to reward the work of farms in respect of their contribution to conservation nature and human well-being.

The Higher Educational Institutions – Central University of Tamil Nadu initiate separate Research Centre on Organic Farming to tap the local potentials. Further, the study area is not only fertile wet land area, but also surrounded with a number of reputed educational Institutions such as Arts and Science Colleges, Community Colleges, Technical Institutions and even well known Universities. It is suggested that these Educational Institutions may be insisted to popularize the Organic Farming Strategies through their Curriculum.

In this study area, there are number of NGOs and Service Organisations functioning and it is felt that their attention on the popularising the Organic Farming in this study area will be highly fruitful. Hence, all NGOs and Service Organisation may take the dissemination of knowledge on Organic farming as one of their projects every year.

It is also noted that the Policy Note on Organic Farming of Tamil Nadu suggests a number strategies for promoting Organic Farming in the state. It is fond hope that if all these strategies are effectively followed in a time bound manner, the organic farming will be getting its momentum not only in the study area but also at a state as whole.

Conclusion

Organic farming is not only revival to the farming community; it is also revival to the consumer to lead a "HEALTHY AND A HAPPY PROSPEROUS LIFE". So a paradigm shift to Organic Farming is the need of the day to enhance the quality of the life. To From the analysis it could be observed that the Organic Farming strategy is advisable for paving the way for ensuring food security as well as sustainable agriculture.

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Table 1. Farm Size and Component wise Cost of Cultivation of Organic Farmers

(Rs. in 000's)

S. No	Cost of Cultivation	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Nursery Preparation	25110(4.29)	25920(4.04)	27540(3.96)	78570(4.09)
2	Seed Cost	32550(5.55)	33600(5.23)	35700(5.14)	101850(5.30)
3	Sowing Cost	13640(2.33)	14080(12.19)	14960(2.15)	42680(2.21)
4	Main Field Preparation	65410(11.16)	67520(10.52)	71740(10.33)	204670(10.64)
5	Farmyard Manure	88500(15.10)	84000(13.08)	99500(14.32)	272000(14.14)
6	Nurse Pulling	86490(14.76)	89280(13.91)	94860(13.66)	270630(14.08)
7	Transplanting	73710(12.58)	83200(12.96)	88400(12.73)	245310(12.76)

8	Manure	16800(2.87)	25020(3.90)	26020(3.75)	67840(3.52)
9	Weeding	67340(11.49)	91910(14.32)	100880(14.52)	260130(13.52)
10	Plant Protection	8400(1.43)	13800(2.15)	14840(2.14)	37040(1.93)
11	Growth Regulator	8600(1.48)	12100(1.88)	13040(1.88)	33740(1.75)
12	Irrigation	9610(1.63)	9920(1.55)	10540(1.52)	30070(1.56)
13	Harvesting	59210(10.10)	61120(9.52)	64940(9.35)	185270(9.63)
14	Threshing	19220(3.28)	19840(3.09)	21080(3.03)	60140(3.12)
15	Marketing	11460(1.96)	10740(1.67)	10570(1.52)	32770(1.70)
	Total	586050(100)	642050(100)	694610(100)	1922710(100)
	Average	18905	20064	20430	19822

Source: Primary Data, **Note:** Figures in Parenthesis denote Percentage

Table 2. Educational Status wise Cost of Cultivation of Organic Farmers (Rs. in 000's)

S. No	Educational Status	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Illiterate	298980(18938)	80880(20220)	0(0)	379860(18993)
2	Primary Education	56830(18943)	116750(19458)	0(0)	173580(19287)
3	Secondary Education	94690(18686)	200810(20081)	245010(21251)	540510(20020)
4	Higher Secondary Education	115250(19208)	142000(20281)	265180(19629)	512430(19709)
5	Higher Education	19300(19300)	101610(20322)	184420(20491)	305330(20355)
	Total	586050(18904)	642050(20064)	694610(20429)	1922710(19821)

Source: Primary Data, **Note:** Figures in Parenthesis denote the Average amount.

Table 3 Farm Size wise Total Cost of Cultivation of Organic Farmers

(Rs.000's)

S. No	Farm Size	Amount	Average
1	Marginal Farmers	586050(30.44)	18905
2	Small Farmers	642050(33.41)	20064
3	Large Farmers	694610(36.15)	20430
	Total	1922710 (100)	19821

Source: Primary Data **Note:** Figures in Parenthesis denote Percentage

Variables **Farm Size VsTotal Cost**	Marginal Farmers	Small Farmer	Large Farmer
F	0.176	.339	.006
P	.342	.057	.973

Table 4. Component and Farm Size wise Returns of Cultivation of Organic Farmers

(Rs.000's)

S.No	Component	Marginal Farmers	Small Farmer	Large Farmers	Total
1	Paddy	1406200 (45361)	1320800 (41275)	1302400 (38305)	4029400 (41540)
2	Straw	31000 (1000)	32000 (1000)	34000 (1000)	97000 (1000)
	Total	1437200 (46361)	1352800 (42275)	1336400 (39305.)	4126400 (42540)

Source: Primary Data, **Note:** Figures in Parenthesis denote the Average Amount

Variables Farm Size Vs Total Yield	Marginal Farmers	Small Farmer	Large Farmer
F	.374*	.186	.320
P	.038	.308	.065

Table 5 Educational Status wise Returns of Cultivation of Organic Farmers

(Rs.000's)

S.No	Educational Status	Marginal Farmers	Small Farmers	Large Farmers	Total
1	Illiterate	746800(43960)	164800(41200)	0(0)	911600(42733)
2	Primary Education	133800(44600)	243600(40600)	0(0)	377400(41933)
3	Secondary Education	219800(46675)	415600(41560)	459600(3513)	1095000(42684)
4	Higher Secondary Education	261600(43600)	289000(41285)	499000(65418)	1049600(40369)
5	Higher Education	44200(44200)	207800(41560)	343800(33956)	595800(39720)
	Total	1406200(45361)	1320800(41275)	1302400(38305)	4029400(41540)

Source: Primary Data **Note:** Figures in Parenthesis denote the Average Amount.

Table 6. Incidence of Problems of Organic Farmers

S.No	Incidence of Problems	Marginal Farmers	Small Farmers	Large Farmers	Total	Rank
1	Predominance of Inorganic Farmers in the locality	20	25	30	75	IV
2	Un availability of input materials at the time of cultivation	15	10	02	27	IX
3	Lack of improved seed varieties	16	10	15	41	VII
4	Irrigation	20	15	02	37	VIII
5	Unavailability of Human Labour	15	20	20	55	V
6	Un availability of bio fertilizers	25	26	25	76	III
7	Lack of supply centers	15	13	16	44	VI
8	Lack of agencies to purchase organic products	30	25	30	85	II
9	More transportation charges	02	03	03	10	X
10	Climate	31	32	34	97	I

Source: Primary Data.