THE ROLE OF HORTICULTURAL CROPS' CULTIVATION ON THE LIVING CONDITIONS OF FARMERS IN VILLUPURAM DISTRICT

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Abstract : This article reviewed some of the important studies which deal with various aspects of horticultural crop cultivation. This suggests that many attempts have been made, especially in countries other than India; while the number of studies and the issues covered pertaining to horticultural cultivation in India is less. More importantly, no attempt has been made in the recent past in Tamil Nadu, where cultivation of horticultural crops is on the rise. This warrants a study to examine the role of horticultural crop cultivation in the living environment of those who cultivate these crops and also the problems faced by them with the help of primary data, which is attempted in the present study.

INTRODUCTION

Agriculture plays a key role in the development of any economy. It contributes significantly to the process by supply of raw materials to manufacture, wage goods to workers in other sectors, employment to the work force, investible surplus and markets of products of industry. Agriculture provides basic sustenance to all living beings. It is very important that ecologically, socially and economically sustainable agriculture should become the backbone of the development process of the country. Equity in sharing benefits is vital for community participation in the conservation and enhancement of natural resources.

HORTICULTURAL SECTOR

Horticulture is the industry and science of plant cultivation including the process of preparing soil for the planting of seeds, tubers, or cuttings. Horticulturists work and conduct

research in the disciplines of plant propagation and cultivation, crop production, plant breeding and genetic engineering, plant biochemistry, and plant physiology. The work involves fruits, berries, nuts, vegetables, flowers, trees, shrubs, and turf. Horticulturists work to improve crop yield, quality, nutritional value, and resistance to insects, diseases, and environmental stresses (Ghosh, 1999).[1]

Horticulture has a very long history. The study and science of horticulture dates all the way back to the times of Cyrus the Great, King of ancient Persia, and has been going on ever since. The origins of horticulture lie in the transition of human communities from nomadic hunter-gatherers to sedentary or semi-sedentary horticultural communities, cultivating a variety of crops on a small scale around their dwellings or in specialized plots visited occasionally during migrations from one area to the next. A characteristic of horticultural communities is that useful trees are often to be found planted around communities or specially retained from the natural ecosystem (Bansil, 2004).[2]

Agricultural cultivations, however, as a rule focus on one primary crop. In pre-contact North America the semi-sedentary horticultural communities of the Eastern Woodlands (growing maize, squash and sunflower) contrasted markedly with the mobile hunter-gatherer communities of the Plains people. In Central America, horticulture involved augmentation of the forest with useful trees such as papaya, avocado, cacao, ceiba and sapodilla. In the cornfields, multiple crops were grown such as beans (using cornstalks as supports), squash, pumpkins and chilli peppers, in some cultures tended mainly or exclusively by women (Epstein, 2002).[3]

Horticulture involves eight areas of study, which can be grouped into two broad sections - ornamentals and edibles:

- Arboriculture is the study of, and the selection, planting, care, and removal of, individual trees, shrubs, vines, and other perennial woody plants.

- Floriculture includes the production and marketing of floral crops.

- Postharvest physiology involves maintaining the quality of and preventing the spoilage of horticultural crops (Mukhopadhyaya, 2004).[4]

DEVELOPMENT OF HORTICULTURE

Horticulture has become a key driver for economic development in many of the states in the country and it contributes 30.4 per cent to GDP of agriculture, which calls for technology-led development, where the Division of Horticulture of Indian Council for Agricultural Research (ICAR) is playing a pivotal role. The research priorities are for genetic resource enhancement and its utilization, enhancing the efficiency of production and reducing the losses in environment friendly manner (Prasad, 2001).[5]

Similarly, it is also decided to develop the production system that minimizes the production of wastes and maximizes the re-use of waste; to enhance the shelf life of perishable fruits, vegetables, flowers, product diversification and value addition for better profitability; and to understand social needs of communities and build the capabilities for practice the change for effective utilization of resources and adoption of technologies and respond to needs including bio-security needs (Dutta, 2007).[6]

IMPORTANCE AND SCOPE OF HORTICULTURE IN INDIA

India with diverse soil and climate comprising several agro-ecological regions provides ample opportunity to grow a variety of horticulture crops. These crops form a significant part of total agricultural produce in the country comprising of fruits, vegetables, root and tuber crops, flowers, ornamental plants, medicinal and aromatic plants, spices, condiments, plantation crops and mushrooms. It is estimated that all the horticulture crops put together cover nearly 23.69 million hectares area with an annual production of 268 million tonnes in 2013-14. Though these crops occupy hardly 12 per cent of the total cropped area, they contribute over 30 per cent to the gross agricultural output in the country. Hence, these are referred to as protective foods and assume great importance as nutritional security of the people. Thus, cultivation of horticultural

crops plays a vital role in the prosperity of a nation and is directly linked with the health and happiness of the people (Jitarwal and Sharam, 2007).[7]

India with more than 81 million tonnes of fruits and 162 million tonnes of vegetables in 2012-13 is the second largest producer of fruits and vegetables in the world, next only to China. However, per capita consumption of fruits and vegetables in India is only around 46 gram and 130 gram respectively against a minimum of about 92 gram and 300 gram respectively recommended by Indian Council of Medical Research and National Institute of Nutrition. With the present level of population, the annual requirement of fruits and vegetables will be of the order of 110 million tonnes and 360 million tonnes respectively (Karunakaran and Palanisami, 2012).[8]

The country has abundant sunshine throughout year, surplus labour and widely varied agro-climatic conditions, which offer high potential for successful and profitable commercial horticulture. The sector has established its importance in improving land use, promoting crop diversification, generating employment and above all providing nutritional security to the people. India has made a fairly good progress on the horticulture scenario of the world. The major crops in case of fruits are mango, banana, citrus, apple, pineapple and in case of vegetables are potato, onion, tomato and other seasonal vegetables (Government of India, 2014a).[9]

A total of 72974 genetic resources holding 9240 accessions of fruits, 25400 accessions of vegetables an tuber crops, 25800 accessions of plantation and spices, 6250 accessions of medicinal and aromatic plants, 5300 accessions of ornamental plants and 984 accessions of mushroom. Molecular characterization of available germ plasm has been done in several horticultural crops including mango, banana, citrus etc. A total of 1596 high yielding varieties and hybrids of horticultural crops (fruits – 134, vegetables – 485, ornamental plants – 115, plantation and spices – 467, medicinal and aromatic plants – 50 and mushrooms – 5) have been developed. Improved techniques for production of disease free quality planting material have been developed for citrus, banana, guava, potato, cassava and sweet potato. Micro propagation techniques have

been standardized for various fruits, spices and other vegetatively propagated plants. The plant standards were also developed in various fruit crops (Government of India, 2012b).[10]

Patents have been obtained for production of alcohol from cassava, cassava starch based biodegradable plastics, fermented cassava flour and hand operated cassava chipping machine. For dissemination of technologies, region and crop specific training and demonstration programmes are being taken up by the concerned Institutes / Directorates / National Resource Centres (Beck and Ghosh, 2000).[11]

HORTICULTURE IN TAMIL NADU

Tamil Nadu is one of the leading horticulture States in India contributing 9.9 percent to the national horticultural production with 6.1 percent of the national level area in 2013-14. Tamil Nadu has been blessed with diversified agro-climatic conditions, suitable for a wide range of horticulture crops like fruits, vegetables, spices, plantation crops, flowers and medicinal plants. The crop diversification technique has been advocated to boost production and productivity of horticultural crops.

A World Bank report has shown that the agriculture sector faces major constraints due to dilapidated irrigation infrastructure coupled with water scarcity due largely to growing demands from industry and domestic users and intensifying interstate competition for surface water resources. In some parts of the state, the rate of extraction of groundwater has exceeded recharge rates, resulting in falling water tables. In this background, development of the horticultural sector looks very reassuring due to its less dependence on water (Government of Tamil Nadu, 2014).[12]

STATEMENT OF THE PROBLEM

In India, distress in the agricultural sector and indebtedness of farmers has been proved quite undeniably over the last two decades. Farmers' dependence on a few crops, failure of monsoon, lack of institutional credit to the needy farmers and the absence of effective extension programme by the Government have all led to the agricultural sector to the present crisis situation. The impact of agricultural crisis is borne more by the small and marginal farmers who lack

creditworthiness and unable to raise the required credit from the institutional sources. Thus, horticultural crops extends an unprecedented hope for the crisis-ridden farmers in terms of raising output, income and also employment, which can lead to considerable degree of agricultural and rural development. This indicates a different cost and revenue structure and also differing socio-economic conditions of the farmers who cultivate horticultural crops *vis-a-vis* other crops. Hence, it is imperative to probe the role of cultivation of horticultural crops in the socio-economic conditions of the farmers who cultivate horticultural crops as against other crops. This is attempted in this study with the help of primary data, collected through field survey.

SIGNIFICANCE OF THE STUDY

Agricultural sector is still the backbone of the rural areas at the all-India level as well as in Tamil Nadu, since a sizeable proportion of the population depends on this sector. The much talked about 'inclusive growth' can truly be attained only by increasing the rate of growth of the agricultural sector in a significant manner. This necessitates diversification of the sector, from its traditional outlook, wherein farmers used to depend on a few crops like paddy, jowar, bajra, groundnut, cotton, etc., instead of other high value crops like fruits, flowers, spices and others. From this point of view, it becomes imperative to understand the role played by the cultivation of horticultural crops as against other crops, since the cost, revenue and income structure of the crops differ. This will help in understanding the relative importance and also the problems in the cultivation of horticultural crops against other crops, which is attempted in this study.

AREA OF THE STUDY

This study is based on primary data collected from the farming households who reside in different villages with different levels of infrastructural facilities. For this purpose, Villupuram district in Tamil Nadu has been selected as the sample district. From Villupuram district, two taluks, viz., Villupuram and Vikravandi have been selected. From these two taluks, two villages from each of the taluk have been selected, viz., Nangathur and Nemur from Villupuram taluk and Pandur and Ekkadu villages from the Vikravandi taluk and as the sample villages. These four villages form the study area of this study.

OBJECTIVES OF THE STUDY

The following are the objectives of the study:

1. To analyse the extent of cultivation of horticultural crops at the all-India and Tamil Nadu levels;

2. To measure the cost and revenue structure of cultivation of major crops among the sample farmers in the study area;

3. To analyse the problems faced by the sample farmers in the cultivation of horticultural crops in the study area; and

4. To analyse the opinions of the sample farmers about whether they continue the cultivation of horticultural crops or switch over to the cultivation of other crops or to other sectors.

METHODOLOGY OF THE STUDY

This study examines the nature and extent of cultivation of horticultural crops at the macro level as well as at the micro level. At the macro level, cultivation of the horticultural crops is examined with the help of published data taken from the reports like Agricultural Statistics at a Glance, Season and Crop Report among others. At the micro level, the role of cultivation of horticultural crops in the socio-economic conditions of the farmers is examined by comparing the farmers who cultivate the horticultural crops and other crops such as paddy, jowar, bajra, groundnut, cotton and sugarcane. This is done on the basis of primary data collected through field survey from the sample farmers in the study area. For this purpose, a standard questionnaire was developed and a pilot survey was conducted in the study area. Based on this survey, necessary modifications were carried out in the questionnaire, which was used in the final field survey. From the sample farmers, information regarding their identification, household particulars, size of land holding, nature of crops cultivated, duration of cultivation, reasons for cultivating horticultural and other crops, cost and revenue structure of cultivation, opinions of the farmers about whether they would shift over to other crops from that of horticultural crops, etc., has been gathered. These data

have been examined on the basis of the age of the sample farmers, choice of crops, their levels of education, size of land holdings, nature of crops cultivated and other factors.

SAMPLING DESIGN

This study is based on multi-stage proportionate random sampling method. In the first stage, Villupuram as the sample district is purposively chosen, since it is one of the districts in Tamil Nadu where the dominance of agriculture is still quite considerable. In the second stage, two taluks, viz., Villupuram and Vikravandi have been selected deliberately, since cultivation of traditional crops like paddy, groundnut, cotton, jowar, bajra and sugarcane is quite dominant in the former, while cultivation of horticultural crops like coconut, mango, jasmine, sapota, guava and others is quite considerable in the latter. In the third stage, four sample villages, two from each taluk have been selected: Nangathur and Nemur from Villupuram taluk and Pandur and Ekkadu from the Vikravandi taluk, since cultivation is very predominant in these villages. In the fourth and final stage, the sample households have been selected. As the basic aim of the study is to analyse the role of cultivation of horticultural crops in the socio-economic conditions of the sample farmers, only the farming households in the four sample villages form the population for this study. From each of the sample village, 25 per cent of the farming households which cultivate horticultural and other crops have been selected as the sample farmers. The number of total households, farming households and the number of sample households in the study area are shown below:

Table – 1.1 Sampling Design

Taluk	Village	Total Households	Farming Households	Sample Households
Uthiramerur	Pandur	904	496	124
	Ekkadu	662	363	91
Villupuram	Mel ottivakkam	952	521	130
	Nemur	618	341	85
Total		**3136**	**1721**	**430**

Source: Primary Census Abstract, Census of India, 2011, New Delhi.

Thus, from 1721 farmers who are engaged in the cultivation of horticultural crops and other crops in the four villages, 430 farmers have been selected as sample farmers, i.e., 215 farmers each from the two taluks.

LIMITATION OF THE STUDY

This study is based on the data gathered from the sample respondents who are the farmers of horticultural and other traditional crops in the study area. Given the low level of literacy among the respondents, it is assumed that they are aware about the sector and its nuances and are able to understand the purpose and import of the questions and provided the necessary information, based on which the present study is carried out.

CONCLUSION

This article reviewed some of the important studies which deal with various aspects of horticultural crop cultivation. This suggests that many attempts have been made, especially in countries other than India; while the number of studies and the issues covered pertaining to horticultural cultivation in India is less. More importantly, no attempt has been made in the recent past in Tamil Nadu, where cultivation of horticultural crops is on the rise. This warrants a study to examine the role of horticultural crop cultivation in the living environment of those who cultivate these crops and also the problems faced by them with the help of primary data, which is attempted in the present study.

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