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ORIGINAL ARTICLE



CROP MANAGEMENT OF AGRICULTURAL FARMERS IN THANJAVUR DISTRICT OF TAMIL NADU - A CASE STUDY

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Abstract:

India is one of fastest growing economies in the world. Indian agriculture continues to dominate all other economic activities as the largest private sector in the country. Agriculture accounts for more than one fourth of the national income (29 percent) and provides roughly two third of total employment (64 percent). Food grain production is the dominant character of Indian agriculture which accounts for 70 percent of net sown area. Food grain production provides the largest chunk of employment and income to the people engaged in farming activities.

INTRODUCTION

Strong agriculture base in generally regarded as a prerequisite for the economic development of a country. Agriculture growth was the precursor to the acceleration of industrial growth, very much in the way agricultural revolution predates the industrial revolution that spread across the temperate world from England in the mid 18th century to Japan in the late 19th century (World Development Report, 2008). In India, more than half a century of planned economic development and high levels of aggregate growth over the last two decades, the Indian economy still remains predominantly rural (India Development Report, 2008). Although the share of agriculture in Gross Domestic Product has declined from over half at the time of Independence to less than one-fifth currently, agriculture still remains the predominant sector in terms of employment and livelihood with more than half of India's' workforce engaged in it as the principle occupation (Planning Commission, 2007-2012). A particular disturbing aspect of economic performance over the several years is that agriculture growth has decelerated after the mid 1990s. Agriculture has grown at 3.2 percent per annum during 1980 to 1996. It decelerated to 2.1 per cent during the 9th Five Year Plan. The cornerstone of the 10th Five Year Plan strategy was the reversal of the declining trend in rate of agriculture growth and to enhance it to 4 percent. But it is distressing that the actual performance of agriculture appears to have deteriorated further. The rate of growth in food production has fallen below the population growth rate (Swaminathan, 2006). The agrarian crisis that has ravaged India's rural countryside during the post reform era has grown on a three pronged set of symptoms: rising input, dwindling produce price: realization and inability of farmers to abandon cultivation without alternative livelihood source. Besides this, during the post - reform period, the government not only slashed the subsidies on major inputs, but also absolved itself of the responsibility to produce, procure and distribute these inputs at the farm gate (Raghavan, 2008).

Apart from these, the process of economic development has become the focal point for the government at various point of times. The projects undertaken for development purposes were never neutral. The carry out this process the acquisition of land under land Acquisition Act 1894 has provided ample scope for the acquisition of private for non-agricultural purposes in India. As a result there was large

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2

scale displacement of farmers and diversion of cultivable land either for reservoirs, or industries and infrastructural development process. Further, there was decline of cultivable land and secondly displacement of people leading to marginalization and shift from agricultural sector to other sectors. In pre reform era more than 10 million hectares of land had been diverted from agricultural to non- agricultural purposes, so also in the post reform era from 1991 to 2007 and equal amount of land have been already diverted to non-agricultural purposes. The expansion of urban population has further downsized the cultivable land throughout the country. On the whole the per capita availability of cultivable land is declining continuously and this has a bearing with food grain production in India (Narandra K, Behera, 2012).

AGRICULTURE IN INDIA

After the advent of globalization policies, the World Trade Organisation's WTO's Agreement on Agriculture, has affected not only India agriculture and the food security of the nation but also the economic position of millions of farm families who possess informal and traditional knowledge of agriculture and culture. Before the introduction of globalization, farmers across the country had accessed seeds, the important input for farmers, from the state government institutions. In every state, the department of agriculture was authorized to produce its own seeds, was responsible for their quality, price and supply. Above all, the government regulated and controlled, the quality of the seed sold by private vendors (The damage done, 2005, qtd, in April, 'Impact of globalization on India Agriculture,' 2006, P.2). But, after globalization, Multinational Corporations (MNCs) such as Monsanto, Syngen to and Cargill entered into the India's seed market with unregulated unethical guidelines. As a result, the Indian farmers were adversely affected due to entry of MNCs: seed and fertilizers prices went up drastically, fake seeds at higher cost introduced cheap in ports combined with frequent drought and crop failure which all led the farmers into the debt trap and ultimately to suicide. The seed cost in 1991 per acre was Rs. 71, but it has increased to Rs. 1000 in the year 2000. Likewise the price of fertilizer has also increased to 300 percent (Sainath, 2005) in the same period. Further, farmers were encouraged to cultivate export oriented cash crops like tobacco, cotton. Consequently storage of food grains in the domestic market was very low and this caused the dreadful rise in the price of foodgrains in the domestic market of India. Agricultural growth slowed from 4.69 per cent in 1991 to 1.1 per cent 2002-2003 (Agricultural statistics at a Glance 2006). The contribution of the agriculture sector to the GDP has decreased from 34.8 percent to 21 per cent. This will decrease upto 15 per cent in 2020 if this condition prevails.

CURRENT TRENDS IN INDIAAGRICULTURE

The new agriculture policy of government of India is aimed to gear up the production only for export than the local consumption hence the subsidy means supporting the corporate agriculture. The subsistence farmers will not be supported anymore rather put them in pressure to sell away their lands to the big lords or MNCs. Never before in the history of India, had large number of peasants (970 in 2001) resorted to suicides since the last part of 1990s as the economic policies have devastated the lives of farmers. It started in Andhra Pradesh spread over the Maharastra, Madhapradesh, Punjab and now in Tamil Nadu which are the highest food grown states in India. Between 1997 and 2011 the number of suicides by Indian farmers is 2,14,500. With mounting anguish Poet Vairamuthu adds 'Agriculture warrants the same amount of importance that is being given to the education sector. Words of Angst, Moonram Ulagapor Vairamuthu, P.7, Mar, 16, 2013, The Hindu, Tiruchirappalli.

All the food based crops are rapidly changing into cash crops: more particularly export oriented crops. India has biggest coast gifted with perennial rivers. Throughout the coast and best water regions, paddy fields are replaced with prawn culture, and all the dry lands in the plains, which were used to cultivate food crops, are converted into orchids to feed the fruits for pulp industries.

The penetration of terminator seed into various crops, high usage of pesticides and chemicals and the state of subsidy for such crops is devastating not only the land fertility and also the peoples' health. Accidents in agriculture are multiplying due to excessive usage of pesticides. The Corporate sector have entered into seed industry and agricultural biotechnology, which are on the pursuit list of the MNCS. Inspite of vehement opposition to GE foods and Monsanto- mahyco operations in India, it is obvious that the Government is all set to push through the Green revolution in India. Besides these, Indian Patent Act has had a devastating impact of local agriculture, particularly for the market of seeds and related impact.



AGRICULTURE IN TAMIL NADU

Tamil Nadu is the eleventh largest state in India by area (wikipedia) and the seventh most populous state having 5.96 percent population of the country (census of India, 2011). It is the fourth largest contributor as of 2010 to India GDP and ranks in Human Development Index as of 2006 (wikipedia). The state's literacy rate in 2011, 80.33 percent which is above the national average of 74.04 percent. Tamil Nadu has historically been an agricultural state and a leading producer of agricultural products in India. The Cauvery delta region is known as the "Rice Bowl of south India.

In terms of production, Tamil Nadu accounts for 10 percent in fruits, and 6 percent vegetables in India. Annual food grains production in the year 2007-08 was 100.35 lakh mt. The crops cultivated are paddy the major crop, ground nut, sugarcane, pulse, vegetables, flowers, fruits, coconut, palms and oil seeds. The farmers and the country as a whole would prefer food grains production over commercial crops. Small and marginal farmers first try to ensure food security. Big farmers go in for commercial cropping. Farmers use agricultural inputs and achieve output. Good farm management involves procurement of best quality inputs at the right time at the minimum possible prices. Sowing and land preparation, land improvement, weeds elimination, crop protection, yield increasing measure (providing water and fertilizers at the right time of the right type and in the right quantities) are to be done at the minimum possible costs.

CROPMANAGEMENT

Crop management practices starting from adoption of proper crop rotation, suitable soil and moisture conservation practices, timely planting, adequate plant stand through adjustment in seed rate and thinning, timely weed management along with life saving irrigation, balanced plant nutrition and need based plant protection with emphasis on botanical and biopesticides which influence on productivity of crops.

In agriculture, various types of farm practices overlap and they are not separate stages, coming one after another. To have good yield in agriculture, all inputs such as seed, fertilizer, manure, water, labour, electricity, pesticide, capital / financial resources are very essential. The farmer of agriculture should know the timing and quantum of all inputs required for cultivation. The farmer should ensure the availability of all inputs and also to know the proper management of all these resource to achieve high yield in agriculture. The health of the plants / crops is to be watched carefully. Further, any one of the inputs is lacking the farmer can not get good yield / out put from agriculture. In general the inputs of agriculture are deficient and not timely available at the right time in right quantity. As reported in the Hindu there is labour shortage for farming operations in Tamil Nadu. (The Hindu, March 15,2013, P.5).

CONCEPT OF CROPMANAGEMENT

Farm management is much tension- ridden business. Because ever since the farming is assuming greater importance in money- earning activities, the farm management is also assuming greater importance since the market has become very quite competitive. Many a time the best of managers will be helpless to combat adverse natural conditions. The prime task of a farm manager is to combine factors of production in a profitable manner, to take production decisions at the right time to pay right cost and charge right prices, and to economize. Management involves the right decisions and at the right time. Good farm management involves the following and these have to be at the minimum possible costs.

Best quality of inputs to be procured at the right time at the minimum possible prices. Sowing and land preparation. Land improvement. Weeds elimination. Crop protection. Yield increasing measures (providing water and fertilizers at the right time of the right type and in the right quantities). Labour management. Finance mobilization and co ordinations.

In this context, the present paper analyses various inputs of agriculture like seed fertilizer, manure, water, labour, pesticides, insecticides in the context of crop management by agricultural farmers in Thanjavur district.

Golden Research Thoughts • Volume 2 Issue 9 • March 2013

3





4

OBJECTIVES

To study the management of seed, weed fertilizer, pesticides, labour and water by agricultural farmers in the context of crop cultivation in Thanjavur district.

To study the management of labour and finance in crop cultivation by agricultural farmers in the study area. To put forth suitable suggestions for the improvement of crop management in the agriculture sector.

MATERIALS AND METHODS

The sample is representative of the district. In Thanjavur district, as it is Rice Bowl of the state and granary of south India, the major crop cultivated is paddy. Black gram / green gram the second major crop cultivated. Banana, coconut vegetables, cotton are also cultivated in the district.

The various cropping pattern concepts are used is the present study for the examination crop management by marginal, small and big farmers. The study is based on the primary source of data including observation. Ninety farmers comprising marginal, small and big farmers covering the entire Thanjavur district were selected by using simple random method for the investigation of the study. A pertested schedule was administered to collect the relevant information on procurement of best quality of seed, fertilizer, pesticide, sowing at the right time, land preparation (ploughing), land improvement, weeds elimination, crop protection (water, fertilizer pesticides and labour utilization from the selected respondents. The data was processed through simple conventional tabular analysis and percentages were worked out.

RESULTS AND DISCUSSIONS

Crop Management of Agricultural Farmers

Farming as a business is greatly influenced by the level and structure of cultivation. Traditional agriculture was carried out by conventional practices, largely with home supplied and indigenous puts. But modern agriculture is characterized by new practices and modern implements and machinery, requiring large use of purchase inputs (sen and Bhatia, 2004). Till 1970s, there was virtually no cost of cultivation and crop management. Indigenous varieties of seeds were used which did not require to be brought from the market. Fertilizer requirements were also negligible and home supplied manures, leaves were used in agriculture. It was after 1970, that is after the advent of green revolution, agriculture practices became more capital intensive and costlier. The cumulative impact of the input intensive technology and the domestic reforms in agriculture all were seen in the form of an increase in the cost of cultivation for farmers. The withdrawal of subsidies from important spheres and allowing Multinationals (MNCs) to manufacture and distribute inputs has further increased the cost incurred by cultivators (Perspectives, 2008). The ploughing, preparation for seed bed, irrigation, consumption of seed, hoeing and weeding, fertilizer. insecticides and pesticides are the major inputs costs which are affecting income of farmers. The expenditure is also being made on harvesting, threshing and marketing of the products. These huge expenditures on inputs and other overhead charges have adversely affected the returns of the farmers (Singh, 2007).

Procurement of best quality of crop inputs- seed fertilizer, pesticides at the right time with minimum possible prices by farmers is crop management.

In order to encourage agricultural farmers and enhance agricultural production modern agricultural practices are implemented in agriculture in India. Governments both central and state distribute qualitative, cost effective agricultural inputs particularly seed, pesticides, and insecticides fertilizers to the agricultural farmers for crop cultivation. This is shown in the blow Table -1.



Table -1: Procurement of seed, fertilizer, pesticides at Govt. Agriculture Depots by farmers

Sl. No.	Procurement of crop inputs at Govt. Depots		Response		
51. 190.	by Farmers	Yes	%	No	% 29
1.	Seed	64	71	26	29
2.	Fertilizer	61	68	29	32
3.	Pesticide & Insecticides	72	80	18	20

It is shown from the above Table - 1 that majority of the farmers procure / purchase crop inputs such as seed, fertilizer and pesticides from Govt. Agricultural depots where the quality and price of the inputs are fair. However farmers face problems such as time elongation spend more time for purchasing less quantity of inputs at Govt. depots. It is observed that the crop inputs particularly seeds are not available at Govt. Agricultural depots to required level of the farmers at the right time in the study.

Table -2: Crop protection Management of Agricultural Farmers

Sl. No.	Crop Protective Management aspects		Response					
	exercised at right time, quantity	Yes % No	No	%				
1.	Watering the crops	42	47	48	53			
2.	Application of fertilizer	44	49	46	51			
3.	Pesticides application	62	69	28	31			

It is shown from the above table -2 majority of the respondents (69 percent) apply pesticides to crops at the right time in right quantity where as less than half (47 percent) and 49 percent of the respondents are irrigating and applying fertilizers, to crops at the right time which shows poor management in the case of water and fertilizer in crop protection management. It was observed that water management was the serious problem of agricultural farmers.

To have high yield and to avoid pesticide and insecticide problems, sowing operations of crop cultivation is done as advised by agricultural experts during particular / appropriate season by agricultural farmers. With regard to groundnut cultivation, the appropriate season for sowing is Pre-Aadi pattam. The following table shows the adoption of season to groundnut sowing.

Table -3: Sowing operations adopted by farmers

Sl. No.	Adoption of sowing during appropriate season	Response			
		Yes	%	No	%
1. Grou seas	undnut sowing adopted to appropriate son	67	74	23	26



6

It is revealed from the above table -3 that majority of the farmers (74 per cent) adopt to appropriate season ie. Pre-Aadi pattam for sowing groundnut in their cultivation. This shows the better crop management.

In agriculture weeds elimination operation is an important process / function of crop management. In the absence of proper weed management yield from agriculture will be poor. Elimination of weeds at every stage at the right time for every crop is indispensable in agriculture. The table - 4 given below shows weed management of agricultural farmers.

Table -4: Weeds Management of Agricultural Farmers

Sl. No.	Wale Manager and her Assistant Frances	Response			
51.110.	Weeds Management by Agricultural Farmers	Yes	Yes % No		%
1.	Weeds elimination adopted to appropriate time to various crops	49	54	41	46

It is shown from the Table -4 that more than half of the respondents (54 percent adopt to appropriate time for weeds elimination from various crops. This shows the better weed management prevalent in agriculture. However according to the observation and informal discussion with farmers, of the researcher weed management is a tough process which involves risks in mobilizing labour and money in the study.

Good crop management is procurement of best quality inputs at the right time at the minimum possible prices. Labour is an important input of crop management. Labour management involves the availability of labourers at the right time, at the right quantity in right type and also at the minimum possible costs for agricultural operations with special reference to crop management. The below table reveals labour management of agricultural farmers in the study area.

Table – 5: Labour Management of Agricultural Farmers

CL N-		Response			
Sl. No	Labour Management by agricultural farmers	Yes	Yes % No %		%
1.	Utilization of labourers in Crop cultivation	33	37	57	63

It is obvious from the above table-5 that majority of agricultural farmers (63 per cent) were facing problem with utilization of labourers in agriculture particularly crop management. This has been endorsed that the Tamil Nadu State was facing labour shortage for farming operations. (The Hindu, March, 15, 2013, p.5). It is observed that local labour is deficient. Therefore the problem of labour shortage leads to poor crop management.

Finance is a basic and the most important requirement for anything and everything. Finance makes anything and everything. To make the agriculture viable and successful, farmers badly in need of money. To lessen the financial burden and to enhance productivity, government provide agricultural loan at low interest rate to the agricultural farmers. Capital / finance is an import input in crop management. The following table exhibits financial management of agricultural farmers in crop cultivation.



7

Table – 6: Financial management of agricultural farmers in crop cultivation

SI.	Financial Management by	Response			
No.	agricultural farmers	Yes	Yes % No	%	
1.	Availability of Government loan / financial resources for agricultural farmers	37	41	53	59

It is shown from the above table - 6 that majority of agricultural farmers (59 per cent) were facing problem with lack of financial resources in agriculture particularly in crop cultivation, which leads to poor crop management of agricultural farmers. The table-6 further shows that Agricultural farmers were not able to obtain virtually agricultural loan at the right time, at the right quantity for agricultural purposes despite of government's huge amount to allocation to agriculture. The recent study shows that only 6 percent of agricultural loan were available to marginal and small farmers in India. (Dhinamani's March, 20, 2013, p.6.). Therefore financial resources which cause agricultural farmers for poor crop management in the study area.

CONCLUSION

The study revealed that agricultural farmers were experiencing uncomfortable environment because of crop management. It is shown from the table-1 that agricultural farmers were procuring seed (71 per cent) and pesticides (80 per cent) from government agricultural depots. Regarding crop protection watering (53 per cent) and fertilizer (51 per cent) inputs were the problems with agricultural farmers. Three fourth of respondents (74 per cent) adopt to appropriate season for sowing groundnut cultivation where as half of the respondents (54 per cent) adopted to appropriate time for weeds elamination to various crops. And only one third of the respondents (37per cent) find availability labourers for crop cultivation in agricultural purposes. As the sample size was only 90 agricultural farmers, the results of the study can not be generalized. However in reality the agricultural farmers face problems with the inputs of crop such as water, labour, financial resources government loan which ultimately cause poor crop management of agricultural farmers. Therefore to ease the situation from being further aggravated, a holistic approach quick, ease and transparent method needs to be taken to deliver more agricultural loan at the right at the right amount directly to the agricultural farmers time and at the right amount directly to the agricultural farmers.

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