ECONOMIC ANALYSIS OF CAPSICUM UNDER PROTECTED CULTIVATION IN KRISHNAGIRI DISTRICT OF TAMILNADU

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ABSTRACT

Protected cultivation is booming in the world to produce high quality and valuable horticultural crops. In India the protected cultivation is done on the area of 2.15 lakhs ha from 2005-06 to 2017-18. Capsicum is one of the most popular vegetable crops in India. In India, production of capsicum found to be around 326 thousand tons from the area of 46 thousand hectare with the productivity of 7,108.70 kg per hectare during the year of 2017. In Tamil Nadu the total production of capsicum is around 16,689 tonnes from 284 hectare contributing 5.13 per cent of the total Indian production of capsicum during the year of 2017-2018. In Tamil Nadu Krishnagiri district stands first in the production with 16,310 tonnes (97.73 per cent) from the area of 268.64 hectare during the year of 2017-2018. So, the present study was used to study the economic analysis of capsicum under protected condition in Krishnagiri district of TamilNadu. Total investment of Rs.32,32,500 was used for constructing one acre of polyhouse. 50 per cent subsidy is availed for the farmers through National Horticultural Mission under Mission on Integrated Development of Horticulture Mission. In percentage analysis the polyhouse structure and erection were the major cost incurred with 71.15 per cent followed by polythene sheet and Insect proof net with 14.31 per cent. The total working capital for an acre of capsicum crop was found to be Rs.9,13, 432. Among the working capital, hired human Labour contributed 15.73 per cent of the total cost A1 which accounts for 59.88 per cent of the total cost of cultivation. The net present value at 12 per cent discount rate for three years was Rs.6,50,719 per acre of polyhouse area. The benefit cost ratio was 1.12 and internal rate of return is 36.20 per cent which shows the production of capsicum under protected condition is feasible.

KEYWORDS: Protected cultivation, Capsicum, Production, Investment, Cost of Cultivation

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INTRODUCTION

Protected cultivation is growing of high value crops throughout the year by using protected structure by controlling wind, temperature, rainfall, insects and diseases through automatic, semi-automatic and manual system. In world scenario, there are more than 50 countries are into polyhouse cultivation. USA, Spain, Canada and The Netherlands stand top in the protected cultivation area. In Asia, China and Japan are the largest users of protected cultivation. Protected cultivation increases the income to farmers because of off season cultivation when compared to normal season. In northern plains of India, off season cultivation is most profitable technology (Nair et al 2014). During winter and spring, the polyhouse provides protective covering for successful production of off-season vegetables like summer squash. (Singh et al 2020). Protected cultivation shows progress with liberalized economy and invention of newer technologies. It is not only creating avenues but also growers with fragmented land holdings show higher

productivity level which retain economic relevance to agriculture (Sabir et al 2013). Vegetables cultivation under Protected condition offers best in quality, productivity and market price. Protected cultivators increase their income by growing off season vegetables (Singh b 2006)

Capsicum is one of the most popular vegetable crops in India. It is also known as bell pepper, Shimla mirch and sweet pepper. It is grown throughout the year under protected condition. Mostly the coloured capsicum is grown under polyhouse while green capsicum is grown in open field and shade net conditions. The demand for coloured capsicum is high in urban market because of hotel industry. Under protected condition the average yield per hectare is about 80-100 tonnes. In India, production of capsicum found to be around 326 thousand tons from the area of 46 thousand hectare with the productivity of 7,108.70 kg per hectare during the year of 2017. In Tamil Nadu the total production of capsicum is around 16,689 tonnes from 284 hectare contributing 5.13 per cent of the total Indian production of capsicum during the year of 2017-2018. In Tamil Nadu Krishnagiri district stands first in the production with 16,310 tonnes (97.73 per cent) from the area of 268.64 hectare during the year of 2017-2018. So, the present study was used to study the economic analysis of capsicum under protected condition in Krishnagiri district of Tamil Nadu.

OBJECTIVE

1. Economic and feasibility analysis of capsicum under protected condition in Krishnagiri district of Tamil Nadu

MATERIALS AND METHOD

The study was conducted for production of capsicum under medium cost polyhouse at Krishnagiri district of Tamil Nadu during the year 2019-2020. To examine the economic analysis of capsicum production a well-structured interview schedule was prepared to collect the data at farm level. The multistage purposive sampling technique was used to select the sample respondents. The taluks and blocks are selected based on the area of production under capsicum in Krishnagiri district. Denkanikottai and Hosur taluks were selected. Four blocks namely Thalli, Denkanikottai, Hosur and Shoolagiri were selected. Beneficiaries list was collected from Horticulture Department and the data was collected from them. Ninety subsidy benefited farmers from the two taluks were selected randomly for the study. The establishment cost of polyhouse was calculated by using costing methods for an average size of one acre of polyhouse. Cost of cultivation was found out by using cost concepts which was given by Government of India through Commission on Agricultural Cost and Prices. Feasibility of capsicum production under protected condition was found out by using discounted and undiscounted measures like Net Present Value, Payback period, Benefit Cost Ratio and Internal Rate of Return. The study was completely based on the primary data collected from farmers during 2020.

RESULTS AND DISCUSSIONS

Cost of Establishment

The polyhouse investments are highly cost intensive during the first year. The details regarding establishment cost of polyhouse were given in the Table 1

Total investment of Rs.3232500 was used for constructing one acre of polyhouse. 50 per cent subsidy is availed for the farmers through National Horticultural Mission under Mission on Mission (NHM) under the Mission on Integrated Development Horticulture (MIDH), Government of India, through the State Horticultural Department. The various costs involved in polyhouse construction are Greenhouse structure and erection, foundation pipe, land levelling, polythene sheet

and insect net, irrigation system, sprayers and equipment. In percentage analysis the Polyhouse structure and erection was the major cost incurred with 71.15 per cent followed by polythene sheet and Insect proof net with 14.31 per cent. Irrigation system, foundation pipe and land levelling are contributing with 7.42 per cent, 4.64 per cent and 1.55 per cent respectively.

Cost of Cultivation

The various cost concepts are used to find out the cost of cultivation of capsicum by using the method given by commission on agricultural cost and price CACP, Government of India. The cost of cultivation for one acre of capsicum crop is given in the Table 2. The total working capital for an acre of capsicum crop was found to be Rs.9,13,432. Among the working capital, hired human Labour contributed 15.73 per cent of the total cost A1 which 59.88 per cent of the total cost of cultivation. Seedlings, farm yard manure and plant protection are the various cost are the major contributors in cost A1. The cost B includes rental value and interest on fixed capital was found to be Rs.13,14,732. The imputed value of labour is Rs.72,000 (4.72 per cent). The total cost C3 was Rs. 1525405.2. Average yield is about 39,000 kg. with price of Rs.60. So, the gross income is about Rs. 23,40,000. By deducting gross return from total cost, the net income was Rs.8,14,595.

Costs and Returns of Capsicum

Cash inflow and outflow are calculated for capsicum production for first three years. The first-year cost data was collected directly from farmers and for remaining years the cost is increased 10 per cent of previous year. It takes one year for construction of polyhouse so in first year only fixed cost is taken and deducted from subsidy amount. The cost and returns of capsicum are given in the table 3

Financial Analysis

The financial feasibility is analysed by using discounted measures. The indicators such as NPV, BCR and IRR. The net present value at 12 per cent discount rate for three years was Rs.650719 per acre of polyhouse area. The benefit cost ratio was 1.12 and internal rate of return is 36.20 per cent which shows the production of capsicum under protected condition is feasible one.

Table 1: Establishment cost of polyhouse (1 acre)

S. No	Particulars	Amount	Percentage
1	Land levelling	50000	1.55
2	Sim or Foundation Pipe	150000	4.64
3	Greenhouse Structure & Erection	2300000	71.15
4	Polysheet and Insect net	462500	14.31
5	Irrigation System (Fertigation and drip)	240000	7.42
6	Sprayers and Equipment	25000	0.77
7	Others	5000	0.15
	Total establishment cost	3232500	100.00
8	NHM subsidy @Rs.435 per sq.m.	1740000	

Table 2: Cost of Cultivation

S. No	Particulars	Amount	Percentage
1	Land preparation	18000	1.18
2	Bed preparation	5000	12.82

3	FYM	92000	6.03
4	Mulching	15600	0.67
5	Seedlings cost	96000	6.29
6	Training material	5000	0.33
7	Plant protection	60000	3.93
8	Fertilizer	20000	1.31
9	Hired human labour	240000	15.73
10	Polyhouse Maintenance	5000	0.33
11	Interest on working capital @ 7%	38962	2.55
12	Depreciation on fixed capital	317750	20.83
13	Land revenue	120	0.01
A	Cost A1	913432	59.88
14	Interest on owned capital (excluding land) @ 12%	381300	25.00
B	Cost B1	1294732	84.88
15	Rental value of owned land	20000	1.31
C	Cost B2	1314732	86.19
16	Imputed value of family Labour	72000	4.72
D	Cost C1 (Cost B1+ Imputed value of family Labour)	1366732	89.60
E	Cost C2 (Cost B2+ Imputed value of family Labour)	1386732	90.91
F	Cost C3 (cost c2+10% of c2) as management cost	1525405.2	100.00
17	Average yield (Kg/4000 m2)	39000	
18	Average output price (Rs/Kg)	60	
19	Gross return	2340000	

Table 3: Cost and Returns

Year	Total Cost	Total Benefit	DF@12%	Disc.Cost @12%	Disc.Benefit @12%	DF@40%	Disc.Cost @40%	Disc.Benefit @40%
0	1492500	0	1.00	1492500	0	1	1492500	0
1	1525405	2340000	0.89	1361969	2089286	0.71	1083038	1661400
2	1677946	2574000	0.80	1337648	2051977	0.51	855752	1312740
3	1845740	2831400	0.71	1313761	2015335	0.36	664467	1019304
Total				5505878	6156597		4095757	3993444

Table 4: Financial analysis

S. No	Economic indicator	Particulars
1	Net Present Value	650719
2	Benefit Cost Ratio	1.12
3	Internal Rate Return	36.20%

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