International Journal of Research in Engineering, Science and Management
Volume 5, Issue 9, September 2022
https://www.ijresm.com | ISSN (Online): 2581-5792

Comparative Economic Analysis of Cost and Returns of Organic and Inorganic Turmeric Production in Erode District of Tamil Nadu

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***Abstract*: India is cultivated wide variety of spices with premium quality since ancient times. It is known as the 'land of spices'. Turmeric is the ancient and sacred spice of India known as 'Indian saffron' is an important commercial spice crop grown in India. It finds a place in offerings on religious and ceremonial occasions from the ancient times in India. India shares around 79 percent of the global turmeric production. India has 238.0 thousand hectares under turmeric cultivation with a total production of 943.0 thousand tonnes and a yield of 4.8 tonnes per hectares during the year 2019-20. Erode district is one of the major turmeric growing district in Tamil Nadu. Turmeric produced in Erode district is sent throughout the country. It ranks first in area and production in the state followed by Salem and Erode districts. The specific objectives of the study were, to estimate the cost and return of Organic and Inorganic turmeric cultivation in the study area. The total cost of production of one quintal inorganic turmeric was Rs.4116.86 and the total cost of production of one quintal organic turmeric was Rs. 4489.60. The Benefit Cost Ratio (BCR) value for organic turmeric cultivation was 1.77. It is higher than the Benefit Cost Ratio (BCR) value of inorganic turmeric cultivation (1.58).**

***Keywords*: BCR, Cost and Returns, Inorganic turmeric, Organic turmeric.**

1. Introduction

India is cultivated wide variety of spices with premium quality since ancient times. It is known as the 'land of spices'. In Vedas, as early as 6000 BC, scruples evidences are available regarding various spices, their properties and utility. Spices with superior and diversity were traded during that period attracted to the foreigners to India. As per the definition of International Spice Group, "Spices are any of the flavoured or aromatic substances of vegetable origin obtained from the tropical or other plants, commonly used as condiments or employed for the other purposes on account of their fragrance preservation or medicinal qualities''. Turmeric is the ancient and sacred spice of India known as 'Indian saffron' is an important commercial spice crop grown in India. It finds a place in offerings on religious and ceremonial occasions from the ancient times in India.

Turmeric (Curcuma longa) the ancient and sacred spice of India is a major rhizomatous spice produced and exported from India. Also called `The Indian Saffron`. It is also known as the `Golden Spice of life ` and it is one of the most essential spices used as an important ingredient in culinary all over the world. Turmeric is cultivated as annual kharif crop in India. Its crop duration is generally 7-9 months depending on variety. In major producing states of India, sowing takes place in the month of July and harvesting commences from December to February. March – April months are peak arrival period of turmeric. The rhizomes are ready for harvesting in about 7 to 9 months after planting.

India shares around 79 percent of the global turmeric production. India has 238.0 thousand hectares under turmeric cultivation with a total production of 943.0 thousand tonnes and a yield of 4.8 tonnes per hectares during the year 2019-20. Erode district is one of the major turmeric growing district in Tamil Nadu. Turmeric produced in Erode district is sent throughout the country. It ranks first in area and production in the state followed by Salem and Erode districts. The area under turmeric in Erode district is 26.46 percent of total state area and total production is 35.81 percent of total state production with productivity of 4.89 tonnes per hectare. The specific objectives of the study were, to estimate the cost and return of Organic and Inorganic turmeric cultivation in the study area.

2. Methodology

Erode district was purposively selected for the present study in the first stage since it occupied the first position in area and production of turmeric in the state of Tamil Nadu. In the second stage, among the blocks in Erode district based on area under turmeric Kodumudi block was selected purposively for the present study. The total number of respondents was fixed as 90, in consideration of time and other resource limitations available with the researcher. The selected revenue villages were arranged in the ascending order based on the proportion of turmeric cultivation area to the total cropped area and farmers were selected at random from the selected six revenue villages, thus constituting a total sample size of 90 farmers.

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A. Cost Analysis

In order to assess the profitability and economic viability of turmeric cultivation, various components of cost were estimated. The details of these cost concepts are given as

Cost A_1: It consists of all actual expenses in cash and kind incurred in production by the owner operator. It includes cost of hired human labour, cost of manures and fertilizers, cost of plant protection chemicals, irrigation cost, interest on working capital, land revenue and depreciation of fixed capital.

Cost A_2: Cost A_1 plus rent paid for leased in land.

Cost B: Cost A_2 plus imputed rental value of owned land plus interest on owned fixed capital assets.

Cost C: Cost B plus imputed value of family labour. Cost C is the total cost of cultivation or gross cost.

B. Returns

1) Gross Income

Gross income was obtained by arriving at the total value of crops, valued at harvest price in the reference period.

2) Net Income

The net income was computed by subtracting the total (Cost C) from the gross income.

Table 1
Cost and Returns of Inorganic Turmeric in the Sample Farms (Rs./ha)

S.No.	Particulars	Cost (Rs.)	Percent
1.	Planting Material (Rhizome)	52226.00	24.13
2.	Hired Human Labour	50660.00	23.42
3.	Machine Labour (Hired+ owned)	14450.00	6.68
4.	Manures	9500.00	4.39
5.	Fertilizers	15540.00	7.18
6.	Irrigation	5000.00	2.31
7.	Plant Protection Chemicals and Growth Regulators	6000.00	2.77
8.	Land Revenue	500.00	0.23
9.	Depreciation	2500.00	1.15
10	Other Miscellaneous Cost	3500.00	1.62
11.	**Total Working Capital**	**159876.00**	**73.88**
a.	Interest on Working Capital @ 7% interest rate	11191.32	5.18
I	**Cost A1**	**171067.32**	**79.06**
II	**Cost A2** (rent on leased in land- nil)	**171067.32**	**79.06**
b.	Interest on Fixed Capital	5565.00	2.57
c.	Rental value of Own Land	17250.00	7.97
III	**Cost B**	**193882.32**	**89.60**
d.	Imputed value of Family Labour	22500.00	10.40
IV	**Cost C**	**216382.32**	**100**
12.	Yield of dried rhizome in qls/ha	52.56	
13.	Price of turmeric/qls.	6535.00	
14.	**Gross returns**	**343479.6**	
15.	**Net returns**	**127097.28**	
16.	**Benefit cost ratio**	**1.58**	
17.	**Cost of production/quintal**	**4116.86**	

Table 2
Cost and Returns of Organic Turmeric in the Sample Farms (Rs./ha)

S.No.	Particulars	Cost (Rs.)	Percent
1.	Planting Material (Rhizome)	52226.00	25.39
2.	Hired Human Labour	55660.00	27.07
3.	Machine Labour (Hired+ owned)	14450.00	7.03
4.	Manures	9500.00	4.62
5.	Biofertilizers and Organic mixtures like Panchagavya	2560.00	1.24
6.	Irrigation	5000.00	2.43
7.	Plant Protection -organic Chemicals	2000.00	0.97
8.	Land Revenue	500.00	0.24
9.	Depreciation	2500.00	1.22
10.	Other Miscellaneous Cost	3500.00	1.70
11.	Total Working Capital	147896.00	71.93
a.	Interest on Working Capital @ 7% interest rate	10352.72	5.03
I	**Cost A1**	**158248.72**	**76.96**
II	**Cost A2** (rent on leased in land- nil)	**158248.72**	**76.96**
b.	Interest on Fixed Capital	6565.00	3.19
c.	Rental value of Own Land	17250.00	8.39
III	**Cost B**	**182063.72**	**88.54**
d.	Imputed value of Family Labour	23560.00	11.46
IV	**Cost C**	**205623.72**	**100**
12.	Yield of dried rhizome in qls/ha	45.80	
13.	Price of turmeric/qls.	7950.00	
14.	**Gross returns**	**364110**	
15.	**Net returns**	**158486.28**	
16.	**Benefit cost ratio**	**1.77**	
17.	**Cost of production/quintal**	**4489.60**	

Table 3
Comparative Economic Analysis of Organic and Inorganic turmeric cultivation (Rs./ha)

S.No.	Particulars	Inorganic turmeric	Organic turmeric
1.	Cost of Cultivation	216382.32	205623.72
2.	Gross Income	343479.60	364110.00
3.	Net Income	127097.28	158486.28
4.	Benefit cost ratio	1.58	1.77
5.	Cost of production/quintal	4116.86	4489.60

3) Cost of Production per Unit

Cost of production per quintal of turmeric was arrived at by dividing the total cost of production per hectare by the total per hectare yield of turmeric, in quintal.

4) Output/Input Ratio

Output – input ratio was obtained by dividing the gross income by the total cost of production per hectare.

3. Result and Discussion

Table 1 shows that the total cost of cultivation of inorganic turmeric per hectare was Rs. 216382.32. Among the total cost, Human Labour, Manures, and Planting Material were the expensive operations in the inorganic turmeric cultivation in the study area. The total cost of production of one quintal inorganic turmeric was Rs.4116.86. Gross income from inorganic turmeric cultivation was Rs. 343479.6 per ha. Net income was Rs.127097.28 per ha and the Benefit Cost Ratio was 1.58.

Table 2 shows that the total cost of organic turmeric cultivation per hectare was Rs. 205623.72. Among the total cost, Human Labour, Manures, and Planting Material were the expensive operations in the turmeric cultivation in the study area. The total cost of production of one quintal organic turmeric was Rs. 4489.60. Gross income from organic turmeric cultivation was Rs. 364110 per ha. Net income was Rs. 158486.28 per ha and the Benefit Cost Ratio Was 1.77.

Table 3 showed that so, we notified that organic turmeric (Rs. 205623.72/ha.) consumed lower amount for cultivation than inorganic turmeric (Rs. 216382.32/ha.). Net income from organic turmeric cultivation (Rs. 158486.28 per ha.) was higher compared to Net income from inorganic turmeric cultivation (Rs. 127097.28 per ha.). It is due to lower cost of production and higher price of organic turmeric. The Benefit Cost Ratio (BCR) value for organic turmeric cultivation was 1.77. It is higher than the Benefit Cost Ratio (BCR) value of inorganic turmeric cultivation (1.58).

4. Conclusion

Organic turmeric production is higher profitable when compared to Inorganic turmeric production. The Benefit Cost Ratio (BCR) value for organic turmeric cultivation was 1.77. It is higher than the Benefit Cost Ratio (BCR) value of inorganic turmeric cultivation (1.58). It is due to lower cost of production and higher price of organic turmeric. Hence efforts should be taken by Agriculture Department to bring more area under Organic turmeric cultivation in Erode district.

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