Comparative cost and returns of some vegetables grown organically in different agro-climatic zones of Tamil Nadu

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ABSTRACT

The study was undertaken in Tamil Nadu where seven districts were selected based on organically grown vegetables from seven agro-climatic zones of the state. Totally 280 organic certified farmers comprising 40 each from seven districts were selected based on random sampling technique. Majority (58.00%) of the organic vegetable farmers were cultivating bhendi and tomato followed by bitter gourd and brinjal. The total cost of cultivation involved in organic tomato farms was comparatively less than the brinjal, bhendi and bitter gourd. The average market price received by the sample farmers was high in the case of organic farms as compared to the non-organic farms. With respect to cost and returns, among the vegetables, more remunerative vegetable was bhendi (output-input ratio 1:2.88) followed by bitter gourd (output-input ratio 1:2.55), tomato (output-input ratio 1:2.52) and brinjal (output-input ratio 1:2.45).

Keywords: Organic vegetables; net returns; input-output ratio; PGS; premium price

INTRODUCTION

Horticulture sector has emerged as one of the important and vibrant parts of Indian agriculture in recent years. Its role in the country's nutritional security, poverty alleviation and employment generation programme is becoming of increasing importance. It offers not only a wide range of options to the farmers for crop diversification for making agriculture more profitable through efficient land use but also provides ample scope for sustaining large number of agro-industries which generate huge employment opportunities. Horticultural crops have been identified as a means of diversification, optimum utilization of natural resources and creating skilled employment for rural masses especially women folk (De 2014). Vegetables are important sources of many nutrients including potassium, dietary fiber, folate (folic acid), vitamin A and vitamin C. Diets rich in potassium may help to maintain healthy blood pressure (https://www.choosemyplate.gov/eathealthy/fruits/fruits-nutrients-health).

A number of state governments have taken initiatives to develop organic farming and products. Karnataka, Sikkim and Gujarat have set up state third-party certification bodies to reduce the cost of certification and Gujarat, Kerala, Karnataka, Andhra Pradesh, Sikkim, Mizoram, Nagaland, Himachal Pradesh and Madhya Pradesh have come up with their own policy for organic products (Khurana and Kumar 2020).

A number of entrepreneurs have responded positively to government's initiatives and several start-ups have been formed in the organic food segment. Many conventional food manufacturers, retailers and exporters have already diversified their businesses to include organic food products (Mukherjee et al 2018). During the year 2018-19, 31,687 acre land has been registered under organic certification by 4,768 farmers in Tamil Nadu (https://www.tnocd.net/).

Considering the growing significance of organic farming, efforts were made to assess the cost

and returns and marketing of the organic vegetables such as tomato, brinjal, bhendi and gourds and marketing practices, cost and efficiency adopted by the organic vegetable growers.

METHODOLOGY

Seven districts were selected based on number of certified organic farmers and PGS group areas of vegetable cultivation grown organically. Total 280 organic certified farmers (40 organic farmers from each district) were selected based on random sampling technique. Based on the maximum area and production pattern in the study districts, four vegetables, brinjal, bhendi, tomato and bitter gourd were selected.

RESULTS and DISCUSSION

The cost of cultivation and production of any crop is the most important aspect of the farm economy both at the micro- and macro-levels; it provides guideline to the government in promulgating the price policy both for factors of production and the produce. The input cost was classified into two broad heads namely variable cost and fixed cost.

The variable cost included cost of human labour (family and hired), machinery labour, seeds, manures, pest repellents herbals/neem leaves and interest on working capital. On the other hand, fixed cost involved land revenue, rental value of owned land and depreciation (Adhikari 2011).

The data given in Table 1 reveal that nearly half (47.14%) of the organic vegetable farmers were cultivating bhendi followed by tomato (22.50%), brinjal (17.14%) and bitter gourd (13.22%). In the demand and supply chain management system among the vegetables, bhendi was fetching good price in the market place and was also one of the best medicinal vegetables. Bhendi does not require staking whereas it is necessary for tomato and bitter gourd.

Since tomato has indeterminate habit it needs to be pruned and staked which involves high cost in cultivation and management. Tomato fruits may be discoloured or of uneven size which may affect the sale of tomato in the market yards. Bhendi, tomato and brinjal accounted for 30.00, 28.00 and 24.00 per cent area respectively of organic vegetable farms. Hence majority of the organic vegetable farmers were cultivating bhendi and tomato followed by bitter gourd and brinjal.

Table 2 reveals that the total cost of bhendi cultivation was Rs 57,800 under one acre of land grown organically. Average yield per acre of bhendi was 9.25 tonnes; average market price (Rs 18/kg) was found to be higher than tomato and brinjal. The organically produced bhendi could fetch premium price (20%) in the market. The return structure in bhendi reveals that the gross returns per acre were higher (Rs 57,800). The net return on organic farms was Rs 1,08,700. The output-input ratio was 1:2.88. The output-input ratio was also higher on organic farms. The findings of the study are in line with those of Shelke et al (2016).

The total cost of bitter gourd cultivation was Rs 46,500 under one acre of land grown organically. The per acre average yield of bitter gourd was 6.60 tonnes. The average per tonne market price of organic bitter gourd (Rs 18/kg) was found to be higher than that of non-organic bitter gourd (Rs 14/kg). The organically produced bitter gourd could fetch premium price (15%) in the market. The return structure of bitter gourd clearly reveals that the gross returns per acre were higher (Rs 46,500). The net return on organic farms was Rs 1,18,800. The output-input ratio was 1:2.55.

The total cost of tomato cultivation was Rs 36,000 under one acre of land grown organically. The per acre average yield of tomatoes on organic farm was 6.50 tonnes. The average per tonne market price of organic tomatoes (Rs 14/kg) was found to be higher than that of non-organic tomatoes (Rs 12/kg). The organically produced tomatoes could fetch premium price in the market.

The return structure in tomato reveals that the gross returns per acre were Rs 36,000. The net return on organic farms was Rs 91,000. Though the yield levels on organic farms were lower compared to non-organic farms, the net return was higher because of the premium price (20%) received and lower cost of cultivation. The output-input ratio was 1:2.52.

The data indicate that the total cost of brinjal cultivation was Rs 42,700 under one acre of land grown organically. Average yield per acre of brinjal was 8.75 tonnes. The average per tonne market price of organic brinjal (Rs 12/kg) was found to be higher than that of

Table 1. Distribution of organic vegetable farmers according to their preferences (n= 280)

Crop	Number of respondents	Preference for crop (%)	Area (acre)	Percentage
Bhendi	132	47.14	15.53	30.00
Tomato	63	22.50	14.40	28.00
Brinjal	48	17.14	13.75	24.00
Bitter gourd	37	13.22	12.45	18.00
Total	280	100	-	-

Table 2. Comparative cost and returns of bendhi, tomato, brinjal and bitter gourd grown organically

Component	Bhendi	Bitter gourd	Tomato	Brinjal
Yield (kg/acre)	9,250	6,600	6,500	8,750
Market price (Rs/kg)	18	18	14	12
Gross returns (Rs/acre)	1,66,500	1,18,800	91,000	1,05,000
Cost of cultivation (Rs/acre)	57,800	46,500	36,000	42,700
Net return (Rs/acre)	1,08,700	72,300	55,000	69,500
Output-input ratio	2.88	2.55	2.52	2.45

non-organic brinjal (Rs 10/kg). The organically produced brinjal could fetch premium price (15%) in the market. The return structure in tomato reveals that the gross returns per acre were higher (Rs 42,700). The net return on organic farms was Rs 69,500. The output-input ratio was 1:2.45.

Thus based on the cost and returns among the organic vegetables, more remunerative vegetable was bhendi (1:2.88) followed by bitter gourd (1:2.55), tomato (1:2.52) and brinjal (1:2.45)

CONCLUSION

The total cost of cultivation involved in organic tomato farms was comparatively less than the brinjal, bhendi and bitter gourd. The average market price received by the sample farmers was high in the case of organic farms as compared to the non-organic farms. The premium price fetched led to higher net return as well as output-input ratio of 1:2.88, 1:2.55, 1:2.52 and 1:2.45 for bhendi, bitter gourd, tomato and brinjal respectively.

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