

RESEARCH ARTICLE :

Socio-economic analysis of organic and non-organic vegetable growers in Belgaum district of Karnataka

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SUMMARY : The present study was conducted in Belgaum district of North Karnataka as there are large numbers of farmers practicing the organic cultivation of vegetables. 30 farmers each practicing organic cultivation of tomato and chilli and 30 farmers each practicing non-organic cultivation of tomato and chilli spread over the district of Belgaum were selected randomly for the study. The collected data were analysed using tabular presentation method and Garrett ranking technique. The study revealed that, majority of the sample farmers expressed increasing return from organic vegetables as the reason for shifting over to organic cultivation of vegetables from non-organic cultivation. The estimated per acre cost of cultivation of tomato and chilli on organic farms was high as compared to non-organic farms whereas, the net returns was high in the case of organic farms as compared to non-organic farms. The major problems faced by the sample farmers were non-availability of labour and high commission charges.

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KEY WORDS :

Organic farms, Non-organic farms, B:C, Garrett ranking

BACKGROUND AND OBJECTIVES

India is a leading vegetable producing country in the world with an area of 9541 thousand hectare with the annual production of 168300 thousand tonne (Anonymous, 2015). Karnataka state is one of the leading vegetable producing state in the country with a production of 82.50 lakh tonne, vegetables grown over an area of 4.46 lakh ha of which, tomato occupies a major area of 61.04 thousand hectare with a production of 2068.38 thousand tonne and chilli occupies about 43.66 thousand ha with a production of 596.13

thousand tonne (Anonymous, 2013). Belgaum is also one of the major vegetable producing district in the Northern Karnataka, with an area of 49,576 ha and production of 6,77,706.56 tonne, respectively. The total area and production of tomato and chilli in Belgaum district is 5006.70 hectares and 1,70,170.00 tonne and 7,537.40 hectares and 98,796.10 tonne, respectively (Anonymous, 2013).

The Government of Karnataka is giving a together of 100 hectares of area in each district and taluk, to be converted to organic farming for which state government has selected 29 Non-Government Organizations

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and given them the responsibility to work with farmers to make their farms organic and 50 per cent of the funding for organic farming has been given by Government of Karnataka and rest will be incurred by farmer himself.

RESOURCES AND METHODS

The study was conducted in Belgaum district, as the organic cultivation of vegetable is practiced largely in the district. Two major vegetables largely grown namely tomato and chilli were selected for the study. Organic farming is emerging trend and practiced throughout the district in cultivation of vegetables. In order to study the socio-economic characters, causes for shifting to organic cultivation of vegetables, costs involved, yields, returns in organic cultivation of vegetables and problems faced by the farmers of organic vegetables, 30 farmers each practicing organic cultivation of tomato and chilli and 30 farmers each practicing non-organic cultivation of tomato and chilli spread over the district of Belgaum were selected randomly for the study. The data were analysed using tabular presentation method and Garrett ranking technique. The averages and percentages were worked out.

Garrett ranking technique :

The Garrett ranking technique was used to study the constraints faced by the organic vegetable growers.

Garrett ranking is applied to rank a set of items or factors as perceived by the sample respondents based on certain criteria. The order of merit assigned by the respondents was converted into scores using the formula.

$$\text{Per cent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

where,

R_{ij} = The rank of the i^{th} item by j^{th} individual and

N_j = The number of items ranked by the j^{th} individual.

By referring the Garrett's table, the per cent position estimated was converted into score. Then, for each factor the scores of various respondents were added and the mean score was calculated. The factor with the highest mean score was considered to be the most important factor.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well

as discussions have been summarized under following heads:

Socio-economic profile of the sample farmers :

The socio-economic characters of the respondents are presented in Table 1. In case of tomato growers, the average age of the organic tomato growers was 40.80 years where as that of non-organic farmers was 44.70 years and in both the cases the main occupation of them was agriculture. It could be further observed that majority of the sample farmers both organic (83.33%) and non-organic farmers (93.33%) were literate having their education ranging from primary to college level. From the table it could also be seen that the average size of the family of both organic and non-organic tomato farmers was about six members and average land holding was 8.45 acres, of which 5.58 acres was irrigated and remaining 2.87 acres was dry land in case of organic tomato growers whereas in case of non-organic tomato growers the average land holding was 8.40 acres, of which 4.23 acres was irrigated and remaining 4.17 was under dry land. Average area under organic and non-organic tomato was 0.84 acres and 1.19 acres, respectively. The tomato varieties grown by the organic farmers in the study area were Namadhari, Sankranti and Champakali and the average numbers of pickings were about seven where as the varieties grown by the non-organic farmers were Namadhari, Ustav and Anand and the average numbers of pickings were about nine.

In case of chilli growers, the average age of the organic chilli growers was 41.90 years whereas that of non-organic farmers was 45.90 years and in both the cases the main occupation of them was agriculture. It could be further revealed that majority of the sample farmers both organic (96.67%) and non-organic farmers (90.00%) were literate having their education ranging from primary to college level. The average size of the family of both organic and non-organic chilli farmers was about five members and average land holding was 8.23 acres, of which 4.82 acres was irrigated and remaining 3.42 acres was dry land in case of organic chilli growers where as in case of non-organic chilli growers the average land holding was 7.40 acres, of which 3.97 acres was irrigated and remaining 3.43 was under dry land. The average area under organic and non-organic chilli was 0.81 acres and 1.15 acres, respectively. The chilli varieties grown by the organic farmers in the study area were

Disha, Local, and Sankeshwar and the average numbers of pickings were about six whereas the varieties grown by the non-organic farmers were Disha, Trishul and Sitara and the average numbers of pickings were about seven.

The average size of irrigated farm was high in the case of both organic and inorganic farms compared to an average size of dry land area. This was due to the fact that in the study area water for irrigation was sufficiently available from Krishna and Ghataprabha reservoirs. It is evident from the results that as the size of irrigated farm increased, the area under vegetable cultivation also increased.

Reasons for shifting from non-organic to organic cultivation of vegetables :

The reasons for shifting from non-organic cultivation

of vegetables to organic cultivation of vegetables were obtained from the sample farmers by conducting opinion survey and the results are presented in the Table 2.

It was observed that high per cent of the sample farmers expressed the reason of increasing return from organic vegetables (73.33%), followed by reason of quality of organic vegetables (71.67%), soil health oriented motives (63.33%), increasing cost of non-organic chemicals (61.67%), environmental concern (56.67%), motivation by neighboring organic farmers (46.67%) and motivation by media (33.33%) as the reasons for shifting over to organic cultivation of vegetables from non-organic cultivation.

Anand Kumar (1998) found that increasing cost of chemical inputs (63%), increase on the net return in organic farming (11%), as the reasons behind shifting to

Table 1 : Socio-economic characters of sample farmers

Sr. No.	Particulars	Unit	Tomato		Chilli	
			Organic n=30	Non-organic n=30	Organic n=30	Non-organic n=30
1.	Age	Years	40.80	44.70	41.90	45.90
2.	Education					
	Illiterate	No.	5	2	1	3
	Primary	No.	7	5	7	5
	High School	No.	6	14	12	10
	College	No.	12	9	10	12
3.	Occupation					
	Agriculture as main occupation	No.	27	25	28	23
	Agriculture as subsidiary occupation	No.	3	5	2	7
4.	Family size	No.	6.30	5.70	5.10	5.40
5.	Land holdings					
	Irrigated	Acres	5.58	4.23	4.82	3.97
	Dry land	Acres	2.87	4.17	3.42	3.43
	Total	Acres	8.45	8.40	8.23	7.40
6.	Average area under tomato and chilli	Acres	0.84	1.19	0.81	1.15
7.	Varieties used		Namadhari, Sankranti, Champakali	Namadhari, Ustav, Anand	Disha, Local, Sankeshwar	Disha, Trishul, Sitara
8.	Average number of pickings	No.	7.30	8.67	6.37	6.90

Table 2 : Reasons for shifting over to organic farming

(n=60)

Sr. No.	Reasons	Frequency	Per cent
1.	Increasing cost of non-organic chemicals	37	61.67
2.	Increasing return from organic vegetables	44	73.33
3.	Quality of organic vegetables	43	71.67
4.	Soil health oriented motives	38	63.33
5.	Environmental concern	34	56.67
6.	Motivation by neighboring organic farmers	28	46.67
7.	Motivation by media	20	33.33

organic farming. Whereas, Loganandan and Singh (2003) observed that more number of respondents (54%) had the motive of environment safety to shift to organic farming followed by financial motives (40%), soil health oriented motives (34%), motivation by significant others viz., neighboring organic farmers, environmental activists etc. (30%), quality of output related motives (24%), motivation by media (24%) and philosophical motives (18%).

Economics of organic vegetable cultivation :

The results on detailed economic analysis of organic cultivation of tomato and chilli crops by sample farmers as depicted in Table 3 has been presented below.

Perusal of the Table 3 indicated that the total cost of tomato cultivation on organic farms was less than that of non-organic farms. The average cost of cultivation per acre of tomato on organic farm was Rs. 17157.97 as

against Rs. 17702.53 on non-organic farms. The per acre average yield of tomatoes on organic farm (5.81 tonne) was comparatively lower than that of non-organic farm (6.95 tonne). The average per tonne market price of organic tomatoes (Rs. 9550.00) was found to be higher than that of non-organic tomatoes (Rs. 6850.00). The organically produced tomatoes could fetch premium price in the market. The total marketing cost was Rs. 6182.64 and Rs. 6235.57 for organic and non-organic tomatoes, respectively. The return structure in tomato clearly revealed that the gross returns per acre was higher (Rs. 55989.07) on organic farms compared to that of non-organic farms (Rs. 47012.62) with a positive net return on both the categories of the farms. The net return on organic farms was Rs. 32649.12 and was Rs. 23074.52 on non-organic farms. Though the yield levels on organic farms were lower compared to non-organic farms, the net returns were higher because of the premium price

Table 3 : Economics of organic vegetable cultivation

Sr. No.	Particulars	Tomato		Chilli	
		Organic	Non-organic	Organic	Non-organic
1.	Yield (tonne per acre)	5.81	6.95	4.10	4.86
2.	Market price (Rs. per tonne)	9550.00	6850.00	9830.00	6300.00
3.	Total marketing cost (Rs. per acre)	6182.64	6235.57	3726.30	3484.66
4.	Gross returns (Rs. per acre)	55989.07	47012.62	40289.86	30583.33
5.	Cost of cultivation (Rs. per acre)	17157.97	17702.53	18336.62	19114.91
6.	Net returns (Rs. per acre)	32649.12	23074.52	18226.94	7983.77
7.	B:C	2.40	1.96	1.83	1.35

Table 4 : Problems of organic farmers

Sr. No.	Problems	(n=60)	
		Garrett rank	
Production related problems			
1.	Non- availability of seed materials	VI	
2.	Non- availability of organic manures	VII	
3.	Non-availability of biopesticide	V	
4.	Incidence of pests and diseases	III	
5.	Non- availability of water for irrigation	VIII	
6.	Limited and irregular power supply	IV	
7.	Non- availability of labour	I	
8.	Non- availability of information on organic farming	II	
Marketing problems			
1.	Poor transport facilities	VI	
2.	Non- availability of market related information	II	
3.	Fluctuation in the prices of commodities	V	
4.	High commission charges	I	
5.	Faulty weighment	VII	
6.	Non- availability of exclusive market for organic produce	III	
7.	Absence of premium price in the local market	IV	

received and lower cost of cultivation. The B:C was also higher on organic farms (2.40) compared to non-organic farms (1.96). The findings of the study are in line with that of Suresh (2001) and Pandey *et al.* (2006).

Similarly in the case of chilli also the total cost of on organic farms (Rs. 18336.62) was less than that of non-organic farms (Rs. 19114.91). The per acre average yield of chilli on organic farm (4.10 tonne) was comparatively lower than that of non-organic farms (4.86 tonne). The average per tonne market price of organic chilli (Rs. 9830.00) was found to be higher than that of non-organic chilli (Rs. 6300.00). The total marketing cost involved in the marketing of organic chilli and non-organic chilli was Rs. 3726.30 for and Rs. 3484.66, respectively. The return structure in chilli clearly revealed that the gross returns per acre was higher (Rs. 40289.86) on organic farms compared to that of non-organic farms (Rs. 30583.33) with a positive net return on both the categories of the farms and hence B:C as well.

There was more seed cost involved in non-organic farms than organic farms, this was mainly due to the reason that majority of the farmers use the local varieties in the cultivation of organic tomato where as in case of non-organic tomato cultivation the farmers use hybrids. The cost incurred on plant protection measures was low in organic farms compared to non-organic farms because the organic farmers used biopesticides, most of which were home preparations and some purchased microbial extracts. Thus the total cost of cultivation involved in organic farms was lesser than that of non-organic farms in the case of both the crops. The average market price received by the sample farmers was high in the case of organic farms as compared to the non-organic farms since the organic farmers send their produce to the distant markets like Belgaum, Pune, Solhapur and Bangalore as they unable to get the premium price in the local market. Because of the premium price it fetched the net return as well as B:C on organic farms was more than non-organic farms. The findings are in conformity with the study conducted by Bharadwaj *et al.* (2000) and Jadhav *et al.* (2006).

Problems of organic vegetable growers :

Opinion survey was conducted to know the problems faced by the sample farmers in the production and marketing of organic in the study area. Problems were analysed using Garrett's ranking techniques and the

results of the study are presented in the Table 4.

It was observed that majority of the sample farmers expressed the problem of non-availability of labour which was ranked first among the production of organic vegetables, followed by non-availability of information on organic farming, incidence of pest and diseases, limited and irregular power supply, non-availability of biopesticides, non-availability of seed material, non-availability of organic manures and non-availability of water for irrigation. This might be due to non-availability of recommended package of practice and laborious process involved in application of organic practices, coupled with big land holdings and migration of agricultural labour force.

Whereas, with respect to the marketing related problems of organic vegetables, it was observed that, involvement of high commission charges for the produce was the major problem followed by non-availability of market related information, non-availability of exclusive market for organic produce, absence of premium price in the local market, fluctuation in the prices of commodities, poor transport facilities and faulty weighing as the major problems. The uncontrolled market and distress situation among the respondents while marketing, for compelling the farmers to sale the organic produce in local market might have resulted for the incidence of these problems. Similar results were observed by Timmareddy (2001) and Patel (2008).

Conclusion :

The results of the study revealed that the yields on organic farms were found to be lower than inorganic farms. Though organic farming gives relatively lower yields in the initial years, its continuous practice will help to build up the soil fertility, thereby to get increased yield in the later years. Hence, it is advisable for the farmers to switch over to organic farming which minimizes the environmental degradation. Farmers are facing the problem of non-availability of organic inputs hence, large scale multiplication of biofertilizers, vermicompost, biocontrol agents should be undertaken for distribution to the farmers at reasonable rates by the NGO's, Department of Agriculture, Agricultural Universities and private companies. Producers of organic vegetables are not finding market for their produce locally so consumer awareness about the quality of products produced from organic farming should be increased so that producer

will get good market.

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