



Economics of tea growing in Himachal Pradesh

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ABSTRACT

The present study was conducted in Palampur, Kangra district of Himachal Pradesh to examine the comparative economics of tea production on small and large tea farms (estates). The study was carried out during 2016 based on a random sample of 50 small tea growers and 3 tea estates chosen using stratified random sampling technique. The results of the study revealed that among different components of operational cost, the share of expenditure on human labour was highest (84-85%) on small farms as well as in estates. Per hectare tea leaf production was 54.5q in case of small and 57q on large tea farms. The cost of production on the small farms was observed to be ₹ 1, 561 per quintal while it was ₹ 1,356 in estates. The economic viability of tea production was higher in estates as compared to small farms partially due to mechanization of some operations and the economies of scale. Output-input analysis showed that the production of made tea was more profitable on estates as compared to small farms. Among the factors affecting tea production, labour days used, area under tea and experience in tea cultivation had positive and significant influence on production of tea. In order to boost tea production in the state, incentivized machine use in tea cultivation and enhancing marketing scope of homemade tea are some of the efforts that need attention of policy makers.

Key words: Costs and returns, Benefit-cost ratio, Small farms, Tea estates

Tea industry plays an important role in most of the developing countries in earning foreign exchange that contributes in a big way to national income and development. India is one of the finest tea producing countries. India ranks second in area as well as production in the world and fourth in world exports of tea. It has become a common beverage and around 90% of total production in the country is consumed by the domestic consumers. The tea industry in India is one of the oldest and perhaps the most efficiently organized agricultural enterprises in the country. In India, tea is grown in an area of 5.10 lakh ha producing 23% of the global tea production (Hazarika *et al.* 2017).

Of late, tea industry is facing huge competition due to inefficiency in the value chain management especially related to land management, plucking efficiency and manufacturing cost. Though Himachal Pradesh is not a major tea producing state, yet parts of Kangra and Mandi districts in the state are known for quality tea production since British times. Although the area under tea gardens in the state is quite low yet it is the major source of livelihood for many farm families. But due to some reasons, the area under tea as well as its production in the region has been declining for the last few decades. The tea gardens in Himachal Pradesh are mainly maintained on individual holdings with average size of less than two hectares which is well below the national

average size. The sources at the Tea Board of India claim that tea industry of Himachal Pradesh is passing through a challenging period as people have lost interest in the plantation, for which various factors are responsible. With this background in view, the present paper seeks to examine the comparative cost of tea production on small and large farms and study the factors affecting tea production in Himachal Pradesh.

MATERIALS AND METHODS

Tea production in Himachal Pradesh is confined to Palampur, Baijnath, Kangra, Dharamshala and Jogindernagar tehsils of the state. Of the total area under tea gardens, Palampur tehsil alone accounts for the highest share (61.22%). Also, it has the largest proportion (56.45%) of total tea growers in the state (Kanwar 2017). Therefore, Palampur tehsil of Kangra district was selected purposively and the study was carried out in 2016. As per the standard definition of Tea Board of India, the growers having area under tea cultivation of more than 10 ha are categorized as big growers (estates) and those having area less than 10 ha are categorized as small tea growers. Using the stratified random sampling technique, a sample of 50 small and 3 large tea growers (estates) was selected to accomplish the objectives of the study. Here, it is worth mentioning that there were only 18 tea estates in the study area.

Primary data from the sample tea growers were collected on a well structured survey schedule through personal interview method. Tabular analysis using averages,

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percentages and standard farm management cost concepts were employed to accomplish the objective of the study. The factors affecting the tea production were studied using multiple regression model. The following form of Cob-Douglas production function was used;

$$Y = b_0 X_1^{b_1} X_2^{b_2} X_3^{b_3} X_4^{b_4} e^U$$

where, Y, Total production of tea leaf (kg); X_1 , Labour days for tea production (man days); X_2 , Fertilizers quantity (kg); X_3 , Area under tea garden (ha); X_4 , Experience in tea cultivation (years); b_0 , Constant; b_i 's ($i = 1, 2, \dots, 4$), Regression coefficient of the respective variables; U, Error-term.

RESULTS AND DISCUSSION

Area under tea on sample farms: There are 5900 tea gardens spread over an area of 2312 hectares between Shahpur-Palampur-Bajinath-Jogindernagar (Chauhan 2015). Nearly 96% of the holdings have an average size of less than an acre and the total production of Kangra tea is about 7-8 lakh kg annually (Sanyal 2017). Among the sample small tea growers, the maximum number of growers (40%) had less than 1 ha area under tea cultivation. The maximum and minimum area owned under tea cultivation was 8 ha and 0.08 ha, respectively among the small tea growers. Land utilization pattern on sample farms revealed that the average size of tea farms was 2.05 ha and 55 ha on small tea farms and estates, respectively and as such there was wide variation of tea land holding between small farms and tea estates. On small tea farms area under tea cultivation accounted for 61.93% of the total owned area while it was 58.71% on tea estates. The minimum and maximum area under tea cultivation on small farms was 0.08 ha and 8 ha, respectively while it was 28 ha and 105 ha, respectively on the tea estates.

Cost and returns of green tea leaves: A look at different components of cost of production of green tea leaves across farms revealed that among the different components of total operational cost, the share of labour was found to be highest, which was 78.92% and 73.18% on small tea farms and tea estates, respectively (Table 1). The total cost (Cost D) was estimated at ₹ 85049/ha and ₹ 77341/ha on small tea farms and tea estates, respectively. Per ha production of green tea leaf was estimated at 54.5 q and 57.04 q on small tea farms and tea estates, respectively. Per kg price of green tea leaf received by the growers was higher on estates (₹ 25/kg) as compared to that on small farms (₹ 20/kg) due to better quality of produce. It was also observed that growers were receiving higher prices for the first flush and comparatively lower for the subsequent flushes. It was due to good quality of tea leaf during first flush. Thus, with the higher yield and better prices of tea leaves the gross returns per ha were higher on tea estates (₹ 142600) as compared to small farms (₹ 109000). The net returns over Cost D amounted to ₹ 23951/ha and ₹ 65259/ha on small farms and estates, respectively. The output-input ratio was 1.28 on small farms and 1.84 in estates. Thus, it indicated

Table 1 Cost of cultivation and gross returns of green tea leaves (₹/ha)

Particular	Small farms	Tea estates
Labour expenditure	39,144	36,335
Fertilizers & chemicals	6,842	8,954
Depreciation on equipments (10% p.a.)	632	1,206
Land revenue	35	35
Miscellaneous expenditures	580	758
Total	47,233	47,288
Interest on working capital (10% half yearly)	2,362	2,364
Cost A	49,595	49,652
Interest on owned capital (8% p.a.)	499	998
Cost B1	50,093	50,650
Rental value of owned land	10,900	14,260
Cost B2	60,993	64,910
Imputed value of family labour/ salaries	16,324	5,400
Cost C	77,317	70,310
10 % of cost C	7,732	7,031
Cost D	85,049	77,341
Tea leaf production (q/ha)	54.5	57.04
Price (₹/kg)	20	25
Gross Returns (₹)	1,09,000	1,42,600
Net Returns over Cost D (₹)	23,951	65,259
Output-input ratio	1.28	1.84
Cost of production (₹/q)	1561	1356

that the economic viability of tea in the estates was higher as compared to that on the small farms. Per quintal cost of production on the small farms was estimated at ₹ 1561 while it was estimated at ₹ 1356 on estates indicating the economies of scale on estates.

Cost of and returns from made tea: The tea leaves are processed after withering them for at least 24 hours. It is processed either traditionally with hands or in a rolling machine. It was observed during the survey that about 64% of the growers were supplying the green tea leaf to factory and the remaining was selling the made tea. Per ha production of made tea, gross returns, net returns over various costs and per quintal cost of production have been worked out and presented in Table 2. Thus, per ha production and gross returns from made tea were estimated at 11.02q and ₹ 220400 on small farms while these were 12.25 q and ₹ 428750 on estates, respectively. The higher gross returns of made tea over green tea leaf sale has also been reported by another study (Das 2012). Net returns over total cost were estimated at ₹ 101609 and ₹ 244222/ha on small farms and tea estates, respectively. Per quintal cost of production of made tea was estimated at ₹ 10780 and ₹ 15064 on small farms and estates, respectively. Output-input

Table 2 Production, returns and benefit-cost ratio of made tea

Particular	Units	Small farms	Estates
Made tea production	q/ha	11.02	12.25
Price	₹/kg	200	350
Gross returns	₹/ha	220400	428750
Net returns over	₹/ha		
Total variable cost	₹	128974	291849
Total cost	₹	101609	244222
Cost of production	₹/q	10780	15064
Output-input ratio		1.86	2.32
Break-even point	q	2.34	0.16

analysis showed that the production of made tea was more profitable on estates as compared to on small farms. The break-even analysis showed that no profit no loss output level of tea was 2.34q on small farms while it was 0.16q on tea estates.

Factors affecting tea production: The Tea Board had come up with a garden gradation system aimed at probing the health of the country's acutely sick 1413 gardens. While most of the gardens fared in the mid grades after the board identified problems related to agricultural practices, sustainability and labour issues, it sounded caution for 252 gardens. In Himachal Pradesh the alert had been sounded for 13 gardens, out of which 11 are in acute condition and 2 are headed towards sickness. The gardens that failed to meet at least 40 per cent of the agency's parameters were categorized as acute, while the potentially sick gardens failed to meet at least half of the parameters (Rakshit 2017). There is some scope for the tea industry to cheer through the many social sector schemes announced in the Union Budget, according to officials. The organized tea industry in India feels burdened by the social costs that it has to bear through legal framework like the Plantation Labour Act, which mandates it to provide the plantation workers facilities towards medical care, housing, subsidised rations and water supply. Industry pegs this to be at about 10% of its production cost (Dutta 2018).

The study of determinants of tea production in the present study revealed that labour days, area under tea and experience in tea cultivation had positive and significant influence on production of tea leaf (Table 3).

The study revealed that the average size of farm was 2.05 ha and 55 ha on small tea farms and estates, respectively. The economic viability of tea production was higher in the estates as compared to that on the small farms due to mechanization of some operations and the economies of scale. Output-input analysis showed that the production of made tea was more profitable on estates as compared to on small farms. As regards the factors affecting tea production, it was observed that labour used area under tea and experience in tea cultivation had positive and significant influence on production of tea.

The area under tea plantations is dwindling due to the lure of high real estate rates coupled with lack of skilled

Table 3 Factors affecting tea production on sample farms

Particular	Coefficients	Value	Standard error	t-value
Constant	b_0	1.1598	0.6285	1.8455
Labour days (man days)	b_1	0.7605*	0.2304	3.3013
Fertilizers quantity (kg)	b_2	0.0125	0.0176	0.7144
Area under tea (ha)	b_3	0.7225*	0.2587	2.7928
Experience of tea cultivation (years)	b_4	0.2873**	0.1291	2.2251
Coefficient of multiple determination	R^2	0.6215**		

*Significant at 1% level of significance, ** Significant at 5% level of significance.

labour. Hence, there is need to incentivize mechanized tea cultivation especially with respect to plucking and pruning operations and restrict the changing of land use in tea gardens. Such machines need to be introduced at the farm level and proper training be given about the handling and operation of these machines to farmers. Further, since, there is lack of markets for selling of homemade tea, therefore, it is suggested that a tea auction centre in Himachal Pradesh, preferably in Kangra district should be opened so that the farmers may be encouraged to produce made tea as returns from made tea were higher as compared to green leaf. Also, there is a need for upgrading the skills and knowledge of the tea growers through the organization of trainings programmes and conducting demonstrations on different aspects of tea production. Finally, old bushes giving lower yields need replanting and rejuvenation in a phased manner to boost this industry in the state.

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