

Estimate Resources used, Cost Return Structure and Various Cost concept of Tea in Kangra District, Himachal Pradesh

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ABSTRACT: The study was designed with the conspicuous objective of evaluating the costs involved in tea cultivation and repayment from tea production in the study area. Primary data was collected from 50 tea growers stationed in 5 randomly selected villages in a purposively selected block of Kangra district. The respondents are grouped into three different size categories: Size group I, Size group II, and Size group III. The secondary data was collected from The Palampur Co-operative Tea Factory and Tea board Palampur. It was observed that the total cost of cultivation for Size group I, Size group II, Size group III tea growers was Rs. 45720.49, Rs. 48325.34, and Rs. 49632.72, respectively, on an average cost of cultivation of Rs. 47892 on one hectare of land for tea. The overall net income per hectare was Rs. 52696.59 and gross income is Rs. 100667. Major constraints in tea production were non availability of workers in peak season, Change in climatic factors like low rainfall/high rainfall/drought/flood, and management of pest and diseases. During the survey, it was found that the tea gardens of the study were quite aged. The tea plants in Palampur are grown by the Britisher about 170 years ago which lead to lost in their vigour. Himachal government has targeted to double the tea production by next five years by bringing 100 hectares area under commercial tea cultivation in the coming 5 years. It was revealed from the data that human labour accounts for largest share in the cost of cultivation of tea is a labour-intensive crop.

Keywords: Cost of cultivation, cost of production, average cost, gross income, and net income.

INTRODUCTION

The word Tea has been derived from 'te' of thukien dialect. Tea is believed to have originated in monsoon swept forests of wild mountainous region where Indo-China, India, China, and Burma meet. Tea as a beverage is grown in about sixty-four countries of the world ranging from extreme cold climate of Russia to Hot Tropic in Asia and Africa, but the cultivation is concentrated in Asian countries, which contribute to around 87 per cent of the total world production and then to African countries. Tea as a beverage is consumed by more than 150 countries of the world (Roy, 2013; Gascoyne *et al.*, 2018; Euromonitor International, 2021).

Indian tea reaches to consumers of around 80 countries. In terms of total quantity consumed, India tops the list among global tea consumers. But India 's per capita consumption of tea is among the lowest (Gopal & Raveendran 2008). Tea industry of India is one of the oldest agro-based well-organised industry. In India, tea is grown in an area of 5.10 lakh ha producing 23% of the global tea production (Hazarika *et al.*, 2017). Today, tea industry provides direct employment to over one million persons in India. According to the report of

Tea Board of India total 1343.06 million kg of tea has been exported with value of 474.22Mill US\$. The tea grown in Kangra valley in general and Palampur in particular belongs to the rare China hybrid leaf variety (Tea Board of India 2021; Das 2021; Deka *et al.*, 2018). Kangra tea acquire quality, unique aroma, and tinge of fruity flavour due to geographical properties of the region. The good flavour and high aroma lead to acquire popularity in world. Kangra tea is exported to many countries like Russia, Ukraine, Kazakhstan, U.K., Netherlands, Germany, and other countries. North India's average yield of tea was high than South India's average yield of tea (Sivanesan and Wilson 2014). Beautiful packs named unique, golden flowery; Orange Pekoe have found to be eager taker by consumers. Presently, 5,900 growers cultivate tea in the Palampur, Baijnath, Dharmshala, and areas of Kangra district, Joginder Nagar and Karsog area of Mandi district and Bhattiyat of Chamba respectively. 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). Most of the tea growers in Himachal Pradesh are small scale farmers. Tea cultivation in

small scale is highly income generating if it is managed properly by the growers (Ch. & Chakraborty 2014). Tea is cultivated over 2,312 hectares on the foothills of the Dhauladhar mountain ranges. Tea is a 'location specific', 'labour intensive', remunerative and systematic form of cultivation (Laskar *et al.*, 2019). The tea plants in Palampur are grown by the Britisher about 170 years ago which lead to lost in their vigour. The main reason for low and pathetic yield and production has been the dominance of old bushes and varied problems faced by small tea growers regarding labour, financing, and marketing of their produces (Devi & Sharma 2015). As tea is a perennial crop, grower cannot turn to crop rotation when the prices are low nor can they can increase output in short period to take advantage of high ruling prices. Manufactured tea is perishable as it is stored up to a period of one year only without much deterioration. Processing units provide less price of green leaf to the farmer, which lead to decline in the income of the grower (Tea Board of India, 2021; Kumar *et al.*, 2018; Negi and Pandey 2011; Singh *et al.*, 2018). In the present study, an attempt was made to evaluate cost of cultivation of tea and constraints faced by farmer. The European Commission (EC) has awarded protected geographical indication (PGI) status to Kangra tea, a unique variety of tea grown in Kangra district of India's Himachal Pradesh. The tag will help Kangra tea to get an opportunity to enter the European market (2021, May 6).



Fig. 1. Freshly picked two leaves and bud.

RESEARCH METHODOLOGY

Sampling design. Multi-stage sampling procedure was adopted for the study to select the ultimate units of the sample's selection of district as the first stage unit, block as the second stage unit, villages as the third stage units and farm holding as the final and ultimate stage units.

Selection of districts. The state comprises 12 districts, among these district, Kangra district was selected purposely for the study of tea for present study.

Selection of block. Out of the 15 blocks of selected district two block Palampur and Baijnath are selected purposely.

Selection of Villages: A list of tea growing villages was obtained from the Tea Board located in Palampur. A list of all the villages in selected block was prepared and 5% villages were selected randomly.

In order to select the villages from Block Palampur and Baijnath – Thakurdwara, Bundla, Raipur, Utrala, and Banuri were selected.



Fig. 2. Data Collection from respondent.

Selection of Respondents:

Sr. No.	Particulars	Size- Class
1.	Size Group I	Below 1 hectare
2.	Size Group II	1- 10 hectare
3.	Size Group III	Above 10 hectares

A separate list of farmers growing tea of selected villages was prepared along with their holding size. From this list 10% of respondents were selected randomly. Thereafter, 10% sample growers were selected by simple random technique from each size group (stratum) in each selected village. Thus 50 tea growers were selected by simple random sampling from all the 5 selected villages.



Fig. 3. Kangra Valley tea estate.

Analysis of data/analytical tools. Survey method was used for the collection of the primary data. Data was collected by personal interview with the respondents in the well-prepared schedule. Several visits were conducted of different selected areas for the collection of the data. Primary data was collected on the spot with the help of the growers, village heads, block development officers, marketing officers, tea industries and agricultural extension officers. The secondary data was computed from the records of published reports, bulletins, journals, books, records of Tea Board of India (Palampur) and local newspaper.

Period of study. The data will be collected for the year 2021-2022.

Analytical Techniques. Several techniques are available for evaluating the production. Those techniques have been adopted; they are as follows:

(A) Arithmetic Mean

$$AM = \frac{\sum X_i}{N}$$

Where, AM= Arithmetic Mean
 $\sum X_i$ = Sum of Variable
N= Total number of Variables

(B) Weighted Mean

$$WM = \frac{\sum W_i X_i}{\sum W_{ii}}$$

Where, WM= Weighted Mean
 W_i = Weight of X_i
 X_i =Variable (Source- <https://wikieducator.org>)

(C) Cost And Return Concept

Cost A1:

• Value of hired human labour, Value of hired bullock labour, Value of owned bullock labour, Value of owned machinery labour, hired machinery charges, value of seed (both farms produced and purchased), Value of insecticide and pesticide, Value of manured (owned and purchased), Value of fertilizer, Depreciation on implements and farm buildings, Irrigation charges, Land revenue, cesses, and other taxes, Interest on working capital, Miscellaneous expenses (artisans etc.)

Cost A2: Cost A1 + rent paid for leased in land

Cost B1: Cost A1 + interest on value of owned fixed capital assets (excluding Land)

Cost B2: Cost B1+ rental value of owned land (net of land revenue) and rent paid for leased-in land

Cost C1: Cost B1+ imputed value of family labour

Cost C2: Cost B2+ imputed value of family labour

Cost C2*: Cost C2 adjusted to consider valuation of human labour at market rate or statutory minimum wage rate whichever is higher

Cost C3: CostC2* + value of management input at 10% of total cost (C2*)

Cost C is the total cost of cultivation

• Farm business income = Gross income – Cost A1 or A2.

• Net income = Gross income – Cost C.

• Farm investment income = Farm business income – imputed value of family labour.

(D) Garrett’s Ranking Technique

Constraints perceived and the measures for improvement suggested by the producers in production and marketing were prioritized by using Garret’s ranking technique by using the follow formula:

$$\text{Percent position} = \frac{100 * (R_{ij} - 0.50)}{N_j}$$

Where, R_{ij} is the rank given to i^{th} item by the j^{th} individual,

N_j is the number of items ranked by the j^{th} individual

RESULT AND DISCUSSION

Cost of Cultivation. There are 5900 tea gardens spread over an area of 2312 hectares between Shahpur-Palampur-Bajjnath-Jogindernagar. 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 had less than 1 hectare area under tea cultivation. The cost of cultivation of tea seemed to have an inverse relationship with the size of the holding (Paul and Chandra 2008).

The cost of cultivation of tea comprised (i) variable cost and (ii) fixed cost. The cost of cultivation of the human labour formed the major component, followed by expenditure on manures and fertilizers plant protection for, herbicides fencing material. However, the relative share in the expenditure on human labour showed an increasing trend with the increase in farm size while that of plant protection chemicals showed an increasing trend with increase in farm size. Results thus highlighted the fact that tea cultivation is not only capital intensive but labour intensive as well. There is difference in the total cost of cultivation among the various size groups as with the increase in farm size expenses also increase

although variation among the group was observed in some cost components. In tea production, the labour cost constitutes a significantly large part of the total expenses in all size groups, although there are inter-farm cost differences. The results agree to the findings of sample survey conducted by RBI indicate the labour cost on tea plantation accounted for an average of 47.2 per cent of the annual total expenses of tea plantation. 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).

Table 1 shows that the cost of labour accounts maximum cost in the cost of cultivation of tea. Irrigation charges are the lowest charges included in cost of cultivation of tea. In size group I the family labour is more compare to Size group II and III. With the increase in farm size requirement of labour also increase.

Operational and maintenance cost. The cost incurred by the tea farms on labour and materials expenditure was considered as operational and maintenance cost to carry out day-to-day operation. Item wise cost of maintenance per ha and per farm for different farm size is shown in table. The composition of operational and maintenance cost per ha for different size group indicated that higher quantum of cost incurred in the Size Group III. Hired human labours are required for most of the operations in the process of production of green tea leaves. That’s why charges of hired human labour were observed to be higher (Das, 2019). With the involvement of family labour, the operational cost decreases whereas without family labour operational cost increases. This shows that the cost incurred on variable inputs increased with the increase in size of farms. It was mainly due to the higher level of variable inputs like fertilizer, labour etc. by the large tea growers as compared to other farm categories. Among different components of total operational cost, the share of labour was found to be highest under different categories of tea farms.

Table 1: Cost of cultivation of tea in various size groups of sample growers (Rs. /ha).

Particulars	Size Group I	Size Group II	Size Group III
I. Variable Cost			
1. Human Labour	23890 (52.25)	25765 (53.31)	26757 (53.91)
i. Family Labour	8995 (37.65)	9038 (34.03)	6845 (25.58)
ii. Hired Labour	14895 (62.34)	16727 (64.92)	19912 (74.41)
2. Tractor Labour	2608 (5.59)	2706 (5.59)	2655.33 (5.34)
Material Cost			
1. Fertilizers	2560 (5.59)	2600 (5.38)	2850 (5.74)
2. Plant Protection Chemicals	2589 (5.66)	2604 (5.38)	2635.50 (5.31)
3. Irrigation	1230 (2.69)	1534.50 (3.17)	1375.17 (2.77)
Total Variable Cost	32877 (71.90)	35209.5 (72.85)	36273 (73.08)
II. Fixed Cost			
1. Rental Value of Land	6000 (13.12)	6000 (12.41)	6000 (12.08)
2. Interest on Fixed Capital	1456.22 (3.18)	1488.13 (3.07)	1517.33 (3.05)
3. Depreciation on fixed assets	1230.87 (2.69)	1234.50 (2.55)	1330.33 (2.68)
Total Fixed Cost	8687.09 (19.00)	8722.63 (18.03)	8847.66 (17.82)
Sub Total Cost (I+II)	41564.09 (90.90)	43932.13 (90.85)	45120.66 (90.90)
Managerial Cost 10% of Sub-Total	4156.40 (9.09)	4393.21 (9.08)	4512.06 (9.09)
Total	45720.49 (100)	48325.34 (100)	49632.72 (100)

Source- Field Survey (Figures in parentheses indicate percentage to total cost)

However, in absolute terms it was found to be highest i.e., Rs 37584.43 in case of Size group III farms and lowest i.e., 33900.90/ha in case of Size group I tea farms. A look at different components of cost of production of 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 70% to 72%, respectively (Table 2). The higher level of expenditure on labour can be attributed to the fact that tea operations like plucking and pruning were highly labour intensive. The per cent share of plant

protection chemicals in total operational cost was quite low which was estimated at 5.45 per cent on overall tea farms. It was due to the reason that most of the tea growers were not using pesticides for management of insect-pests and diseases. 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).

Table 2: Operational and maintenance cost of tea cultivation in different size groups of tea growers (Rs. Per ha).

Particulars	Size group I	Size group II	Size group III
1. Hired human labour	23890 (70.47)	25765 (70.86)	26757 (71.19)
i. Family Labour	8995 (26.53)	9038 (24.85)	6845 (18.21)
ii. Hired Labour	14895 (43.93)	16727 (46.00)	19912 (52.97)
2. Irrigation	1230 (3.62)	1534.50 (4.22)	1375.17 (3.65)
3. Fertilizer	2560 (7.55)	2600 (7.15)	2850 (7.58)
4. Plant Protection Chemicals	2589 (7.63)	2604 (7.16)	2635.50 (7.01)
5. Fencing	550 (1.62)	550 (1.51)	550 (1.46)
Total Maintenance cost	30819 (90.90)	33053.5 (90.90)	34187.67 (90.90)
Interest on maintenance cost @ 10%	3081.9 (9.37)	3305.35 (9.09)	3416.76 (9.09)
Total	33900.90 (100)	36358.85 (100)	37584.43 (100)
Operational expenses			
i. Without Family	24905.9	27320.85	30739.43
ii. With family	33900.90	36358.85	37584.43

Source- Field Survey (Figures in parentheses indicate percentage to total cost)

The computation of cost of cultivation is necessary to determine the relative profitability of various crops over different costs. The different management costs like Cost A, Cost B1, Cost B2, Cost C it Cost C2 and Cost C3 for the tea production on different categories of tea farms have been computed on per hectare. It can be observed from the Table 3 that cost A is higher in case of Size Group III i.e., Rs. 32845.66 whereas in size group II it is Rs. 29444.13 whereas in Size group I it is Rs. 21219.09 per hectare. This shows that the cost incurred on variable inputs increase with increase in size of farm.

Cost B1 and Cost B2 have also been calculated by adding interest on owned equipment's and rental value of the owned land, respectively over Cost A to estimate the family labour income of the tea growers. The Cost B1 was Rs. 22675.32, Rs. 30932.26 and Rs. 34362.99 per hectare in size group I Size group II and size group III, respectively whereas Cost B2 Rs. 28675.31, Rs. 36932.26 and Rs. 40362.99per hectare on overall tea farms. Similarly Cost C1 and Cost C2 were also calculated by adding imputed value of family labour on Cost B1 and Cost B2, respectively.

Table 3: Per hectare cost and income from production of tea crop on various cost concept (Rs. Per hectare).

Sr. No.	Particulars	Size group of farms		
		Size Group I	Size Group II	Size Group III
1.	Cost A1	21219.09	29444.13	32845.66
2.	Cost B1	22675.32	30932.26	34362.99
3.	Cost B2	28675.31	36932.26	40362.99
4.	Cost C1	31670	39970.26	41207.99
5.	Cost C2	37670.31	45970.26	47207.99
6.	Cost C3	41826.71	50363.47	51720.05

Source- Field Survey

Table 4. reveal the gross income of the farm which is more in Size group III. Net income of the farm is more in size group III which is Rs. 56279.95 followed by Size group II and Size group I. we can say from above

table with the increase in the size of the farm income also increases. The higher gross returns of made tea over green tea leaf sale has also been reported by another study (Das, 2012).

Table 4: Farm Business income, Farm investment income and Net profit over Cost- C3 (Rs/hectare).

Category of farm	Size group I	Size Group II	Size Group III	Weighted Cost
Gross income	92000	102000	108000	100667
Farm business income	70780.91	72555.87	75154.34	72830.37
Farm investment income	61785.91	63517.87	68309.34	64537.70
Net income	50173.29	51636.53	56279.95	52696.59

Source- Field Survey

Constraints. Tea sector is struggling with concerns like unfavourable weather, increased production costs, competition from other tea-producing nations, and labour-related problems (Nair *et al.*, 2022).

(A) Physical Constraints. Eight different constraints in Physical category were identified. Out of these constraints, non-availability

of labour in peak plucking season was found to be the major physical constraint. This might be due to the fact that the plucking season in Palampur is generally coincides with harvesting of wheat and sowing of Rice. Labour absenteeism is mainly due to seasonal work. The next major problem encountered by the grower was erratic climatic condition arising out of low rainfall, high rainfall, drought, flood, and hailstorm. Earlier

farmers in Kangra depend on the rainfall for irrigation but due to changing climate farmers have to adopt artificial methods for irrigation. The other constraint faced by farmer is high transportation cost to transport finish tea bags to Kolkata. The availability of skilled labour is the other problem faced by the farmers as for tea plucking require skill. The other management problems like mobilization of input, finance and mobilizing and guiding labour are constrained by local factors. Distance of the tea farm from the tea grower's residence, remoteness of the farm, topography the land and non-availability of permanent water source were observed to be other physical constraints affecting efficient production of tea.

Table 5: Physical constraints in tea production.

Sr. No.	Constraints	Rank
1.	Topography of land	VII
2.	High cost of fertilizer and manure	VI
3.	Distance of the estates or garden from residence	VIII
4.	Change in Climatic factor like low rainfall/ high rainfall/Drought/flood/hail/other climatic factors	II
5.	Non availability of skilled labour	IV
6.	Non availability of workers in peak season	I
7.	High cost of transportation	III
8.	Irrigation	V

(B) Biological Constraints. Five different constraints in this category were identified. Along with the constraints, Table also presents rank for easy interpretation. Out of these five constraints, adoption of effective and timely plant protection measures was the major constraint among the biological constraints. This is due to fact that tea, which is mostly cultivated as a monoculture, coupled with favourable climatic conditions, is prone to incidence of a number of pests

diseases. Some of the pests, *viz.*, red spider mites, and purple mite, often assume menacing proportions. The management of pests and diseases is a huge constraint, primarily due to the tea growers lack of technical knowledge on pests, diseases, and agrochemicals. Procurement of quality planting materials like clones and Biclinal seed stocks and damage by cattle are the other identified constraints in production of green leaf in this category.

Table 6: Biological Constraints in tea production.

Sr. No.	Constraints	Rank
1.	Management of pests and diseases	I
2.	Procurement of quality planting material Clones/Biclonal seed stocks	II
3.	Threat to domestic animals	III
4.	Damage to other crops in nearby field	-
5.	Threat to surrounding environment	III

CONCLUSIONS

The result revealed that the overall total cost per hectare of tea was Rs. 47892.85. the total cost was higher for Size group III farms, followed by Size group II and Size group I farms. The different components of the cost of cultivation were expenditure incurred on family labour was higher in Size Group I farms, and the share of hired labour was higher in Size group III farms. The analysis of the cost of cultivation shows that, on average, the total cost (Cost C3) per hectare of tea cultivation was Rs. 47970.07 for the sample farms in the study area. The cost C was the highest on Size group III farm, followed by Size group II and Size Group I farm. The overall gross income per hectare of tea cultivation was Rs. 100667. This was higher on Size group III farms as compared to Size group II and Size group I farms. On an overall basis, the farm business income was Rs. 72830.37 per hectare. It was higher on Size group III farms, followed by Size group II and Size group I farms. At the overall level, the cost of production was Rs. 47970.07 (Cost-C3). The major items of cost of cultivation were the rental value of owned land, human labour, tractor labour, plant protection, interest on working capital, fertiliser, and manure/FYM. The cost of production was highest on Size group III farms, followed by Size group II and Size group I farm groups. The profit at cost (C3) was highest on Size group I farms. Thus, net profit was not increased with an increase in the size of the farm. The physical constraints which rank I, II, and III are non-availability of workers in peak season, Change in climatic factors and high cost of transportation. In biological constraints the rank I was management of pest and disease and procurement of quality planting material or seed stock in rank I.

FUTURE SCOPE

The present study can help in estimating the cost of cultivation, operational cost and maintenance cost, and constraints faced by farmer in production of tea.

REFERENCES

Ch. & Chakraborty (2014). Production performance and problems of marketing of the small tea growers in Assam an analytical study. <http://hdl.handle.net/10603/233511>

- Das (2019). An economic appraisal of small tea farms of Sonitpur district (Assam). *Research Gate*, pp 85.
- Das, D. (2021). India's tea industry: A historical perspective on its growth and challenges. *Economic and Political Weekly*, 56(8), 33-40.
- Das S. N. (2012). 'Economic analysis of tea cultivation in Himachal Pradesh'. M Sc Thesis, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur, India.
- Deka, M., Hazarika J. & Kalita, H. (2018). Indian tea industry: A review. *Journal of Pharmacognosy and Phytochemistry*, 7(1), 3062-3066.
- Devi & Sharma (2015). Problem and Prospects of tea industry in Himachal Pradesh. <http://hdl.handle.net/10603/200126>
- Dutta, I. (2018). Tea industry hopes to take a sip from budget schemes. *The Hindu* (February 3).
- Euromonitor International (2021). Tea: Global industry overview. Retrieved from <https://www.euromonitor.com/tea>.
- Gascoyne, K., Marchand, H., Desharnais, M. & Americi, S. (2018). Tea: History, terroirs, varieties. Firefly Books.
- Gopal & Raveendran (2008). An economic analysis of black tea marketing in India. <http://hdl.handle.net/10603/236611>
- Hazarika, M. S., Pal, A. K., Nandi & Rahaman, S. M. (2017). Economics of tea leaf production by the small and marginal farmers in Assam. *Indian Journal of Economics and Development*, 13(2), 563-68.
- Himachal Pradesh's Kangra tea (2021, May 6) gets GI tag in European Union. The Economic Times. Retrieved from <https://economictimes.indiatimes.com/news/economy/agriculture/himachal-pradeshs-kangra-tea-gets-gi-tag-in-european-union/articleshow/82454708.cms>
- Kanwar, D. S. (2017). Present status of tea plantation in Himachal Pradesh. (In) *Souvenir, National Seminar cum Buyer Seller Meet on Tea Production, Processing & Marketing*, Department of Tea Husbandry & Technology, Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur, pp 1-4.
- Kumar, Jamwal & Sharma., (2019). Economics of tea growing in Himachal Pradesh.
- Laskar, Nurujjaman, Thappa & Sankar (2019). An analytical study on the tea production in Assam. *Shodhganga*, pp-5.
- Nair, Damani, Khandelwal, & Sachdev (2022). Study on the tea market in India. *Research Gate*, pp- 8.
- Negi, K. S., & Pandey, A. K. (2011). Tea cultivation in Himachal Pradesh: A case study of Kangra district. *Himalayan Journal of Environment and Zoology*, 25(2), 165-168.
- Paul, & Chandra (2008). An economic analysis of production and marketing of tea in golaghat district of Assam. M.Sc. Thesis, Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences.
- Roy, K. (2013). A history of tea: The life and times of the world's favourite beverage. Lydia Inglett Ltd.
- Sanyal, S. (2017). Tea board steps to boost output, exports of Kangra tea. *The Hindu* (November 17).
- Singh, S. & Sharma, M. (2018). Tea Industry in Himachal Pradesh: A study of Kangra district. *International Journal of Current Microbiology and Applied Sciences*, 7(4), 2737-2744.
- Sivanesan, M. and Wilson, R. (2014). A study about the role of tea board in the development of tea industry in Tamilnadu. *Shodhganga*, 13(5), 264-265.
- Tea Board of India (2021). Tea statistics. Retrieved from <http://www.indiatea.org/tea-statistics.aspx>

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