RESEARCH ARTICLE Bhartiya Krishi Anusandhan Patrika, Volume 37 Issue 4: 369-373 (December 2022)

Socio-economic and the Trend Analysis of Tea Enterprise in Meghalaya State

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10.18805/BKAP468

ABSTRACT

Background: The tea plantation in Ri-Bhoi and West Garo hill districts practicing tea cultivation in Meghalaya state; aimed to access the socio-economic factors for production and trend in area, production and productivity were highlighted.

Methods: The present research investigation was carried out during the agricultural year 2018-21 with a total of 200 tea respondents was selected by following a multi-stage simple random quota sampling technique.

Result: Study reveals that the trend of area, production and yield of over all of Meghalaya state as the variants coefficient with the total area of 0.69 and CV 42.92, production of 0.23 and CV of 75.99 and the productivity of 0.85 and CV 38.64, respectively.

Key words: Analysis, Enterprise, Socio-economic, Tea, Trend.

INTRODUCTION

The most popular beverages in the Indian society lease within the special aroma and flavour of tea it was name as (chai), it has been acclaimed remedy for various ailments since the initiation and the Taoists called it 'elixir of immortality' (Imlibenla and Sharma, 2019a). Tea is popularly called as the green gold. Asia accounts for 89.00 per cent of the world tea area and of which India accounts for 18.50 per cent of the world tea area with 26.20 per centof total world production (India rank 1st in the production). In 2019, India production was 1350.04 million kg (m kg) with an area under tea of 563.98 ha out of which 254.50 m kg valued at Rs 5506.84 crores was exported and 1,084 m kg was retained for domestic consumption (Imlibenla and Sharma, 2019b).

In the past two decades, there have been rapid expansions of the small sector in the tea industry in India. So, due to the suitability and agro-climatic condition, many neighbouring states of Assam have boom in the cultivation of tea; which in term increases the Small Tea Growers (STG) garden. As per the tea board it has been identified as two groups such as traditional and non-traditional. The Annexure stated that as traditional states *viz;* Assam, West Bengal, Tripura and Himachal Pradesh in the North India and Tamil Nadu, Kerala and Karnataka in the South, whereas the non-traditional states are Meghalaya, Uttaranchal, Bihar, Sikkim, Arunachal Pradesh, Manipur, Mizoram and Nagaland (Hannan, 2007).

Nation-wide, the attention of organic products and organic certification have changed the scenario of production and marketing the agricultural products. the north eastern part of Indian was once among the several parts of India which happen to take a limit time in converging period that is, into organic certified states, which but by default due to the traditional ways of farming practices and rich virgin soil. Meghalaya was among these states of North East, who was on the converging period for organic certification. Tea also one of the plantation crops of Meghalaya and it was record that about 84 gardens were register and certificate as organic garden. In comparing the tea produces from Meghalaya and other state, based on several parameters, the liquoring quality, a unique pure aroma, flavour and taste it has a peculiar and special feeling on the tea "chai" (Analogous, 2018).

Tea originated in china and it became popular as a beverage in many European countries, particularly in the UnitedKingdom. The East Indian Company traded in tea and imported huge quantities to Landon for internal consumption in the 17th and 18th century as tea was very popular with the British. The East India Company had to depend entirely on China (Baruah, 2008).

Tea plantation in Meghalaya is still in its infancy stage. It was a visit in 1977 by tea board of India scientists that marked the beginnings of organized tea cultivation in the state. Echoing the findings of a prospecting party sent by the east India company as far back as the first half of the 19th century, the tea board delegation reported that potential for tea cultivation in the state was immense and untapped (Analogous, 2020b).

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How to cite this article: Sawian, K.D., Sharma, A. and Kumar, S. (2022). Socio-economic and the Trend Analysis of Tea Enterprise in Meghalaya State. Bhartiya Krishi Anusandhan Patrika. 37(4): 369-373. DOI: 10.18805/BKAP468.

Submitted: 21-02-2022 **Accepted:** 08-11-2022 **Online:** 24-11-2022

The location of the state of Meghalaya was in between 25°1′ and 26°5′ North Latitude and 85°49′ and 92°52′ East Longitude and with an area of 22,489 Sq. Km is endowed with abundant wealth of nature. Considering the favourable Agro-climatic condition prevailing, Tea was a potential plantation crop of the state. In response to the tea board of India report nurseries were established from 1977 and suitable varieties were brought in from neighbouring Assam and also from Darjeeling (Analogous, 2018).

The seedling was subsequently transplanted to experimental gardens at Umsning (in Ri-Bhoi district), Tebronggre (in West Garo hills) and also to Riangdo (in West Khasi hills) in 1978. Encouraged by the quality and yield of the young tea bushes, Meghalaya state government subsequently adopted a policy to incentivize commercial cultivation of tea in private farmer's field. The rest is history - since those early days, Meghalaya tea cultivation has spread to all corners and elevations of the state and the teas it produces as superior in quality, rich and fragrant in aroma and powerful in liquor (Analogous, 2020c).

MATERIALS AND METHODS

Annexure II reveals that the present study was conducted in two districts namely Ri-Bhoi and West Garo being the main producer of tea base on higher area and production as per. A multi stage sampling technique was adopted for

Annexure I: Area and production of India under tea cultivation during 2017-2018.

States	Area in ha	% of the total area	Production million kgs	% of the production
Assam	304.40	53.97	675.17	52.04
West Bengal	140.44	24.90	384.96	25.82
Tamil Nadu	69.62	12.34	166.90	14.45
Kerala	35.01	6.21	62.35	5.25
Karnataka	2.22	0.39	5.40	0.46
Meghalaya	2.30	0.40	0.47	0.06
Other states - Tripura, Uttarakhand Manipur, Sikkim, Arunachal, Bihar, Himachal, Nagaland, Mizoram, Orissa	9.99	1.79	27.43	1.92
Total (All India)	563.98	100.00	1208.78	100.00

(Sources: Analogous, 2020c).

Annexure II: Area, production and productivity tea of Meghalaya state during 2017-18.

District wise	Area ('000 ha)	% of the total	Production ('000' MT)	% of the total	Productivity ('000 mkg)	% of the total
Ri-bhoi	1707	61.96	10172	60.83	5.95	12.56
West garo hill	755	20.69	5061	30.26	6.70	14.18
East khasi hills	103	3.73	536	3.20	5.20	11.00
West khasi hill	16	0.47	80	0.09	5.00	1058
South west khasi hill	*	*	*	*	*	*
East jaintia hill	7	0.25	21	0.12	3.00	6.35
West jaintia hill	8	0.29	8	0.04	1.00	2.11
East garo hills	104	3.77	564	3.37	5.42	11.47
North garo hill	11	0.39	59	0.35	5.36	11.34
South west garo hill	24	0.82	167	0.99	6.95	14.73
South garo hill	20	0.72	53	0.31	2.65	5.61
Total	2755	100.00	16721	100.00	47.23	100.00

(Source: Analogous, 2020a; *data not available).

Table 1: Socio-economic characteristics of tea growers in Meghalaya.

Particular	Unit	Value	Particular	Unit	Value
Average age	year	54.00	Secondary	%	38.00
Male	%	80.00	Higher Secondary		34.00
Size of the family	No's	6.70	Graduate		44.00
Educational status			Average land holding size	(ha)	3.98
Illiterate	%	7.00	Average tea area	(ha)	2.25
Primary		31.00	Annual income	₹ (lakh/annum)	1.81

the present study, the first stage of sampling plan will be the selection of the block from both districts purposively, followed by selection of villages (2nd stage) from the selected blocks randomly and ultimately selection of the respondent farmers probability proportional (3rd stage) from the selected villages. To meet the objective of the study both primary and secondary data were collected, the primary data were collected from the sample farmers through a personal interview with the help of pre tested and well-structured schedule during the crop season, the available secondary data on area and production of tea for the period 2000-01 to 2017-18 from the department of agriculture, government of Meghalaya.

Table 2: Engagement of tea farmers household in study area of Meghalaya.

Occupation	Per cent	Occupation	Per cent
Agriculture	49.14	School/College	28.51
Service	5.54	Household	12.04
Business	3.72	Labour	1.05

Table 3: Cropping pattern of tea grower in study area of Meghalaya.

Crops	Area (ha)	Per cent
Tea	2.25	56.53
Ginger	0.52	13.36
Rice	0.28	7.03
Turmeric	0.36	9.04
Citrus	0.12	3.01
Broomstick	0.09	2.26
Maize	0.04	1.00
Black paper	0.05	1.25
Banana	0.03	0.75
Sweet potatoes	0.03	0.75
Forest land	1.06	26.63
Soybean	0.02	0.50
Vegetable	0.08	2.01
Arecanut	0.09	2.26
Total	3.98	100.00

Compound growth rate

For evaluating the trend in production of tea in Meghalaya, an exponential form of the growth function was used as follows:

$$Y_t = AB^t$$

Where as:

Y_t = Production/ area/yield of tea for the year 't'.

A = Intercept indicating Y in the base period (t=0).

B = (1 + r).

r = Compound growth rate.

t = Time period.

The model was linearized by means of logarithmic transformation, which is given as:

$$\ln Y_t = \ln A + t (\ln B)$$

The slope coefficient of B measures the relative changes in Y for a given absolute change in the value of explanatory variable in period t. Therefore, the compound growth was estimated finally by using the following equation:

$$\ln B = \ln (1 + r)$$

$$r = [\text{antilog } (\ln B) - 1]$$

$$CGR = [\text{antilog } (\ln B) - 1]*100 \text{ or } [r*100]$$

The t-test was apply to test the significance of B at the chosen level of probability.

Instability in area, production and productivity were measure through coefficient of variation (CV) analysis using de-trended data. It is given as:

$$CV = \frac{\text{Standerd deviation}}{\text{Mean}} \times 100$$

RESULTS AND DISCUSSION

Table 1 reveals the socio-economic characteristics of the tea grower in Ri-Bhoi and West Garo hills district in Meghalaya. The average age of the tea farmer was 54 years old and 80.00 per cent of respondent farmers were male and the average family size of the farm household was seven in number. Majority (44.00 per cent) of the farmer respondents were graduate, 31.00 per cent have passed the primary level of education followed by secondary level (38.00 per cent) and the illiterate (7.00 per cent).

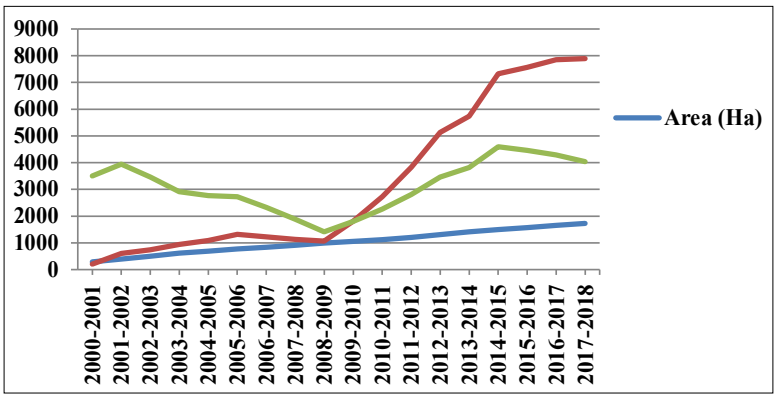

Fig 1: Trend of area, production and yield in Ri Bhoi district.

The average size of land holding in the study area was 3.98 ha and tea was cultivated in an average area of 2.25 ha. The tea farmers earned an income of ₹ 1.81 lakh per annum in the study area. Similar findings were reported in the line by the Sharma (2014); Sharma (2015).

Table 4: Categories of tea growers base on the area of sample farms (ha).

Particulars	Category I (< 2.5 ha)	Category II (>2.5 ha)	Overall
Numbers of farms	128	72	200
Total area coverage	88.90	150.50	239.40
under tea (ha)	92.90	120.50	213.40
Average size of farm (ha)	2.40	5.20	-

Table 5: Category wise of land holding of the tea growers in Meghalaya.

Particular	Category I (<2.50 ha)	Category II (>2.50 ha)	Overall
Owned land	202.00 (82.78)	167.50 (90.10)	369.50
Leased-in land	42.00 (17.21)	18.40 (9.89)	60.40
Total land holding	244 (100.00)	185.90 (100.00)	429.90

Table 2 showed that on an average 49.14 per cent of the family members were engaged in agriculture as the main occupation followed by 28.51 per cent; who were in school and colleges and 12.04 per cent were involved in meeting the household chores and the labour constituent 1.05 per cent, respectively. Similar findings were reported in the line by the Sharma (2013b).

Table 3 reveals that the average cropping area in the study area was 3.98 ha and tea was the major crop cultivated in 56.53 per cent of cultivated area followed by Forest land (26.63 per cent) and rice (7.30 per cent). Spices like turmeric, ginger and black paper was found to be cultivated in 13.36 per cent and 9.04 per cent area, respectively. Fruits like citrus were grown in an average area of 0.12 ha. Maize, soybean, sweet potatoes were some of the vegetables grown negligible area. Similar findings were reported in the line by the Sharma (2012b).

Table 4 reveals the tea growers base on the area they has been categories into two category I less than 2.50 ha and category which is more than 2.50 ha as per the study area the category I has more no that accounts 128 farms with the total area of 181.80 and the average farms size was 2.40 were as the category II the numbers of farmers

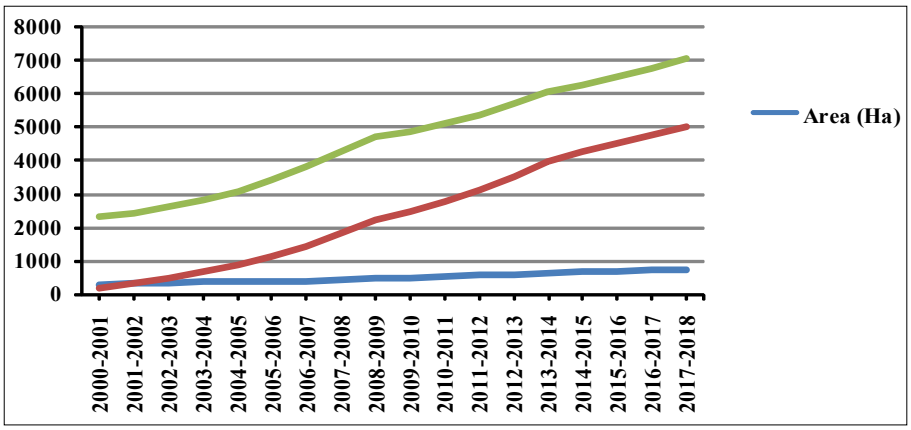

Fig 2: Trend of area, production and yield in West Garo Hill district.

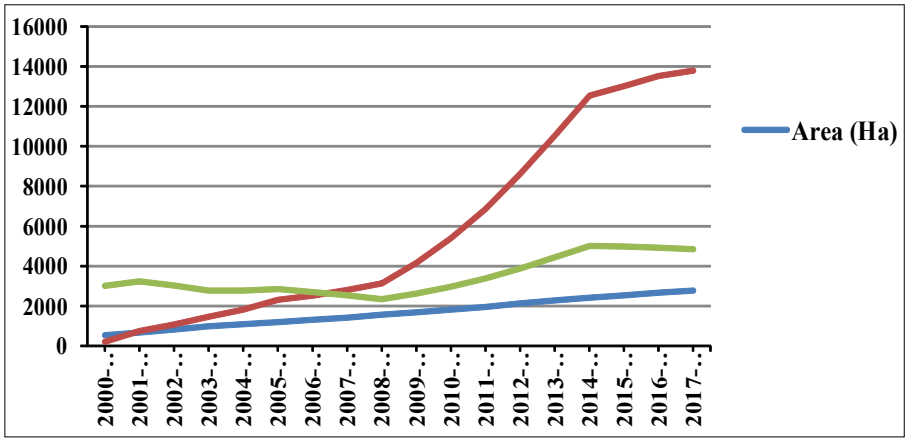

Fig 3: Trend of area, production and yield in the Meghalaya state.

Table 6: CGR and CV of area, production and productivity of tea in Meghalaya.

Districts	Area (ha)	CV	Production (Metric tonnes)	CV	Productivity (kg/ha)	CV
Ri-bhoi	0.57	45.38	0.61	87.32	0.79	59.60
West garo hills	0.85	30.75	0.67	60.99	0.87	33.19
Over all	0.69	42.92	0.23	75.99	0.85	38.64

was 72 with an average of 5.20. Similar findings were reported in the line by the Sharma (2012a).

Table 5 reveals the categories of land holding of the tea growers have been classified maximum of the farmers where cultivated in the own land with and 82.78 per cent in category I and 90.10 per cent of the land in category II where as the leased in land where negligible in the study area. Similar findings were reported in the line by the Sharma (2013a).

Compound growth rate

Table 6 reveals depicting the trend of area, production and productivities of Meghalaya for the past 18th years (2001-2018) of district Ri-Bhoi, West Garo hills and the Meghalaya as a hold, respectively. Similar findings were reported in the line by the Sharma (2014).

Fig 1 show the trend of area, production and yield in Ri-Bhoi and also the variants coefficient the production shown as 0.57 area with CV 45.38, the production of 0.61 and the CV 87.32, the productivity of 0.79 and CV was 59.60, respectively.

Fig 2 show the trend of area, production and yield of West Garo hills and also the variants coefficient the production 0.85 and the CV of 30.75 area, the production of 0.67 and the CV of 60.99, the productivity of 0.87 and CV 33.19, respectively.

Fig 3 show he trend of area, production and yield of over all of Meghalaya and also the variants coefficient the production with the total area of 0.69 and CV 42.92, production of 0.23 and CV of 75.99 and the productivity of 0.85 and CV 38.64, respectively.

CONCLUSION

- The majority (80.00 per cent) of the tea farmers was 54 years old and male; also majority (44.00 per cent) of them was graduate.
- 49.14 per cent were engaged in agriculture as main occupation.
- 56.53 per cent of the respondent was engaged in the tea cultivation.
- Average maximum land holding was 5.20 ha and minimum recorded as 2.40 ha.
- Maximum (75.99 per cent) production recorded as compound growth rate.

ACKNOWLEDGEMENT

The article is derived from the Ph.D. Thesis on the topics - An analysis of tea (*Camellia sinensis* L) Production and Marketing: Pattern of Meghalaya, submitted the Department of Agricultural Economics, SASRD, Nagaland University, Medziphema: Campus, Nagaland; duly acknowledgement the Hon'able Vice Chancellor, Nagaland University, Nagaland for his assistance and kind permission to carried out the research work.

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