

## PROSPECTS OF SMALL TEA CULTIVATION IN NAGALAND, INDIA

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### ABSTRACT

Tea is often referred to as the “Queen of beverages”. Small tea grower whose cultivation area does not exceed a total of 10.12 ha. The study was conducted in the state of Nagaland during 2022. For this study Tuli block under Mokokchung district was purposively selected because the farmers were successful in tea cultivation. 120 small tea growers whose plantation is more than 3 years of age were selected for the study. 13.33 per cent of the respondents were able to save money prior to the introduction of tea cultivation. 25 per cent of the respondents saved money after working in the tea sector. There was a significant increase in the saving status of the small tea growers using paired t-test and a non-significant linear trend of the production of tea over the period of study was obtained. Nearly 17 % of the variation in production under tea was captured by the trend model considered. The entrepreneurial behaviour were ranked in the following order firstly, risk orientation followed by production orientation, innovativeness, achievement motivation, management orientation and market orientation. The prospect of the small tea growers was found to be favourable. The study recommended that setting up benchmark for the standard of producing green leaves will help in fetching a better price in the market.

(Key words: Prospect, tea, cultivation, Nagaland, production, Tuli)

### INTRODUCTION

Tea or *Camellia sinensis* is a common beverage loved by all people, young and old, is frequently called the ‘Queen of beverages’ (Biswas, 2016). Tea is an ancient beverage and the most popular drink in the world (Hazarika *et al.*, 2013). For millennia it was a medicinal beverage obtained by boiling fresh leaves in water, but around the 3rd century CE it became a daily drink, and tea cultivation and processing began (Sivasubramaniam, 2023). Small tea grower according to the Tea Board of India can be referred to as a tea grower whose cultivation area does not exceed a total of 10.12 hectares. The concept of small tea cultivation in home stead gardens and unutilized land along with other crops to sell the green leaf to the existing big factories for enhancing farm income was initiated during the seventies (Saikia, 2019).

Tea was introduced in India by British national, Robert Bruce in 1838 (Wagh, 2014). The tea industry of India is one of the oldest and perhaps the most efficiently organized agricultural enterprises in India (Borborah and Gogoi, 2007). In India, tea is grown in 16 states, of which North-East India accounts for about 3/4th of total tea production. The main tea-growing regions are in Northeast India (including Assam) and in north Bengal (Darjeeling district and the Dooars region) (Das and Zirmire, 2018). A

huge portion of the tea produced in India is contributed by the small tea growers (Tiasoba and Odyuo, 2024). India enjoys an ace position in the production of black tea. The growth and production of tea have been reported higher than other plantation crops in the country. After water, the most sought and consumed drink is tea. Over the past decades, production and consumption of tea have increased steadily and its production became one of the economic pillars of the countries like China, India, Sri Lanka, and Kenya.

Tea cultivation in Nagaland was first started in Longsa village in Mokokchung district and then it was followed by Tuli block of Mokokchung and later in Tizit and Mon district. Nagaland is organic by default, the climate and soil are ideal for growing tea, and since more people are turning towards the consumption organic foods, there is a growing demand for Nagaland tea on the domestic and global markets. As a result, Nagaland has a great potential not only in tea but in other plantation crops (Khezhe and Odyuo, 2024), a significant role in India’s export and import sector for tea.

### MATERIALS AND METHODS

The study was conducted in the state of Nagaland in the year 2022. There are 16 districts in Nagaland

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viz., Kohima, Dimapur, Mokokchung, Kiphire, Longleng, Mon, Peren, Phek, Tuensang, Wokha, Zunheboto, Tsemnyu, Chumoukedima, Shamator, Niuland and Noklak. The concept of small tea growers was first introduced in Longsa village of Mokokchung and tea cultivation and production in Mokokchung is gaining popularity due to its role in providing income and employment opportunities in the rural areas. Now the district is producing well packaged tea leaves which are sold in the market and so for all these reasons Mokokchung district has been purposively selected. There are 9 RD blocks under Mokokchung district. For this study Tuli has been purposively selected because the farmers have been very successful in tea cultivation enterprise attaining self-reliance. Under the Tuli block of Mokokchung there are a total of 11 villages, under which the villages namely Merangkong, Anaki, Kangtsungyimsen, and Wamaken were purposively selected. Small tea growers whose plantation is more than 3 years of age was selected because the *Camellia sinensis* takes 3 years to produce tea leaves which will fetch a good price in the market. From each of the four villages 30 small tea growers were selected thereby making a sample size of 120.

The data was analysed using mean, SD, frequency, percentage, paired t-test and regression.

#### Paired t-test

It is a technique or statistical procedure used to determine whether the mean difference between two sets of observation is zero.

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}}$$

Where,

- $\sum d$  = Sum of the differences
- d = Difference per paired value
- n = number of samples

#### Regression analysis

Regression analysis is a statistical technique which demonstrates the link between two or more variables. The method evaluates the relationship between a dependent variable and independent factors, and is frequently presented as a graph.

The functional form of the linear relationship between a dependent variable  $Y$  and an independent variable  $X$  is represented by the equation:

$$Y = a + fX$$

where 'a' is the intercept of the line on the Y axis and  $f$ , the linear regression coefficient, is the slope of the line or the amount of change in  $Y$  for each unit change in  $X$ .

Multiple regression model which is specified as:

$$Y = B_1 + B_2X_1$$

$Y$  = dependent variable

$B_1$  = intercept

$B_2$  = slope

## RESULTS AND DISCUSSION

### Saving habits

According to the Table 1, only 13.33 per cent of the respondents were able to save money prior to the introduction of tea cultivation where 7.50 per cent could save monthly, 4.16 per cent yearly, and 1.67 per cent weekly. As noted, 11.67 per cent of the respondents saved money through State Bank of India.

However, after working in the tea sector, overall, 25 per cent of the respondents saved money from what they earn, where 15.83 per cent were saving on a monthly basis, 6.67 per cent could save on an annual basis, and 2.50 per cent on a weekly basis. Although the saving habits of the respondents improved after tea cultivation, not much increase could be seen because tea cultivation is a very labour intensive industry where a huge amount of the income earned goes towards the payment of the labours.

### Paired t-test for saving habits

From the Table 2, it is clear that there was a significant increase in the saving status of the small tea growers using paired t-test. Similar results of increase in saving status of small tea growers were reported by Dharmadasa *et al.* (2019). Based on the t- tabulated value analysed at 0.05 % level of significance, being found less than the respective calculated values, it was concluded that tea cultivation have significant effects on the respondents' Saving status.

### Trend in production

From the Table 3 we can observe a non-significant linear trend of the production of tea over the period of study. Nearly 17 % of the variation in production under tea was captured by the trend model considered. From the regression coefficient and figure 1 the area under tea was expected to increase in the coming years. The graph showed that production peaked in 2022 with a production of 24493.33 kg, from figure-9 a slight decrease in production was seen in the year 2015 (22603.33 kg) the production of tea, like all agricultural crops, is highly dependent on climatic conditions as well as the prevalence of various pests and diseases, this was the cause of the slight decrease in production in the year 2015. Production then increased steadily from 2016 (22940.83 kg) to 2018 (24893.33 kg) before declining slightly in 2019 (24213.33 kg) and drastically in 2020 and 2021(11039.17). This was owing to the fact that in 2020 and 2021, processing factories were shut down for several consecutive months due to the pandemic, and there was also a labour shortage. As a result, despite the growth of tea leaves, the bushes were left unharvested, leading to the steep decrease in production.

### Entrepreneurial behaviour

Table 4 depicts the various entrepreneurial behaviour of the respondents in the study area are given below.

Risk orientation in this study was related to how much risk the respondent was likely to accept. An essential

quality of a successful entrepreneur is the capacity for taking risks. Among the entrepreneurial behaviours, the risk-taking capacity score was ranked first. It clearly suggested that the respondents were willing to assume risk to pursue opportunities that they believe will result in a high return.

Production orientation in this study referred to the respondent's ability to focus on the production process and aim to produce the tea leaves with maximum care for minimum loss. The study places the respondents' production orientation in second place, demonstrating that they plan their economic actions ahead of time and attempted to choose investments with larger returns without sacrificing the quality of the tea leaves.

In this research innovativeness was measured in terms of the degree to which the respondent was willing or ready to adopt new ideas and methods. According to the study, respondents' innovativeness ranked third among entrepreneurial behaviours, indicating that they were interested in adopting new, improved high yielding tea varieties and that they constantly work to stay informed about the most recent developments in the process of cultivating tea.

In this research achievement motivation was referred to the personal desire of the respondent to boost personal achievement which would result in providing higher productivity. According to the study, respondents had a medium level of achievement motivation, meaning they prioritize their work even if it means putting other personal issues on hold. They constantly seek to outperform and improve upon previous harvests.

Management orientation in this study was to determine the respondent's efficiency and capability in the decision-making process for their farming activities.

According to the study, management orientation ranked fifth among entrepreneurial behaviours, meaning that respondents constantly plan for the measures to be taken before engaging in any type of business activity. They consistently order the farm inputs well in advance, and they made an effort to speak with industry professionals.

In this study market orientation was referred to the farmer's ability in decision making for the planning, implementation and monitoring of the farm as a business. From the study it was seen that the market orientation was ranked the lowest the main reason of this was because the farmers did not have any control over the price that was fixed upon the green leaves.

#### **Attitude of the respondents towards small tea cultivation**

According to the Table 5 it was concluded that the small tea growers of the study area hold a high status in their village and were proud to be a small tea grower. They also admitted that tea cultivation was a very hard job but agreed that it provided a steady source of income. Majority of the respondents also showed interest in increasing their area under tea cultivation. The reasons for such favourable attitude towards tea cultivation were because of profitability, lower risk, good demand in the market etc.

The t- tabulated value of the study concluded that tea cultivation had significant impact on the respondents' saving status and the respondents had favourable attitude towards tea cultivation. From the regression coefficient and figure-1 the production under tea had nearly 17 % variation in production as captured by the trend model considered.

The study recommended that, the small tea growers Association of the region can set up a benchmark for the standard of producing green leaves. This would ultimately fetch a better price in the market and uplift their living standard.

**Table 1. Distribution of the respondents based on their saving habits before and after tea cultivation**  
**n=120**

			Before tea cultivation	After tea cultivation	
Savings	Yes	f	16	30.00	
		%	13.33	25.00	
	no	f	104	90.00	
		%	86.67	75.00	
How frequently	Weekly	f	2	3.00	
		%	1.67	2.50	
	monthly	f	9	19.00	
		%	7.50	15.83	
	Yearly	f	5	8.00	
		%	4.16	6.67	
	Financial institute	SBI	f	14	27.00
			%	11.67	22.50

f = respondents

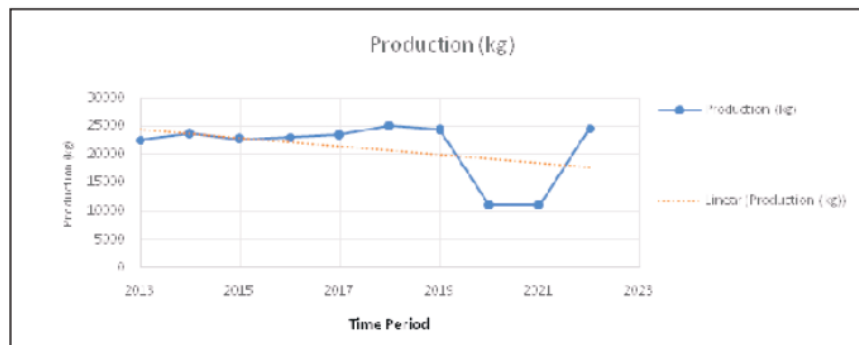
**Table 2. Paired t-test for saving habits of the respondents****n=120**

Paired	Mean	D f	t-calculated	Sig(1-tailed)
Saving Before	0.117	119	-3.802	0.000
Saving After	0.225			
Savings Habit Pattern Before	0.275	119	-3.5	0.000
Savings Habit Pattern After	0.604412			
Status of saving in Financial Institutes Before	0.117	119	-3.802	0.000
Status of saving in Financial Institutes After	0.225			

**Table 3. Trend in production****n=120**

Simple regression	Linear Regression equation	<i>b</i>	<i>SE(b)</i>	<i>t value</i>	<i>p-value</i>	<i>R<sup>2</sup></i>
Production	$Y = -741.97x + 24403$	-741.972	565.876	-1.311	0.226	0.1769

Note : y = Production  
x = Time Period

**Figure 1. Trend in production****Table 4. Distribution of the small tea growers based on their entrepreneurial behaviour n=120**

Sl. No.	Entrepreneurial Behavior	Category	f	%	Mean	SD	Mean score	Rank
1	Risk orientation	low(<13)	14	11.67	14.23	1.59	74	I
		medium(13-16)	100	83.33				
		high(>16)	6	5.00				
2	Production orientation	low(<14)	7	5.83	14.86	0.97	72	II
		medium(14-16)	110	91.67				
		high(>16)	3	2.50				
3	Innovativeness	low(<12)	18	15.00	12.88	1.14	60.4	III
		medium (12-14)	96	80.00				
		high (>14)	6	5.00				
4	Achievement motivation	low(<14)	1	0.80	15.31	1.47	59.67	IV
		medium(14-17)	112	93.33				
		high(>17)	7	5.83				
5	Management orientation	low(<13)	10	8.33	17.73	1.32	52.33	V
		medium(13-16)	102	85.00				
		high(>16)	8	6.67				
6	market orientation	low(<11)	2	1.67	17.91	7.41	43.33	VI
		medium(11-25)	117	97.5				
		high(>25)	1	0.83				

**Table 5. Distribution of the respondents based on their overall attitude n=120**

Sl. No	Range	Category	f	%	Mean	SD
1	<22	Least favorable	14	11.67	23.28	1.60
2	22-25	Favorable	100	83.33		
3	>25	Highly favorable	6	5		
	Total		120	100		

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