

## STATUS OF COFFEE PRODUCTION IN NAGALAND, INDIA

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### ABSTRACT

Nagaland is the sixteenth state of India inaugurated on 1<sup>st</sup> December 1963. Nagaland at present cultivates two types of coffee i.e., *Coffea Arabica* and *Coffea Robusta*. Nagaland coffee is known for its unique taste and aroma. In recent years, it was observed that coffee cultivation has gained a particularly healthy popularity among farmers from different regions of the state. Thus, a research was conducted to understand the status of coffee production over the years in Nagaland, India in the year 2023. The study was conducted in 6 different blocks as per the availability of requisite respondents (Kohima RD block, Mangkolemba RD block and Ongpangkong (South) RD block, Sanis RD block, Wokha RD block and Niuland RD Block) located in 4 selected districts, namely Kohima, Mokokchung, Wokha and Niuland. A structured interview schedule was prepared to collect primary data from a total of 120 coffee cultivators from 8 villages (Touphema, Nerhema, Khar, Khensa, Lakhuti, Wokha, Hovishe, Ghotovi). It is revealed from the data that majority of the respondents were middle aged and male. Majority acquired education till secondary level, married, had semi-pucca houses, semi-medium sized of land holding with a medium level of income from coffee. Most of the respondents had attended training on coffee cultivation and had active in social life. The study further inferred that, with regard to production trend of coffee cultivation, a significant linear trend of production under coffee over the study period was observed. 99 per cent of the variation under coffee was captured by the considered trend model. From the regression coefficient and figure-1 the area under coffee was expected to increase in the coming years. It was clearly revealed that the area under coffee cultivation had been increasing significantly from 2018 (45 kgs) to 2022(66 kgs).

(Key words: Coffee, area, production, socio-economic, Nagaland)

### INTRODUCTION

Coffee is an aromatic beverage that is enjoyed and savoured by many across the globe. It is grown and sourced from all around the world, and there is also a vast array of its kinds available to us all. One such variety is the coffee that originates from the African seeds. These seeds are harvested then roasted, which gives it its unique flavour and aroma, and finely ground to be made ready to brew the beverage for us to enjoy it. Coffee in India is more than an agricultural export product. It is also a social, institutional and cultural fabric of southern states of India, in the heart of rural societies in traditional coffee growing areas. The two most important species of coffee grown in India are arabica (*Coffea arabica*) and Robusta (*Coffea canephora*). Minhas (2023) in his article stated that India's total coffee estimated cultivated area was more than 471 thousand hectares in the fiscal year 2022. "India is among the top 10 coffee-producing countries with about 3% of the global output in 2020" (Bhawan, 2022). Karmakar (2022) identified that, "the total coffee planted area in the Northeast is 4,618.26 ha, with

1,394.21 ha of coffee-bearing area yielding an average annual 150 metric tonnes of clean coffee". Vidya and Kadam (2018) in their study found that the total production of coffee in the year 2017-18 stood at 316000 metric tonnes of which 221000 metric tonnes (69.9%) of Robusta and 95000 metric tonnes (30.1%) of Arabica variety in India.

The coffee production in Nagaland has been increasing over the years and with increase in new growers every year the yield of coffee beans is expected to increase more. Kiho (2020) revealed that, "Nagaland has immense potential for coffee plantation owing to the climatic conditions for both Arabica and Robusta coffee. Nagaland is organic by default which will further enhance the productivity however to enhance the soil health application of manures may be encouraged as per the study done by Ezung *et al.* (2020). They found that, "vermin-compost in greengram not only increased the yield but enhanced the productivity of the system and maintained the sustainability of the soil". It has been estimated that a total area of 10.40.100 hectares (Robusta 3.55,300 and Arabica 6,84,800) is suitable for coffee plantation in Nagaland which is About 62.7% of the state's total geographical area of 16.57.900 ha

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(Anonymous, 2022). Presently, about 6180 ha have already been covered under coffee plantation in the entire state which is about 0.59% from the overall coffee suitable area of the state". Moa and Chakraborty (2020) in their study revealed that, "the production of coffee is highest in Mokokchung district at 54.5 quintals followed by Wokha at 29.66 Quintals, Zunebhoto at 35 quintals, Mon at 17 quintals, Kohima at 7.8 quintals, Dimapur at 3 quintals, Peren at 1.1 quintals and Tuensang at 0.565 quintals, Longleng, Kiphire, Phek did not have any production of coffee in the year 2019-2020. The area of Coffee Plantation in Nagaland till 2019-2020 was 7996.2 hectares. The North Eastern Region has a total of 200 MT of arabica and robusta produced in the year 2018-2019". Sema (2021) reported that, "Nagaland currently cultivates coffee in nearly 10,000 hectares of land and it is taking steps to expand it to 50,000 hectares by 2030. The land resource department has exported 27.5 metric tonnes of coffee to a South African company, which earlier signed an agreement to buy Nagaland coffee for 30 years".

In Nagaland, coffee plantation and cultivation was first introduced in the 1980's with the initiative of the Coffee Board of India. In the year 2015-16, the coffee board of India, in partnership with the department of land resources, took up the initiative to revive the plantations and with the help of a Special Area Programme, initiatives have been taken up in the recent years to help revive the plantation and cultivation of coffee plants in Nagaland. With this help, farmers are provided with proper skill training and development, subsidies to convert their land for coffee plantation, etc.

## MATERIALS AND METHODS

Nagaland at present cultivates two types of coffee i.e., *Coffea arabica* and *Coffea robusta*. Nagaland coffee is known for its unique taste and aroma. In recent years, it was observed that coffee cultivation has gained a particularly healthy popularity among farmers from different regions of the state. Thus, a research was conducted to understand the status of coffee production over the years. The study was conducted in 6 different blocks as per the availability of requisite respondents (Kohima RD block, Mangkolemba RD block and Ongpangkong (South) RD block, Sanis RD block, Wokha RD block and Niuland RD Block) located in 4 selected districts, namely Kohima, Mokokchung, Wokha and Niuland. A structured interview schedule (Age, Sex, educational qualification, marital status, housing type, land holding size, income from coffee, training exposure, market availability, social participation) was prepared to collect primary data from a total of 120 coffee cultivators from 8 villages (Touphema, Nerhema, Khar, Khensa, Lakhuti, Wokha, Hovishe, Ghotovi). The appropriate statistical tools used to analyze the data were Frequency, Percentage, Mean, Standard Deviation and Regression analysis.

### Arithmetic mean

$$\bar{X} = \frac{\sum_{i=1}^N X_i}{N}$$

Where,

$\bar{x}$  = mean of the scores  
 $\Sigma$  = sum of individual score  
 N = number of observation

### Standard deviation

$$\sigma = \sqrt{\frac{\sum_{i=0}^n (x_i - \bar{x})^2}{N}}$$

Where,

$\sigma$  = standard deviation  
 $x$  = individual score  
 N = number of observations

### Regression analysis

Regression analysis is a statistical method that shows the relationship between two or more variables. The approach, which is typically shown as a graph, analyses the relationship between a dependent and independent variables. The equation,

$$Y = a + fX$$

Represents the functional form of the linear relationship between a dependent variable Y and an independent variable X, where 'a' is the line which intercept on the Y axis and P, the linear regression coefficient, is the lines slope, or the amount of change in Y for each unit change in X.

Multiple regression model, which is defined as:

$$Y = B_1 + B_2X_i$$

Y = dependent variable

B1 = intercept

B2 = slope

X<sub>i</sub> = independent variable

## RESULTS AND DISCUSSION

### Socio-economic profile of the respondents

Table 1 revealed that a perfect majority of the respondents fell in the category of the middle aged group, which constitutes 74.54 per cent. 90 per cent of respondents were men folks given the situation that growing coffee required hard labour, hence, was less attractive to women and they were typically more involved in other agricultural activities and household chores, similar findings were reported by Achumi (2022) in his study at Zunheboto district, Nagaland about the involvement of hard labour because of which female farmers were not so much in favour of coffee cultivation. Majority (38.18%) of the respondents had secondary level of education, this result is in line with the

findings of Nithyashree (1992) which reported that majority had secondary level education regarding the educational status of coffee farmers in Chickmagalur district, Karnataka, India. Majority (88.1%) of the respondents were married while the remaining 11.7 per cent of the respondents were unmarried which depicted that the unmarried and energetic respondents were not very keen on coffee cultivation. Almost all of the respondents had secure type of housing (pucca and semi pucca together at 93.5%). Majority of the respondents were under the category of semi-medium land holding size ranging from 2-4 hectare. Majority (63.63 %) of the respondents had medium level income from coffee ranging from Rs 5000 to Rs 30,000 annually. 71.81 per cent had attended training on coffee cultivation. 100 per cent of the respondents were selling their produce directly to the Department of Land Resources, which truly reflects the findings of Odyuo *et al* (2023) which concluded that, “farmers had high potential to get more economic returns with the right marketing platforms and facilities”. It was evident that majority (36.36%) of the respondents were members at present in different social institutions like Village Council, Church, Pensioners Union, Coffee Union, Village Development Board and Self Help Groups.

#### Production trend of coffee in the study area

In this study, production trend was used to analyze and predict production variance using data from the year 2018- 2022. From Table 2 it indicates significant linear trend of production under coffee over the study period. 99 per cent of the variation under coffee was captured by the considered trend model. From the regression coefficient and Figure 1 the area under coffee was expected to increase in the coming years. It was clearly revealed that the area

under coffee cultivation had been increasing significantly from 2018 (45 kgs) to 2022 (66 kgs), the reason for the growth of production of coffee is the distribution of coffee seeds and saplings across many villages for free of cost, which was undertaken and executed by the Department of Land Resources, Government of Nagaland, also, because the distribution was done directly by the concerned department (LRD), to the respective villages without relying on middle/ third parties. Another important measure taken by the Government which influenced the growth of production even during the nationwide lockdown in the year 2020 was the initiative of the department distributing free saplings following the Covid-19 protocols as there was an exemption for agriculture by the Government of India. These findings were in line with the findings of Achumi (2022) regarding the production trend in Zunheboto district from 2016-2020 with the area under coffee cultivation in increasing trend.

The study concluded that, majority of the respondents were middle aged and male. Majority acquired education till secondary level, married, had semi-pucca houses, semi- medium sized of land holding with a medium level of income from coffee. Most of the respondents had attended training on coffee cultivation and were active in social life. The study further inferred that, with regard to production trend of coffee cultivation, a significant linear trend of production under coffee over the study period was observed. 99 per cent of the variation under coffee was captured by the considered trend model. From the regression coefficient and Figure 1 the area under coffee was expected to increase in the coming years. It was clearly revealed that the area under coffee cultivation had been increasing significantly from 2018 (45 kgs) to 2022(66 kgs).

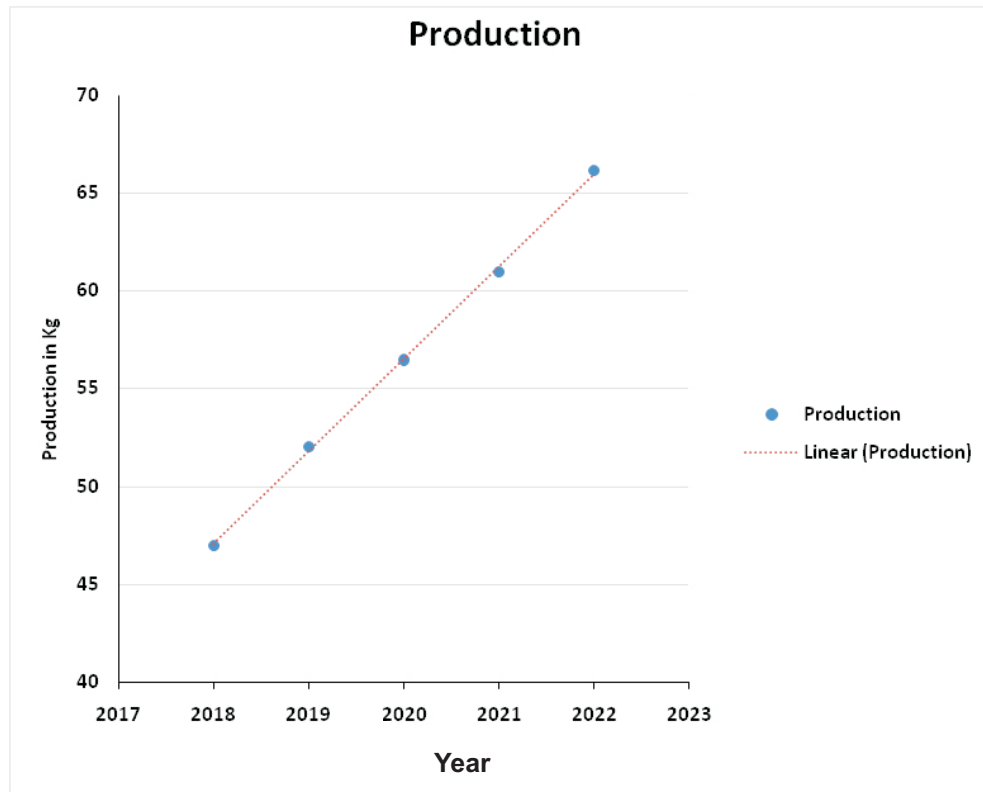
**Table 1. Socio-economic profile of the respondents**

| Sl. No. | Variable                  | Category (Majority)  | Frequency (Number) | Percentage |
|---------|---------------------------|----------------------|--------------------|------------|
| 1       | Age                       | Middle               | 82                 | 74.54      |
| 2       | Sex                       | Male                 | 99                 | 90.00      |
|         |                           | Female               | 11                 | 10.00      |
| 3       | Educational Qualification | Secondary            | 42                 | 38.18      |
| 4       | Marital Status            | Married              | 97                 | 88.10      |
| 5       | Housing type              | Semi-Pucca           | 53                 | 48.10      |
|         |                           | Pucca                | 50                 | 45.40      |
| 6       | Total Land Holding Size   | Semi-medium (2-4 ha) | 62                 | 56.36      |
| 7       | Income from Coffee        | Medium               | 70                 | 63.63      |
| 8       | Training Exposure         | Attended             | 79                 | 71.81      |
| 9       | Market availability       | Buy back policy      | 110                | 100.00     |
| 10      | Social Participation      | Member at present    | 40                 | 36.36      |

**Table 2 . Trend in production of coffee**

| Simple regression | Regression equation   | b     | SE(b) | t value  | Pr> t | R <sup>2</sup> |
|-------------------|-----------------------|-------|-------|----------|-------|----------------|
| Production        | $y = 4.7323x + 42.31$ | 4.732 | 0.077 | 61.121** | 0.000 | 0.99           |

**Note:** y = Production                      x = Time period



**Figure 1 Trend in production**

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