

Dynamic of Tea Production in Dibrugarh District of Assam

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Abstract: *The focus of the study was on the dynamic of tea production in Dibrugarh district of Assam. Secondary data were collected from tea statistic and other sources for the study. The growth in area, production and productivity of tea in the state of Assam as well as district Dibrugarh was positive and significant indicating scope for its further development in future.*

In case of future projection of demand and supply of tea in Dibrugarh district it is estimated that demand for tea will be increased to 26.67 thousand tones till 2025 while supply projection shows that the estimated supply of tea for Dibrugarh district will increased to 30.18 thousand tones till 2025. Thus the overall balance position indicates that production is likely to be higher than demand, making Dibrugarh a surplus district.

Keywords: *Production, Productivity, Demand, Supply, Surplus.*

1. INTRODUCTION

Tea industry is one of the oldest and well organized industries in India. Today Indian tea industry is having 1692 registered tea manufacturers, 2200 registered tea exporters 5548 number of registered tea buyers and nine tea auction centers. The major tea growing areas in India are concentrated in Assam, west Bengal, Tamilnadu and Kerala. In Assam, tea is mostly cultivated in upper Assam particularly in the district of Dibrugarh, Tinsukia, Sibsagar, Jorhat, and Golaghat .In fact 50% of the tea produced in India and about 1/6th of tea produced in India come from Assam along.

India constituted to be amongst the largest producer of tea in the world till 1960 as its share in the total world tea output was 35 percent at that time. Of late, India's share in the world tea output has shown declining trends with 18 per cent in 1991, which has further decline to only 13 percent during 2015, which is mainly due to the growing domestic demand and increasing competition in international tea market especially from African producers. This called for the special attention of the government to play a vital role in framing policies to promote/ expand export avenues of tea under the new economic environment. Keeping this background in view the present study was initiated with the following specific objective.

1. To study the growth of area, production and productivity of turmeric
2. To estimate the demand and supply in the project area up to 2025

2. METHODOLOGY

The present study mainly depends on secondary data which were obtained from various tea statistics and other publication; Data were taken for the period from 2001-02 to 2015-16 for district Dibrugarh and as well as for the state Assam. For projection of Demand of tea in District Dibrugarh up to 2025 A.D., The data on population growth in the state during the years 2001-02 to 2015-16 were noted from the census reports.

District Dibrugarh where the production of tea was highest in Assam was selected purposively for the study

2.1. Analytical Procedure

2.1.1. Compound Growth Rate

The compound growth rates of area, production and productivity of tea during the period 2001-02 to 2015-16 were worked out by fitting exponential function of the type:-

$$Y_t = AB^t$$

Where,

- Y_t = Area/ production / productivity of tea in year t
- A = intercept
- t = different years
- B = $1 + \frac{1}{100}$

2.1.2. Demand Projection

For projecting the demand for tea, the projections for population growth was made on the basis of the trend of the decennial population growth of the Dibrugarh District during the decade 2001-2002 to 2015-16, which indicate an increase of 0.57 percent. With the presumption that same trend of population growth will follow in future the population projections during the decade 2015-16 to 2024-25 were made at the rate of 1.29 and 1.23 percent per annum respectively. The aggregate demands were worked out separately by multiplying the per capita consumption of tea with the projected population for the corresponding years.

2.1.3. Supply Projection

For projecting the area and yield of tea, the non linear trend of exponential type along with flexibility co-efficient were used. The compound growth rate of area (1.45) and productivity (1.67) estimated for the period 2001-2002 to 2015-16 were used as the basis for projecting area and productivity of tea in Dibrugarh district till 2025 A.D., The flexibility co-efficient were estimated both for area and yield of tea with the help of the following formula in order to take care of the annual fluctuation in area and yield of the crop.

Flexibility Co-Efficient for Area

$$a_i \text{ max} = \sum_{i=1}^m \frac{[a_{it} - (a_{i,t-1})]}{a_{i,t-1}} / m$$

Where, $a_i > a_{i-1}$

$a_{i,t-1}$ = area under tea in t^{th} and (t-1) the year

m = numbers of years having more yield in current year than previous year

n = number of years having more yield in previous years than current year.

$$a_i \text{ min} = \sum_{i=1}^n \frac{[a_{i,t-1} - (a_{i,t})]}{a_{i,t-1}} / n \text{ when,}$$

$a_{i,t-1} > a_{i,t}$ Where;

$a_{i,t}$ and $a_{i,t-1}$ = Yield of tea in t^{th} and $(t - 1^{th})$ years

m = numbers of years having more yield in current year than previous year

n = number of years having more yield in previous year than current year

Flexibility Co- Efficient for yield

$$Y_i \text{ max} = \sum_{i=1}^n \frac{[Y_{it} - (Y_{i,t-1})]}{Y_{i,t-1}} / m \text{ when,}$$

$Y_{i,t} > Y_{i,t-1}$

$$Y_i \text{ min} = \sum_{i=1}^n \frac{[Y_{i,t-1} - (Y_{i,t})]}{Y_{i,t-1}} / m \text{ when,}$$

$$Y_{i_{t-1}} > Y_{i_t} \text{ and where}$$

$$Y_{i_t} \text{ and } Y_{i_{t-1}} = \text{yield of tea in } t^{th} \text{ and } (t - 1)^{th} \text{ year}$$

m = number of year having more yield in current year than previous year

n = numbers of years having more yield in previous year than current year

The ultimate flexibility co-efficient were obtained by the following adjustment:-

$$a_i \text{ max} = 1 + a_i \text{ max}$$

$$Y_i \text{ max} = 1 + Y_i \text{ max}$$

$$a_i \text{ min} = 1 - a_i \text{ min}$$

$$Y_i \text{ min} = 1 - Y_i \text{ min}$$

Thus the area and yield of the crop were projected in different years. Finally the production (supply) was estimated by multiplying the area and the yield of the crop in corresponding years.

Table1. Compound Growth Rate of Area, Production and Productivity of Tea in Assam and District Dibrugarh over Periods

Time Period	(Area in Hectare, Production in Tons)					
	Assam			Dibrugarh		
	Area	production	Productivity	Area	production	productivity
2001-02 To 2005-06	0.021	0.151	-0.07	0.425	0.599	0.106
2006-07 To 2010-11	1.33	1,01	0.15	1,01	1.53	0.83
2011-12 To 2015-16	1.76	1.41	1.17	1.45	1.67	1.47

Sources: Tea Statistic

To work out and compare the growth rates of area, production and productivity of tea in the state and district Dibrugarh, the total period has been divided into three sub periods each of four years duration as well as for entire period from 2001-02 to 2015-2016 is presented in table -1.

It is observed from the table that during the fourteen years period 2001-2002 to 2015-16 the growth rate of area, production and productivity of tea in the state of Assam as well as district Dibrugarh are positive and significant indicating scopes for its further development in future. The tea cultivator of the state are now inclined to put more area under tea cultivation but the adoption of new high yielding varieties and modern technology of tea production needs to be extended in a big way in order to raise the productivity level.

Table2. Projected Demand for Tea in Dibrugarh during the Period 2015 to 2025

Years	Population	Estimated Consumption (000tonnes)	Estimated demand (000tonnes)
2015-16	1642960	14.18	23.04
2016-17	1671405	14.77	23.15
2017-18	1756298	15.31	24.26
2018-19	1781736	15.71	24.48
2019-20	1807734	16.76	24.79
2020-21	1834305	16.96	24.89
2021-22	1861459	16,09	25.13
2022-23	1989211	17.56	25.67
2023-24	1917574	17.10	26.15
2024-2025	2063744	18.78	26.67

Based on the methodology discussed earlier the projections with respect to Demand for tea in district Dibrugarh up to 2025 A.D. was worked out and is presented in table 2.

It is observed from the table that the population of Dibrugarh district is likely to be nearly 20.6 lakh by the years 2025. It is also evidence from the table that the consumption of tea in the state is likely to be 18.78 thousand tones by the years 2025, and total demand for tea is expected to increase to the tune of nearly 26.67 thousand tones by the year 2025.

Table3. Projected Supply of Tea in Dibrugarh in Relation to Demand for the Period from 2015 to 2025

Year	Area '000 ha	Productivity kg/ ha	Total production (in 000 tonnes)	Total Demand (in '000 tonnes)	Balance (in '000Tones)
2015-16	18.28	2267	25.45	23.04	+ 2.41
2016-17	18.46	2298	25.85	23.15	+2.7
2017-18	19.04	2390	26.19	24.26	+ 1.93
2018-19	19.12	2378	26.76	24.48	+ 2.28
2019-20	19.65	2390	26.98	24.79	+ 2.19
2020-21	20.87	2409	27.00	24.89	+2.11
2021-22	21.09	2494	27.12	25.13	+1.99
2022-23	21.55	2501	28.95	25.67	+3.28
2023-24	21.78	2590	29.09	26.15	+ 2.94
2024-25	22.03	26.09	30.18	26.67	+ 3.51

Supply Projection Of Tea In Dibrugarh District, In Relation To Demand And The Corresponding Balance Position Is Presented In Table 3.

It is observed from the table that the production (supply) of tea in the state is likely to be near 30.18 thousand tones till the year 2025, which is higher than its demand in these corresponding years. Thus the overall balance position indicates that production is likely to be higher than demand, making Dibrugarh a surplus district.

3. CONCLUSION AND POLICY IMPLICATION

The foregoing analysis vividly portrayed that the percentage of area and production of tea in state Assam and district Dibrugarh have increased, it is estimated that demand for tea will be increased to 26.67 thousand tones till 2025 while supply projection shows that the estimated supply of tea for Dibrugarh district will increased to 30.18 thousand tones till 2025. Thus the overall balance position indicates that production is likely to be higher than demand, making Dibrugarh a surplus district. It is therefore suggested that to earn more foreign exchange and to reduce cost of production we should improve the productivity of tea by adopting improved technology of tea and technical know-how of tea. There is sufficient scope to improve tea productivity in the state as compare to the other state of India.

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