

### Profitability analysis of tea production in Taraba state

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**Abstract:** Tea is of great benefit to human immune system because of the many antioxidants it contains. This study examined the profitability of tea production in Taraba State. This is to ascertain that tea production is profitable so more farmers can go into its production, improving their welfare and boosting the nation's economy. Three villages were randomly selected, Mayo-kusuku, Kakara and Kasalasa. Two hundred and seventy-two farmers information were used for analysis. Fifty percent of farmers were between 31 and 60 years, while 15% were above 61 years. Half of the farmers are in their active years and more than 90% of tea farmers in the study are male. The Total Variable Cost (TVC) was ₦27,721,676, Total Fixed Cost (TFC) was ₦1,169,850 and the Total Cost (TC) was ₦28,891,526. The gross revenue was ₦362,629,368, the gross margin was ₦334,907,692 and the net income of tea farmers was ₦361,459,518. The ratio of the net income to the TC was 12.5%. The challenges faced by tea farmers in the study are poor soil fertility, low yield, pest infestation, labour shortage, finance, lack of fertilizer/pesticide. In conclusion, tea production is a profitable business in Taraba state. Government should make fertilizers and pesticide available to farmers. Farmers could also form cooperative to get soft loans to boost their production.

**Keywords:** Cost, Challenges, Returns, Tea production, Profitability

### INTRODUCTION

Across the globe, after water tea is the most popularly consumed liquid and it is a pleasant drink loved by people (Yahaya *et al.* 2019). Tea is made from the processed leaves of the tea plants *Carmellia sinensis* and it is also a great source of revenue for countries producing it. Tea is grown in countries like Kenya, Nigeria, India, Sri Lanka, China, Malawi, Uganda, Japan, Indonesia and Vietnam. (Olaniyi *et al.* 2014)

Tea has more than seven hundred valuable chemicals found in it. The ones that are of importance to man's health are vitamins C, E & K; flavanoides, amino acids, polysaccharides and caffeine (Olaniyi *et al.* 2014). The presence of these antioxidants helps in improving retention of memory, reducing body weight, and stopping stroke. There are three types of tea (white, black, and green tea) but green tea is widely consumed in Nigeria because of its role in controlling diseases for example high blood pressure and high blood sugar Punch July 6, (2013). Green tea is yellow to green in colour and is manufactured preferably from China tea plants leaves. Tea is of great benefit to human immune system providing immunity against intestinal disorders.

*Camellia Sinensis* (L) Kuntze was discovered in China in about 2700 B.C. Tea was discovered in South-East Asia perhaps in the province including the sources and high valleys of the Brahmaputra, the Irranwaddy, the Salween and the Mekong rivers at border separating India, China, and Burma. Tea is an evergreen bush which when cultivated is kept at a low height to enable the young branches from which tea is plucked. Presently, globally compared to other agricultural industries, the industrial tea industry has attained a huge degree of stability (Famaye, 2006).

Cultivation of tea started in Africa (Kenya) from early 1900's. Presently Kenya is the first nation among the league of African tea producing nations like Cameroon, Nigeria, Burundi and Malawi. Cultivation of tea in Nigeria started in 1982 with the establishment of one hectare in Cocoa Research Institute of Nigeria (CRIN) Substation at Kusuku Mambilla plateau, Taraba State (Famaye, 2006).

Olaniyi *et al.* 2014 examined Tea breeding in Nigeria: past and present state. This study did a review on the information on tea breeding available in Nigeria. The study reported that 2045 and 2914 tonnes of tea were produced in 2006 and 2007. Three key things were achieved in this study; tea clones were successfully adapted to Nigeria lowland areas, standardization of pluck quality, division of tea clones into three separate groups for further hybridization studies. Also, induction of callus from tea stem cuttings, shoot apices and flower buds were done. The authors suggested germplasm collection, hybridisation and introduction of biotechnology techniques as the required steps to boost tea production in Nigeria.

Oluyole *et al.* (2017) researched on the competitiveness of tea production and challenges of tea value chain in Taraba State, Nigeria. In the study sixty three percent of the respondents were 40 years and below. Seventy six percent had primary, secondary and tertiary levels of education. In the study the Private Cost Ratio (PCR) was less than 1 meaning that in the study area tea production was competitive. Also, Private Profitability (PP) has positive value for tea production. The problems affecting tea value chain in Taraba State are lack of modern equipment, lack of access to market, lack of finance, lack of market demand and lack of fertilizer/pesticide. The authors suggested that

adequate finance should be made available to the farmers to boost their production.

This study is important because it considered the cost and return analysis of tea production in Nigeria. It also identified the challenges that tea farmers face.

**METHODOLOGY**

This study was carried out in Taraba state. Taraba State is noted for tea production. Respondents were selected in the study area using multistage sampling technique. Three villages were randomly selected; they are Mayo-kusuku, Kakara and Kasalalah. Information was obtained from the respondents using well-structured questionnaire. Three hundred copies of questionnaire were distributed but two hundred and seventy-two farmers information were eventually used for the analysis. Annual information was collected from the respondents, and it was collected between October and November 2019.

**Analytical techniques**

Descriptive analysis and budgetary analysis were used in this study.

Descriptive analysis: This involves the use of mean, frequencies, percentages, tables.

Budgetary analysis was used to estimate the cost of production and revenue generated from tea production.

Total Cost (TC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)..... (i)

Gross Revenue (GR) = Total Output (Total number of tons of tea sold) X unit price..... (ii)

Gross Margin (GM) = GR – Total Variable Cost (TVC) ..... (iii)

Net Income (NI) = GR – Total Fixed Cost (TFC) ..... (iv)

**RESULTS AND DISCUSSION**

Table 1a and b presents the socioeconomic characteristics of tea farmers in Taraba State. Fifty percent of farmers were between 31 and 60years,

while 15% are above 61 years. This shows that majority (84.6%) of the tea farmers in Taraba State were young to middle age (≤30-60years). Half of the farmers were in their active years thus there is future for tea production in Taraba State. Farmers still have more years to produce and improve tea production to get more profit. More than 90% of tea farmers are male. This shows that tea farming is male dominated. This may be because tea farming is tedious, and it takes between 3-4years before it matures. Women are more involved with smallholder farming and arable crops that mature within a season so they can eat and sell to meet their family needs. About 76% of tea farmers have at least a primary education. Education is important as this will make them to accept new innovations and technologies. It will also make them to be open to ideas and improved techniques from extension agents. Majority of the farmers were married. Marriage could help to increase their revenue and reduce cost as their family members could help to work on the farm thus reducing the cost of production. Ninety percent of tea farmers engaged in farming as their primary occupation. Majority of the respondents involved in tea production are farmers. Most of the tea farmers belong to cooperative societies. This is a form of social capital. They need these societies to get loan and get information to improve their farming business. Twenty nine percent of tea farmers cultivate on a medium to large scale. Majority of tea farmers in Taraba state produce tea in small scale. At the moment, less than 20% of Nigeria’s needed tea is produced locally while the balance is met through importation of tea leaves from other tea producing countries across the world (Yahaya *et al.* 2019). Majority (80%) of tea farmers cultivate on land aged 11-40years. These lands are old and may not be able to produce optimally so farmers need to fortify the nutrients in the soil with bio or chemical fertilizers to boost their production. Sixty one percent of farmers cultivate on land that are self-established while 32% inherit their lands.

**Table 1a: Socioeconomic characteristics of Tea farmers**

Variable	Frequency	Percentage
<b>Town/village</b>		
Mayo-kusuku	35	25.7
Kakara	19	14.0
Kasalalah	82	60.3
<b>Age</b>		
≤30	47	34.6
31-60	68	50.0
≥61	21	15.4
Mean age	40years	
<b>Sex of farmers</b>		
Male	126	92.7
Female	10	7.3

**Table 1b: Socioeconomic characteristics of Tea farmers**

Variable	Frequency	Percentage
<b>Level of Education</b>		
No formal education	33	24.2
Primary	34	25.0
Secondary	44	32.4
Tertiary	25	18.4
<b>Marital status</b>		
Single	22	16.2
Married	113	83.1
Widowed	1	0.7
<b>Occupation</b>		
Farming	122	89.7
Trading	3	2.2
Technical	2	1.5
Craftmanship	9	6.6
<b>Member of cooperative society</b>		
Yes	112	82.4
No	24	17.7
N=136		

Source: Field survey, 2020

**Table 1b: Socioeconomic characteristics of Tea Producers**

Variable	Frequency	Percentage
<b>Farm size(acres)</b>		
1-12.5	96	70.6
≥ 12.6	40	29.4
Mean	12.2	
<b>Age of farm(years)</b>		
1-10	25	18.4
11-20	42	30.9
21-30	32	23.5
31-40	32	23.5
41-50	5	3.7
Mean	24	
<b>Nature of land ownership</b>		
Inheritance	44	32.4
Self-established	83	61.0
Purchased	9	6.6
N=136		

Source: Field survey, 2019

Table 2 presents the breakdown of the total variable cost. The variable costs include costs of container/basket, fertilizer, herbicides, drying material, bags and transportation. This cost also includes money spent on hiring labour and family labour. The cost of container/basket is ₦244,929,

cost of fertilizer ₦2,171,840, cost of herbicides ₦1,465,342, cost of drying material ₦996,217, cost of bags ₦990,740 and the cost of transportation ₦1,696,450. The costs of family and hired labour are ₦15,117,118 and ₦5,039,040, respectively. The total variable cost is ₦27,721,676.

SN	Item	Amount (Naira)
1	Container/basket	244,929
2	Fertilizer	2,171,840
3	Herbicides	1,465,342
4	Drying material	996,217
5	Bags	990,740
6	Transportation	1,696,450
7	Family labour	15,117,118
8	Hired labour	5,039,040
	<b>Total variable cost</b>	<b>27,721,676</b>

Source: Field survey, 2019

Table 3 presents the cost and returns on tea production in Taraba State. As shown in table 3, the TVC was ₦27,721,676, average variable cost per farmer was ₦203835.9 and the average variable cost per hectare was ₦41427.43. The TFC was ₦1,169,850. TFC per farmer was ₦8601.84 while average fixed cost per hectare was ₦1748.23. Also the TC was ₦28,891,526, average TC per farmer was 212,437.7 naira and average total cost per hectare was ₦43175.66. The GR was ₦362,629,368; average GR per farmer was ₦2,666,392.4

while the average GR per hectare was ₦541,915.4. The GM was ₦334,907,692, GM per farmer was ₦2,462,556.6 and the GM per hectare was ₦500,488. The NI of tea farmers was ₦361,459,518; NI per farmer was ₦2,657,790.6 while NI per hectare was ₦540167.2. Therefore, the ratio of the NI to the TC was 12.5%. This means that 12.5% of the TC spent on tea production was generated as profit. Thus, tea production is a profitable business in Taraba state.

**Table 3: Cost and Return Analysis**

S/N	Item	Amount (Naira)
1	Total Variable Cost	27,721,676
2	Average Variable Cost/Farmer	203835.9
3	Average Variable Cost/hectare	41427.43
4	Total fixed cost	1,169,850
5	Average fixed cost/Farmer	8601.84
6	Average fixed cost/hectare	1748.23
7	Total cost	28,891,526
8	Average total cost/Farmer	212,437.7
9	Average total cost/ hectare	43175.66
10	Gross Revenue	362,629,368
11	Average Gross Revenue /Farmer	2,666,392.4
12	Average Gross Revenue /hectare	541915.4
13	Gross Margin	334,907,692
14	Gross Margin/farmer	2,462,556.6
15	Gross Margin/hectare	500,488
16	Net Income	361,459,518
17	Net income/farmer	2,657,790.6
18	Net income/hectare	540167.2

Source: Field survey, 2019

In the study area tea farmers faced some challenges. The challenges are presented in table 4. The challenges are poor soil fertility, low yield, pest infestation, labour shortage, finance, lack of fertilizer/pesticide. Majority of tea farmers faced two major challenges finance (86%) and lack of

fertilizer/pesticide (83.8%). Forty one percent of the farmers faced the challenge of labour shortage and 35% faced the challenge of poor soil fertility. Also, 15% of tea farmers in Taraba state faced the challenge of low yield while the challenge of pest infestation was faced by 15% of the farmers.

**Table 4: Challenges in Tea Production**

S/N	Variable	Frequency	Percentage
1	Poor soil fertility	48	35.3
2	Low yield	27	19.9
3	Pest infestation	21	15.4
4	Labour Shortage	56	41.2
5	Finance	117	86.0
6	Lack of fertilizer/pesticide	114	83.8

Field Survey, 2019.

## CONCLUSION

Fifty percent of farmers were between 31 and 60 years, while 15% were above 61 years. This shows that majority (84.6%) of the tea farmers in Taraba State are young to middle age (17-60 years). Tea production is a profitable business in Taraba State because 12.5% of the TC spent on tea production was made as profit. The challenges

faced by tea farmers in Taraba state are poor soil fertility, low yield, pest infestation, labour shortage, finance, and lack of fertilizer/pesticide. The major challenges faced by tea farmers in Taraba State are finance and lack of fertilizer/pesticide.

**RECOMMENDATION**

Tea farming is profitable thus more farmers should be encouraged to go into it. Government can encourage farmers by providing loans, fertilizers and herbicides for them.

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