



TARABA JOURNAL OF AGRICULTURAL RESEARCH

ISSN: 978-978-450-9 (Online)

Publication Frequency: June & December

Journal Homepage: www.tajar.com.ng

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Factors Influencing Value Addition Among Small-Scale Tea Farmers in Sardauna Local Government Area of Taraba State, Nigeria

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ARTICLE HISTORY

Received: 09/07/2025

Accepted: 25/07/2025

Article Type:

Research Paper

Volume: 13

Issue: 1

Pp: 202– 209

ABSTRACT

This study analyzed value addition challenges among small-scale tea farmers in Sardauna Local Government Area of Taraba State, Nigeria. It specifically looked at the value chain activities of the small-scale tea farmers, factors influencing tea value addition, sources of information and constraints to addition of value to tea. A multi-stage sampling procedure was used to select 110 respondents for this study. Primary data were collected using structured questionnaire. Data were analysed using frequency distribution, percentage, mean, standard deviation and Probit regression. The results revealed that the major value addition activities (Production) undertaken by the respondents were land preparation (89.1%), tea planting (88.2%), tea pruning (87.3%) and pest and disease control. Also the major value addition activities (Processing) undertaken by the respondents were storing tea leave (81.8%), drying of tea leave (80.9%), oxidation and steaming (79.1%) and harvesting (73.6%). Factors influencing tea value addition among small-scale tea farmers were household size (0.0155) and extension contact (0.0088). The majority of tea farmers (45%) got their information from family and friends. Lack of tea processing equipment ($\bar{x} = 2.7000$), lack of finance ($\bar{x} = 2.6182$), low market demand ($\bar{x} = 2.5455$), low yield ($\bar{x} = 2.5364$) and high cost of transportation ($\bar{x} = 2.4364$) were major problems hindering tea value addition. Tea farmers, predominantly young, male, and married, face significant challenges in value addition despite their experience and social organization. There is need by Stakeholders to embark on ways and means that would empower tea farmers through the provision of modern equipment and infrastructure through cooperative formation by pooling resources together than waiting on government to achieve their goals.

Keywords: Value Addition, Small-Scale Tea Farmers, Sardauna and Taraba

INTRODUCTION

The concept of value addition in agriculture in the developing economies is widely becoming an acceptable strategy adopted by both

government and non-governmental organisations towards improving the income generation of the rural communities. The

former trend in which rural farmers disposed-off their farms produce without processing seemed to drastically reduce the incomes realisable through such transactions (Adewale, 2019). The practice further impoverished the farmers at the instance of the middlemen, as most of them could not raise enough capital to carter for or re-engage in the next cropping season. This is coupled with the technological advancement and intensifying global competition in the agricultural industry which is fast transforming from the production of low quality bulk commodities sold in undefined markets to production of improved variety crops sold in specialized markets. Izaba (2021) summed up the essence in a sentence: Apart from improving the profit potentials of participants (farmers), value-addition in agriculture offers entrepreneurial farmers an opportunity to identify and pursue new crops and new markets.

Value addition, which encompasses activities such as processing, packaging, and branding, is crucial for enhancing the marketability, profitability, and competitiveness of agricultural products. While raw tea leaves command lower prices, processed tea products can fetch significantly higher returns, thereby improving the livelihoods of farmers and contributing to local economic development (Jacob *et al.*, 2023).

Despite the benefits, small-scale tea farmers in Sardauna LGA face numerous challenges in undertaking value addition. These challenges can stem from a variety of factors, including limited access to technology and processing equipment, inadequate financial resources, lack of technical expertise and training, poor infrastructure (such as roads and electricity), and difficulties in accessing markets. Furthermore, issues related to quality control, adherence to industry standards, and the ability to compete with larger tea producers pose significant hurdles (Mary and Oluyole, 2021, Oluyole *et al.* 2022; and Mary and Akanni, 2021). The research aims to identify the value chain activities of the small-scale tea farmers, sources of information of the small-scale tea farmers, factors influencing tea value

addition among small-scale tea farmers and the constraints to value addition of small-scale tea farmers. The null hypothesis (H_0) of this research states that there is no significance relationship between socioeconomics characteristics of tea farmers and their value addition activities. This study therefore, highlights the potential of tea value addition to enhance farmers' incomes, livelihoods, and the entire supply chain through modern practices, policy support, and technology, ultimately promoting economic diversification and sustainable development.

METHODOLOGY

The Study Area

This study was conducted in Sardauna Local Government Area of Taraba State, Nigeria. It is located between latitude $6^{\circ} 43'$ and $7^{\circ} 15'$ to the north and longitude $11^{\circ} 15'$ and $12^{\circ} 30'$ east of the Greenwich Meridian (Figure 1). It has a total land area of about $3,885\text{km}^2$ and an estimated population of 224,437 and the present projected population of 2022 is 352,900 (Taraba State Dairy, 2023). The local government is bounded by Gashaka Local Government to the North-Eastern, Kurmi Local Government to the West and Cameroon Republic to the East and South. The area has mountainous vegetation characterized with short grasses and forest scattered all over the place. Temperate crops such as tea, coffee, pea, banana, plantain, Irish potatoes, pepper, pineapple as well as vegetables (*Kumbi*) are grown on the plateau (Taraba State Dairy 2023). The climate of the study area is marked by dry and wet season. The wet season starts in March and ends in October. It has an average annual rainfall of between 1,866mm to 3000mm. The dry season starts in November and ends in February with a temperature variation between 15°C to 20°C . (Taraba State Dairy, 2023). The major occupation is farming. Most of the tribal spread within the area includes Fulani, *Mambilla*, *kaka*, *Panso*, *Kambu* among others. (Taraba State Diary, 2023).

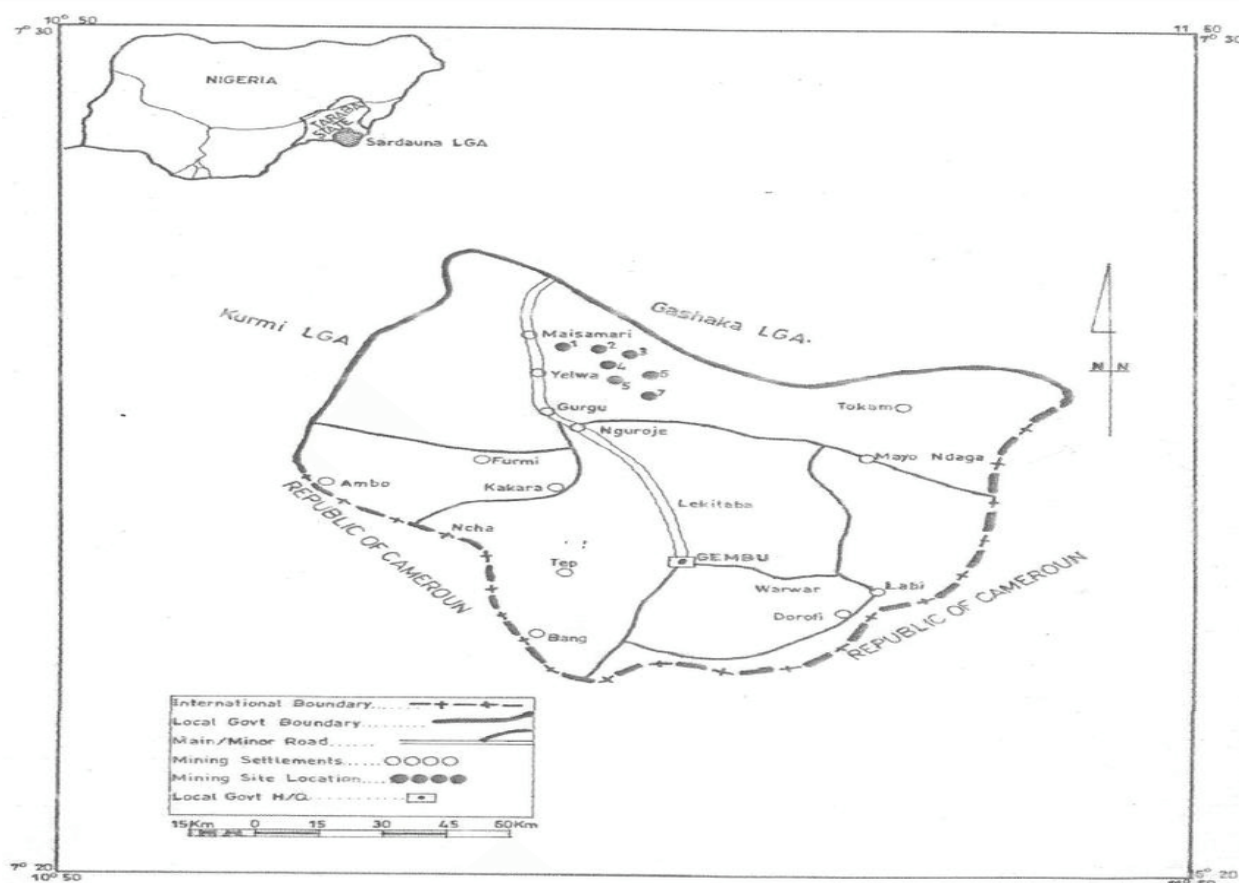


Figure 1: Map of Taraba State showing the study Area
Source: Department of Geography, Taraba State University (2021)

Data Collection

Multi-stage sampling procedures were used to select respondents for this study. In the first stage three (3) wards out of eleven (11) were purposively selected based on the intensity of tea production. The selected wards were Kakara, Nguroje and Mayo-kusuku. In the second stage, two (2) villages were selected from each of the ward using simple random sampling. In the third stage, 18 respondents were selected from each of the sampled villages using the snowball technique, a total of 108 respondents were sampled in the study.

Data Analysis

Descriptive statistics such as mean, frequency, percentage and standard deviation were used to analyze data on value chain activities of the small-scale tea farmers, the information source of the small-scale tea farmers and the constraints to addition of values to tea by the small-scale tea farmers. Probit regression model was used to analyze data on factors influencing tea value addition among small-

scale tea farmers and test the hypothesis because it gave the best fit.

Probit analysis equation is expressed in Exponential explicit model form;

$$\ln Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + U \quad 1$$

Where:

ln = natural logarithm

b_0 = constants

U = error term

X_1 = Sex

X_2 = Age

X_3 = Household Size

X_4 = Education Level

X_5 = Farm Size

X_6 = Year Experience

X_7 = Membership of Association

X_8 = Access to Credit

X_9 = Contact to extension agent

Dependent variable (Y) = Value addition (dummy)

X_1 to X_9 = Independent Variables coefficients

RESULTS AND DISCUSSION

Tea Value Addition Activities of Small-Scale Tea Farmers

Table 1 shows the tea value addition activities performed by the respondents. The results indicate that the primary value addition activities related to production included land preparation (89.1%), tea planting (88.2%), tea pruning (87.3%), and pest and disease control. In terms of processing, the key activities were storing tea leaves (81.8%), drying tea leaves (80.9%), oxidation and steaming (79.1%), and

harvesting (73.6%). Additionally, the marketing aspect of value addition was highlighted through the packaging of the tea product. These findings suggest that tea farmers are actively engaged in various activities that enhance the value of their tea products. This aligns with the findings of Jibrin *et al.* (2021), which noted that farmers in Ondo State engage in similar value addition efforts.

Table 1: Tea Value Addition Activities Small-Scale Tea Farmers

Tea Value Addition Activities	Frequency	Percentage (%)
Tea production		
Land preparation	98	89.1
Tea planting	97	88.2
Tea Transplanting	90	81.8
Post-planting care	93	84.5
Tea Training	93	84.5
Weeding	93	84.5
Pest and Disease Control	95	86.4
Tea Pruning	96	87.3
Tea Processing		
Harvest	81	73.6
Steaming	87	79.1
Shaping	78	70.9
Oxidation	87	79.1
Drying	89	80.9
Storing tea leaves	90	81.8
Tea Marketing		
Packaging	93	84.5

Source: Field Survey (2024)

Sources of Information of the Small-Scale Tea Farmers

Table 2 shows that a significant portion of tea farmers (45%) obtain their information from family and friends. This suggests that many farmers are not heavily relying on scientific information for their value addition practices, despite the role extension agents play in dissemination of information. Additionally, 25% of tea farmers turn to mass media for information, highlighting its role as a crucial source of knowledge. In Nigeria, mass media, particularly radio, is one of the quickest ways

to disseminate information to farmers and promotes the adoption of improved agricultural practices. Furthermore, 16% of farmers received information related to tea value addition from extension agents. This implies that only tea farmers relay on extension agent for information on tea value addition. These findings align with those of Olajide *et al.* (2021) and Muhanguzi and Ngubiri (2022), which indicate that fellow farmers, radio, and agricultural extension agents are the primary sources of agricultural information for farmers surveyed in Nigeria.

Table 2: Sources of Information of the Small-Scale Tea Farmers

Sources of Information of the Small-Scale Tea Farmers	Frequency	Percentage
Friends and family members	49	44.5
Religious and Traditional Leaders	9	9.1
Mass Media (Radio, Television, Newspaper, Magazines)	25	22.7
Extension agents	18	16.4
Cooperative groups.	7	7.3

Source: Field Survey (2024)

Factors Influencing Tea Value Addition among Small-Scale Tea Farmers

The results of the probit regression indicate an R-squared value of 0.7134, suggesting that approximately 71% of the variations in dependent variable were explained by the explanatory variables included in the model as shown on Table 3.

The coefficient for household size was 1.5875, which is both positive and statistically significant ($P > 0.05$), indicating that larger household sizes positively affect value addition in tea production. This influence may stem from the greater labor requirements associated with tea value addition activities. These findings were consistent with the research conducted by Eze *et al.* (2022), which also found a positive correlation between household size and the level of value addition. Additionally, the coefficient for extension contact was 5.5932 and was statistically significant at the 5% level. This suggests that tea farmers who maintain more frequent contact with extension agents are more likely

to adopt advanced tea value addition technologies compared to those who have less interaction. The increased interaction will equip farmers with vital information about how to enhance their raw farm outputs, enabling them to create more consumer-ready products. These findings align with the results reported by Mbeche *et al.* (2022).

Base on the result in table 3 the findings largely support the hypothesis that there is no significant relationship between most socioeconomic characteristics and value addition activities, except for household size and contact with extension agents. The no significant results for variables such as income, education, farm size, and others reinforce the idea that socioeconomic factors, in general, may not be the primary determinants of value addition activities among tea farmers. This study differs from the study of Eze *et al.* (2022) that income, access to market, product characteristics, and cost of processing technology significantly influence value addition.

Table 3: Factors influencing tea value addition among small-scale tea farmers

Variable	Coefficient	Std. Error	Z-Statistic	Prob.
Constant	0.3489	1.9940	0.1754	0.8611
Sex	0.1125	0.6672	0.1687	0.8661
Age	-0.0390	0.0362	-1.0767	0.8661
Marital Status	0.0480	0.0576	0.8327	0.4050
Household Size	1.5875	0.6556	2.4216	0.0155**
Education Level	0.0145	0.0723	0.2002	0.8413
Primary Occupation	-0.0308	0.0801	-0.3840	0.7010
Farm Size	-0.1546	0.2670	-0.5789	0.5627
Land Acquisition	2.2330	2.5500	0.8760	0.3810
Year Experience	-2.2662	2.4655	-0.9192	0.3580
Membership of Association	-1.7049	1.6745	-1.0181	0.3086
Sources of Capital	-0.6206	0.6092	-1.0184	0.3085
Annual Income	2.70E-07	4.87E-07	0.5550	0.5786
Access to Credit	-0.5334	1.5521	-0.3437	0.7311
Contact with extension agent	5.5932	2.1361	2.6183	0.0088***
R-Squared	0.7134			
Adj. R-Squared	0.8455			
Prob.	0.0000			

Source: Field Survey (2024)

Constraints to Tea Values Addition among Small-Scale Tea Farmers

The constraints limiting tea value addition among small-scale farmers was investigated and the result presented on Table 4. The result shows that lack of tea processing ($\bar{x}$ = 2.7000), lack of finance ($\bar{x}$ = 2.6182), low market demand ($\bar{x}$ = 2.5455), low yield ($\bar{x}$ = 2.5364) and high cost of transportation ($\bar{x}$ =

2.4364) were perceived by the tea farmers as major problems hindering tea value addition. This study lends credence to Ejechi (2023) assertion that farmers were mostly resource poor and generally lack adequate capital and access to credit facilities with which to procure equipment and other necessary inputs that will aid value addition.

Table 4: Constraints to Tea Value Addition among Small-Scale Tea Farmers

Constraints	Mean	Std. Deviation
Lack of Tea Processing Equipment	2.7000	.46035
Lack of finance	2.6182	.52431
Low market demand	2.5455	.50021
Low Yield	2.5364	.65912
High cost of transportation	2.4364	.56710
Lack of fertilizer/pesticide	1.9636	.76539
Pest Infestation	1.9364	.70746
Labour Shortage	1.8273	.74018
Lack of access to market	1.8000	.76386

Source: Field Survey (2024)

CONCLUSION

Based on the findings of this study, it was concluded that land preparation (89.1%) for tea planting (88.2%), tea pruning (87.3%), pest and disease control, storing tea leave (81.8%), drying of tea leave (80.9%), oxidation and steaming (79.1%) and harvesting (73.6%) were value addition activities undertaken by small-scale tea farmers. Factors influencing tea value addition among small-scale tea farmers are household size and extension contact. The major sources of information of small-scale tea farmers are from family members and friend. Lack of tea processing, lack of finance, low market demand, low yield and high cost of transportation were the major problems affecting tea value addition.

RECOMMENDATIONS

The study recommends that:

- Stakeholders can sensitize each other to embark on ways and means that would empower tea farmers through the provision of modern equipment and infrastructure or purchased

- through cooperative formation knowing that they stand to achieve their goals by pooling resources together than waiting on government's intervention
- Tea business can bring about economic development in Taraba State and Nigeria as a whole if government at various levels can put in intervention programmes to overcome the low market demand and lack of finance
- State and local governments as well as stakeholders should collaborate in the provision of good road to reduce the cost of transportation in the area.

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