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Analysis of Cowpea Market Structure, Conduct and Performance in Bade Local Government Area of Yobe State, Nigeria

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Abstract
The study analysed cowpea marketing in Bade Local Government Area, Yobe State. Gashua grain market was purposively selected. One hundred and five (105) respondents were randomly selected from the market. Primary data was used for the study and the data were analysed using descriptive statistics, Gini Coefficient, marketing margin and marketing efficiency. The findings of the study indicated that majority (99.05%) of the respondents were male, in the active age group of 30-39 years. The educational level of the respondents showed that 100% had various form of education and 76.19% were married while 90% of the cowpea marketers do not have access to credit to finance their business. The Gini Coefficient for cowpea market participants showed an unequal distribution in the income generated with Gini Coefficient of 0.8320 which signifies perfect monopsony/monopoly in the market. The cowpea marketing margins was ₦2000 and the marketing efficiency was 2.07 this indicates that for every 100 kg bag of cowpea sold, there was a profit of N2000. These clearly indicated that cowpea marketing was a profitable business in the study area. The study recommended that government and non-governmental agencies should empower the marketers through the provision of micro credit facilities to encourage more people to go into cowpea marketing. Modern storage facilities and the use of airtight containers should be encouraged among marketers for sustainable cowpea storage so as to improve it shelf life.

Keywords: Cowpea, Marketing, Market Structure, Conduct and Performance

Introduction
Cowpea (*Vigna unguiculata*) is one of the most ancient crops known to man. It is a broadly adapted highly valued crop, cultivated around the world primarily for grain but also as a vegetable (for leafy green, green pods, fresh shelled green peas and shelled dried peas),a cover crop and for fodder (Ayodeji *et al.*, 2014).The cowpea an annual herbaceous legume cultivated for its edible seeds or for fodder. Cultivated cowpeas are herbaceous annuals that are either erect, prostrate or climbing annuals with a tap root and virtually all are glabrous. They are mostly grown for grain but a small proportion (about 10%) are grown as green leafy vegetables and fodder in Africa or as fresh pods in eastern Asia (Boukar *et al.*, 2015).Like other grain legumes, cowpeas contain a range of anti-nutritional factors such as hemagglutinin, tannin, trypsin inhibitors, oxalate, phytate, polyphenols and oligosaccharides (Sreerama *et al.*, 2012; Afiukwa *et al.*, 2012).

Cowpeas are of vital importance to the livelihood of several millions of people in West and Central Africa. Rural families that make up the larger part of the population of these regions derive from its production, food, animal feed, alongside cash income. Cowpea is considered more tolerant to drought than soybean or mung bean because of its tendency to form a deep taproot. It has a competitive niche in sandy soils, does not tolerate excessively wet conditions, and should not be grown on poorly drained soils. One of the most remarkable things about cowpea is that it thrives in dry environments; available cultivars produce a crop with as little as 300 mm of rainfall. This makes it the crop of choice for the Sahelian zone and the dry savannahs, though cultivars that flourish in the moist savannahs are available as well. Cowpeas are of vital importance to the livelihood of several millions of people in West and Central Africa. Rural families that make up the larger part of the population of these regions derive from its production, food, animal feed, alongside cash income. Cowpea is rich in protein and constitutes a staple food for people in rural and urban areas (Baributsa *et al.*, 2010). It can be consumed alone when cooked or mix with other foods such as rice, maize, millet, plantain, yam, gari, etc. Large quantity of cowpea is also consumed as deep oil fried product called "akara"

and a steamed product called "moi-moi" in most parts of Nigeria.

Agricultural marketing can be define as the performance of all business activities which direct the forward flow of goods and services to consumers in order to accomplish the producer's objectives. Many people consider marketing as equivalent to selling or transferring the product to another person for a price. Selling is a central to the micro concept of marketing but it is only a part of it. Marketing includes packing, storage, transportation, pricing, financing, risk bearing and even product design (Olukosi, 2005)

Cowpea marketing, like any other business, involves sustainable performance of all business activities which involve the flow of cowpea from the point of initial agricultural production until it is in the hands of the ultimate consumer (Nchouji, 2006). Marketing of cowpea is a profitable business engaged by most of agriculture produce merchants because of the high economic value of the crop. There is usually a high economic return on the marketing of cowpea because of its value in the diet of most consumers (Debaniyu *et al.*, 2011).

A well-developed marketing system is expected to complement the farm production efforts towards the realization of its desirable goals through the provision of time, place, possession and form utilities (Olukosi, *et al*, 2007). Therefore cowpea marketing system if efficient and well developed will facilitate trading between buyers and sellers without any delays or difficulties and bring about effective distribution and consumption for the well-being of the people in Bade Local Government Area of Yobe state.

Agricultural marketing is the driving force for economic development and has guiding and stimulating impact on production and distribution of agricultural produce. Source of cowpea is mostly from village markets and farms located away from the market, which increased the price of cowpea to the final consumer subsequently reducing the profit of market. Ngigi (2008) and Adejobi (2005) revealed that the major marketing problems faced by cowpea marketers are lack of credit facilities, lack of stalls, inadequate supply of cowpea, theft/ fire accident, default/ lack of trust, competition, high cost of transportation, seasonality of produce and spoilage. The objectives of the study are to describe the socio-economic characteristics of cowpea marketers, determine the structure and performance of cowpea market in the study area.

Methodology

Study Area

Gashua is a community in Yobe State located in the north-eastern region of Nigeria, on the Yobe River, a few miles below the convergence of the Hadejia River and the Jama'are River.It is located within latitude: 12° 52' 26.33" N longitude: 11° 02' 26.05" E and covers a land area of 772km2.The average elevation is about 299 m. The population in Bade projected in 2016 to be 198400 (NPC, 2016). The hottest months are March and April, with temperature ranges of 38°-43° Celsius. The climatic conditions characterized by two distinct seasons; dry and wet seasons. The atmospheric temperature ranges between 39oC and 42oC with average annual rainfall of 500mm-1000mm (NEAZDP, 2011). Agriculture is the major occupation of the local population who are engaged in crop production during both rainy and dry season. In the rainy season, June-September, temperatures fall to 23-28° Celsius. Gashua is one of the largest and most developed towns in Yobe State. Since 1949 it has been headquarters of the Bade Local Government Area. The Bade language is spoken in Gashua, and an area is fanning out east and south of Gashua. The climate favours; cereals (maize, millet, sorghum and rice), solanaceous crops (coopers, tomato, garden eggs) the production of a wide variety of crops, which include legumes (groundnut and beans Bade is one of seven languages of the Chadic family indigenous to Yobe State (Abbas, 2016; Yobe State Government, 2016).

The town lies near the Nguru-Gashua Wetlands, an economically and ecologically crucial ecological system. The town is the location of the court of Mai Bade, the Emir of Bade and it has shared a border with Bursali, Jakusko, Yusufari, Karasuwa (Schuh and Languages, 2015; Djurfeldt *et al.*, 2017). The LGA has ten political wards, six of which are located within Gashua, headquarters of the LGA *viz* Lawan Musa, Sarkin Hausawa, Lawan Fannami, Sabon Gari, Zango and Katuzu, whereas the other four wards are made up of districts or clusters of villages and settlements around Gashua, they include Usur- Dawayo, Dagona, Sugum-Tagali and Gwiokura(National Population Commission.

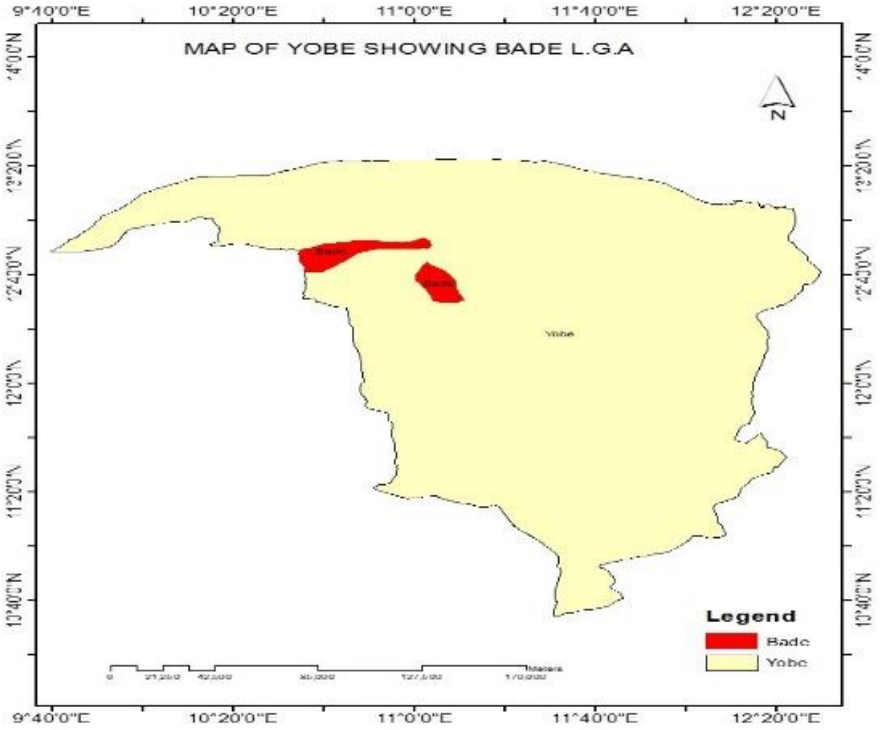


Fig. 1 Map of Yobe State showing the study area.
[NPC], 2006) COMMISSION.

Sources of Data

Primary data obtained by administering questionnaires to respondents was used for this study.

Sampling Procedure

Two- stage sampling procedure was used to select the respondents for the study. The first stage involved the purposive selection of the markets, (Gashua grain market) prominent for cowpea marketing in the study area. The second stage involved random selection of 105 respondents for the study.

Analytical Techniques

Analytical tools employed for this study include; descriptive statistics, Gini Coefficient (GC), market margin analysis.

Gini Coefficient

Gini coefficient was used to analyze the structure of the market (objective iii). This helps to determine the degree of market concentration. The Gini Coefficient is a measure of statistical dispersion most prominently used as a measure of inequality of wealth or product distribution. It has values between 0 and 1 (Enibe *et al.*, 2008). A low Gini Coefficient indicates more equal incomes, wealth or product distribution and a high Gini Coefficient indicates more unequal distribution. Zero corresponds to perfect equality and 1 (one) corresponds to perfect inequality (Enibe *et al.*, 2008).

G.C. = 1- ΣXY

ΣXY = 0.167976 therefore, 1 - 0.167976 = 0.832024

Where:

G.C = Gini coefficient

X = percentage share of cowpea market participants

Y = cumulative percentage of cowpea purchase

Σ = Summation sign

Marketing Margin

The marketing margin analysis was also employed. This is an indicator of market performance.

$$MM=\frac{SP-WP}{SP}\times 100$$

Where,

MM = Marketing Margin

SP = Selling price of cowpea

WP = Wholesale price of cowpea.

Marketing Efficiency

It is used to measure the market performance. The marketing efficiency of cowpea in the study area is calculated as follows

$$\text{Marketing Efficency} = \frac{\text{value added by marketing}}{\text{Cost of marketing services}} \times 100$$

Results and Discussion

Socio- economic Characteristics of the Respondents

Socio- economic Variables are important human attributes that enhance the efficiency of farmers, consumers and marketers of agricultural produce in their (Shu'aib, 2009). The socio-economic characteristics of the respondents studied were Gender, Age, Marital Status, Educational Qualification, Household Size, Years of Cowpea Marketing Experience, Main Occupation and Annual Income. The information regarding socio-economic characteristics of the respondents is presented in Table 1.

Table 1: Socio-economic Characteristics of the Respondents

Variable	Frequency	Percentage (%)
Age (Years)		
20-29	22	20.95
30-39	34	32.38
40-49	17	16.19
50-59	15	14.29
60-69	10	9.52
Marital Status		
Single	25	23.81
Married	80	76.19
Divorced	0	0
Educational Qualification		
Primary	19	18.10
Secondary	25	23.81
Tertiary	17	16.19
Qur'anic	44	41.90
Others	0	0
Years in Cowpea Marketing		
<1	07	6.67
1-9	29	30.48
10-19	41	43.80
20-29	11	10.48
30-39	07	6.67
Above 40	5	4.77

Source: Field Survey 2021

The study revealed that 25.75% of the respondents fell within the age group of 20–29years of age, 32.38% of the respondents fell within the age group of 30- 39years of age,18.10% of the respondents fell within the age group of 40 – 49years of age,14.29% of the respondents fell within the age group of 50 – 59years of age, 9.59% of the respondents fell within the age group of 60 – 69years of age and no individual with age above 70. This investigation indicated that the youths and middle aged are highly involved in cowpea marketing. This implies that cowpea marketers in the study area are quite energetic and active and are able to deal with exigencies of travel and movement from market to market with regards to cowpea marketing.

Table 1 reveals that 76.19% of the respondents were married and 23.81% were single, such result is expected since married people bear the responsibility for their family members making them more committed and able to making rational decisions in the business. This implies that most of the cowpea marketers have additional responsibilities, the high percentage of married respondents may be due to the fact that as the head of the family they always look for source of livelihood hence participation in marketing especially cowpea would help them cater for their spouses and children. The result on educational level in Table 4.1 shows that, 18.10 percent had primary education, 23.81 percent had attained secondary education, 16.19 percent attained tertiary education and 41.90 percent of the cowpea marketers had Qur'anic education. This indicates that, majority of the respondents had one form informal education or the other, hence are expected to have the required basic knowledge and

skills to enhance their marketing strategy and other related activities. Though the ability to trade in agricultural produce is not necessarily a function of one's level of education, it however helps in the efficient performance of all the marketing functions like loan application, effective communication, record keeping and devising strategies on how to enhance efficient marketing activities and survive during different period by either diversifying or evolving new approach that ensure keeping him/ her in business without necessarily encountering losses. The implication is that levels of education of cowpea marketers could largely contribute to income diversity, adopting technologies and creating conducive environment to educate dependent and ensure better living condition. The result also shows that 6.69% have less than one year experience, 30.48% had experience ranking from 1-9, 43.80% of the respondent had experience of cowpea marketing ranging from 10-17 years,12.38% had experience from 20-29, 6.67% have least number of experience in cowpea marketing. This implies that the respondents are not new in the enterprise therefore have good knowledge of the market which all allow them to derive their own competing strategies to withstand potential competitors.

Table 2: Structure of cowpea market in bade local government area, Yobe State, Nigeria

Volume of sales	Number of Marketers	proportion of marketers	Total income (#) from cowpea sale	Proportion of sale	XY
<720000	15	0.142857	455000	0.063761	0.009109
73000-145000	20	0.190476	429000	0.060118	0.011451
146000-218000	18	0.171429	775000	0.108604	0.018618
292000-363000	16	0.152381	1095000	0.153447	0.023382
364000-435000	23	0.219048	2202000	0.308576	0.067593
508000-579000	13	0.12381	2180000	0.305493	0.037823
Total	105	1	7136000	1	0.167976

Source: Field Survey 2021

Gini Coefficient G = 1-∑XY
G = 1-0.167976 = 0.832024 = 0.83
While X represents the proportion on marketers within a given range of capital capabilities, Y indicates the proportion of goods (cowpea) marketed by X. The result as presented in the Table 2 shows that the Gini coefficient for Gashua cowpea market was 0.832024 (83%). This figure suggested that there is high level of inequality among the marketers. This could result from the differences in their access to ownership and control of physical marketing facilities, funds availability and market behavior and conducts. The market was also said to exhibit features of imperfect markets of "monopolistic competition". This study reveals there is free entry and exit in the market, Market survey further revealed that the markets were characterized by large number of buyers and sellers and products were differentiated by its size, colour and shape and also brown cowpea is more prepared by buyers.

Performance of Cowpea Market

Table 3: Net marketing margin analysis of cowpea (100kg) in bade local government area, Yobe State, Nigeria

Components	Unit Cost	%TVC
Variable Inputs		
Purchasing price of cowpea	30000	97.9
Transportation	300	0.098
Loading and offloading	100	0.0033
Tax	50	0.0016
Middlemen	200	0.0065
Total Marketing Cost (TMC)	30650	
Purchasing Price	30000	
Selling Price	32000	
Marketing Margin	2000	
Net Marketing Margin	1350	
Marketing Efficiency	2.07	

Source: Field Survey, 2021

Conclusion and Recommendations

Based on the findings of this research, it is concluded that cowpea market in the study area is highly concentrated with Gini Coefficient of 0.832024 and it is also a profitable business with a marketing margin of N2000, Net Marketing Margin of N1350 and Marketing Efficiency of 2.07%, the following recommendations were provided:

I. There is need for female to partake in cowpea marketing to complement their male Counterparts.
II. Government and non-governmental agencies should empower the marketers through the provision of micro credit facilities to encourage more people to go into cowpea marketing.
III. Government should increase the physical facilities associated with storage facilities in the markets.

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