ECONOMICS OF ONION (*Allium cepa* L.) MARKETING IN KANO STATE, NIGERIA

MUHAMMAD NURADDEEN, ABBAS

SPS/MEX/09/00005

NCE AGRIC. (DM), B. AGRIC. TECH (HONS).

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION, BAYERO UNIVERSITY, KANO IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE (M.Sc) DEGREE IN AGRICULTURAL ECONOMICS

APRIL, 2014

DECLARATION

I hereby declare that this work titled 'Economics of Onion (*Allium cepa* L.) Marketing in Kano State, Nigeria is the product of my own research effort; undertaken under the supervision of Prof. Zilkifilu Abdu and has not been presented and will not be presented elsewhere for the award of Degree or Certificate. All sources have been duly acknowledged.

Signature:_____

MUHAMMAD NURADDEEN, ABBAS

(SPS/09/MEX/00005)

CERTIFICATION

This is to certify that the research work for this Dissertation and the subsequent preparation of this Dissertation by Muhammad Nuraddeen ABBAS (SPS/09/MEX/00005) were carried out under my supervision.

Prof. Z. Abdu

(Supervisor)

Signature:_____Date:_____

Dr. A. B. Muhammad

(Head of Department)

Agricultural Economics and Extension,BUK.

Signature:_____Date:_____

APPROVAL

This Dissertation has been examined and approved for the award of the degree of Masters of Science in AGRICULTURAL ECONOMICS.

Signature_____Date_____

Prof. Z. Abdulsalam

(External Examiner)

Signature:_____Date:_____

Prof. A. Aminu

(Internal Examiner)

Signature_____Date:_____

Prof. Z. Abdu

(Supervisor)

Signature:_____Date:_____

Dr. A. B. Muhammad

(Head of Department)

Signature:_____Date:_____

Dr. S.U. Yahaya

(Representative, Board of the School of Postgraduate Studies).

ACKNOWLEDGEMENTS

My foremost and humble thanks to Almighty Allah (Subhanahu Wa Ta`ala) the God of Muhammad (peace be upon him). Allah (WST) our lover, who spared my life and soul with gift of abilities up to this time and more. I acknowledge the contributions and courage of my Father, Alhji Abbas Sunusi, Danbatta and Mother Zainab Muhammad, Danbatta for their guidance and support throughout the entire period of study. My deceased mother in law, Hajiya Hadiza may her soul rests in perfect eternal rest amen! Thus, without their prayers the work would not have been completed.

In the first place, my appreciation goes to my supervisor, Professor. Zilkifilu Abdu for his enriching and focused supervisory role and guides and I am also grateful to my who in spite of his commitment often ushered useful advice, guidance and concern as my lecturer throughout my stay in the university; both at undergraduate and postgraduate levels. I acknowledge the contribution of my internal Examiner, Dr. Abba Aminu for his constructive contributions towards the accomplishment of the Dissertation task. I acknowledged the contribution of Professor Shehu Musa Alhaji, Former Provost, Audu Bako college of Agriculture and Current Vice Chancellor, Kano State Univerity of Science and Technology, Wudil. I also acknowledged the effort of Dr. Shehu Usman Aliyu (Former Head of the Audu Bako College of Agriculture (ABCOAD), the College Registrar, Alhaji Aminu Adamu who showed considerations, having released me to study at postgraduate level and Dr. Samaila Lawal Rafin-Dadi, for his caring support. I will not forget the consideration of Professor Umar Garba Dambatta, the Former, vice President and Student Affairs officer, Digital Bridge Institute (DBI) Kano campus and a Serving Executive Vice President, Nigeria Communications commission, Nigeria for his kind Support. I am also indebted to Professor Awwal Bindawa, the immediate former Dean Faculty of

Agriculture, B .U.K., Professor Ogungbile and Professor James Olukosi for their academic enrichments. I am indebted to the support of Dr. Ahmad Muhammad Bakori without mentioning his contribution my acknowledgements would not had been completed. Dr. Aminu Suleiman, Dr. Mahmoud I. Daneji, Dr. (Hajiya) Amina Mustapha, the currently serving, Provost, Audu Bako College of Agriculture, Professor Musa Tukur Yakasai and other personalities who had immeasurably accorded their concern in my pursuit of Knowledge in the university and beyond. I acknowledged the Assistance given by Barrister Dalhatu Ibrahim Daneji, Esq. (Head M.B. Bello Chambers), Arc. Hamza Sa'id Garin-Ali (former rector Kano State Polytechnic, Sole Administrator, Takai L.G.A (Now Deceased)) and as my chairman while I was serving as the secretary, Danbatta Old Boys Association (DOBA) National caretaker committee (NCC) and all those whose names were not mentioned I dearly solicit their kind indulgences.

I wish to acknowledge the contributions given by Kano State Agricultural Development Project, Programme Management Unit (P.M.U). In particular, I was indebted to malam Bako Kebe, former Director, in the Planning Monitoring and Evaluation Department (now retired) and Malam. Balarabe Shehu (Deputy Director, Agricultural services), Alhaji Ahmad Badayi (Permanent Secretary at the Kano State ministry for Agriculture, Kano State) all Directors at Kano Agricultural and Rural Development Authority (KNARDA) staff for their assistances during my study period. The effort of KNARDA-ADP staff and all staff of Audu Bako College of Agriculture, Dambatta (ABCOAD) colleagues, friends and brothers for their positive contributions and roles rendered are also hereby acknowledged.

It sufficed to express my appreciation to my wife Rabi'at and the entire family for their indulgence, brothers and sisters who had contributed immensely toward successful completion of my studies in the University.

Finally, I extend my gratitude to the courage and effort of everyone who might have in one way or the other helped or assisted towards the conduct of this study and my academic pursuit. May Allah (SWT) bless you abundantly.

DEDICATION

This Work is dedicated to the work my Father, Alhaji Abbas Sunusi, Dambatta and Mother Zainab Muhammad, Danbatta for their guidance and support throughout the entire period of study and to my deceased mother in law, Hajiya Hadiza may her soul rests in perfect eternal rest amen.

TABLE OF CONTENTS

Contents **Page**

LIST OF TABLES

Tables **Page**

LIST OF FIGURES

Figure **Page**

LIST OF APPENDIXES

ABSTRACT

The study examined the economics of onion marketing in Kano state. A multi-stage sampling technique was employed. In the first stage three Development zones; Kura, Dambatta and Wudil were considered. A total of one hundred and ten (110) onion marketers were randomly selected from `Yankaba, Dambatta, Kura and Wudil markets, using random sampling technique. Descriptive statistics (mean, standard deviation and series charts), gross margin analysis and *Gini* coefficient for market concentration were used in the analysis. The result shows that 61.82% of the respondents were within the age range of 31-50 years and the mean age was 21.0 years. The result revealed that majority (98.18%) of the respondents were males, only 2.73% of them were females. The result reveals that 40.00 percent had religious education, 31.81 percent had acquired primary education and 9.09 percent had acquired tertiary education, proportion of 46.36 percent used personal savings as their major source of capital and money lenders (26.36%) only 1.82 percent had access to government bank loans. Gross marketing margin analysis shows an average return of ₦2, 875:00 per 50 Kg bag, average marketing margin of 81.15% was realized. Average marketing efficiency of 687.5% was achieved and *Gini* index of 0.973 percent was realized which shows a significant inequality in concentration, volume of goods and distribution of onion marketers. The major constraints identified were lack of access to credit facility and available storage facilities. It has been recommended that marketers level of capital should be increased by increasing their access to loan and credit facility, modern onion processing facilities for value addition, acceptability, profitability of the onion to meet the domestic and for international community needs, provision of affordable commercial onion storage facilities to reduce onion damages should be encouraged, research funds should be allocated and made accessible to institutions and individuals for researches on relevant technologies.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Onion (*Allium cepa* L.) is a member of the *Alliacea* family. It is a vegetable crop widely known for its significant solution to problem of malnutrition and contributes immensely to the individual earning and economic status, improved welfare and adds to Gross Domestic Product (GDP) (Hussaini, *et al.,* 2000). Apart from provision of revenue onion serves as rich source of protein, fats, minerals salt and vitamins. One of the advantages of onion is that the bulbs can be harvested and sold either 'green' in salads (Lannoy, 2001).

Onions are cultivated and marketed throughout the Northern Nigeria, in places such as Kebbi, Kano and Sokoto States (Hussaini, *et al.,* 2000). Onions' position in the Nigerian markets is remarkable as it is marketed to the southern part of the country and marketed for export (Muhammad, 2011). The demand for onions remain constantly increasing considering the size of the country with land size of 923,768 square kilometer (Km^2) with variety of soils (Encarta, 2011) and a total population of 174,5057,539 persons and growth rate of 2.54% (CIA World Factbook) , 2013) . Also Aminu, (2009) stated that commercial onion is mainly from the Northern States, especially, former Bauchi, Sokoto, former Kano, Kaduna States with estimated total land of 0.1 to 0.2 million hectares cropped annually.

According to Denton and Ejeifo, (1990) based on the level of consumption, onion is the major spice in the diet, ranking 5^{th} most important vegetables in Nigeria. In addition, Hussaini, *et al.,* (2000) reported that onion is the second most important vegetable after tomatoes in the Northern Nigeria. In another report; it has been stated that onion is a complementary product to

tomato, is also a popular vegetable crop of major commercial importance throughout the world Aminu, (2009).

Onion is virtually used daily in homes, hotels, schools and hospital as vegetable as stated by Hussain*, et al.,* (2000) and Ahmad, *et al*., (2008). In another dimension it has been reported that onion is consumed in green leafy bulb as well as in mature stage (Ahmad, *et al*., 2008). Literature shows that in 2008 alone, Nigeria produced more than 179,71 000 metric tons of onion and Kano state in particular, produced thousands of tons (‘000) and marketed in the country and beyond annually. In 2010 alone Kano state produced more than 7,000, 000 metric tons under irrigation and rain fed cultivation according to Kano State Agricultural and Rural Development Authority (KNARDA, 2011).

Marketing of onion generally involves the movement of onion commodities from where they are produced to the point of their consumption by consumers. In same vain Olukosi and Isito, (1990) described marketing as part and parcel of production and consumption. Onions Marketing, specifically, involves the movement of produce from producers to thousands of consumers located in both rural and urban areas (Adegeye and Ditto, 1985). According to Amaza, *et al.,* (2000) there is close inter-relationships between agricultural marketing and the increasing productivity of agriculture. The increase in productivity results in the manifestation of increased farmers welfare and economic status. Lannoy,(2001) stated that the constant demand for vegetables year round and its preceding supply gap for these produce opened room for seasonal price fluctuations. He added that the scenario is influenced by weather and climate changes because the prices of onion and other vegetables are determined by its availability at harvest (Lannoy, 2001).This variability explained why onion price seems to be cheaper at harvest period and while at off season the price appreciates and all these call for different form of

utilities of place, form, time which involves transportation storage, warehousing, sorting and grading. These procedures involved cost and return on the marketing process a subject of the study.

1.2 Statement of the Problems

The onion industry is characterized by a high level of supply and price changes within and out of season. This is to say periods of high onion prices are often followed by periods of very low prices that do not allow onion marketers to recover their costs of services. The problems are that in many agricultural markets, the amount of output supplied to the market is a pre-determined variable and it affects the level of market prices. (Currah and Proctor, 1990) highlighted that the amount of output supplies in each particular year is influenced by numerous factors such as time of sale, sale outlets, marketing infrastructures, individual growers' production level and marketing decisions, seasonal output, weather and disease outbreaks, and other unforeseen factors. Another important problem having weight on the processes are demand and un-checked supply of the produce over time and space. Onions are highly perishable since they are extremely sensitive to heat and humidity in the field. Another problem associated to onion is that for the revenue to appreciate, it has to be stored for a while. At storage they require much more care to cure from harvest to transportation with special attention for packaging and storage. The poor roads have their own detrimental effect on the revenue to the marketers.

However, following economic theory, an increase in supply would results in a market price decrease (all things being equal). Post-harvest losses in onion are common and these problems caused very serious problem to producers, marketers and even consumers. These needs called for holistic and an integrated approach toward onion production as well as in output markets to make the onion marketing lucrative for the stake holders fundamentally, this strategy

has been referred to as the cornerstone of economic development for many countries (Currah and Proctor, 1990).

There are artificial factors that are negatively affecting onions marketing; while some are inherent others inject lingering constraints to an efficient marketing system and institutional deliveries. It is known fact that farmers especially small scale farmers constitute a majority of the rural poor in most developing countries including Nigeria (Olayide, 1986). Stabilization of prices of essential agricultural commodities continues to remain an area of major concern for policy makers. Price instability affects producers, marketers and consumers and has macroeconomic implications as well. High growth in the prices of primary commodities spills over to other sectors of the economy. There is thus a need to study the price behaviour of essential agricultural commodities and the reasons that underline the typical variations in their prices in order to devise improvements in the vegetable marketing system, especially, the onion (Sharma, *et al*.,2001).

This study therefore becomes significant as it reveals the potentials and constraints of farmers as well as factors at market level that affect onions farmer's profitability in the study area. It is on this note that this study was conducted with aim to answer the following research questions:

i. What are the socioeconomic characteristics of onion marketers in the study area?
ii. Is onion marketing profitable in the study area?
iii. Is onion marketing efficient in the study area?
iv. What is the nature of price variation for onion in the study?
v. What is the degree of market concentration for onion in the study area?
vi. What are constraints affecting onion marketing system in the study area?

1.3 Objectives of the Study

The broad objective of the research is to examine the economics of onion marketing in the study area and the more specific objectives are to:

i. Assess the socio-economic characteristics of onion marketers in the study area.
ii. Determine the marketing cost and marketing margin in the study area.
iii. Determine the efficiency of onion marketing in the study area.
iv. Assess the price variations for onion in the study area.
v. Determine the degree of market concentration for onion in the study area and
vi. identify constraints affecting onion marketers in the study area.

1.4 Justification of the study

The outcome of the study will provide understanding into the nature marketing, profitability or otherwise for onion, efficiency and nature of prices and pricing mechanisms in the onion marketing system as well in the study area. The finding(s) of the study will also be of immense contribution to researchers, consultants and those wishing to invest in agro and allied services, the state and federal ministries of agriculture and rural development, ministries of finance and economic planning, non-governmental organization (NGOS) in search of area for interventions, independent research conducting individuals, agencies and students in various institutions for higher learning such as universities, polytechnics and colleges and mono-techniques conducting a related research and other endeavors.

1.5 Limitations of the Study

Over period of the study the most important limitations among other factors were those considerations related to socio-economic factors study in the part of the farmers; for the fact that

farmers were not ready to supply adequate information in relation to their revenue streams, source(s) of income, families' background, age, household size *etcetera*. Other limitations encountered were in the area of secondary time series data at the time of the study to permit a more befitting price analysis over significant period of time was rather not complete or inadequate, monitoring of reliable onion market price figures, collation of price figures and subsequent analysis due the absence of reliable data bank also caused a serious limitations in the part of the research and researcher himself. Other limitation was the sourcing of the unpublished market survey data from ADP, which reposed most of the task at the hand of her enumerators. The study is a social research involving human beings as such the responses given at any point in a given time might depend on the mood of the respondents at that particular time; other inherent factors constituted very serious limitations on the study. All efforts had been devised to limit these inconsistencies in the course of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The chapter is concern with consultations of the related literatures as it relates to market structure conduct and performance, conceptual approaches (SCP) to agricultural produce marketing.

Conceptual Approach: Market Structure Conduct and Performance in the Onions Markets

2.1.1 Market Structure

Market and market structure are different terms. According to Aminu,(2009) " the terms mean not the same thing". He reported that "production and marketing is a continuum as marketing may refer to all those necessary activities that take place along the interjectory which a commodity describes from the place it was produce to where it is ultimately consumed". Marketing involved all those legal physical and economic services which are necessary to make products from the farm available to the consumers. Thus:

I. In the form and amount desired by the consumers.
II. At the place desired by the consumers.
III. At the time desired by the consumers.
IV. At the price consumers and middle men are willing to pay to take possession Olukosi, *et al*., (2010). While according to Aminu,(2009) stated that market refers to any arrangement that brings buyers and sellers together, it could be physical contract between buyers and sellers or by letter writing, telephone or through other means. An Agricultural markets interrelated activities and some are complimentary. Some of the benefit of a market include but not exhaustive of the following considerations:

i. Provides location at which farmers/ produce can meet with traders/buyers.

ii. Increase retail competition by providing a convenient place where farmers can meet with consumers.

iii. Improves hygiene because sanitation is usually part of the rule impose by local authorities in a market place.

iv. Reduce post-harvest loses by providing protection for produce from direct sunlight, rain etc. Permanent and temporary stalls are usually provided in most of markets places in Nigeria where farmers and traders can keep their produce away from physical weather effect.

v. A market place makes marketing a more pleasurable activity and interacts freely in an open and sociable mode.

vi. Provide a focal point for rural activities. Most socio-cultural entertainment takes place in the market place on market days.

vii. It also provides a medium, of communication useful information affecting the people in the nearby communities by local authorities Aminu,(2009).

2.1.2 Conceptual approach to Marketing

Marketing can be described as the delivery of consumer satisfaction at a profit. According to Aminu, (2009) marketing creates form, place and time managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with other. According to Olukosi *et al.,*(2010).Agricultural marketing is concern and can be defined from both the micro and macro view points. The micro viewpoint is concerned with the individual perspective; agricultural marketing can be defined as the performance of all business activities which directs the forward flow of goods and services to consumers.

The process of marketing is therefore finding ways to provide people with products and services of marketing is therefore finding ways to provide people with products and services that they either need to function normally or desire to prove their well being. Furthermore, marketing aims to service three different categories of needs. In the first place, marketing refers to physical needs such as food, closing shelter and safety; the second to social need, which relate to belonging and affection and the third to individual needs which relates to satisfying yearning for knowledge and self expressions. The last category includes want and desire which goes beyond the immediate needs for basic operations and social interaction Aminu, (2009).

2.1.3 Market Structure

Market Structure entails those characteristics of Organisation of market which seems to influence strategically the nature of competitions and pricing within the markets. Olukosi, *et al*., (2010) defined market as where buying and selling or bargaining takes place. As realities are complex institutions may involve the simultaneous consideration of various commodities in the market. Marketing involves exchange of goods and services over certain period of time and place. Olukosi and Isitor, 1990), Olukosi *et al.,*(2005) stated that market structure can be interpreted to mean those characteristics of the organization of a market which seem to influence the nature of the competition and pricing within the market. The onion industry operates in the deregulated environment where the prices are determined by the forces of demand and supply and there were no restrictions (John, *et al.,* 2013).

The industry uses fresh produce markets, informal market, processors and direct selling to wholesalers and retailers as marketing channels. In these outlets onions are also exported to other countries through export agents and marketing companies and the agreed upon by the seller. The markets studied remain the most important channels for the sale of onions in Kano. According to

Olukosi and Ositor (2010), Musa, (2003) and Olukosi, *et al.,* (2010) reported that onion market setting is characterised as determined by the following factors:

i. The degree of number and relative size of buyers and sellers,
ii. The degree of products differentiation, ease of entry and exit of buyers and sellers into and out of the market,
iii. Status of knowledge about cost, prices and market conditions among the participants in the market.

By these characteristics onions market in the market studied are considered pure competitive where buyers and sellers had to haggled to agree on a common price platform. In other words market structure essentially relates to the degree of competition by market participants. It tends to consider whether the number of firms producing a product is large or whether the firms are of equal sizes or dominated by a small group. The actors in the marketing system are: Whole sellers, rural buyers, urban buyers, commission agents, retailers and consumers.

The organization and structure of a traditional agricultural marketing system according to Hays,(1976) will supply the framework within the pricing system which give preference of consumers and guidance in the allocation of resources. Thus the market structure, directly, affects the degree of market competition and efficiencies in price formulation.

2.1.4 Market Conduct

Market conduct relates to the behavior of the firms or the decision that firm makes relating to the pricing and output policy and other competition tactics. In other way round it relates to the structure of the market. Ingawa,(1983) defined market conduct as the behavior of firms relating to pricing innovativeness, investment, behavior and similar matters. Further, he pointed it out

that market structure is influenced by basic conditions such as location and ownership of raw materials, technology available, price mechanisms, price elasticity of demand for the products, law and government policies within which firms operates.

Olukosi, *et al.,*(2010) stated that market conduct include the method employed by groups of firms in determining price and output, sales promotion policies that are directed at altering the nature of the product sold and various selling tactics that are employed to achieve specific result objectives. He added that it is concern with the pattern of behavior which enterprises follow in adapting or adjusting to the markets in which they sell or buy their goods. In his review Olukosi, (2010) reported that there are factors used in determining and assessing market conduct thus; include:

i. method of determining price and output,
ii. sales promotion policy,
iii. Products policy and presence or absence of exclusionary tactics directed against rivals or potential entrants.

Therefore, it can be seen as strategies of actors operating in the market.

2.1.5 Market Performance

Market performance entails the strategic end and result of markets adjustments engaged in daily by buyers and sellers in a given market setting. According to Olukosi and Isitor, (1990) they stated that. In addition, market performance is the appraisal of the extent to which the interaction of buyers and sellers in a market stimulates results that are consistent with social purposes. It has been put forward that performance is the consequence of structure and conduct. In particular market performance is the appraisal of the extent to which the interaction of buyers and sellers in

market stimulates results that are consistent with social purpose. It has also been reported by Ingawa, (1999) that performance is a multidimensional concept whose criteria for evaluation need be set out clearly. In addition, Dessalegn *et al.,*(1998) viewed market performance as the economic end result of market functioning, which involves analysis of the cost and benefit structure. The following points are features used to assess market performance as put forward by Olukosi, *et al.,* (2010). Thus:

a) The level of profit, scales and utilisation of plant and firms.
b) Sales and promotion cost.
c) The characteristics of the product and progressiveness.

Various authors in the fields of economics and business have fielded that it is often difficult to calibrate markets performance measures. To Olukosi and Isitor,(1990) they reported that even though, these measure could be modified to suit the nature of particular system in this case an onion market dimension. Market performance is a reflection of the impact of structure and conduct on product prices, cost as well as volume and quality of output. Thus; performance is the consequence of structure and conduct. Market performance especially is the appraisals of the extent to which the interactions of buyers and sellers in the market stimulate results that are performance is a multidimensional concept whose criteria for evaluation need to be set out clearly.

In conclusion market performance is more patronized in place of efficiency though it is less precise, probably more widely used and applicable than efficiency to give better assessment of marketing system As a method of analysis; the Structure, Conduct and Performance (S-C-P) paradigm postulates that there is a relationship among that three levels starting from the structure

which determines the conduct together determine the performance. The application of the S-C-P concept in the study of agricultural marketing is far growing (Olukosi and Isitor, 1990).

2.1.6 Marketing Cost

Marketing cost are the expenses incurred in the performance of the marketing as commodity moves from the farm to the ultimate consumer. Marketing cost consists of fixed and variable cost and other important components; thus transfer cost, processing cost, storage cost and sales promotion and advertisement cost in other business dimensions (Olukosi *et al*.,2010).

2.1.7 Marketing Margin

Marketing margin (MM) refers to the difference in prices paid for a commodity at different stages of the marketing system. Marketing margin represents difference in price of a given commodity at different stages of time, place, from and possession as it gives move from the primary producer to the ultimate consumer. According to Olukosi *et al.,* (2010) marketing margin could be considered from the following points: market margin is the difference between the price paid by consumer and that received by the producer and is the outcome of the demand for and supply of such services.

Onions are of vegetable characteristic and its market margin is determined by the ability of sellers to take care of it under competitive dimension to achieve utility of place, form and time. The size of the marketing margin is affected by the interplay of the following characteristics. These includes among other perishability, bulkiness in relation to its value, extreme seasonality of the produce and other institutional factors. Adekanye, (1998); Kushwaha and Adamu, (2003); Olukosi *et al.,* (2005) all defined marketing margin as the difference in

prices paid for a commodity at different stages of marketing system. Olukosi *et al.,*(2005) further added that time, place, form and possession are important variables. Marketing margin is not static as it changes over time period and it determined by the interaction of the primary and derived supply in one hand and derived demand and primary supply on the other hand. These changes that affect demand and supply will definitely affect the marketing margin and whenever happen it affects the level of price received by the producer on the price paid by the consumer or both as the case might be.

2.1.8 Marketing Efficiency

In the agriculture industry, efficiency is the most frequently used measure of market performance. Improved marketing efficiency is a common objective of farmer in food marketing firms and consumer or at large in the society. According to Olukosi, (2010) marketing efficiency could be achieved in the following ways; when output remains constant while input decreases, output increase while input decreases, output increases while input remained constant, output increases more than increase in input and output decreases more slowly than decrease in input. According to Olukosi *et al*., (2010) in same vain he added that the higher the performance the better the efficiency ratio the higher is the marketing efficiency. He added that any change in the marketing process which reduces the input cost of accomplishing particular marketing services without reducing the consumer satisfaction is certainly an improvement in the marketing.

On the other hand any change in the marketing process which reduces the input cost of accomplishing particular marketing services without reducing the customer satisfaction is certainly an improvement in marketing system. Adekanye, (1998), Arene, (2003) all defined marketing margin as the maximization of an output-input ratio. The output of making is

consumer satisfaction or the utilities created in the marketing system while the inputs are the different resources used in the course of extending the commodity produced by farmer to the consumer.

Marketing efficiency can be operational or technical. In principle both operational and or technical efficiencies measure the productivity of performing marketing service(s) within a firm. It focuses primarily on the cost of producing marketing services within a firm (Adegeye Ditto, 1985). For example, in the situation of onion storage, a method which reduces labour cost and loss or damage, and the onion bulbs could be stored more efficient at a lower cost. A typical of that is regarded as operational efficiency (Olukosi, *et al.,* 2010).

The use of baskets, ventilated vans on transport, ventilated shade, stalk room and thatch roofs improves the efficiency of onion storage in traditional Africa or Nigerian setting. In the other hand pricing efficiency assumes a physical input–to-output ratio or relation that remained constant. Marketing efficiency could be estimated by analyzing price behavior over time and space (Olukosi,*„et al.,*2010). In a perfectly competitive like onion markets price difference exists over time and space when deference show a remarkable change between one market and the other is said to be efficient. When there is transportation cost it indicates a pricing efficiency. Accordingly, the law of market area stipulates the price spread between two markets that trade with one another should not exceed the cost of transfer of the products between the locations.

2.1.9 Market Concentration

Market Concentration determination method was developed by the Italian statistician CorradoGini and published in his 1912 paper "Variabilità en mutabilità"("Variability and Mutability" en.wikipedia.org/wiki/Gini_ coefficient). The Ginicoefficient is equal to half of the relative mean difference. The model standardizes in such a way that zero (o) equals perfect equality and value of one (1) perfect inequality, its normally expressed in percentage (%) (www.en.wikipedia.org/wiki/Gini_coefficient). According to Lambert,(1993) Gini index is an inequality measure that is mostly associated with the descriptive approach to inequality measurement. He provides a summary of the analytical basis to link the gin i index with social welfare functions, thus moving the Gini index into the field of welfare analysis.

The Gini Index is an inequality measure that is mostly associated with the descriptive approach to inequality measurement. Lambert (1993) provides a summary of the analytical basis to link the Gini Index with social welfare functions, thus moving the Gini Index into the field of welfare analysis. In this study i will be confined to the descriptive approach, leaving the welfare approach for more advanced tools. The Gini Index is a complex inequality measure and as with many inequality measures, it is a synthetic index. Therefore, its characteristic is that of giving summary information on the income distribution and that of not giving any information about the characteristics of the income distribution, like location and shape. With regard to the Gini Index, i apply the inequality model, as long as axioms are eligible criteria to evaluate the indicator performances.

2.1.10 Types of market participants in the onion Industry

The types of marketing participants identified in the study area can be classified as follows: thus include producers, rural assemblers, rural buyers, commission agents, whole sellers, exporters, retailers and consumers. This occurs with findings of Grema, *et al.,* (2013).

2.1.11 Producers/Suppliers

The producers are the ultimate suppliers of the produce. Some farmers in the study area were farmers themselves. They could be resident in their villages or around the neighboring settlements and farms they sell their produce to the rural assemblers, commission agents and sometimes to the urban assemblers mostly on advance payment or mutual agreement (Olukosi, *et al*.,(2010). They could sell to the urban buyers and retailers. They usually receive low price possibly due to poor market information, season, demand and immediate need for liquidity.

2.1.12 Rural Assemblers

The rural assemblers purchased their produce from the suppliers/collectors in the village markets of the local markets. Assemblers also buy from farm gate and they sometimes purchased from their fellow rural assemblers that have smaller volume of the commodity. Rural assemblers take title of the produce or buy on behalf of their urban assemblers on commission. The price or commission they received depends largely on their power and season.

2.1.13 Commission Agents

The commission agents purchased their commodity on behalf of either rural assembler or urban on commission. Commission agents do not take title of their product. They operate in the rural area as rural commission agents. Their services involved intermediary between the seller and the

buyer for a commission, token, a fraction the bulk of purchases one could make is their reward (Olukosi, *et al.,* (2010).

2.1.14 Urban Assemblers/wholesalers

The urban assemblers purchased their goods from rural assemblers and sometimes from other producers/farmers from the farm directly. They take title of their product or brought on behalf of exporters on commission. They also carried out manual processing and small quantities of the commodity.

2.1.15 Retailers

Retailers are part of market intermediaries they purchase in bit of commodity or take it to pay after sold; they take their profit and pay the commodity. In onion markets for instance in the area studied retailer sell a bag, baskets, calabashes, hips and in measures such as mudus *etc*. in fact these are fractions of the standard measure (50Kg/bag).

2.1.16 Consumers

Consumers are the end users they are at the tail of marketing channel. The level of consumption is at homes, food houses, schools, hospitals, restaurants *etc.* The number of market participant or actors in the study area varies with the type of participants in the market.

2.2.1 Market Entry and Exit Conditions

This refers to the presence or otherwise of barriers market participants. This otherwise restrictions entry into and the exit from the market and it is third factor that determine the structure that a particular market situation could assume (Musa, 2003 and Olukosi, *et al.,*(2005).

The ease or difficulty with which a marker enters or leaves a market as he wishes is necessary in determining the structure of a commodity.

2.2.2 Market Information

It refers to the intelligence and also refers to the individual participant access to the information both within and outside the markets in which they participate and it is the fourth determinants the structure that a particular commodity market can assume. Market information is the degree of marketers' awareness about variables such as well as prices of commodity at any given period of time Olukosi,(2010).

Nigerian agricultural commodity markets in general are characterized by inadequate information on the prices, demands, supplies, competitors and other market conditions prevailing within and outside the participating market settings Dauda,(2013) and further reported that the situation had been worse by the lack of farmer organizations and or cooperative groupings. Thus, Dessalegn *et al*.,(1998) reported that farmers and merchants do not have access to high quality market information upon which they base their marketing decisions. In essence, the type of information that farmers get in particular does not assist them in deciding what crops to plant and what quality to produce.

Practically, we can see that no market extension services in the present system that guide farmers in their production, storage, marketing decisions, information on export market is also lacking so also the onion industry in the study area.

2.2.3 Activities of Intermediaries

Intermediaries in their activities are vital in performing marketing functions even though middlemen tend to create additional problems especially when their layer is too lengthy (Musa,2003) In his report Akinwumi,(1986) said that in order to increase their personal gains ;the marketing. Agents form associations to prevent entry into the trade, control supply or price. In the same vain Dessalegn *et al.,*(1998) observed that there were indicators of collusive behavior in some rural markets to the detriment of producers (onion) in this respect; while Olukosi *et al.,* (2003) added that the basic features of produce marketing in Nigeria context comprised of a large number of intermediaries or middlemen operating between the producers and the consumers. They are traditionally viewed as complement to the activity of marketing services and the marketing chain is complete with their services. In onion markets in the study area, middlemen served as the catalyst they speed the agreement level, they adjust the bargaining regime and price works with their interventions.

CHAPTER THREE

METHODOLOGY

3.1 The Study Area

The study was conducted at selected `Yankaba, Kura Dambatta and Wudil markets in Kano State. The state is one of the thirty six states of the Nigeria Federation. It has forty (44) Local Government Areas with total population of 9, 401, 28 persons (www.en.wikipeadia.org/kano state/). The state lies between the latitude $11^{o}$ 59`47"N and longitude 8^{o} 31E (www.travelmath.com/../kano%2B Nigeria .The state has a crop-growing season of 100 to 150 days with annual rainfall ranges between 500mm to 1000mm (KNARDA, 2011). It has temperature variations in some locations. More than forty nine thousand hectares (49,000Ha) of land were being cultivated under Fadama project (Abbas, 2004). Kano state is bounded by Jigawa state in the North to north East, Katsina State to west and Bauchi and Kaduna States to the south respectively.

Agricultural activities are coordinated at programme Management Unit (PMU) of the Agricultural and Rural Development Authority (KNARDA) and Ministry of Agriculture, with three Zones Located at Gaya, Danbatta and Rano as Zones I, II and III respectively all serving as zonal Headquarters. Major marketing areas include (Danbatta which is in zone ii) has an area of 732 km^2 a population 639,440 (NPC, 2013) Latitude 12^{o}25`59".-N), Longitude $83^{o}$11`12"-E) and an altitude to 468m and distance from Kano is 49 Km. Wudil which is in zone iii has a total population of 403,655 people (NPC, 2013). Land area 362 Km^2 (140 square mile), Latitude 11^{o}49`12"`N), Longitude of 85^{o}60`0"`E) and altitude 395m while distance from Kano measured 46 Km and Kura area which is in zone i has a total population of 144,601 persons (NPC, 2013), 206 km^2 (80 square miles) are the three major zones considered in the study. Kano state

contributes substantially to about 200,000 metric tons to Nigeria's total GDP as at 2011 onion production annually (KNARDA, 2011). This is because Nigeria is noted as one of the highest producer of onion in sub-Saharan Africa (FAOSTAT, 2010). Accordingly, 1.06 million metric tons of onions were produced in West Africa in 2011 from the world average of 70.59 metric Tons. Nigeria had a production of 179.71 million metric tons of dry bulbs that year (FAOSTAT (2010). Onion serves as an agro raw material with very high potential in numerous uses and potentials.

Over the years, Kano State has been engaged in commercial scale production of onion, popularly called *albasa* in northern Nigeria. It is grown under irrigation and noted to be very suitable for cultivation in Kano State as it thrives in dry soil and low humidity (KNARDA, 2013).

The vegetation is predominantly Sudan or grass land (KNARDA, 2011). The main occupations of farmers in the areas are Livestock farming fishery, poultry as well as trading and crafts. Crops grown include ground nut, millet, cotton, sorghum, sesame, wheat, rice, sugar cane and maize. Other vegetables grown are onion, tomatoes, pepper and spices etc. Fruits include mangoes, cashew and guava to mention a few. And the system of farming in the area is rather mix and semi Intensive.

3.2 Sampling Technique and Size

In this study, multi stage sampling technique was employed. In the first stage, the three Agricultural Development zones (zone 1(Kura), zone II (Dambatta) and zone III(Gaya)) were purposively selected based on the availability of vegetable marketing infrastructures, concentration of onion marketing activities, production volume and number of market

participants. In addition the markets represent major fadama crops producing areas in the state (KNARDA, 2013).

In the second stage, major urban (U) consuming market ('Yankaba market) was selected as the major consuming market in the state and three rural markets (R). (Kura market) from zone i, Dambatta market, zone ii and Wudil market from zone iii).

These markets were purposively selected, primarily due to the high onion marketing activities, preponderance of onion farmers which clearly related to the onion production infrastructure and represents major areas for onion in the state. Twenty five (25) of the market participants from three zonal markets while thirty five (35) respondents from major consuming markets locations were sampled on the basis that they formed sufficient representative for study population and total of one hundred and eleven (110) respondents were sampled for the study.

3.3 Sample Frame and Size

Sample frame and size for onion marketers in the areas studied presented in table 1

Table 1: Sample Frame and Size for onion Marketers in the Areas Studied

S/n	Zonal Area	Market Areas	Sampled population	Sampled marketers
1.	`Yankaba Market	`Yankaba(R)	369	35
2.	Zone II	Dambatta	159	25
3.	Zone I	Kura	126	25
4.	Zone III	Wudil	111	25
Total			**765**	**110**

Source: Field survey,(2013).

3.4 Data Source and Collections

Both primary and secondary data were used in the study. Structured questionnaire, informal discussions and a one year (January to December, 2013) onion price survey from the markets under study was also collected by the researcher and trained enumerators.

3.4.1 Primary Data Source

The data collected from respondents included information on their socioeconomic characteristics such as Age, Gender, Education Background and other variables solicited from the respondents included; sources of information for onion prices, source of finance, means of transportation, quantity of onion handled or stored, prices of onions bought and prices sold, marketing activities and problems.

3.4.2 Secondary Data Source

A one year (January to December, 2012) onion markets price survey from the markets under study was also collected by the researcher and trained enumerators. The data was used to achieve objective iv of the study.

3.5 Analytical Techniques

Tools of the analysis used depended on the availability of facilities for analysis and study objectives. Accordingly, data were analyzed using descriptive statistics (percentages, frequency and mean, table) farm budget model, marketing margin and marketing efficiency and Gini ratio analysis (Gini Index).

3.5.1 Descriptive Statistics

The use of Descriptive statistics was employed to achieve part of objective I. It includes the application of percentages (%), frequency, mean and standard deviation.

3.5.2 Marketing Margin

The marketing margin model was used in achieving objective II. The marketing margin model

can be specified as follows:

$$MM\ (Naira) = \frac{SP - PP}{RP} \times \frac{100}{1} \quad \text{.....(1)}$$

Where as

MM= market Margin

SP=Selling price (₦)

PP= Purchase price (₦)

SP= Selling price (₦)

RP= Retail Price (₦) Aminu, (2009).

3.5.3 Gross Margin Analysis

The concept of gross margin (GM) involves determination of the differences between Gross income (GI) and the total variable cost (TVC). The variable cost includes the cost of transportation and handling, marketing. Olukosi and Erhabo (2008) emphasised gross margin analysis as the difference between the gross income (GI) and total variable cost (TVC). Gross margin is employed to measure the cost and returns for marketing Onion (*Allium cepa* L.)

The Gross margin model can be specified as:

GM = TR-TVC…….. (2)

Where:

GM=Gross marketing Margin

TR=Total Revenue/Naira (₦)

TVC=Total Variable Cost (₦)

3.5.4 Onion Markets Price Analysis

In achieving in part of objective (iv) a time series analysis models for the data collected were employed. The data at hand involved the selected markets onion price surveyed by the researcher and trained enumerators. Seasonality is a systematic movement that repeats itself every 12 month (Miller, 1974). In employing seasonal data for interpretation, time series models were employed to make it useful. This was due inherent variable composed in due to seasonality, cyclical factors and random parameters. The most common reason for seasonal price movements is the seasonal fluctuations of supply and demand seasonal price changes. To determine this seasonal indeces of time series centered moving average (additive method), seasonal index procedure were employed (Negassa, *et al*., 2010) and Aminu,(2009).

3.5.4.1 Centered Moving Average

A time series variable (example; prices, sales, purchases, stocks, etcetera) is composed of four key components. To use the data it is necessary to smoothen the data by the use of centered moving average (CMA)to remove these seasonal components. Since we have market data to use, it is a time series. Therefore the CMA It is also employed in achieving objective iv.

i. Long-term trends (T)

ii. Seasonal components (S)

iii. components (C)

iv. Irregular or random components (I)

These components, when examined individually can help to better understand the sources of variability and patterns of time series variables hence time series decomposition; thus, can be expressed as:

$P_t = T_t \times S_t \times C_t \times I_t$

Where:

$\mathbf{P_t}$ -is the time series variable of interest,

$\mathbf{T_{t-}}$ is the long-term trend in the data,

$\mathbf{S_t}$ -is a seasonal adjustment factor,

$\mathbf{C_t}$ - is the cyclical adjustment factor, and It represents the irregular or random components and variations in the series.

By this a method for de-seasonalising the data was employed as necessary. Following an analysis of Trotter, (1992) by employing Centered Moving Average (CMA), one computes the CMA with monthly data; one completely eliminates seasonal and random components of a price series. In other words, the centered moving Average (CMA) represents the trend and cyclical components of the original price series and eliminates seasonality and randomness. Therefore, the seasonal index (SI) can be calculated as a division of the original price series by CMA. This model can be expressed as follows:

By taking the 12-month (one year period), the moving average for a time period t (MA_t) is calculated as:

$MA_t = (Pt\text{-}6+..+Pt+\ldots+Pt+5)/12$

$$CMA = \frac{\left[\sum_{i=t-6}^{i=t+5} P_i + \sum_{i=t-6}^{i=t+5} P_i\right]}{12}$$

$CMA_t = (CMA_t + CMA_t+1)/2 = T_t + x\ C_t$……...(1)

Where:

CMA= centered moving average

∑= n-array summation

P_i= price index

t = time period (12 month)…1, 2,..*n one* year, (Aminu, 2009).

3.5.4.2 Seasonal Index

According to Aminu, (2009) the seasonal index is useful where there is need to summarise the typical behavior of the time series. Seasonal index is an important parameter to determine a time series data behavior. As a component of time it is calculated by obtaining the average seasonal index for each month within a period of working year and thereby adjusting the 12-figure series in such a way that it adds up to 1200. Also Miller, (1986) advocated the usefulness of time series data in the determination of price index. It can be expressed as follows:

$$SI_i = \frac{P_i}{CMA_i} \quad \ldots\ldots(2)$$

Where:

SI = Seasonal Index for month *i*

P_i = Price Series for month *I* (Aminu, 2009).

3.5.4.3 Gross Seasonal Index (GSI)

In case of onion marketing, it is important at this point to consider storage value in order to tap its maximum time price utility. To achieve part of objective 5 also the gross seasonal index (GSI) model was employed. According to Aminu, (2009) the Grand Seasonal Index is an average of the seasonal indices that removes all random movements of the time-series data. Hence, the GSI represents the pure seasonal average of the series during the period under analysis. It shows the real seasonal fluctuation for the prices of the series. The GSI is described as good starting point of analysis of the feasibility of storage (onion) in this case. It can be expressed as follows:

$$GSI = \overline{SI}_i \; x \; \frac{1200}{\sum_i \overline{SI}_i} \qquad \text{.....(3)}$$

Where:

SI= Average Seasonal Index for month i.

GSI=Grand seasonal index, (Aminu, 2009).

3.5.5 Marketing Efficiency (ME)

Marketing efficiency model was used in achieving part of objective III. It is normally estimated using pricing behavior over time and space. It is concerned with how effectively prices reflect the cost of moving the cost through the marketing system. The formulae for estimating marketing efficiency can be specified as follows:

$$ME = \frac{VA}{C_{ms}} X \frac{100}{1}$$

Where:

ME=Marketing efficiency.

VA=Value added by marketing

$\mathbf{C_{ms}}$=Cost of marketing service source: (Aminu, 2009).

3.6 Market concentration

Measure of market concentration employed was Gini coefficient otherwise known as Gini index. It was used in achieving part of objective iv. Gini coefficient or Gini index is one of the tools that measure of inequality in the relative size distribution of (marketer) income. It is defined as a ratio with values between 0 and 1: the numerator (concentration area) is the area between the Lorenz curve of the distribution and the uniform distribution line; the denominator is the area under the uniform distribution line (that is maximum concentration area) (Lambert, 1993). The Gini index is the Gini-coefficient expressed as a percentage, and is equal to the Gini coefficient multiplied by 100 and given in percentages (%).This can be expressed as follows:

$GC = 1 - \sum x_i y_{i.}$ Where:

GC= Gini Coefficient

X= percentage of marketers per study period.

Y= Cumulative percentage of the marketers' purchases per study period.

∑= Summation sign or total. It is measured as percentage (%) between zero and 1. (Lambert, 1993).

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Socioeconomic Characteristics of the Onion Marketers

Socioeconomic characteristics of the respondents including age, gender, marital status, education background, source of capital for their marketing activity, source of information and time of their marketing activity were discussed in this section.

4.2 Ages of Respondents

The Distribution of respondents according to age is presented in table 2.

The result in table 2 shows that majority of the onion marketers were within the age category of between 31 and 50 years (58.8) %. In addition, those within the age of 20 and 30 years constituted 29.09% of the marketers. Only 10.0% of the marketers sampled were less than 20 years while those above 61 years category constituted 9.09% of the respondents .these agreed with the findings of Solomon,(2010) and Grema, *et al.,*(2014).The mean age of the respondents was found to be 21.0 years. Age is an important factor in determining the production and marketing enterprises. This is because it affects their ability to require necessary marketing facilities for rapid economic development and improved welfare as defined by FAO, (1992).

Table 2: Distribution of the respondents according to age

Class interval	Frequency	Percentage (%)
<20	11	10.00
21-30	21	19.09
31-40	43	39.09
41-50	25	22.73
51-60	10	9.09
61>	0	0.0
Total	**110**	**100**

Mean =21.0

Std. dev. =10.88

Var.12.16

Source: Field survey, (2013).

4.3 Marital Status

The Distribution of respondents according to marital status is presented in table 3

The result in table 3 revealed that majority (98.18%) marketers were married; a proportion of singles constituted 8.18 % and widowed were found to be 1.18% by proportion. Marital status is an important variable factor in determining the prestige and respect in the rural area. Marital status also determines the ability for family succession and continuity of the heritage as compared to unmarried folks. Family labour and availability of sources of livelihood are determined by availability and expenses incurred by the household in dual economy model. They

tend to contribute more to the survival of the society and growth of the agricultural sector and that of the industry. Furthermore, authors such as Murtala, (2009), observed the significance of marriage on family labour and partnership in decision making and overall enterprise management.

Table 3: Distribution of the respondents according to marital status

Status	Frequency	Percentage (%)
Married	98	89.09
Singles	9	8.18
Widow	2	1.81
Divorced	1	0.90
Total	**110**	**100**

Source: Field survey, (2013).

4.4 Educational Background of the Respondents

The result in table 4 shows that 40.0% of the respondents had acquired Qur'an education, those who acquired primary education constituted 31.0% while 13.64% had secondary education and 9.09% tertiary education and those with adult literacy constituted 5.45% of the respondents. This implies that majority of the respondents were literate in one way or the other. Education backgrounds is of paramount importance in the aspect of marketing as it involves great deal of use of estimate, forecasting and computations involving money in the field, during storage and marketing for the success of the business and other enterprises. This agreed with findings of

Adesina and Kehinde, (2008) who stated that education is an avenue through which technology can be disseminated and perceived easily. Par excellence, education exposes farmers and marketers to new ideas, techniques and relevant technologies for achieving meaningful social and economic development.

The Distribution of respondents according to Educational Background is presented in table 4

Table 4: Distribution of the Respondents According to Educational Background

Education Levels	Frequency	Percentage (%)
Primary Education	35	31.81
Qur'anic Education	44	40.00
Sec. Education	15	13.64
Tertiary Education	10	9.09
Adult Education	6	5.45
Total	**110**	**100**

Source: Field survey, 2013

4.5 Respondents Source of Capital

The result in table 5 shows that proportions (46.36%) of respondents used their personal savings to finance their businesses, those who patronized money lenders constituted 26.36%, while proportion of 15.45% patronized commercial banks for their business capital, only 10.0% of the respondents secured their capital from other sources like friends and relative and those who sourced their capital from the bank of agriculture constituted the least (1.82%) of the sampled proportion of the onion marketers.

The Distribution of respondents according to source of their capital is presented in table 5

Table 5: Respondents According to their Source of Capital

Size of Holding	Frequency	Percentage (%)
Commercial Banks	17	15.45
Bank of agriculture	2	1.82
Money Lenders	29	26.36
Personal	51	46.36
Friend, relatives/sources	11	10.00
Total	**110**	**100**

Source: Field survey, 2013

4. 6: Respondents Sources of Market Information

Result in table 6 shows that a proportion of 58.18% from the respondents surveyed sourced their market information in the market while 25.45% sourced information from their marketing partners and 9.09% through cellular phones and 7.2% of them listen to the programmes and news in the radio. Weak flows of information weaken the marketers' ability on the current market prices and happening on their side even at this crucial information technology period.

The Distribution of respondents based on source of market information is presented in table 6.

Table 6: Respondents Based on Source of Market Information

Sources of Information	Frequency	Percentage (%)
From other marketers	28	25.45
Through Phone	10	9.09
On the market complex	64	58.18
On the Radio Programme	8	7.27
Total	**110**	**100**

Source: Field survey, 2013

4.2 Marketing cost, Marketing Margin and Efficiency

4.2.1 Marketing Cost

Marketing cost relates to the value added to the marketing services. The cost is the actual expenses incurred in the performance of the marketing functions as commodity moves from the farm to consumers. It includes the cost of transportation and handling, marketing charges, cost of assembling, processing packaging or bagging, levies and revenues (Olukosi *et al*.,2010). Cost and expenses can be variable or fixed in the case of onion marketing when storage was involved, in that regard it could be done to achieve utility of time.

Gross marketing margin (GM), marketing margin (MM) and marketing efficiency (ME) for onion is presented in table 7

Result in table 7 reveals a total variable cost (TVC) N1,950:00 of onions is representing 100% of the TVC and average acquisition cost representing 84.61% of services for a 50Kg onion bag

which was obtained in the studied markets. The result further shows the gross revenue (GR) of ₦2, 875:00 for all the markets studied. The average marketing margin was 81.15% and average efficiency was 687.05% for all the markets studied. By implication, the results revealed a good profit margin for the onion; this has indicated that onion marketing is profitable and efficient at markets in all zones and onion markets studied.

Table 7: Gross marketing margin, marketing margin and marketing efficiency for onion in the study area.

Item	**Average value (₦/50Kg)**	**TVC (%)**
(a) Variable cost		
Buying price	1650:00	84.61
Transportation	150:00	7.69
Loading and offloading	50:00	2.56
Market tax	20:00	1.03
Cost of package bag	80:00	4.10
Total Variable Cost (TVC)	**1950:00**	**100.0**
(b) Returns		
Gross Revenue (selling price (GR))	**2,875:00**	
Gross Margin (GM)	**925:00**	
Marketing Margin (MM)	**42.60:00 %**	
Marketing Efficiency (ME)	**687.05:00%**	

Source: Survey, 2013.

4.2.2: Marketing margin (MM) analysis for onions in the markets studied (₦/50Kg) is presented in table 8.

Result in table 8 shows that among all the markets studied `Yankaba has the highest PP N2, 500, SP 3,500 and the least MM (40%), followed by Dambatta with PP of N1,500,SP of N3000 achieved MM of 100%.For Kura and Wudil PP of N1,300,SP and equal MM was achieved proportionately, and the state average PP price/ was found to be 1,650 and a value of MM 81.15% for all the markets under review.

Table 8: **Marketing margin for onion sales in the study area**

Markets	**PP (1)**	**MC (2)**	**SP (3)**	**MM (%)**
Yankaba	2,500:00	250:00	3,500:00	40.00
Danbatta	1,500:00	200:00	3,000:00	100.00
Wudil	1,300:00	150:00	2,500:00	92.30
Kura	1,300:00	150:00	2,500:00	92.30
State Ave	**1,650:00**	**187:05**	**2875:00**	**81.15**

Source: Computed from Field Data,2013.

4.2.4 Marketing Efficiency

Marketing Efficiency for Onion Markets is presented in table 9

Result in table 9 reveals that marketing in Yankaba market was 400% efficient followed by Danbatta market which was found to be 750% efficient while Wudil and Kura markets were found to be the highest (800%) efficient. Both markets were equally efficient as presented in

table 9. The last two markets implied equal efficiencies this could not be unconnected to similar marketing facilities and closeness. Olukosi, *et al*.,(2010) stated that marketing cost should be as low as possible and this can be achieve through efficient marketing system as in marketing economies. The higher the efficiency value the better the marketing performance. It can be inferred that during the period of the study, onion sales were efficient in all the zone markets in the state.

Table 9: Marketing efficiency for onion sales in the markets studied (₦/50Kg).

Markets	**Marketing Cost (₦)**	**Sale Price (N)**	**M E(%)**
Yankaba	250:00	3,500:00	400
Danbatta	200:00	3,000:00	750
Wudil	150:00	2,500:00	800
Kura	150:00	2,500:00	800
State Average	**187:05**	**2,875:00**	**687.5**

Source: Field Survey,2013

4.2.4 Prices Analysis

Table 10: Prices Analysis for `Yankaba Onion Market Studied

Table: 10: ONION PRICE PER PERIOD OF STUDY JAN 2012 TO (YANKABA MARKET)

QUART	month	WEEK 1	Price/KG	WEEK 2	PriceKG	WEEK 3	Price/KG	WEEK4	Price KG	ave price(N/Kg)
1ST	JAN	1500	30	1600	32	1500	30	1600	32	8
	FEB	600	12	6500	130	6500	130	600	12	3
	MAR	600	12	600	12	800	16	800	16	4
2ND	APR	1000	20	800	16	800	16	1000	20	5
	MAY	1200	24	1200	24	400	8	1400	28	7
	JUN	1700	34	1500	30	2000	40	2000	40	10
3RD	JUL	5000	100	4500	90	4500	90	4700	94	23.5
	AUG	6000	120	6000	120	6500	130	6500	130	32.5
	SEP	9000	180	8000	160	8500	170	9000	180	45
4TH	OCT	18000	360	18000	360	18000	360	18000	360	90
	NOV	28000	560	30000	600	30000	600	29000	580	145
	DEC	32000	640	30000	600	30000	600	30000	600	150

Source: Market Survey,(2012)

The result in table 10 reveals the market prices for onion in `yankaba Market. It shows the prices, week by week from January, to December,2012.The table shows that in the first quarter, Price of onion in January was ₦1500/Bag and varies to ₦1600/Bag which translates to ₦30/Kg to ₦32/Kg in the fourth week. It also depicts an average price/Kg was ₦8/Kg and price ₦32/Kg. It is worth noting that the prices increased towards December, 4^{th} quarter from ₦3200/Bag to ₦30,000 in the fouth (4^{th}) week at average price of ₦150 and ₦600 price/Kg. This entirely shows a remarkable variation in onion market price over a period of twelve months of the study period.

Table: 11 ONION PRICE PER PERIOD OF STUDY JAN 2012 TO DDANBAT PER KG

QUARTE	month	WEEK 1	Prie/KG	WEEK 2	Price/KG	WEEK 3	Price/Kg	WEEK4	Price/KG	Ave price	price/kg
1ST	JAN	500	10	500	10	800	16	500	10	46	11.5
	FEB	500	10	500	10	500	10	500	10	40	10
	MAR	1600	32	1400	28	1400	28	800	16	104	26
2ND	APR	800	16	8000	160	1000	20	1000	20	216	54
	MAY	1000	20	2000	40	2000	40	2000	40	140	35
	JUN	1500	30	1000	20	1000	20	2000	40	110	27.5
3RD	JUL	3000	60	3000	60	3000	60	6500	130	310	77.5
	AUG	5000	100	5000	100	5000	100	8500	170	470	117.5
	SEP	7500	150	8000	160	8500	170	15000	300	780	195
4TH	OCT	8500	170	9500	190	12000	240	27000	540	1140	285
	NOV	18000	360	17000	340	28000	560	26000	520	1780	445
	DEC	27000	540	27000	540	27000	540	30000	600	2220	555

Source: Market Survey, (2012)

Table 11 shows the onion market prices for onion in Dambatta market over the period of study. It shows the prices over the year period from January at ₦500/Bag which translates to ₦10/Kg in the first week(1st Quarter) to December N27000/Bag at 540/Kg and increases upward to ₦30,000/bag. The average price was ₦45 and ₦11,5/Kg was price /Kg. The price appreciates from ₦500/Bag in January to ₦ 27000/Bag in December and to ₦30000/Bag (600)/Kg at an average price of ₦2, 220/Bag and ₦555/Kg. This is a clear indication of price variation over the time period.

Table: 12 ONION PRICE PER KG JAN 2012 TO DEC 2012 at Kura n Market

QUARTE	month	WEEK 1	Price/KG	WEEK 2	Price/KG	WEEK 3	Price/KG	WEEK4	Price/KG	Ave.priceN/Kg
1ST	JAN	200	4	200	4	300	6	300	6	20
	FEB	300	6	300	6	300	6	300	6	24
	MAR	350	7	350	7	400	8	400	8	30
2ND	APR	500	10	500	10	450	9	450	9	38
	MAY	500	10	500	10	500	10	500	10	40
	JUN	600	12	550	11	500	10	600	12	45
3RD	JUL	700	14	700	14	650	13	700	14	55
	AUG	500	10	500	10	500	10	400	8	38
	SEP	700	14	700	14	700	14	700	14	56
4TH	OCT	1200	24	1400	28	1400	28	1450	29	109
	NOV	1400	28	1400	28	1600	32	1600	32	120
	DEC	1600	32	11600	232	1800	36	16000	320	620

Source: Marker Survey,(2012)

Table 12 shows onion prices for Kura Market. The result depicts that onion prices in January was ₦200/Kg at an average price of N20/Kg and appreciates invariably to ₦300 in the 4th week afterwards at an average ₦20 price/kg in January,2012.The result further shows an increase across the months from ₦200/Bag in January to ₦1600/Bag in December which appreciates upward to ₦16,000 translates to₦320/Kg at an average price of ₦620/Bag in December. These show a remarkable increase in onion price from January to December over time period.

Table: 13: ONION PRICE/Kg FOR WUDIL MARKET JAN 2012 TO DEC 2012

QUAI	mont	WEEK 1	Price/KG	WEEK 2	Price/KG	WEEK 3	Price/KG	WEEK4	Price/K	Ave.P/Kg
1ST	JAN	200.00	4.00	300.00	6.00	300.00	6.00	300.00	6.00	1.50
	FEB	300.00	6.00	300.00	6.00	350.00	7.00	350.00	7.00	1.75
	MAR	400.00	8.00	400.00	8.00	400.00	8.00	400.00	8.00	2.00
2ND	APR	400.00	8.00	400.00	8.00	400.00	8.00	400.00	8.00	2.00
	MAY	500.00	10.00	500.00	10.00	500.00	10.00	500.00	10.00	2.50
	JUN	450.00	9.00	400.00	8.00	450.00	9.00	500.00	10.00	2.50
3RD	JUL	1,000.00	20.00	800.00	16.00	800.00	16.00	600.00	12.00	3.00
	AUG	500.00	10.00	1,000.00	20.00	1,000.00	20.00	1,200.00	24.00	6.00
	SEP	1,200.00	24.00	1,200.00	24.00	1,200.00	24.00	7,000.00	140.00	35.00
4TH	OCT	8,000.00	160.00	6,700.00	134.00	6,700.00	134.00	13,000.00	260.00	65.00
	NOV	12,500.00	250.00	12,000.00	240.00	12,000.00	240.00	24,000.00	480.00	120.00
	DEC	14,700.00	294.00	14,700.00	294.00	24,000.00	480.00	24,000.00	480.00	120.00

Source: Market Survey,(2012)

Table 13 shows an onion prices over the study period. It shows that onion price as at January 2012 was ₦200/Bag equivalent to ₦4/Kg which increases to ₦300 in fourth week at an average price of ₦1.50/Kg. The product further appreciated to ₦14,700 in December,2012 at ₦294/Kg to N24,000/Bag in December, 4th week(₦480/Kg) at an average price of ₦120/Kg.

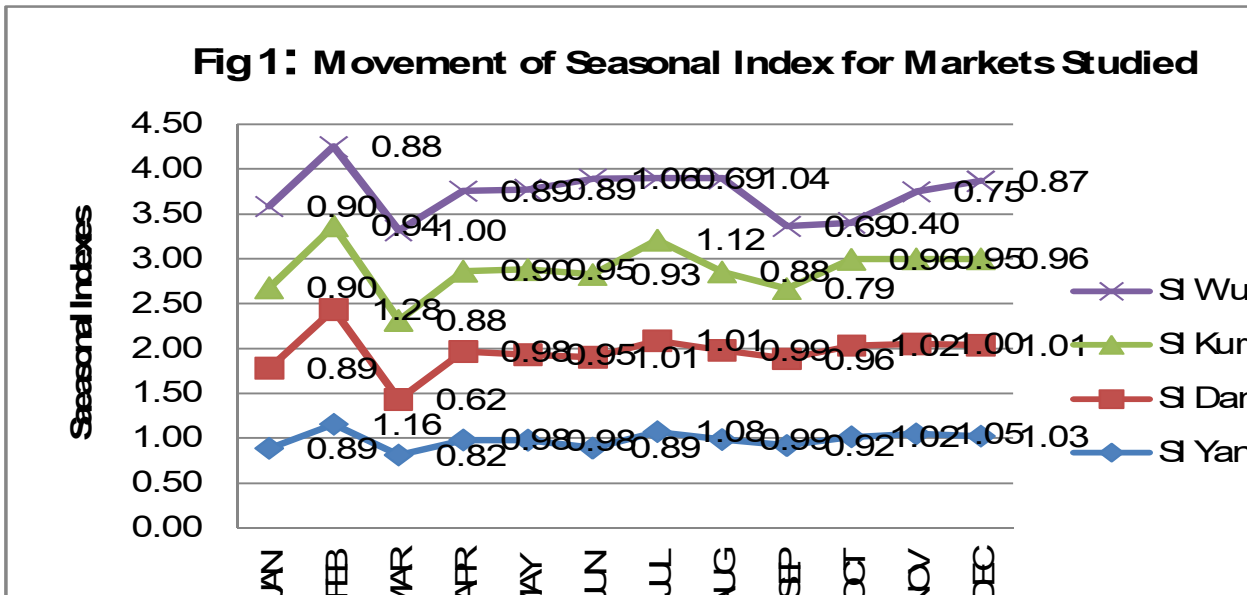

Figure 1: Chart Depicting the De-seasonal onion Markets Indexes, January, 2012 to December 2012

Source: Computed From Market Survey, 2012

Figure 1 illustrates the contribution of the onion marketing in the study area. It shows the onion price per/Kg variation over the study period in all the markets studied. It depicts the movement of the onion prices from January, 2012 to December, 2012.The price trend increases progressively along the period reported at the cost of ₦30:00 per kg in January to ₦780:00 for `Yankaba, ₦9.50 in January to ₦197:00 per Kg in December for Dambatta market 5:00 per Kg in January to N49:37 in December and ₦5:50 in January to ₦40:00 per Kg of onion. While for wudil and Kura as the price shows; there was no significant difference ($p<0.01= -0.28$) between prices obtained in both markets. Further, the graph shows the actual price variations for all the markets during the study period. These variations were not unconnected with the seasonal nature of the produce; at the on-season onion was available while the price decreases sharply. From the illustration it can be further inferred that at off season, price of onion increases progressively. This really behaves as other vegetable crops and other agricultural produce behaves. The theory

justified why onion should be stored for some time to reap the benefit of time utility (Olukosi *et al*., 2010).

4.2.6 Market Concentration

Distribution of proportion of onion marketers according to proportion of Sales is presented in table 10.

The result of market concentration presents the relationships between the percentages of the onion marketers proportion (1.01) and the proportion of the total sales for all the respondents was fond to be N316,250 for onion in the study area in the period under study. The value of 0.973% GC was realized which translates to more efficient marketing system. In other words, The Gini index value was realized as 0.973% as it expressed that onion market was highly concentrated and inequality exists in the size and volume distribution among the onion marketers in the study area. The fluctuation in the price, supply, and number of participants and availability of the commodity was a regular behavior at rural marketing system over time and space as it characterized the perfectly competitive markets.

Table 13: **Proportion of onion marketers according to proportion of sales**

Proportion of onion Sales(₦)	No.of Sellers	Proportion of sellers (X)	Cumulative proportion of Sellers	Total Sales (₦)	Proportion of total Sales	Cumulative prop. Total Sale (Y)	X(Y)
25,000	42	0.42	0.42	130,125:00	0.017	0.017	0.0079
50,000	28	0.28	0.70	80,500:00	0.009	0.026	0.0073
100,000	16	0.16	0.86	46,000:00	0.005	0.031	0.0049
150,000	10	0.10	0.96	28,750:00	0.003	0.034	0.0034
200,000	5	0.05	1.01	5,000:00	0.002	0.036	0.0018
Total	**110**	**1.01**		**316,250:00**		**0.144**	**0.00268**

GC = 1—0.02694 =0.973%

Source: Field,Survey,2013

4.3 Problems Affecting Onion Marketing and Marketers in the Study Area

Agricultural produce marketing especially in developing countries; including Nigeria had been associated with numerous problems (Olukosi, *et al.,* 2010). Marketing is a major determinant of general development and in particular it has to improve the farmer welfare as the ultimate rural producer. Marketing of agricultural produce has been variously regarded with numerous problem such as inadequate storage facility, poor extension poor services, Inaccessible credit facility, poor pricing the onion commodity and powerless consumers, transportation cost and cost of

other inputs which render on the marketing system serious weight to develop. Therefore, upon these the various problems were surveyed in the study area and the result hereby presented in the following section. Thus; include:

The Distribution of respondents according to problems is presented in table 11.

Table 11: Distribution of Respondents based on their Major Problems

Problems	Frequency	Percentage (%)	Ranking
4.2.5.1 Inadequate Storage facility	85	77.27	1st
4.2.5.2 Poor extension services	55	50.0	5th
4.2.5.3 Inaccessible Credit Facility	61	55.45	4th
4.2.5.4 Poor Onion Pricing	67	60.90	3rd
4.2.5.5 High transportation Fare	72	65.45	2nd
4.2.5.6 Cost of other inputs	46	41.81	6th

Source: Field Survey, 2013.

4.3.1 Inadequate Storage Facility

From the result in table 11 shows that majority of the marketers (77.27%) were faced by the problem of inadequate storage facility. Storage facility is a major determinant of the onion sellers' ability to benefit from the time value of their commodity without which they suffer great loss. This is because onion marketing involves storage which is time and environment sensitive. Onion storage requires Knowledge and practice in order to achieve time utility or storage value. Lack of storage facility deters the marketers benefiting from the economy of size for onion

marketing and storage. Sai'd, *et al*., (2013) reported similar findings in his study of marketing of onion and tomatoes in Kano state.

4.3.2 Inaccessible Credit Facility

Finance dictionary defines credit facility as an arrangement with a bank or supplier that enables a person or organization to be given a lending facility or borrow money when it is needed (Qfinance, 2013). Access to the loan facility is very important especially to farmers marketers in order to enable the acquire more. Proportion of 55.45% (4^{th}) of sampled respondents interviewed had no access to formal bank credit probably because of its difficulty to obtain. They rather resorted to using their savings and other sources such as money lenders 26.36% (as indicated in table 6) this was perhaps due to the lack of holding, collateral when they want acquire the facility. Thus; was found to be one among the problems of onion marketers in the study area.

4.3.3 Poor Pricing of Commodity

Poor pricing of the commodity was a serious problem to the marketers in the study area. The result indicated that proportion (60.90% (3^{rd})) of the sampled marketers had problems with how onion was priced in the market. Onion as agricultural commodity is required throughout the season for domestic uses and as well for export.

The demand for onion in the study area however, is determined by the demand and the corresponding supply in the markets which determine its price. This is a typical perfectly competitive setting; where buyer has to determine the price through agreement often with the seller. At harvest period it was discovered that the situation force the sellers to loss and hard to allow them to recover their costs involved due poor pricing regimes as the result of bulk supply in the markets.

4.3.4 Poor Extension Services

Result indicated poor extension services which accounted for 50.0% (5^{th}) by proportion of the respondents as indicated by the result. Efficient extension services are of paramount importance as the avenue through which education and relevant technologies were disseminated to the traders particularly on handling and storage methods. The marketers in the study area were in daring need for efficient extension services for service delivery to aid farmer to in the modern commercial agriculture derive. This will definably go a long way to helping the marketers more to fast recover their cost of marketing services and for income improvement goal in the study area.

4.3.5 Higher Transportation Cost

High cost of transportation constrained majority (65.45% (2^{nd})) of the respondents. This was due to probably fuel price hike and its associated effects on the marketers. High cost of transportation implies increased in terminal cost, invariably adding marketing cost which could ultimately reflects into additional increase on the price of the commodity at seller side and may likely affects the marketing margin. It was found as one of the problem affecting marketers in the study area.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study examined the economics of onion marketing in Kano state. A multi-stage sampling technique was employed. From the research population, 110 onion marketers were randomly selected from `Yankaba, Dambatta, Kura and Wudil major onion markets using simple random sampling technique. Descriptive statistics (Mean and standard deviation) and series charts, gross margin (GM) analysis, CMA, GSI, GRSR (for time series data), correlation and Gini coefficient for market concentration were used in the analysis. The result shows that 61.82% of the respondents were within the age range of 31 to 50 years and the mean age was 21.0 years. The result indicated majority (98.18%) of the respondents were males only 2.73% of them were females. The result reveals that 40.00% had religious education, 31.81% had acquired primary education and 9.09% had acquired tertiary education, proportion of 46.36% had personal savings as their major source of capital and money lenders (26.36%) only 1.82% had access to government bank loans. Gross marketing margin analysis shows an average return of ₦2, 875:00 per 50 Kg bag, average marketing margin of 81.15% was realised. Highest Seasonal Index(SI) (1.16) for `Yankaba Market was realized and lowest (0.40) seasonal Index for Wudil was obtained, Highest Gross Seasonal Index (GSI) values (107.8) was obtained, Gross Real Storage Return values of 28.0% 16.0% were realized in `Yankaba and Danbatta markets (Appendix 4) respectively. Average marketing efficiency of 687.5% was achieved and Gini index of 0.973% was realized which shows a significant inequality in concentration, volume of goods and distribution of onion marketers.

5.2 Conclusion

The findings of the study revealed that marketing onion in the study area was profitable as indicated by gross margin analysis. The marketing system for onion was also efficient considering and taken into cognisance the level of cost and revenue realized and expressed. The market structure revealed a pure competitive nature of interactions among the market participants. There were inferential evidences of seasonal price variations season-wise among the markets studied while the appreciable distance between the zonal markets revealed some reasonable level of relationships and integration especially when transport cost was not considered against the conduct of the onion marketing in the study area.

5.3 Recommendations

Based on the findings of the study the following recommendations were put forward that:

- Marketers level of capital should be increased through increasing their access to loan and credit facility.
- More effort should be targeted at producing modern onion processing facilities for value addition which could increase the value, acceptability, profitability of the onion to meet the domestic needs, demands and for international community needs.
- Provisions of large and affordable commercial onion storage facilities to reduce the menace of onion damages on storage should be encouraged.
- Research funds and grants should be allocated and be made available to institutions, research agencies and individuals for more researches on relevant technologies related to onion preservation.

- There should be available data bases centers for the intensification of market system information networks (MIN) with provision concerning prices.

REFERENCES

Abbas, M.N.(1995). The impact of World Bank on State Agricultural Development: A case Study of Kano State. A project Submitted to Department of Agricultural Science Education Double Majors (DM), School of Vocational and Technical Education, Federal College of Education Katsina, July, Pp.1-36.

Abbas, M.N. (2004): Performance of National Fadama Development Programme (NFDP) in Kano State 1992 to 2003: B. Agric. Tech. (HONS) Project Submitted to the Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University, Bauchi. Pp1-56.

Abdu, Z. (2006). Economic Analysis of Soya Bean Marketing in Guinea Savanna, Nigeria. An Unpublished Ph. D Dissertation, Agricultural Economics and Extension Programme, Abubakar Tafawa Balewa University, Bauchi, Pp. 1-102.

Achike, A.I. and Anzaku, T.A.K. (2010). "Economic Analysis of the Marketing of Benniseed in Nasarawa State, Nigeria". *Journal of Tropical Agriculture, Food and Extension*, 9 (1) (January) Pp. 47-55.

Adesina, A.C. and Kahinde, A.I.(2008). "Economics of Wholesale marketing of Fruits in Ibadan Metropolis of Oyo State, Nigeria". In: Umeh, J.C. Obinne, P. and Lawal, L.(eds). Prospects and Challenges of Adding Value to Agricultural Products, *A proceedings of 22nd Annual Conference of Farm Management Association of Nigeria* (FAMAN), held at University of Agriculture, Makurdi, Benue State, Nigeria,8th – 11th September, Pp 51-59.

Adegeye, A. J. and Dittoh, J. S.(1985), "Essentials of Agricultural Economics' Impact." Publishers Economics Nigeria, Limited, Ibadan, Nigeria.

Adekanye, T. O. (1998). Reading in Agricultural Marketing. Longman Publishers, Nigeria, Pp 11-12.

Adewumi, M.O. and Omotesho, O.A. (2002). An Analysis of Production Objective

of Small Rural Farming Households in Kwara State, Nigeria. *Journal of Rural Development*, 25 (winter): Pp. 201-211.

Agbodu, C.(2000).Fruits Production in Nigeria. Paper Presented at the f first meeting of the General Assembly of the Tropical Fruits Network (TF-NET) Kuala Lumpar, Malaysia. 27th ,July-2000 Pp11.

Akinwumi, A.A. (1986).Introduction to Tropical Agriculture,Longman Group UK,ltd.Pp.275-281.

Arene, C.J. (2003).Introduction to Agricultural Marketing and Policy, Fulladu Publishing Company, Nsukka. Pp.6.

Ahmad, S, Tahir, Z. Chohan, and Khurram, S. (*2008*). "An Investigation Into Cost and Revenue of Onion Production in Azad Jammu Kashmir" *Sarhad Journal of Agriculture, Vol.24, No.4I* Pp 1-8.

Amaza, P.S. (2000): "Resource Use Efficiency in Food crops Production in Gombe State Nigeria" An Unpublished Ph.D Thesis submitted to the Department of Agricultural Economics, University of Ibadan, Nigeria.

Aminu, A. (2009): Framework for Agricultural Market Analysis: Theories and Applications. Ahmadu Bello University Press, Ltd. Zaria, Nigeria.Pp.1-184.

Anil, S. and P. Kumar, (2001): "An Analysis of the Price Behaviour of Selected Commodities, National Council of Applied Economic Research, Parisila Bhawan", 11, I. P. Estate New Delhi, 110 002.Pp.111.

Anonymous, (2008)L "Measuring Market Efficiency: A Comparative Study", *Bank of Valletta Review,* No. 38, (autumn) Pp.1-21.

Babalola, J.A. and M.A. Adegbite.(2001):"The performance of the Nigerian Capital Market Since Deregulation in 1986". CBN *Economic and Financial Review* vol. 39 No.1, March.

Bolotova, Y., C.S. McIntosh, K. Muthusamy, and P.E. Patterson. (2008): "The

Impact of Coordination of Production and Marketing Strategies on Price Behavior: Evidence from the Idaho Potato Industry." *International Food and Agribusiness Management Review* 11(3): 1-29.

CIA World Factbook , (2013).http//:www.cia.worldfactbook.com/onion/…

Chase, M. W. Reveal, J.L. and Fay, M.F.(2009). "A Subfamilial Classification for the Expanded Asparaglean Families: Amryllidaceae, Asparagaceae and Xanthoea". *Botanical journal of Linneae Family* 161:132-6.

Currah, L. F.J. Proctor, (1990).Onions in the Tropics and Subtropics an Agricultural Bulleting (35) Pp3-10.

Dauda, Y. (2013).Marketing of various Grades of Gum Arabic(*Acacia speciesi*) in Kano State, A Thesis submitted to the Department of Agricultural Economics and extension, Bayero University Kano, Nigeria. Pp. 127.

Dessalegn,G. Jayne, T.S. and Shaffer, J.D. (1998). "Market Structure, Conduct and Performance: Constraints on Performance of Ethiopian Grain Markets. *Working paper 8;Grain Market Research project*. Ministry of Economic Development and Cooperation, Adis Ababa,Pp.51.

Dinesh, K., G.K. Sudhir and D. Talukdar, (2007): "The Temporal and Spatial Dimensions of Price Search: Insights from Matching Household Survey and Purchase Data" *Journal of Marketing and Science,*Rotterda. (February)1-37.

Denton, L. and Ojeifo, I.M. (1990): Onion Production Practices and their Improvement in Nigeria. Onion Newsletter for the Tropics. 2:10-13.

Dickey, D.A. and W.A. Fuller, (1979) ''Distribution of the Estimators for Autoregressive Time Series with a unit root'' *Journal of the American Statistical Association*: 74,427-431.

Ditto, S. (1992). The economics of Dry Season Vegetable Production in Nigeria. ActaHorticulture :296-237.

Dogon-Daji, S.D. (2005): Economics of Dry season Onion Production and

Marketing in Sokoto and Kebbi States. A Ph.D Thesis Submitted to the Department of Agricultural Economics and Extension, Usman Dan-Fodio University, Sokoto, Nigeria, Pp 214.

Encarta, (2009): Microsoft Corporations: Encarta Premium Dictionary, Physical Geography Software, USA.

FAO,(1986):Food and Agricultural organization,Production Year Book, Rome, Italy.

FAO,(2003):Food and Agricultural organization, Food outlook: A Global Analysi, Year Book, Rome, Italy.

FAO. (1992). Irrigation Practice and Water Management. L.D. Doreen and D.W. Westcott. Irrigation and Drainage paper 1, Rev. FAO, ROME, 71 P.

FAO,(2006):Inequality Analysis: The Gini index. EASYPOL Module 40,Pp 30.

FAOSTAT, (2010): http:/www.fao.org/

Francesco, G., Ra'isuddin, A. and Naser, F. (1995). "Structural Determinants of Market Integration"**:** The Case of Rice Markets in Bangladesh the Developing Economies, XXXIII-2.

Gido *van de ven*, (2010). Trend and Seasonal Components: Removing of Trend and Seasonality. Pp.8.

Grema, I.J.and Gashuwa, A.G.(2014).Economic Analysis of Onion Production along river Komadugu Area of Yobe State, Nigeria. *A paper presented at the first National Conference Held at Audu Bako college of Agriculture, Danbatta, Kano State,Nigeria*.Pp.1-17.

Haruna, U. (2002). Economics of Small Scale sustainable Fadama farming in Bauchi State, Nigeria. Unpublished Thesis submitted to the Department of Agricultural Economics and Extension, Abubakar Tafawa Balewa University, Bauchi. Pp, 153.

Haruna, U.(2002).Strategic options for Profitable Marketing of fadama Crops. A paper presented at the *Monthly technology review meeting*, Held at BSADP Headquarters; Bauchi on 18th, February,P14.

Hussaini, U.A., A. A. Ramalan, L. Aliyu, A. Ahmed, and E.B. Amans (2000): Yield Bulb Size Distribution and Stability of Onion (*Allium cepa*L.) Under Different levels of N. Fertilizer and Soil Moisture Regimes. *Nigerian journal of Horticultural Science Vol.5.*

Idachaba, F.S. (1998):Instability of National Agricultural Research Systems in Sub-Saharan Africa: Lessons from Nigeria. ISNAR Research Report No. 13, The Hague, The Netherlands.

Idah, P.A.,E.S.A. Ajisegiri and M.G. Yisa,(2007) :"Fruits and Vegetables Handling and Transportation in Nigeria". AU J.T. 10 (3): 175-183 (Jan.) Pp 175-183.

Illu, I.(1996): "Marketing of Agricultural Products" A draft Curriculum text submitted to the International foundation for Education and Self-help, Kano.Pp.31

Ingawa, S.A. (1999): "National Fadama development Project: Achievements Constraints and Prospect. In Ramalan, A.A. (ed) Irrigation in Sustainable Agriculture." *Proceedings of the 12th National Irrigation and drainage,* seminar held at NAELS, Ahmadu Bello University, Zaria.(April)Pp188-205.

IFDC, (2001): Agricultural Input Markets in Nigeria: An Assessment and a Strategy for Development. IFDC, USA.

John, J., Ntengua, M. and N. Carolyne, (2013).Mapping of gender Roles and Relations Along Onion value Chain in Northern Tanzania. *International Journal of Asian social Science.*3(2):523-541.

Kang'ethe, W. G. (2006). Agricultural Development and Food Security in Sub-Saharan Africa (SSA). Building a Case for more Public Support the Case of Kenya. *A working paper no. 03 prepared for the Policy Assistance Unit of the FAO Sub-regional Office for East and Southern Africa*. Pp 111.

KNARDA, (2011).Kano State Agricultural and Rural Development Authority, Media News Letter, KNARDA, Media Press. Kano.Pp.2-15.

Kushwaha,S. and Adamu, A.(2003).Maize Marketing at some Selected Markets in the Western Zone of Bauchi, State. The Bihar Journal of Agricultural Marketing. 9 (1): Pp31-50.

Lannoy, G. De (2001).Vegetable Crops in Tropical Africa 395- 511. In: Raemaeks R. H.(Editor). Crop Production in Tropical Africa. Directorate General for International Cooperation (DGIC) Belgium. 1540 pp.

Lutz, R.J. (1996)."Discussion: Methods for Studying Consumer Information Processing," in *Combined Proceedings*, American Marketing Association, Pp170-174.

Manyong, V.M., A. Ikpi, J.K. Olayemi, S.A. Yusuf, B.T. Omonona, V. Okoruwa, and F.S. Idachaba (2005).Agriculture in Nigeria**:** Identifying opportunities for increased Commercialization and investment. IITA, Ibadan, Nigeria. 159p. 247.

Mary, J. and McGary,(2001).Bulb of North America. Tmber Press, USA. P P. 251.

Miller, R.K.(1981). Introductory statistics for Business and Economics, St Martins, Press, New York, USA Pp. 361-383.

Muhammad, A., B.A. Gambo and Ibrahim, N.D. (2011). Response of Onion (*Allium cepa*L.) to Irrigation Intervals and Plant Density in Zuru, Northern Guinea Savanna of Nigeria.*Nigerian Journal of Basic and Applied Science* (2011), 19(2):241.

Muhammad, A. (2003).Marketing of Agricultural Produce: A case Study of Gombe Local Government Area of Gombe State. Unpublished M.Sc Thesis, Department of Agricultural Economics andextension, Abubakar Tafawa Balewa University, Bauchi, Nigeria. Pp. 1- 75.

Muhammad, M. F. (2009): Structure and Efficiency Analysis of Vegetable Production and Marketing in Sindh. A Ph.D Thesis submitted to the Department of Agricultural Economics Faculty of Agriculture and Social Sciences, Sindh Agriculture University, Tando-Jam, Pakistan.1-102.

Murtala, N. (2009). Economics Analysis of Cattle Marketing in Two ADP zone of Kano State, Nigeria. An unpublished Ph.D. Dissertation, Abubakar Tafawa Balewa University, Bauchi, Pp 1-115.

Musa, S.A. (2003). Marketing of cowpeas in Nigeria: Econometric Studies of Quantity Factor and Market Integration. An Unpublished Ph.D Dissertation, Abubakar Tafawa Balewa University, Bauchi, Nigeria. Pp 1- 200.

Nasiru, A. (2008). Commodity Chain Analysis of Tomato. A case study of Tomato of Kano River Irrigation Project (KRIP),Kano state, Unpublished M.Sc thesis submitted to the Department of agricultural Economics and Extension, Bayero University, Kano.Pp.67.

Negassa, A. and Shahidur-Rashid (2010). Analyzing price seasonality "Food price variability: Causes, Consequences and policy options" presented at the *COMESA policy seminar on 25-26 January* in Maputo, Mozambique, under the COMESA-MSU-IFPRI African Agricultural Markets Project (AAMP).Pp 1-10.

NIHORT, (1986). National Horticultural Research Institute, Jericho, Ibadan, Annual Report, Nigeria. Pp.1-35.

NPC,(2013).http://www.npc.gov.ng/National population commission, Nigeria.

Olayide, S.O. (1986). Introduction to Agricultural Production Economics, University of Ibadan Press, Nigeria, 1st edition, pp: 96–117.

Olayide, S.O. and Heady, E.O.(1982):Introduction to Agricultural Economics, University of Ibadan, Press, Nigeria. Pp.23-31.

Olukosi, J.O. Erhabor, P.O.(1987). Introduction to Farm Management Economics: Principles and Applications, AGITAB Publishers LTD, Zaria, Nigeria.Pp1-114.
Olukosi, O.J. and Ogungbile, A.O.(2008): Introduction to Agricultural Production Economics: Principles and Applications**.** AGITAB Publishers, Limited, Zaria.Pp9 106.

Olukosi, J.O and Isitor, S.U. and Moses, O.O. (2010). Introduction to Agricultural Marketing and Price: Principles and Applications.4th ed, Ndaki Press, Zaria. Nigeria Pp.1-127.

Onipede, L. S. Ayoola, G. B. and R.O. Oyeleke, (2009).Enhancing the Competitiveness of Agricultural Commodity Chains in Nigeria: Identifying Opportunities with Cassava, Rice, and Maize using a Policy Analysis Matrix (PAM) Framework. *International Food Policy Research Institute*-IFPRI, Abuja, Nigeria.Pp1-59**.**

Peter, S.F. (1996). "Onion production in the Tropics" *American journal of AgriculturalEconomics* 63.(3):Pp321-328.

Purseglove,(1968). Tropical Crops: Dicotyledons 2. Longmans, Green and Co. Ltd.P.407.

Qfinance,(2013).http://Qfinance.com/onlinedictionary/…

Sai'd, S.A. and Kibiya, B.U.and Abbas, M.N. (2013). Marketing of Onions and Tomato in Selected Kano State Markets. A paper presented at the *First Annual Conference of Institute of Administration,* Hassan Usman Polytechnic, Katsina. Pp.1-12

Sexton, R.J.,C.L. Kling, and H.F. Carman, (1991). Market Integration, Efficiency of Arbitrage, and Imperfect Competition: Methodology and Application to U.S. Celery. *American Journal of Agricultural Economics*, 73(3):568-80.

Sharma, K.C, and Sharma A. K, (1996): "Levels and variations in wholesale prices and Exports of selected vegetables of India**".** *Bihar Journal of Agricultural Marketing* 4: 2, 132-143.

Solomon, S.T.(2010): "The importance of Efficient Use of the Adoption Technology" A micro Panel data Analysis, *Journal of Production Analysis* 34(2):37-40.

Steve, G., Jean C. and David, G. (2010). "Onion their Place in the Diet" Onion World Gills Onion, LLC. Colorado.

Straub, R.W. and Emmett, B. (1992). Pests of Monocotyledon Crops. In: Mc Kinsley, R.G.(Editor). Vegetable Crop Pests. Macmillan Press. U. K. p. 213-262.

Tanya, J. F. (1995).History about Onion. National Onion Association, Gredey, Colorado, Wesley Publishing Company.

Trotter, B.W. (1992): Applying Price Analysis to Market System. Methods and Examples from the Indonesian Rice Market: Marketing series. Chatmaz Natural Resource Institute.

Tsoho, B. A. and S. A. Salau, (2013). Profitability and Constraints to Dry season Vegetable Production under Fadama in Sudan Savannah Ecological Zone of Sokoto State, Nigeria. *Journal of Development and Agricultural Economics* Vol. 4(7) (April), pp. 214-222.

Upton, M. (1996). The Economics of Tropical Farming Systems. Cambridge University Press, United Kingdom.

Wikipedia, (2010). Kano State, Nigeria. Wikipedia, the free encyclopedia. URL http://enwikipedia.org/wiki/kanostate/

Wikipedia,(2013). The free online encyclopedia.at http://Wikipedia.org/wiki/onion.

Webster Encyclopedia, (1989). Cambridge Dictionary of the English Language, Grammercy Books, New York.

World Bank, F. and IFAD, (2008). Gender in Agriculture: A sourcebook, Washington: World Bank.

World Bank, (2011): "Nigeria – Second National Fadama Development Project:

Project Appraisal" Document, the World Bank.
Wright, V.I.(1992). "Socio-economic consideration in onion production and Handling in the Phillipines: Opportunity for Technology Transfer". Onions News Letter for the tropics.5:10-15.

http:www.fao.org

www.aboutonion.com

www.agropedia.iitk.ac.in/node/37186,

www.askville.amazon.com>food&drink>cooking

www.Chemindustry.com/.../01555342.html/2013

www.en.wikipeadia.org/kano state/

www.en.wikipedia.org/...saut%25c3%25a9ing

www.en.wikipedia.org/wiki/Gini_coefficient

www.en.wikipedia.org/wiki/Gini_coefficient,2013

www.en.wikipedia.org/wiki/onion-ring

www.enwikipeadia.org/wiki/the-onions

www.FAOSTAT/ USA/2011

www.folkfibers.com/blogs/news/65794

www.gillsonion.com/history/

www.herballegacy.com/wilson-history

www.ifood.tv>Home>Encyclopedia, www.en.wikipedia.org/wiki/onion

www.msamd.com/.../onionstorage.html

www.nabard.org/.../onion.asp

www.National Onion Association.org/2010

www.onions-usa.org/all-about-onions

www.oriss.gov.in/dhc/download/onion

www.practicalaction.org/docs/technical_...

www.router.net/history.html

www.sparkpeople.com/secrets.asp%3ft

www.theonion.com/articles/history-1

www.toponion.com

www.usaid.gov/pdf_docs/PNABT048.pdf

www.web.md.com/cholesterol-management...2013,www.heart.org/...

www.webmd.com/Cholesterol-management/2013

www.webmd.com/vitamins-supplements/2013

www.wikipeadia.org/wiki/mexicancuisine

www.wikipeadia.org/wiki/onion.

Appendix 1: DATA COLLECTION FORM /FIELD WORK /PRICE SURVEY SHEET

BAYERO UNIVERSITY KANO, NIGERIA FACULTY OF AGRICULTURE
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION

DATA COLLECTION FORM /FIELD WORK /PRICE SURVEY SHEET

ENTERPRISE----------MARKET PLACE----------ZONE----------

Month	WEEK 1	WEEK 2	WEEK3	WEEK 4	Remarks
1st Quarter	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/bag	
January					
February					
March					
2nd Quarter	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/Bag	
April					
May					
June					
3rd Quarter	Price(₦)/Bag	Price(₦)Bag	Price(₦)Bag	Price(₦)Bag	
July					
August					
September					
4th Quarter	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/Bag	Price(₦)/Bag	
October					
November					
December					

Source: Field Survey, 2012.

APPENDIX 2: Sample Questionnaire

BAYERO UNIVERSITY, KANO

FACULTY OF AGRICULTURE, DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION,

Questionnaire for Onion Marketing Study.

I am an M.Sc student, currently conducting research on 'Economics of onion marketing in Kano state,Nigeria.'. You may wish to cooperate by ticking and supplying appropriate responses, where necessary. Your personal data and information given will be treated confidentially, thank you!

(A) Socio economic Characteristics of the Respondents

1. Name of locality/ market----------.
2. Village/ ward----------
3. Local Government Area----------
   .
4. Age ---------- [ ]
5. Gender (a) Male [ ] (b) Female [ ]
6. Marital Status (a) Married (b) single (c) Widow (d) Divorced
7. Household size---------- [ ]
8. Education Level (a) Primary (b) Qur'an (c) Secondary (d) Tertiary (e) others specify .

(B): Onion Marketing Activities

9. Years in onion marketing / selling [ ].
10. Do you have any other occupation besides onion marketing (a) Yes (b) No
11. If yes what is / are other occupation? ----------
12. Where do you sale/market your onion (a) Farm gate (b) Market Place(c) Field (d) Other Specify----------.
13. Do you store your onion for a long time? (a) Yes (b) No
14. Which storage technique do you use? ----------.
15. If yes who owns the storage facility? ----------.
16. Do you have a commercial space for onion storage? (a) Yes (b) No.
17. If yes for how long do you store the onion? Specify----------.
18. How much is being paid for the storage? (N)----------:00K----------.
19. How many bags do you buy? (a) Specify ----------.
20. What is your reason for storing onion? ----------.
21. How much does storable onion cost at the beginning of the year/solo bag? ----------.
22. How much does onion costs at the end of the year/solo bag? ----------.
23. When do you partake in the marketing? (a) Seasonal markets (b) All seasons (c) some market days (d) occasionally (e) every time of the year.
24. What are the measures do you use in selling your onions? ----------.
25. Which measure do you prefer selling/ marketing your onions? (a) Bags (b) Mudus (b) basket (c) calabash (d) other specify----------.

26. Do you consider sorting/grading onion as important for your business? (a) Yes (No)
27. Do you have method for preventing your unsold onions from getting bad? (a) Yes (b) No
28. If you do state the method you use----------.

(C): Transportation and Quantity of Onions Handled by Onion Marketers

29. Which means of transportation do you use to transport your commodity? (a) Lorries (b) Head pan (c) Beast of burden (d) Bicycle (e) wheel Barrow

Handling period	Quantity brought	Prices Bought	Prices Sold	Remark
January-Mar.				
April – Jun.				
July – Sep.				
Oct- Dec.				

30. How much do you pay per solo bag? N-------:00K----------.
31. What is your status in the onions marketing system? (a) Buying agent (b) wholesaler (c) retailer (d) commission agent (e) middle man
32. How would you estimate the number of onions marketers in your spot? [ ]
33. Do you pay as revenue per space?(a) Yes (b) No (c) not always
34. How much do you pay for loading/ unloading, in naira (N)?----------[N]
35. How much do you pay as revenue per bag in the market? Specify [N]
36. To whom do you sell your commodity? (a) Wholesaler (b) Retailers (c) Rural Buyers (d) Consumers
37. Do you think that much or less supply of a commodity affects onion market price over time and space? (a) Yes (b) No
38. Which of these years in the last five years do onions sold costly? (a) 2008 (b) 2009 (c) 2010 (d) 2011 (e) 2013

(D) Sources of Capital for the Onion Marketers

39. Do you consider cash loan important for your business? (a) Yes (b) No
40. Do you acquire any loan? (a) Yes (b) No (c) I will not collect.
41. State the source of your business capital (a) Commercial banks (b)Bank of Agric (c) money lender (d) Friend other sources-specify----------.
42. Was the loan terms and conditions favourable to you? (a) Yes (b) No
43. Through which means do you collect the loan/ funds? (a) as individual (b) agricultural cooperative (c) farmer Group (d) others specify----------.
44. What are your important market places in term of volume and sale? (a) rural markets (b) urban markets (c) major consuming market (d) other specify----------.

(E) Source for information for onion marketers

45. How do you think about market information on price and demand? ----------

46. How do you know the price you sell your crops for? (i) using last year price (ii) by computing the cost involved (iii) based on prevailing market price (iv) through middlemen (e) other ways----------.
47. Do you think lowering the onion price can affect its supply in any given time and market place? (a) Yes (b) No
48. Would you rather sell your commodity at price lower than the prevailing market price than leave them unsold? (a) Yes (b) No
49. Do you often seek for market information? (a) Yes (b) No
50. How reliable is the information? (a) Reliable (b) not reliable
51. Does lack of adequate and reliable information a problem to your business? (a) Yes (b) No
52. How do you get market information? (a) From partners (b)through phone (c) in the market (d) on the Radio
53. Do you have a cellular phone? (a) Yes (b) No
54. Does a cellular phone influences over your market power or information? (a) Yes(b) No
55. How do you assess the price trend(s) of onion over the seasons? (a) Stable price (b) very stable (c) very un-stable (d) others specify----------.
56. Do you consider number of persons per area important for your business? (a) Yes (b) No
57. How will you rate the degree of entry and exit into the market? (a) Open (b) Restricted
58. How would you rate the performance of your marketing? (a) Satisfactory (b) fairly good (c) unsatisfactory.

(F): Problems of Onion Marketing

1.	Inadequate storage facility	(a)Yes (b)No
2.	Poor Extension services	(a)Yes (b)No
3.	Inaccessible credit facility	(a)Yes (b)No
4.	Poor pricing of commodity	(a)Yes (b)No
5.	Transportation cost	(a)Yes (b)No
6.	Cost of other inputs	(a)Yes (b)No
7.	Other problems specify	----------

59 Do you think these problems could be solved? (a) Yes (b) No

60. What would you advise Government to do on marketing of onion crop?

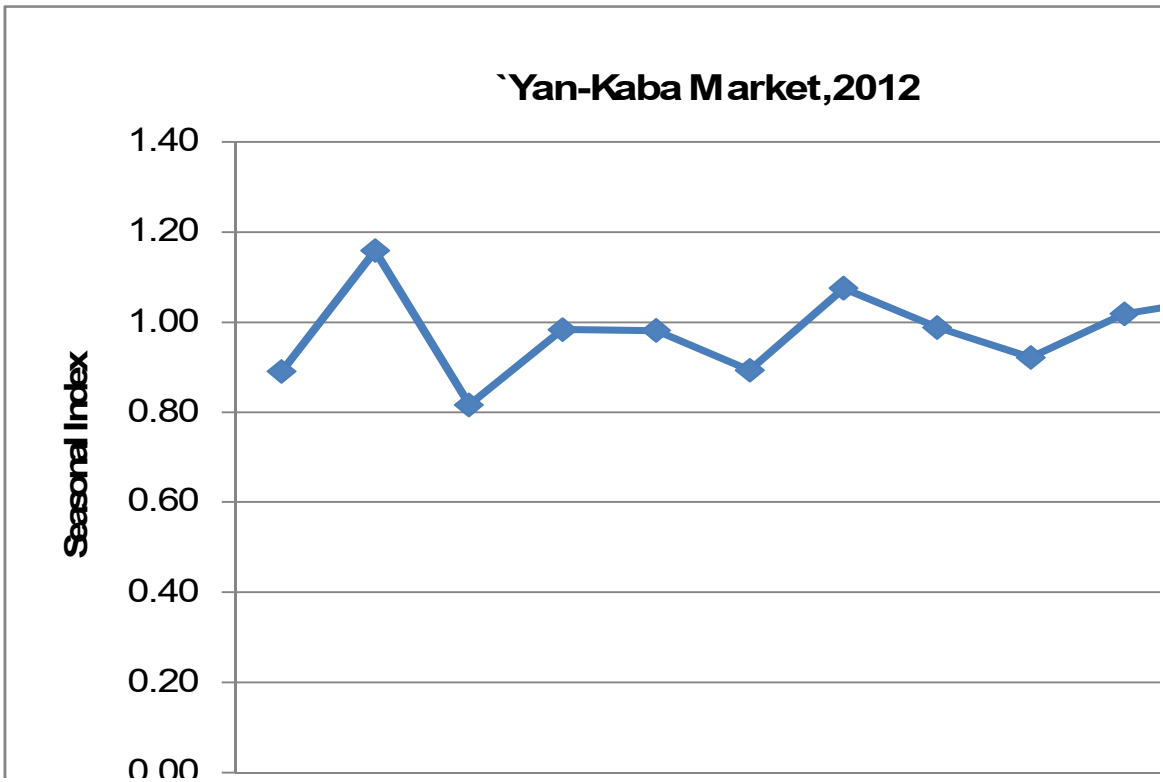

Fig 2: A De-Seasonalised `Yankaba Market Index, 2012

Source: Field survey, 2012

The Fig. 2 illustrates the de-seasonalised `Yankaba Market Indeces with the corresponding Months of the Year, 2012 in the study area.

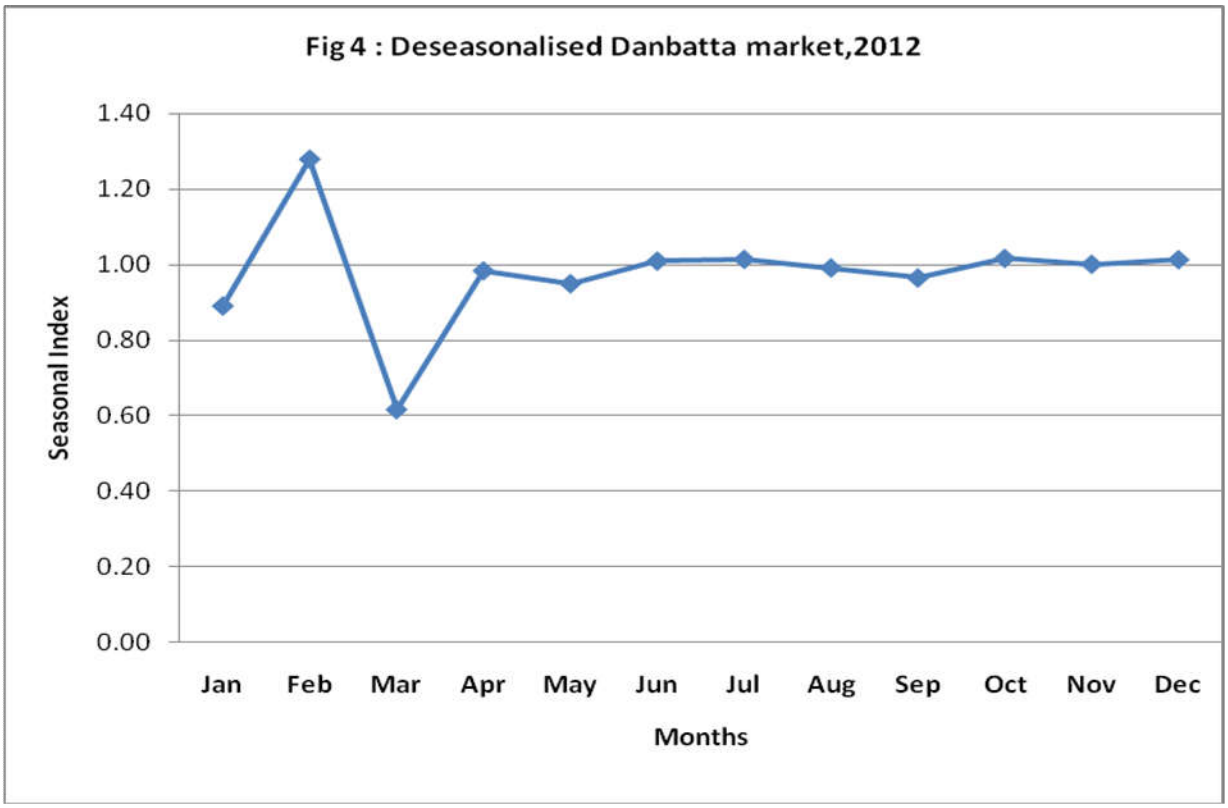

Fig 3: De-Seasonalised Danbatta Market Indeces

Source: Field survey, 2012

The Fig. 3 illustrates the de-Seasonalised Danbatta Market Index with the corresponding Months of the Year, 2012 in the study area.

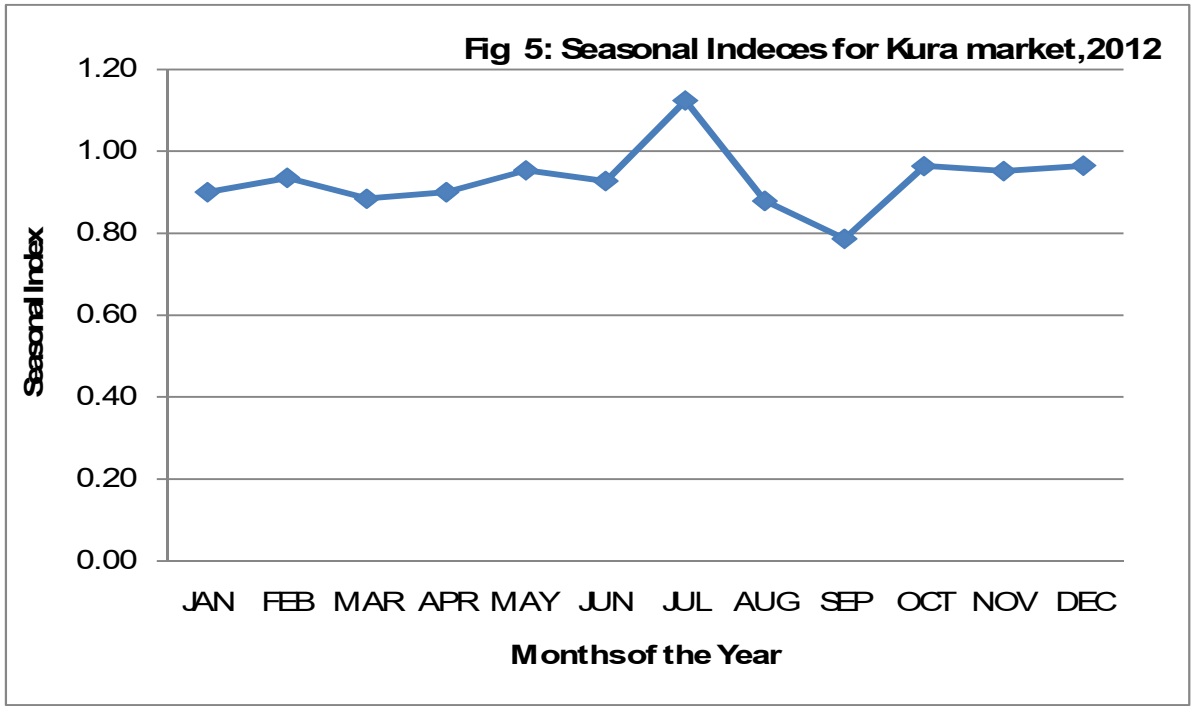

Fig 4 : A Seasonalised Kura Market Index

Source: Field survey, 2012

The Fig. 4 illustrates the De-Seasonalised Kura Market Seasonal Index with the corresponding Months of the Year 2012 ,in the study area.

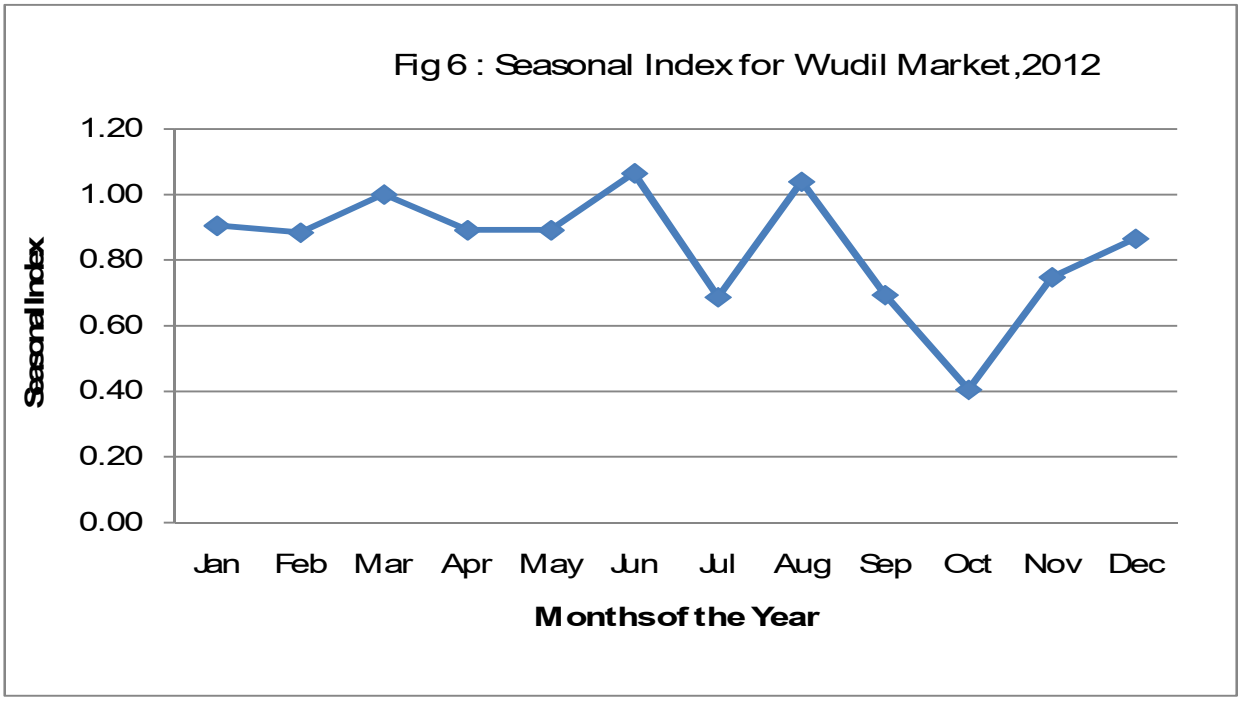

Fig 5: A Seasonal Indeces for Wudil Market,2012

Source: Field survey, 2012

The Fig. 5 illustrates the Seasonal Wudil Market Index with the corresponding Months of the Year, 2012 in the study area.

Appendix 3

Appendix 3: Correlation for Onion markets in the study Area						
	Yankaba	`Yankab	`Yankab	Danbatt	Danbatt	Kura/Wudil
JAN	0.85	0.52	-0.37	0.25	-0.21	-0.28
FEB	0.85	0.51	-0.36	0.23	-0.20	-0.27
MAR	0.75	0.64	2.00	0.29	-0.33	-0.27
APR	0.40	0.72	-0.44	0.53	-0.22	-0.23
MAY	0.40	0.72	-0.44	0.52	-0.20	-0.21
JUN	0.49	0.72	-0.43	0.81	-0.11	-0.22
JUL	0.86	0.93	-0.11	0.84	-0.26	-0.22
AUG	0.86	0.95	-0.05	0.98	-0.24	-0.20
SEP	0.86	0.95	0.07	0.98	-0.18	-0.07
OCT	-1.00	-0.95	0.49	0.96	-0.45	-0.19
NOV	-1.00	-1.00	-1.00	1.00	1.00	1.00
DEC	0.00	0.00	0.00	0.00	0.00	0.00

Source: Computed From Field Data, 2012

**. Correlation is significant at the 0.01.

Appendix 4: Seasonal indeces ,Gross Seasonal Indeces, Gross Real Storage Indeces Returns for the Markets all the Studied.

Months	SI Yankaba	SI Danbatta	SI Kura	SI WUDIL	GSI YKB	GSI DBT	GSI KR	GSI WDL
JAN	0.89	0.89	0.90	0.90	90.51	91.14	96.70	107.80
FEB	1.16	1.28	0.94	0.88				
MAR	0.82	0.62	0.88	1.00				
APR	0.98	0.98	0.90	0.89				
MAY	0.98	0.95	0.95	0.89				
JUN	0.89	1.01	0.93	1.06				
JUL	1.08	1.01	1.12	0.69				
AUG	0.99	0.99	0.88	1.04				
SEP	0.92	0.96	0.79	0.69				
OCT	1.02	1.02	0.96	0.40				
NOV	1.05	1.00	0.95	0.75	16.0% GRSR	28.0% GRSR	12.0 GRSR	6.0% GRSR
DEC	1.03	1.01	0.96	0.87	YKB	DBT	KR	WDL
SUM	**11.80**	**11.72**	**11.17**	**10.07**	**0.16**	**0.28**	**0.12**	**0.06**

Source: Field Survey, 2013