www.cenresinpub.org
ISSN 2277-0046

EMPIRICAL STUDY ON YAM CULTIVATION AND ECONOMIC DEVELOPMENT OF TARABA STATE: CASE STUDY OF WUKARI LOCAL GOVERNMENT AREA.

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ABSTRACT

The impact of yam cultivation on the economic development of Taraba State was studied to ascertain the importance of crop production to the development of the Nigerian economy. It seeks to find out the relationship existing between the level of crop production and the economic development of Taraba State. To achieve the objective of the study, yam cultivation in Wukari Local Government area was taken for the study as a reference to crop production and economic development of the state. The primary and secondary data collected include structure interviewer questionnaires, observation and personal interview of the farmers/traders in the study area, Central bank of Nigeria (CBN) publications, internet materials and journals. The data was analyzed using simple percentage and Chi square. The result shows that, there is a positive correlation between yam cultivation and economic development of Taraba State. It therefore suggests that the government should take proactive measures to enhance crop productivity through the timely provision of agricultural inputs/equipment and the construction and maintenance of rural infrastructures.

KEYWORDS: *Nigeria ,Yam, Economic Development. Crop Production. Agricultural Inputs. Economy. Taraba state. Government*

INTRODUCTION

Since Nigeria became independent, most government policies have been directed towards accelerating economic development with the ultimate aim of transforming the economy into an industrialized one, as well as enhancing the welfare of the population. The foregoing has been the underpinning factor propelling most government policies. One of the sectors expected to act as a catalyst towards the realization of this goal is Agriculture. The traditional role of agriculture in economic development provides the foundation for this position. The role includes product contribution, market contribution, factor contribution, (Johnston and Mellor, 1961). No doubt it has continued to play a very important role in the economic development of the country. Notwithstanding, the enviable position of the oil sector in the Nigeria economy over the past three decades, the agricultural sector has remained the largest and arguably the most important sector of the economy. Agriculture's contribution to the Gross Domestic Product (GDP) has remained stable at between 30 and 42 percents, and employs 65 percent of the labor force in Nigeria (Aigbokhan, 2001). It is estimated to be the largest contributor to the non-oil foreign exchange earnings. This means that agriculture holds abundant potentials for exchange and sustaining the country's foreign exchange. Most of the employment generated by the agricultural activities is in the rural area. Anyanwu *et al,* (1997) posited that more than 80 percent of the rural population in Nigeria engaged in one type of agricultural activity or the other. Apart from those engaged in subsistence farming, the bulk of the agricultural export crop (cocoa, palm kernel, Rubber, cotton, groundnut, palm oil etc) producers are smallholder farmers. Agriculture is still the most important sector of

the economy in terms of large number of people who earn a living from it, and also due to the fact that it is the main source of food production and raw materials for manufacturing. Lipton (2005) argued that agricultural growth should reduce poverty through farming; agricultural growth results in increased demand for unskilled labor, thus creating jobs and tending to raise the rural wage; generate return to land, an asset that some of the poor have when they have few other assets than their labor power; and tends to push down the price of produce, including food, to the immense benefit of the majority of the poor who have to buy in food staples.

Wiggins (2006) submitted that historical record has shown that no country (city states such as Hong Kong and Singapore exempted) has ever seen rapid economic growth without substantial growth of its agricultural sector. In many cases, the increase in the agricultural output has preceded the major expansions of manufacturing. This would be the case for the UK in the 17^{th} and 18^{th} centuries, as well as many of the recent East Asian growth stars, such as china, South Korea, Indonesia, and Taiwan. Evidence has shown that agricultural growth has benefitted millions through higher incomes more plentiful and cheaper food, and by generating pattern of development that are development-intensive and benefit both rural and urban areas. Increase in agricultural output brought about by increasing land and labor productivity have made food cheaper benefitting both the rural and urban poor who spend much of their incomes on food. griculture is central to economic development of many developing nations including Nigeria. Agriculture has lost its glory due mainly to the discovery of oil in commercial quantities and subsequent utter neglect by successive military and civilian regimes with negative consequences on household food security, decline in GDP and foreign exchange earnings and economic doldrums etc. to correct the ills of the past successive government before now initiated a number of programs aimed at improving food production and restoring the lost glory of agriculture.

Having considered agriculture as a major catalyst for economic development of any nation or state, the question that quickly comes to mind is why is it that some states like Taraba state that has high agricultural potentials are still backward in terms of development? One of the most important assets of Taraba state is the abundant arable land suitable for cultivation of a variety of both food and cash crops. In fact, it is estimated that more than forty percent of the total area of Taraba state is arable, yet not more than forty percent of this land is presently cultivated. Agriculture is, so far, the greatest employer of labor in Taraba state with about eighty percent of the labor force believed to be engaged in farming. This is made possible by the availability of richly fertile farmlands and favorable climatic conditions. Crops cultivated in the state include some oil palm, coffee, tea cocoanut, citrus fruit, cotton, groundnut, beans, guinea corn, millet, sweet potatoes, and Bambara nut. Crops such as maize, rice, sorghum, millet, cassava and yam are produced in commercial quantities.

In Wukari local government area, Taraba state, yam is one of the major crops produced in commercial quantities *www.onlinenigeria.com/links/taraba state.*
The following questions have been drawn to help in examining the contribution of crop production to the economic development of Taraba state.

- How has crop production contributed to the economic development of the state?
- Is the level of crop production in the state optimum?
- What has the state government done to boost the level of crop production in the state?
- What are the methods of crop production in the state?
- What is the level of access to farm inputs and credit facilities in the state by farmers?
- What are the methods of crop preservation in the state?
- What can be done to improve the level of crop production in the state?

The followings are the null (H_o) hypotheses of the study;

H_{O1}: There is no significant relationship between yam cultivation and economic development of Taraba state.

H_{O2}: Yam cultivation has no statistical significance on the level/rate of unemployment in Taraba state

The primary objective of this study is to examine the contribution of crop production to the economic development of Taraba state, in terms of employment generation, incomes generation, food security etc. Following the introductory section is, the Literature Review in section two. This section provides a review of relevant literature on the agricultural sector in Nigeria. Section three focuses on yam cultivation in Nigeria with particular emphasis on Wukari local government of Taraba State. Section four consists of data presentation and analysis. This will determine whether to accept or reject the hypotheses of the study. While section five, contains the concluding remarks.

Review of Literature

The Agricultural sector has always been an important component of Nigerian economy with over 70% of the population engage in agriculture and agricultural related activities. The sector is almost entirely dominated by small scale resource poor farmers living in rural areas, with farm holdings of 1-2 hectares, which are usually scattered over a wide area. The farms dominated by these small scale farmers are responsible for about 95% of the total production. In addition, small scale agriculture has in the time past suffered from limited access to credit facilities, modern technology farm input and inefficient use of resources (Izekor & Olomese, 2010). Agriculture has played and will continue to play a key role in the Nigerian economy. The sector holds the key to rapid economic transformation, poverty alleviation, stable democracy and good governance. There is no national security without food security. Though Nigeria is still a net importer of food, she provides nearly all the staple food consumed by the Nigerian population and exports substantial quantities of food especially to the Economic Community of West Africa States (ECOWAS) sub-region. The sector recorded a growth rate of 5.4 in 2002 when the estimated growth rate of agriculture GDP in 2003 is 7% (CBN annual report 2001/2003). The output of some major crops namely; sorghum, rice, yam, cassava has increased in year 2002. This improved performance was attributed to the renew support by federal government to the agricultural sector which is reflected in the approval of new agricultural policy in 2002.

Crop Production in Nigeria

The geography of Nigerian development shows that the country has enormous natural and human resources for the attainment of food security. The land area of the country is about 923,770km square, while the population is over 140 million (FRN, 2008). The dependent population consists of 41.5 percent, with the age bracket of 0-16 years and 70 years and above indicating that the burden of providing for the entire population is borne by about 60% of the country's population. In Nigeria, the production of food is largely rural based and so it is a function of environmental factors. Food production in the country is also an agricultural issue in terms of development policies.The major food crops produced in the country can be broadly divided into the following ecological belt; the mangrove swamp, the tropical rain forest, the forest savannah, the guinea savannah and the Sudan Savannah regions (Adamu, 2004) With the distribution of rain fall from the Sahel to the swamp of about 500mm to over 1750mm a year Nigeria can grow most tropical crops. For instance the south western zone grows yam, rice, cassava, banana, plantain, coconut, and Palm oil, maize, cocoa, vegetable, oranges, pineapple and cow pea. The south eastern and South-south zones grow maize, cassava, yam, rice cocoa yam, oil palm, vegetables and oranges. They particularly dominate in the production of cassava, cocoyam and oil palm. The northern states produced millet, guinea corn, ground nut, maize, rice, wheat, cassava, yam, cow pea, benniseed and soya beans mainly in Benue state and acha mainly grown in Plateau state. More recent studies by the National Cereal Research Institute (NCRI) and International Institute of Tropical Agriculture (IITA) shows that maize can grow better in areas with rainfall of 100 days of humid season with more than 10.16mm per month. Thus the northern states which traditionally do not grow maize in large quantities as staple food are potential areas for future maize production. In fact, more than 50.9% was grown in the northern states in 1991 and 1992 respectively (FAO, 1997).

Present State of Agriculture and Challenges

Over the years, the various government of the country has enunciated and implemented a myriad of agricultural policies and programmes in the attempt to stimulate the sustainable growth and development of agricultural sector. Till date, the achievement of these remains a subject of discussion both at the public and private fora. Nigeria's agricultural sector is still characterized by low yields, attributed to the use of crude implements, a low level of inputs and limited areas under cultivation among others. This situation raises many issues with regards to the ability of the sector to perform its assigned role, especially against the backdrop of an average annual population growth rate of 2.8%, and an average annual growth in agricultural production of 2.96% in the 1990s. The process of transformation from a predominantly subsistence agriculture to a highly mechanized farming to enhance agricultural production as well as ensure its sustainability, has been undermined by the disincentive induced by the macro-economic environment.

Outstanding Problems of Nigeria Agriculture

Some of the major constraints to the realizing of Nigeria's agriculture include the following;

Technologies of production

Generally, appropriate technologies induce increases in the production of food staples by shifting outwards the production function, reducing costs and increasing returns to producers while consumers ultimately benefit through lower and staple food prices. However, most of the relevant technologies in agricultural production have not yet become a significant factor in this sector. Technological innovation in Nigeria is still rudimentary and characterized by low agricultural production. Processing technologies, which have to do with on farm storage, pest control and reduction of post harvest losses, are also rudimentary in Nigeria. The result is that agricultural produce which cannot be stored are often wasted or sold cheaply. It is estimated that over 30% of harvest is lost due to inadequate of processing technologies. These deficiency manifest in the form of a lopsided availability of agricultural output, especially staples, throughout the calendar year. During the harvest months, there is usually abundant supply often resulting in considerable wastage while non harvest period is characterized by scarcity and high prices. If most of the agricultural harvest could be adequately processed and stored, this seasonal variation in supply and prices of agricultural products would be significantly minimized.

Inadequacies in the supply and use of farm inputs

Inadequacies of critical farm inputs for increased agricultural production such as fertilizers, seed, agro-chemicals etc, at the appropriate time and also the right prices has remained a source of worry and frustration to farmers and policy makers. Government's efforts at developing efficient and effective input procurement and distributive systems that would ensure timely delivery of adequate quantity and quality of farm inputs to farmers have only been partially successful. In spite of the huge sums of money spent on the procurement and subsidies on farm inputs, the problems of availability, accessibility and sustainability still remain. Efforts to modernize the sector through adoption of improved technological packages have been compromised by the deficiency in the supply and distribution of complementary farm inputs.The persistence of input supply problem has been associated largely with the issue of subsidy and its administration, as illustrated by the bottlenecks in the procurement and distribution of fertilizer by the government over the years. The regulation of price of a commodity whose supply could not match demand at the stipulated prices encouraged rent seeking behavior, with the subsidy going to unintended beneficiaries corrupt officials, fertilizer contractors, haulers etc to the detriment of farmers.

The infrastructural constraint

Basic rural infrastructure, such as transportation, electricity, all season motor able roads, water marketing and irrigation facilities are needed to support agriculture. The provision of most of them is, however capital intensive. It has been observed that capital expenditure on agriculture as a ratio of total government budget has been low. The ratio which was consistently below 6.0% for most of the 1990's was grossly below the Food and Agricultural Organization recommended level of 25% of the annual budget for developing countries. Consequently, the resources regularly allocated to the agricultural sector have been inadequate not to meet the developmental requirements of the sector or make inadequate provisions for infrastructure support facilities. These and other daunting

challenges have continued to ensure low agricultural output, fluctuation in prices of commodities and enormous wastage especially during the harvest month (FAO, 1999).

Environmental Constraint

The basic natural resources of soil, climate, and vegetation provide the environment need for agricultural development. The soils are relatively poor and fragile in some parts of the country. In addition, poor husbandry practices extensive and intensive rainfall and other unfavorable climatic condition combine to reduce the quality of otherwise productive soil. Owing to poor vegetation cover, parts of the savannah region of Nigeria is susceptible to desertification, while humid and warm tropical rain forest conditions encourages prevalence of crop, pest and diseases. The cultural practice of bush burning and overgrazing may contribute to soil degradation, if not properly managed. The frequently reported cases of oil spillage in Niger-Delta area also affect the aquatic environment. Furthermore, gas flaring has had a negative impact on soil temperature, thereby reducing the vital bio-activities necessary for soil fertilities.

The Management Constraint

The agricultural sector like other sectors of the national economy has had it fair share of poor resources management. Insufficient and inefficient human resources have continued to frustrate the attainment of sustainable agricultural development and demands urgent and serious attention. The challenges manifest itself in various forms, such as an ineffective budgeting and control mechanism and the inefficient execution of agricultural projects. The opportunities for high rate of capital formation and technological advancement in the sector will continue to be a mirage until the management constraint is tackled, head on.

Credit Constraint

The lack of adequate provision for agricultural credit from the banking system constitute to the constraint to sustainable agricultural development in Nigeria. Credit from the banking system is regarded as a major factor in agricultural development since it is cheaper than borrowing from the informal sector. It also facilitates the adoption of new techniques and the acquisition of improved seeds, fertilizers, herbicides, pesticides etc. The problem of credit availability has to do with general reluctance of financial institutions to provide as much financial assistance as farmers would require and in time to meet their activity schedules, the reluctance has often been attributed to a number of factors including the inherent risk in agricultural activities, the difficulty of projecting returns on investment and the inability of many farmers to provide the required collateral to the banks.

The Land Use Constraint

The value of output must exceed the value of inputs in sustainable land use system in which there is a symbiotic relationship between the socio-economic biophysical environments. Despite Nigeria's large expanse of land and a long standing land use decree Nigeria farming cannot sustain the growing population because of its concentration in small holdings which are not economically viable.

Labour Constraint

Labour constraints have persistently hindered agricultural production. A significant proportion of the required agricultural labour has become increasingly difficult to mobilize; particularly at periods of peak demand labour shortage has been aggravated by a substantial reduction in the supply of family labour through persistent drift of rural labour to the urban areas in search of higher wages. In order to cope with the high cost of labour, farmers are compelled to reduce farming holdings to manageable sizes, thus curtailing potential contribution of this factor to agricultural production.

THE CONCEPT OF ECONOMIC DEVELOPMENT

Development means improvement or to become more advanced, more mature, more complete, more organized, more transformed etc. Rodney (1972) sees it as a many sided process but defines it in relation to the individual. As he explains, "at the level of the individual it implies increased skills and capacity, greater freedom, creativity, self discipline, responsibility and material well being". Todaro also sees development as a multidimensional process but gives a definition that is often considered as the other extreme of emphasis from that of Rodney. He describes development as a multi-dimensional process involving the reorganization and reorientation of the entire economic and social system. This involves in addition to improvement of income and output, radical changes in institutional, social, and administration structures as well as in popular attitudes, customs and belief (Todaro, 1982). Todaro's definition gives the meaning, which the concept of development assumes whenever it is discussed in relation to countries. Development at this level of conceptualization is often understood in terms of economic development. This does not only signify economic development, but as Todaro notes above, it equally implies improving the social, administrative, political as well as the people's cultural attitudes and beliefs that are anti- progressive.

Yam Production in Nigeria

Root and tubers crops comprise crop covering several genera. They are stable food crops, being the source of source of daily carbohydrate intake for the large populace of the world. The term refers to any growing plant which store edible materials in subterranean root, corm or tuber (Oke, 1990).yam is a member of this important class of food. Yam a tropical crop in the genus *Dioscorea has* as many as 600 species out of which six are economically important staple species. These are:*Dioscorea rotundata(*white guinea yam),*Dioscorea alata(*yellow yam),*Dioscorea bulbifera(*aerial yam),*Dioscorea esculent(*Chinese yam),and *Dioscorea dumetorum(*trifoliate yam).These are perennial herbaceous vines cultivated for the consumption of their starchy tubers in Africa, Asia, Latin America and Oceania(.www.wikipedia,2010).Yam is an important food crop especially in the yam zones of West Africa, comprising Cameroun, Nigeria, Benin, Togo, Ghana and Cote d'Ivoire. This zone produces more than 96% of the total world production which is estimated at about 20-25 million tons per year. Nigeria is the main producer of yam in the world with about 67.7% of the world output followed by ,Cote d'Ivoire, Ghana, Benin and Togo(FAO,2010)Available data also shows that yam is one of Nigeria's leading root crop.

Table 3. 1. Summary of yam production data of the World, 2008

Location	Cultivated area('000ha)	Yield(t/ha)	Production('000 t)	Percentage of World
World	4,928	10.5	51,778	100.0
Africa	4,718	10.6	49,833	96.3
West Africa	4,443	10.8	48,101	93.0
Nigeria	3,045	11.5	35,017	67.7
Cote d'Ivoire	820	8.5	6,933	13.4
Ghana	299	11.9	3,550	6.9
Benin	205	8.8	1,803	3.5
Togo	63	10.2	638	1.2

Source: FAO, 2010.

As a food crop, the place of yam in the diet of the people of Nigeria cannot be overemphasized. It contributes more than 200 dietary calories per capital daily for more than 150 million people in West Africa while serving as an important source of income to the people. Yam has some inherent characteristics, which make it attractive, first, it is rich in carbohydrate especially starch consequently has a multiplicity of end use. Secondly, it is available all year round making it preferable to other seasonal crops (Izekor & Olomese, 2010).According to Oyenuga(1968),yam contains a higher value in protein(2.4%)and substantial amount of vitamins(Thiamine, Riboflavin and Ascorbic acid)and some other minerals like calcium, phosphorus and iron than any other common tuber crop. It is also comparable to any starchy root crop in energy and the fleshy tuber is one of the main sources of carbohydrate in the diet of many Nigerians. CGIAR (1996), also reported that yam tends to be higher in protein and minerals like phosphorus and potassium than sweet potatoes though the latter is richer in Vitamin A and C. Yam is a preferred food and a food security crop in some sub-Saharan African countries.Yam could be eaten as boiled yam or fried in oil.it can also be processed into yam flour or pounded yam. Moreover, yam is also a source of industrial starch, the quality of which varies with the species. Apart from this, yam also plays vital roles in traditional culture, rituals and religion as well as local commerce of the African people.(Coursey,1967).Yam is reported to be part of the religious heritage of several Nigerian tribe and up to date often play a key role in religious ceremony. Worthy of note is the fact that many important cultural values are attached to yam, especially during wedding and other social ceremonies. In many farm communities in Nigeria and other West African countries, the size of the yam farm that one has is a reflection of one's social stature. Due to the importance attached to yam many communities celebrate the new yam festival annually.Yam production in Nigeria has more than tripled over the past 40 years from 6.7 million tones per annum in 1961 to 27 million tones per annum in 2001(FAO,1999).This increase is however attributed to larger hectares of land planted to yam than to increased productivity. This decline in average yield per hectare in Nigeria has been rather drastic dropping from 14.9% in 1986-1990 to -2.5% in 1999(CBN, 2002).

Historical background of Taraba State

Taraba state was created out of the former Gongola state on the 27th august 1991, by the military government of General Ibrahim Babangida. It is bounded in the west by Plateau and Benue states and on the East by the Cameroon. Taraba state has sixteen local government areas which are governed by elected chairmen. Taraba state lies largely

within the middle of Nigeria and consists of undulating landscape dotted with a few mountainous features. They include the scenic and prominent Mambilla plateau. The state lies largely within the tropical zone and has a vegetation of low forest in the southern part and grassland in the northern part. The mambilla plateau with an altitude of 1800 meters (1600 ft) above sea level has a temperate climate all year round.

Taraba State Agriculture

Taraba state with its great natural environment is one of the favoured states in Nigeria in terms of agricultural production. It has a total landmass of six (6) million hectares, four (4) million of which are arable which enables the state to have enormous potentials for large scale agricultural investment. The land is fertile and the climate quite diverse to support tropical and some temperate crops and animals. Crops that can be commercially produced in the state include maize, sorghum, rice, millet, tubers such as yam, roots such as cassava, sweet and Irish potatoes, plantation crops such as citrus, mangoes, cashew, guava, banana, pine apples, and oil palm do very well in the northern part of the state. While in the mambilla plateau area, tea coffee, cola nut produced very well. Taraba state is also noted for the production of other cash crops such as gum Arabic and sesame.

Taraba state also has the potential for livestock production. Current statistics shows that Taraba state has the highest concentration of livestock in Nigeria, producing both local exotic breed of livestock mainly on the mambilla plateau. There are about 3.5 million heads of cattle, 2 million sheep and goat, 12 million poultry and 0.8 million pigs. *www.onlinenigeria.com/links/tarabastate.*

Challenges of Taraba State Agriculture

Despite the huge potentials of Taraba state in terms of Agriculture, it is important to note that, the agricultural sector is not without challenges. Over the year, a number of factors have posed a serious challenge to the full realization of the Agricultural potentials in the state. These include;

1. Poor financing: agricultural activities in the state most often suffer from poor financing. There is problem of accessing loans from the financial institutions and where they are available the interest charged on them is usually very high such that there is less or no profit from the agricultural investment at the end of the day.
2. Inefficient input supply and distribution: another challenge of the Taraba state agriculture is inefficiency in the supply and distribution of the vital farm inputs such as fertilizers, pesticides/herbicides etc. sometimes these inputs are not available at all and where they are available, they usually get to the farmers very late and they are sold to them at a very price.
3. Problem of land acquisition for commercial agriculture, particularly securing title to land is usually very difficult and cost intensive.
4. Poor infrastructural facilities such as all season motor able roads for transporting farm inputs to the farmers especially in villages and evacuation of their farm output to the market. The poor road network in the state is a serious setback on the full realization of agricultural potential in the in the state.
5. Poor product quality due to lack of or poorly developed processing firm. Due to this factor most farm produce are sold with minimal or no processing at all which reduces the market value of these products.

the problem of preservation. Most times crops that are not immediately sold or consumed usually get spoilt before they reach market because of poor preservation. *www.onlinenigeria.com/links/tarabastate*.

Study Area

Wukari local government is one of the 15 local government areas in Taraba state with its headquarters in Wukari. Wukari local government area has 15 districts under it. According to the 2006 national population census figures, it has a population of 241,546 people, and it occupies a landmass of 6500 square kilometers which is politically divided into ward areas. Wukari local government is a tropical region climate with two seasons; the rainy season which lasts from April to October and the dry season which starts from November and ends in March. The temperature in the area usually fluctuates between 23^{oc} and 31^{oc}.Given the favorable climate and fertile lands in Wukari local government area, varieties of crop are produced in the area including Yam which makes it most suitable for this research work.

Agricultural Prospects of Wukari Local Government Area

In Wukari local government area of Taraba State, more than three quarter of the population are farmers. Others are civil servants and petty traders. The agricultural production of Wukari local government is of commercial significance. Some of the important agricultural produce includes yam, cassava, maize, guinea corn, millet, ground nut etc. Of all these agricultural produce, yam is the most conspicuous. Of the several edible yams known, the most popular and preferred cultivar in Wukari local government in particular and Nigeria in general is the white guinea yam (*Dioscorea rotundata*). Yam the traditional staple food in Wukari is extensively cultivated within the community.

Yam Cultivation in Wukari Local Government Area

Yams are twinning vines which form stem tubers annually. The vine however, withers at the end of the rain. The yams, grown and eaten in many parts of Nigeria including Wukari local government area, Taraba State belong is the white yam or white guinea yam(*Discorea rotundata)*and water yam or yellow yam(*Discorea alata).* Yam is grown on free draining, sandy and fertile soil, after clearing the first fallow. Land is prepared in the form of heap of 1 metre (3ft 3 in) height. Planting is done by seed yam or cut setts from ware tubers. A day before planting, the tubers have to be subjected to treatment with wood ash or a fungicide (thiabendazole) to prevent damage to the soils. The setts are planted at an interval of 15-20 centimetre (5.9-7.9 in) with the cut face facing up. Mulching is essential during October-November with dry grass or plant debris weighted down with balls of mud. Dosage of fertilizer application, as essential, is decided after chemical analysis of the soil samples. Manual weeding by hoeing is done three or four times depending on the rate of weed growth. Two stakes, each of 2 metres (6 ft 7 in)height are used for stalking the plants to vine over it; one for two plants with the other used for bracing with the adjacent stakes. Sorghum stovers are also used for this purpose. Pest and disease control is addressed by cultural control and chemical methods; the pests which affect the plant are nematodes such as root knot *Meloidogyne spp.* and yam nematode (*Scutellonema bradys),* and insects such as yam shoot beetle and crickets.

ing 2-3 metres (6 ft. 7
free border around the field is to be ensured. Disease resistant (cultivars) are normally recommended for use. Harvesting is done before the vines become dry and soil becomes dry and hard. Generally, a yield of 10-15 tonnes per hectare, for white yam and 16-25 tonnes for water yam are obtained by following prescribed management practices. The harvested yams are stored by tying them with ropes. They have a shelf life of about 5 months (www.wikipedia, 2010).

Challenges of Yam Cultivation in Wukari Local Government

The greatest constraint to increase yam production in Nigeria in general and Wukari local government in particular are; scarcity and/or high cost of seed yams, high labour cost, lack of improved yam varieties, decreasing fallow periods caused by increased pressure on land due to increasing population and the inelasticity of uses of yams. Another important constraint to increase yam production is the dormancy factor in yams. Yams harvested in November must wait for 2-3 months before sprouting, thereby restricting yam production to only one rainy season. It was also noted that large quantity of yam produced in Wukari local government never reached the market due to factors convincingly attributed to spoilage. This is due to lack of appropriate technologies to preserve large quantity of yam produced. Research shows that high humidity levels encourages rot and fungi development and that rotting causes greatest amount of dry matter loss in stored yam due to fungal and bacteria effects. In view of this, wounding of tubers at harvesting and handling must be avoided.

Research Design

This study was designed to investigate the relationship that exist between yam production and the economic development of Taraba State, using Wukari local government as a representative of all the other yam producing areas of the state and to examine the contribution of yam cultivation to the overall development of the state economy in terms of employment generation, access to health care facilities, access to quality education, access to potable drinking water , contribution to the individuals income and to the state government revenue, access to food etc.

Population of the study

The population in consideration for this study was the entire population of yam farmers in Wukari local government. Questionnaires were administered to yam farmers/traders at the Yam Market, Wukari Main Market (yam section) and certain motor parks where yams are sold.

Sample Size

One hundred (100) questionnaires were administered to yam producers/traders from within Wukari local government area (yam selling zones/ markets) to test whether yam cultivation in Wukari local government has any significant impact on the economic development of Taraba state. Only eighty five (85) questionnaires were retrieved from the respondents.

Sampling Techniques

each of the samples collected was used for the analysis. Each respondent was sampled by chance (randomly), such that the selection was not based on the researcher's interest. Thus, the data mainly from primary sources were collected on such measurable variables as age, sex, level of education, and information relating to the system of yam cultivation, the benefits of yam cultivation, the challenges of yam cultivation in Wukari local government area etc.

Method of Analysis

Descriptive statistics and quantitative methods were used to analyze the data collected. The descriptive statistics were frequency distribution and tables, while the quantitative method employed simple percentage and Chi Square (χ^2) to analyze the data collected. The chi square was used to test for the hypothesis whether there is significant relation between crop production and economic development of Taraba state. Simple percentage was used to ascertain the degree of impact of yam production on the level of economic development of Taraba State and to verify if yam cultivation creates employment opportunity or not.

Data Presentation and Analysis

This section is basically concerned with the presentation and analysis of all data gathered from the primary source to reach an empirical conclusion on whether yam cultivation in Wukari local government area have any significant impact on the economic development of Taraba State .One hundred (100) questionnaires were administered to yam farmers/traders in Wukari Local Government and only eighty five (85) questionnaires were retrieved. Therefore the analysis will make use of 85 sample size.

Table 4.1 Characteristics of Respondents of Yam Cultivation to Certain Variables

Characteristic	Frequency	Percentage
Table4.1.1.Location of the Respondents		
Wukari L.G. Yam Market	40	47
Wukari Main Market (yam section).	25	29
Jos Motor Park.	1	1
Takum junction.	4	5
Jukun Market.	15	18
Total	85	100

Table 4.1.2. Sex Distribution of Respondents		
Male	60	71
Female	25	29
Total	85	100

Table 4.1.3. Age Distribution of the Respondents		
Less than 20 years	4	3
20-35 years.	25	19
36-45 years.	21	30
46-60 years.	35	48
61 years and above.	0	0
Total.	85	100

Table 4.1.4. Education Status of the Respondents.		
No formal education	10	12
Primary education.	25	29
Secondary education.	35	41
Tertiary education.	15	18
Total	85	100

Table 4.1.5: Distribution of Full Time Farmers		
Yes	70	82
No	15	18
Total	85	100

Table 4.1.6: Distribution based on cropping system.

Sole cropping	35	41
Mixed cropping	50	59
Total	85	100

Table 4.1.7: Distribution of farmers based on farming system

Mechanised farming	25	29
Traditional Farming.	60	71
Total	85	100

Table 4.1.8: Distribution based on access to farm inputs(fertilizer, pesticides, herbicides)

Yes.	70	82
No.	15	18
Total.	85	100

Table 4.1.9: Distribution of respondents based on fertilizer sources.

Government source.	35	41
Black market.	50	59
None available.	0	0
Total.	85	100

Table 4.1.10: Distribution of Respondents based on contribution of yam cultivation to standard of living

Yes.	82	96
No	3	4
Total	85	100

Table 4.1.11: Distribution of Respondents based on affordance of better housing with income from yam sales.

Yes.	71	84
No	14	16
Total	85	100

Table 4.1.12: Distribution of Respondents based on improved access to quality water with income from yam sales.

Yes	55	65
No	35	35
Total	85	100

Table 4.1.13: Distribution of Respondents based on the level of contribution of yam cultivation to the payment of children/wards school fees

Yes.	77	91
No.	8	9
Total	85	100

Table 4.1.14: Distribution of Respondents based on access to health care facilities due to involvement in yam cultivation.

Yes.	55	65
No	30	35
Total	85	100

Table 4.1.15: Distribution of farmers based on the ability to meet their family food needs.

Yes.	85	100
No.	0	0
Total.	85	100

Table 4.1.16: Distribution of respondents to whether gainfully employed or not.

Yes.	70	82
No.	15	18
Total	85	100

Table 4.1.17 Distribution of Respondents possibility of a change in occupation,.

Yes.	15	18
No.	70	82
Total	85	100

Table 4.1.18: Distribution of Respondents based on whether yam cultivation has contributed to economic development of Wukari Local Government Area.

Yes.	64	75
No	21	25
Total	85	100

Table 4.1.19: Distribution of farmers based on how yam cultivation has contributed to economic development of Wukari Local Government Area.

It has create employment opportunities.	75	88
It has increased access to quality water.	25	29
It has increased the income of the people and government.	55	65
It has increased access to health care facilities.	55	65 94
It has helped in meeting the food needs of the people.	80	75
It has increased access to quality education.	64	80

Table 4.1.20: Distribution of farmers based on level of access to credit facilities in Taraba State.

Low.	68	12
High.	10	8
None	7	100
Total.	85	47

Table 4.1.21: Distribution of farmers based on whether yam cultivation in Wukari Local Government Area is optimum.

Yes.	40	53
No.	45	100
Total	85	86

Table 4.1.22: Distribution of farmers based on how to improve yam cultivation in Wukari Local Government Area .

Increase access to fertilizers and other farm inputs.	73	71
Increased access to credit facilities.	60	82
Increased in farm size.	70	6

Table 4.1.23: Distribution of respondents based on methods of yam preservation

Barns.	5	14
Platform.	12	9
Underground storage.	8	71
Ventilated Houses.	60	0
Government Warehouse.	0	71

Table 4.1.24: Distribution of farmers based on constraints involved in yam cultivation.

Lack of access to credit facilities and other farm inputs.	60	
Lack of access to modern farm tools.	20	24
High cost of farm inputs.	75	88
Problems of transportation.	80	94
Problem of preservation.	85	100
Low prices.	85	100

Source: Field survey, 2011

TEST OF ANALYSIS

Table 4.1.11, 4.1.12 and 4.1.15, are analyzed using Chi-square to test the validity/rejection of the null hypothesis(Ho) which states that:

H_{O1}: There is no significant relationship between yam cultivation and economic development of Taraba state.

Table 4.3.1

	Respondents		
Tables	Yes	No	Total
Table 4.1.11	71	14	85
Table 4.1.12	55	30	85
Table 4.1.15	85	0	85
Total	211	44	255

An analysis of the data shows that at 0.5 level and significance and 2 degree of freedom,, the value of chi square ($\chi 2$) calculated (37.13) is higher than the tabulated ($\chi 2$) value (5.99). Therefore, the null hypothesis (Ho) which states that "there is no significant relationship between yam cultivation and economic development of Taraba State is rejected and the alternative hypothesis (H1) which states that "there is significant relationship between yam cultivation and economic development of Taraba State is accepted. Accepting the alternative hypothesis means that yam cultivation in Wukari local government has impacted positively on the economic development of Taraba state.

Hypothesis II

Tables 4.1.16, 4.1.17 and 4.1.18 are analyzed using Chi-square to test the validity/rejection of the second null hypothesis ($H_{o2)}$ which states that:

H_{O2}: Yam cultivation has no statistical significance on the level/rate of unemployment in Taraba state

Table 4.3.2

Tables	Yes	No	Total
Table 4.1.16	70	15	85
Table 4.1.17	15	70	85
Table 4.1.18	64	21	85
Total	149	106	255

The test for the second hypothesis shows that the value of the chi-square ($\chi 2$) tabulated (3.84) at two degree of freedom (i.e. .d.f =2) and 0.05 significance level is lower than the value of the chi-square ($\chi 2$) calculated (88.13). Therefore, the null hypothesis (Ho) which states that: yam cultivation has no statistical significance on the level/rate of unemployment in Taraba state, is rejected and the alternative hypothesis (H_2) which states that: yam cultivation has a statistical significance on the level/rate of unemployment in Taraba state.is accepted. This implies that yam cultivation in Wukari local government area has impacted positively in reducing the level/rate of unemployment in Taraba state.

DISCUSSION OF RESEARCH FINDING

The study revealed that there is significance relationship between yam cultivation in Wukari local government area and, economic development of Taraba state. This implies that yam cultivation in Wukari local government area has contributed significantly to the economic development of Taraba state. It also revealed that yam cultivation in Wukari local government has significance relationship with the level/rate of unemployment in Taraba state.

Other findings include:

1. That crop production is a major source of employment for majority of people that are within the active labour age bracket from 20-60 years in Taraba state.
2. The study also shows that majority of the people that are engaged in crop production in Taraba state are educated only up to the primary and secondary school levels. This implies that crop production in Taraba state is left largely in the hands of uneducated and unskilled individuals for whom it serves as a major source of employment.

3. The study revealed that the level of mechanize farming in Taraba state is low (29% of the respondents) since majority of the people (71% of the respondents) still carry out their farming activities through crude methods.
4. Distribution of farm inputs such as fertilizers and pesticide/herbicides etc is still very inefficient since a large number of farmers (59% of the respondents) in the state still access these farm inputs through the "black market" operators at high prices. More so, it was discovered that access to credit facilities by farmers in the state is still very low (71% of the respondents).
5. It was also revealed from the study that the living standard of majority of the people involved in crop production in the state have been improved (96% of the respondents) via their involvement in crop production.

CONCLUSION

The broad objective of this study was to examine the impact of crop production on the economic development of Taraba state. Yam cultivation in Wukari local area was taken as a representation to act as proxy for the entire crop produce in the state, analysis was made based on data collected from respondents and the conclusion was applied to the whole crop situation in the state. The empirical facts of this study revealed that crop production in Taraba state has contributed immensely to the economic development of Taraba state. And it has also helped in solving the problem of unemployment in the state as a large percentage of the labor force (68% of the respondents) is currently engaged in food production.

From the study and the conclusion drawn above, the following recommendations will be found useful for increasing food production in Taraba state if well implemented:

i. Government should provide and ensure effective distribution of the major farm inputs such as fertilizers, pesticides/herbicides, improved seeds etc. This they can do by setting up a board with honest men and women of good reputation and integrity via the ministry of agriculture that will be responsible for the distribution of these vital farm inputs to the various local government and districts within the state and to ensure that these farm inputs gets to the farmers and early enough and at a very highly subsidizes rate.

ii. Since crop production is an important aspect of economic development in Taraba state, government should ensure an improved access to credit facility in the state. Government should ensure that a substantial part of the state government's budget is set aside to provide loans to the farmers at a minimal interest rate and without collateral security. Government should ensure effective monitoring to make sure that the loans are used for the purpose that they were given.

iii. The study has revealed that one of the major challenges of yam production in Taraba state is lack of/ ineffective means of preservation. Due to this factor, a lot of farmers sell their farm produce at harvest, resulting in over supply of these items; this in turn results in the fall of prices. When the harvesting season is over, these items become scarce in the market and the available are sold at very high prices. To curb this ugly situation, the following measures ought to the adopted:

- Government should construct warehouses at every strategic place in the state. These warehouses should be constructed with various compartments such that each compartment could be leased out to farmers at a reduced price. This will help the farmer to preserve their produce until they are ready to sell. If this measure is adopted by the government, it will help to solve the situation described above.
- The government should empower the state marketing board or set up a board through the ministry of agriculture that would go to the villages within the state at harvest to buy up these excess farm produce from the farmers and store them in the government warehouse. This process should continue until the excess are fully cleared up. The government will then push these items to the market when the demand for them is high. This will ensure the availability of food in the market at all times thereby restoring balances to the food situation in the state.

iv. Government should set up firms that could process and package some of these farm produce from its raw state. This will enhance the value and quality of these products to make them acceptable even in the international market. This could serve as a source of foreign exchange earnings for the state.

v. Government research efforts should be focused on developing fast-maturing and high yielding seeds that can resist drought and diseases, and will be acceptable by consumers and affordable by farmers.

vi. Government should focus its effort at transforming the system of farming in the state from crude method to mechanized system. This they can do by providing sufficient quantity of modern farm implements in the various local government areas of the state for hire at a subsidized rate and train men that can man them.

Government should be concern with the provision and maintenance of rural infrastructural facilities such as all seasons motorable roads, modern markets, water, electricity etc. this will equip the farmers for more productivity

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