



## Agriculture and Economic Development in Nigeria: The Strong Case for Production of Food Crops in Northern Nigeria

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### Abstract

*This paper reviewed agriculture as relating to economic development in Nigeria and made a case for food crops production in the northern region of the country. As clearly depicted, the northern Nigeria's agricultural sector has a high potential for growth, but this potential is not being realized. Major grain crops like maize, rice, sorghum, and cowpea, it was observed, shows that the northern region contributes 68%, 73.5%, 100%, and 69.6% respectively to the total national crop output; based upon the National Agricultural Extension and Research Liaison Services (NAERLS) and Federal Department of Agricultural Extension (FDAE), 2014 Agricultural Performance Survey. The consideration for major root tubers and vegetable crops show similar markers and the paper concludes that the north feeds Nigeria. The bane of agriculture in the region, however, premises upon that fact that most farmers produce mainly food crops using traditional extensive cultivation methods. Developing the northern Nigerian crop production sector is the development of Nigerian agricultural sector. Getting agriculture going in the region will require a coordinated strategy comprising policy reforms, institutional restructuring, and well-targeted strategic investments to upgrade degraded rural infrastructure, boost productivity, and stimulate increased competitiveness for economic relevance nationally and globally.*

**Keywords:** Agricultural development, Economic development, Food crops production, Northern Nigeria.

### Introduction

Agriculture has been historically recognized and acknowledged as the most legitimate and labour incentive source of generating incomes for sustainable livelihoods, food security, and self-sufficiency, since the dawn of human civilization. Abdullahi (2017), opined that this tradition has made agricultural pursuits and farming to stand out as the most popular and spiritually fulfilling vocation and ordained occupation of human choice and an economically rewarding investment platform in the world. In fact, Nigeria and Nigerians depended on agriculture and farming, as their favourite vocation of preference and relevance. That dominant status made it the nation's live wire, before the discovery of fossilized petroleum products. Agriculture in Nigeria, no doubt, is a significant sector in the economy of Nigeria, providing employment for 70% of the population.

Moreover, the sector has a traditional role to play in the path of economic development. The national strategic importance of agriculture is evident in its consideration as a key variable in matters relating to development, planning and policy framework as a common practice the world over. Nevertheless, in an economy like Nigeria, the agricultural sector had suffered set back in times past, which has attributed to widespread poverty and insecurity experienced today. Though no so-called developed nation today actualized this status solely by agricultural transformation, in many, if not all, conscious efforts on agriculture at the early stage of development played a critical role in economic development. Moreover, the rapid increase in agricultural output by increasing land and labour productivity will make food cheaper benefiting both the urban and rural poor people who spend much of their income on food. Agricultural development will bring about increased incomes of both farmers and even non-farmers because the proportion of people mainly dependent directly or indirectly on agriculture and agricultural products for their income remains extremely high (De Grandis and Pinshaw, 2010)

For instance, agriculture is the predominant activity in most of the zones in Nigeria, the percentage of persons working in agriculture ranges between 24.4% and 85.1% across zones

in Nigeria (Matthew and Adegboye, undated). With respect to states, the proportion of people engaged in agriculture ranges between 2.4% and 91.7%, with the majority of states having over 50% (Matthew and Adegboye, undated). These figures are equally replicated in other parts of the world as the proportion of people mainly dependent on agriculture for their livelihood remains high; ranging from 45% in East and South Asia to 53.2% in Asia and 63.5% in Sub-Saharan Africa (Ogen, 2007).

The northern part of Nigeria, which is mainly of Savannah ecology, has long been noted as a region where the people mostly are dependent on agriculture and stock raising for their livelihood. As a rough estimate, it was propounded that 3 out of 4 people in this zone are engaged in one form of agricultural activity or the other (FAO, 1974). Moreover, in the whole of West Africa, the Northern and Southern Guinea Savannahs, (Sub humid zone) and the Sudan Savannah, (higher rainfall part of the semi-arid zone) is said to have the highest potential for crop–livestock farming (Winrock, 1992). Gallup and Sachs (2000), however, estimated that wet tropical countries have 27% lower productivity, while dry tropics have 42% lower productivity than temperate regions. The northern part of Nigerian, of course, falls within the 42% lower productivity in comparison to the temperate region. Agricultural production techniques in the Savannah have largely remained rudimentary. The use of key inputs such as fertilizers, chemicals, and improved seeds, is low by all standards. The area yields of cereals generally, for example, remained virtually unchanged and past-production increases resulted mainly from an expansion of cultivated areas.

#### **Agriculture Sector and Economic Growth**

Several studies have focused on understanding the association between agriculture and economic growth, yet there is some disagreement. While some researchers have argued that agriculture should be the foundation of economic growth (Gollin *et al.*, 2002; Thirtle *et al.*, 2003), others claim that the linkages agriculture has with other sectors are too weak and its innovative structures inadequate for promoting economic growth (Ranis and Fei, 1961; Jorgenson, 1961). However, the relationship between the agriculture sector and other sectors should not be a competition but rather be viewed as interdependent where supply and demand in sectors can be accommodated through strengthened linkages (Adelman, 1984; Sabry, 2009). For instance, the industry is an important sector and every economy that strives for development should work toward strengthening its industries (Lewis, 1954). Nonetheless, the position of agriculture in the strive for industrialization should not be ignored as the case has been in Nigeria.

As argued by advocates of agriculture-led growth (ALG), development of the agriculture sector is a prerequisite for industrialization through increase in rural incomes and provision of industrial raw materials, provision of a domestic market for industry and above all the release of resources to support the industry (Schultz, 1964; Timmer, 2004). Neglect of the agriculture sector in favour of the industrial sector will only lead to slow economic growth and inequality in income distribution. Therefore, despite the fact that agriculture may be unable to singlehandedly transform an economy, it is a necessary and sufficient condition in kick-starting industrialization in the early stages of development (Byerlee *et al.*, 2005).

The contributions of agriculture to economic growth can be examined through the roles of the sector in the economy. Johnston and Mellor (1961) summarized these roles in five inter-sectoral linkages; food, labour, market, domestic savings, and foreign exchange. The most basic of these roles is, perhaps the supply of food for both domestic consumption and export. Direct contributions of food production can be through income generated from sales of farm produce and returns from economic activities related to production, or indirectly from increased capacity to partake in any form of economic activity through improved diet.

Furthermore, as population increases, failure to increase food supply in proportion to increased

demand has negative effects on industrial profits, investment and economic growth (Johnston and Mellor, 1961). Hazell and Roell (1983) assert that in the early stages of development, rising incomes of rural/farming households is essential to providing market for domestically produced goods and services via strengthened purchasing power. The most direct contribution of agriculture to economic growth, according to Irz *et al.* (2001), is increase in incomes of farmers and therefore their purchasing power. This sectoral growth increases the incomes and therefore purchasing power of farmers resulting in a vibrant domestic market for other sectors, hence growth in the economy.

#### **Northern Nigerian Rural Economy and Agricultural Growth Challenges**

For the foreseeable future, the welfare of northern rural populations in Nigeria will be tied to agriculture. This is because agriculture is the backbone of the rural economy of most of the people, as mentioned earlier; generating about 45% of gross domestic product (GDP) and providing by far the largest source of rural employment. Speaking generally, growth in Nigeria's agricultural sector, while better than the growth achieved in many other African countries, has fallen short of expectations. Value added per capita in agriculture has risen by less than 1 percent per year for the past 20 years, and food production gains have not kept pace with population growth, resulting in rising food imports and declining levels of national food self-sufficiency (Uthman, 2017).

Blessed with abundant land and water resources for irrigation farming, the northern Nigeria's agricultural sector has a high potential for growth, but this potential is not being realized. Productivity is low and basically stagnant or increase only marginally insignificant. Farming systems, which are mostly small in scale, are still predominantly subsistence-based and for the most part depend on the vagaries of the weather. The region's vast irrigation potential remains largely unexploited. Most farmers produce mainly food crops using traditional extensive cultivation methods, while commercial agriculture based on modern technologies and purchased inputs remains underdeveloped.

The capacity of the agricultural research system has eroded in recent years, as that of the extension service. Even when improved technologies are available, they often fail to reach farmers. Farmers' lack of technical knowledge is compounded by deficiencies in input distribution systems, which limit the timely availability of improved seed, fertilizer, crop chemicals, and machinery. Where inputs are available, farmers' ability to use them is often compromised by a lack of credit, because rural financial institutions are in general poorly developed. Farmers who produce surpluses frequently lack access to reliable markets, and the high cost of transporting produce to distant buying points over bad rural roads reduces their competitiveness.

#### **Northern Nigeria Crop Production**

Agricultural growth and development in northern Nigeria requires flexibility in both ecological management as well as economic activity. Crop production in this region has been the most important sector of its economy from history and the standpoint of rural employment, food production and fibre, and export earnings. The main crops grown in the region are sorghum, maize, millet, rice and cowpea, while groundnut and sesame are significant minor crops. Wild foods also serve as an important supplement to the diet, especially during times of food shortage. The bulk of crops are grown during the rainy season which begins in June or July when temperatures are warmer. We will consider few of these crops to understand the current status in relation to agricultural and economic prospect.

#### **Grain Food Crop Production in Northern Nigeria**

Maize (also known as 'corn' in some countries) is one of the most common and important food crops across Africa. It is widely eaten in various forms and more than 900 million Africans depend on maize every year because it is often cheaper than rice and wheat. In fact, many of our daily diets contain maize either directly or indirectly (Iwuoha, 2014). Production of meat,

eggs and dairy products (like milk and yoghurt) would be difficult without maize, which is a hugely important ingredient in animal feed. Although Africa produces over 50 million tons of maize every year, it still spends over \$2 billion to import maize from abroad (Iwuoha, 2014). As Africa’s population continues to grow, the demand and consumption of maize will increase rapidly over the coming years.

Presently, Nigeria produces about 11 million metric tons of maize of which the northern part of the country produces 7.5 million metric tons, a whopping 68% (Table 1) of total national output (NAERLS and FDAE, 2014). The area devoted to maize production alone in the year 2014 was 4,369.1 Ha. Productivity per hectare was however 1.7 metric ton, though the country’s yield per hectare averaged 1.9 metric ton (NAERLS and FDAE, 2014), indicating observed average productivity less the national average.

One of the major problems cited as constraining the production of maize in northern Nigeria is stagnant production technology among the farming communities, the majority of who are small-scale producers. Currently, the use of improved seed-fertilizer technology remains patchy in many communities growing maize, as does the use of more sophisticated, management-intensive technologies. It is to be noted that, in the Savannah region, the enormous potentials for maize production can be realized only with the use of high levels of fertilizer, improved seeds, hectarage expansion and adequate weed control.

Rice is an increasingly important crop in Nigeria. It is relatively easy to produce and is grown for sale and for home consumption. In some areas, there is a long tradition of rice cultivation, and with the increased availability of rice, it has become part of the everyday diet of many in Nigeria. Currently, Nigeria is the second biggest rice producers in Africa, after Egypt. Despite this fact, it’s also the largest rice importers in Africa. It has become an essential cash crop for small-scale producers in the country.

Currently, the northern part of the country alone contributes 73.5% of the total national output of 6.7 million metric tons (paddy) which meets just 49% of domestic demand (NAERLS and FDAE, 2014). The region can do more by increasing its rice productivity presently at 2.3 metric tons per hectare (NAERLS and FDAE, 2014) by adopting technologies for rice production through irrigation farming system and use of fertilizer, and therefore, reduce the Nigerian annual rice import bill of \$2billion. In other words, the \$2billion Nigeria spends annually to augment the demand-supply gap for rice consumption could be met locally, of which the northern Nigeria, having a comparative advantage over the other regions, would benefit substantially.

**Table 1: Distribution of Major Grain Crops Output (Production) by Zones in 1,000MT**

<b>Geographical Zone</b>	<b>Maize</b>	<b>%</b>	<b>Sorghum</b>	<b>%</b>	<b>Rice</b>	<b>%</b>	<b>Cowpea</b>	<b>%</b>
North-East Zone	2312.2	21.04	2356.5	33.95	861.2	12.79	469.3	22.42
North-West Zone	1978.5	18.00	3100.3	44.67	1381.5	20.52	497.6	23.77
North-Central Zone	3178.9	28.92	1484.3	21.38	2704.2	40.16	490.4	23.43
South-West Zone	1984.0	18.05	0.0	0.0	616.1	9.15	309.6	14.79
South-East Zone	611.8	5.57	0.0	0.0	603.4	8.96	233.1	11.14
South-South Zone	925.2	8.42	0.0	0.0	567.6	8.43	93.1	4.45
<b>Total Nat. Output</b>	<b>10990.6</b>	<b>100.0</b>	<b>6941.1</b>	<b>100.0</b>	<b>6734.0</b>	<b>100.0</b>	<b>2093.1</b>	<b>100.0</b>

### **Root Tubers Production in Northern Nigeria**

Nigeria is by far the world’s largest producer of yams, accounting for over 70–76% of the world production. According to the Food and Agriculture Organization report, for 2008 figures, yam production in Nigeria amounted to 35.02 million MT with value equivalent of US\$5.654 billion. By 2014, the production figures for yam had risen to 46.62 million MT (Table 2) but declined to 44.11 million MT in 2016 (Faostat.org, 2017), most probably because of the socio-political unrest in the country. From the zonal split figures presented by the

NAERLS annual survey presented in Table 2, it is to be noted that the northern part of the country alone produced 54.4% of the total national output. Studies (Ayanwuyi *et al.*, 2011; Kleih *et al.*, 2012), have however stressed that low soil fertility, lack of improved yam varieties, poor road networks, the high cost of labour and lack of finance to carry out necessary farming activities were the constraints to productivity.

Cassava, on the other hand is also a root tuber crop that is cultivated for food and has vast food derivatives and many uses. Some of its food values include tapioca, fufu, tuwo, bread; while the uses include, as sweetener (cassava fructose and glucose), as substitute for sucrose in jams and canned food, in confectionery as gums, as monosodium glutamates to enhance flavors in food, for example, Ajinomoto and Vedan etc., as glue in plywood industry, in wet stage of paper making as flocculate, as biodegradable polymer to replace plastics in packaging materials, in textile industry to soften, protect and make fabric durable, and shinning at finishing. Cassava contains about 1 to 2 percent crude protein, rich in vitamin C, some quantities of thiamine, riboflavin and nicotinic acid (Chidozie, 2011). Hay from cassava is rich in protein and condensed tannins, while its chip is the major source of ethanol production in China.

As at 2016, the faostat.org reported that the national output for Cassava was 57.13 million MT. The northern contribution to the national output in 2014 was 34.7%. With the increasing significance of Cassava in tropical agriculture being recognized in the area of its growth potentials, human and animal food, its enrichment and fortification, toxicity, industrial uses, economics of production and genetic improvement, the northern Nigeria ought to take the advantage of this, particularly because Cassava has been observed to do well in poor soil with low rainfall. It is a perennial crop with wide harvesting window which permits it to act as a farming reserve (Chidozie, 2011).

**Table 2: Distribution of Major Root Tubers Output (Production) by Zones in 1,000MT**

<b>Geographical Zone</b>	<b>Yam</b>	<b>%</b>	<b>Cassava*</b>	<b>%</b>	<b>Cocoyam</b>	<b>%</b>
North-East Zone	4440.7	9.52	79.7	0.15	73.2	2.43
North-West Zone	1928.4	4.14	2704.4	5.06	24.8	0.82
North-Central Zone	18982.8	40.72	15954.1	29.53	364.2	12.10
South-West Zone	6883.3	14.79	12329.6	22.82	1031.5	34.27
South-East Zone	6035.4	12.95	11350.3	21.01	805.5	26.76
South-South Zone	8351.3	17.91	11605.1	21.48	710.5	23.61
<b>Total National Output</b>	<b>46621.9</b>	<b>100.0</b>	<b>54023.2</b>	<b>100.0</b>	<b>3009.7</b>	<b>100.0</b>

### **Vegetable Crops Production in Northern Nigeria**

Fruits and vegetables are important components of a healthy diet. Besides their aesthetic value in food presentation, vegetables enhance the nutritional quality of diets because of their richness in vitamins and minerals such as carotene (provitamin A), ascorbic acid, riboflavin, iron, iodine, calcium etc. (Ihekoronye and Ngoddy, 1985; Shiundu, 2002). In addition to their high concentration of micronutrients, vegetables provide little dietary energy, making them valuable in energy-limited diets. The fibre content has been reported to have beneficial effects on blood cholesterol and aids in the prevention of large bowel diseases, while in diabetic subjects, they improve glucose tolerance (Burkitt, 1973; Jenkins 1978; Institute of Food Technology IFT, 1990). Reduced fruit and vegetable consumption is linked to poor health and increased risk of non-communicable diseases.

Three major vegetable crops presented in Table 3 are tomato, onion and okra. Tomato is cultivated in all the agro-ecological zones of the country but the northern part of the country clearly shows the lead, contribution 1.81 million MT of the 2.1 million MT of total national

output. This figure amount to about 84.3% of national output. Onion is entirely a northern cultivated vegetable crop with very little amounts in the south-west zone (0.13%). While Okra is grown in all agro-ecological zones of Nigeria with a total estimated national output of 2.04 million MT, of which the northern zones produce 27.4% only.

Fruits and vegetables have been noted to contribute to the income of both the rural and urban dwellers along its value chain. Horticultural crop production creates jobs. On average, it has been noted to provide twice the amount of employment per hectare of production compared to cereal crop production (Ali *et al.*, 2002). This benefits farmers and landless labourers in both rural and urban areas. Value addition to fruits and vegetables generates further employment in the associated agri-businesses and further down the commodity chain from the producer to the consumer. Fruits and vegetables are said to generate higher profits than staple crops, especially when land is relatively scarce and labour is abundant (Subramanian *et al.*, 2000; Gabre-Madhin and Haggblade, 2003; Cock and Voss, 2004; Minot and Ngigi, 2004). This is despite the fact that vegetable crops production, or better still, horticultural crops in Nigeria have been hampered by the policy and fiscal constraints of the governments. These crops have received very little attention in the national perspective plan for agricultural development so far (Oseni, 2004).

**Table 3: Distribution of Major Vegetable Crops (Production) by Zones in 1,000MT**

<b>Geographical Zone</b>	<b>Tomato*</b>	<b>%</b>	<b>Okra</b>	<b>%</b>	<b>Onion</b>	<b>%</b>
North-East Zone	893.1	41.68	117.0	5.74	384.1	38.99
North-West Zone	638.0	29.77	139.4	6.83	534.8	54.28
North-Central Zone	275.4	12.85	302.5	14.83	65.0	6.60
South-West Zone	197.9	9.23	151.9	7.45	1.3	0.13
South-East Zone	74.8	3.49	99.3	4.87	0.0	0.0
South-South Zone	63.8	2.98	1229.3	60.23	0.0	0.0
<b>Total National Output</b>	<b>2143.0</b>	<b>100.0</b>	<b>2039.4</b>	<b>100.0</b>	<b>985.2</b>	<b>100.0</b>

### Conclusion and Recommendations

The north feeds Nigeria. Developing the northern Nigerian crop production sector is the development of Nigerian agricultural sector and undoubtedly, the agricultural sector has a vital role to play in the path to the country's economic development. Getting agriculture going in the region will require a coordinated strategy comprising policy reforms, institutional restructuring and well-targeted strategic investments to upgrade degraded rural infrastructure, boost productivity, and stimulate increased competitiveness for economic relevance nationally and globally.

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