

Staple Crop Production and Consumption: Nigeria on the Way to Food Self-Sufficiency

NIGERIA IS ENDOWED with abundant natural resources and has substantial agricultural potential. While it ranks first among the leading agricultural producers in the region, it is also the largest importer of staple products in West Africa.

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► This article is based on a number of documents:

- *Nigeria's Cereal Economy*, B. G. Soulé, D. Balami, R. Blein, SOS Faim, ROPPA, November 2010;
- *Framework for involvement in rainfed food crop supply chains development in West and Central Africa*, AFD, CIRAD, IFAD, July 2010;
- *Agricultural potential of West Africa*, R. Blein, B. Soulé, B. Faivre-Dupaigre, B. Yerima, Farm, 2008.

► Statistical data on Nigerian agriculture are scarce and sometimes contradictory. For the most part, this article draws on FAO data. As is often the case for data on West African countries, the statistics presented here are not always reliable and should be viewed with precaution.

DESPITE THE preponderance of hydrocarbons, the agricultural sector continues to play a decisive role in Nigeria's economic development. Agriculture accounts for about 36.5% of the creation of gross domestic product in the country and employs nearly 45% of the country's workforce. With a population of 150 million, Nigeria is without contest the leading agricultural power and the largest market in West Africa. While the production of staple foods has risen sharply over the last twenty-five years, production cannot yet cover the rising demand for staples, particularly grains. This article examines staple food production and consumption in Nigeria. It discusses cash crops and livestock operations only in passing.

Considerable Agricultural Production Potential

A Wide Range of Ecosystems. Nigeria is distinguished by the diversity of its ecosystems, an advantage for growing a broad range of crops. The precipitation gradient across the country ranges from 500 mm in the Sahel zone in the North to nearly 3,000 mm in the South. The forests in the subtropical climate of the South produce primarily root crops and tubers (cassava, yams, taro, sweet potato), plantain bananas, rice, legumes and maize. The semi-humid Sudan-climate middle belt is characterised by a wide range of crops, reflecting the variety of climate and agro-pedological profiles. The main crops in this "agri-ecological mosaic" are yams, cassava, maize, rice, sorghum, millet, beans and legumes. Mechanised farming is on the rise in this area. The dry zone in the North is mostly devoted to grains: rainfed sorghum and millet, irrigated and/or rainfed rice, legumes, onions and groundnuts.

Abundant Land and Water Available. Nigeria has abundant natural resources that are not yet fully exploited, notably arable land and surface and subsurface water resources.

The country has over 70 million hectares of farmable land, i.e. 30% of arable lands in ECOWAS, an estimated 40% of which is farmed. Nigeria is said to contain 25% of all uncultivated arable land in ECOWAS. Despite the high level of urban development, the highest concentrations of available land are found in the coastal and Sudan-climate zones.

Nigeria also has a relatively high irrigation potential (2,330,000 ha), amounting to 26% of potentially irrigable land in the region. Currently about one million hectares are irrigated. The lowlands, called *fadama*, are also a resource with strong potential for agricultural development. These lowlands are estimated at between 5 and 8 million hectares in Nigeria, or half the potential resource in ECOWAS.

A Predominance of Smallholder Farms. The great majority—80% to 90%—of farms in Nigeria are small family farms (on average 1.2 ha) with little mechanical equipment and that rely mainly on the available labour force. They exist alongside large, better-equipped¹ agro-industrial farming operations the average size of which is around fifty hectares (with some attaining over 1,000 hectares). Nigeria's middle belt is full of these large farms that belong to businessmen or high-level civil servants. Many of them came into being at the time of the green revolution and numerous government schemes in the 1980s and 1990s. More recently, in 2006, large land concessions were granted in the states of Kwara and Nassawara to agricultural colonialists from Zimbabwe.

1. Nigeria alone has 70% of the tractors in ECOWAS countries (30,000 tractors in 2009).

Significant Staple Crop Production. Nigeria is by far the largest agricultural producer of staple crops in ECOWAS. Production there is thought to have grown by 30% to 40% between 2000 and 2009.² The most important crops for Nigeria are root crops and tubers on the one hand, and grains on the other.

Root Crops and Tubers. Root crops and tubers dominate agricultural production, accounting for eighty-nine million tonnes in 2008, i.e. 69% of the regional supply. These crops amount to more than two-thirds of staples grown in Nigeria. Production is estimated to have tripled in the last twenty years, first because of an increase in the amount of land devoted to these crops, and secondly thanks to improved yields. Nigeria's is the world's leading producer of cassava, yams and taro root, and the second largest producer of sweet potatoes. Domestic cassava production has increased greatly since the late 1990s, rising 44% in seven years to attain 44 million tonnes in 2008. This increase is primarily due to the extension of farmed land, as cassava yields have stagnated at a low level (12 t/h). Yam production stood at around 35 million tonnes in 2008.

Grains. Nigeria alone grows about 50%³ of the grain crops produced in West Africa. Production has doubled over the past twenty years. As is the case in nearly all West African countries, the rise in grain production is due more to the extension of cultivated land than to any significant improvement in yields.

Millet and sorghum (56% of total grain production by volume) yields

2. Production of staple foodstuffs in West Africa rose from 59 million tonnes in 1980 to 160 million tonnes in 2000 and to 212 million tonnes in 2006.
3. 69% of the West African millet crop, 53% of maize, and 48% of rice.



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have either stagnated (sorghum) or progressed at a very slow pace, putting the average yield for these two crops at 1-1.5 t/ha over the 2000-2006 period. Production increased by a factor of 3.8 (millet) and 3.4 (sorghum) between 1980 and 2008, and now stands at approximately 9 million tonnes for each of these two crops.

Rice and maize stand out, attaining yields of close to 2 t/ha. However, while maize yields have risen from about 1 t/ha in the early 1990s to about 2 t/ha in 2006, rice yields have stagnated at around 2 t/ha since 1990. Maize has performed well in Nigeria, and its production volume has risen from around 1 million tonnes in 1980 to over 7.5 million tonnes in 2008. The volume of rice produced increased by a factor of 3.4 between 1980 and 2008, reaching 4.2 million tonnes of rice in 2010.⁴

Wheat production remains low, at roughly 60,000 tonnes per year in recent times, despite large investments by the federal government to promote this crop and lower wheat and flour imports.

Legumes and Oilseed Plants. Nigeria is the world's largest producer of cowpeas (niebe), with about 3 million tonnes grown in 2008 (58% of regional production). The country also produces 3.9 million tonnes of groundnuts, or

57% of all groundnuts grown in West Africa.

Production Still Insufficient to Meet Demand. While the overall trends of agricultural production in Nigeria can be ascertained, very little is known about the structure of the demand for staple crops. This demand is strongly influenced by a number of factors, and divided between domestic needs and demand from neighbouring countries (in particular for grains). This relative lack of knowledge about import and export flows with neighbouring countries makes it difficult to establish an overall food assessment.

A Diet of Two Basic Foods. Nigeria's food regime is based essentially on two foods: grains, which provide 46% of calories and 52% of proteins consumed, and root crops/tubers, which provide 20% of calories and 8% of proteins consumed. Consumption of grains and root crops/tubers amounts to 150 kg and 214 kg respectively per person and per year (in 2007).

Rapid Development of Urban Markets. Domestic demand for staple crops is rising, as a result of growing population, urbanisation (Nigeria is one of the most heavily urbanised countries in the region), improved living conditions, the needs of a rapidly expanding processed food and beverage industry

(notably breweries) and livestock raising (poultry).

While self-consumption of crops in rural areas still predominates (especially for millet and sorghum), the rapidly developing urban markets are becoming a major outlet for local production. Towns and cities now absorb more than 50% of cassava and yam production, close to 30% of millet and sorghum crops, half of the maize crop, and 72% of domestically grown rice.

Root crops and tubers are almost entirely destined for domestic (mainly human) consumption, with small quantities of gari and yams exported to other countries in the sub-region (in particular Sierra Leone).

Demand for grains is dominated by human consumption, followed by the food processing industry and bio-fuel production. The remainder goes to neighbouring countries. Proportions vary according to economic circumstances. Millet and sorghum crops largely exceed domestic demand, providing exports.⁵ The situation is less clear-cut for maize, depending to a great extent on the level of domestic demand which has been rising steadily, driven by the food processing industry and demand for poultry feed (1.3 million tonnes in 2009). Urban growth has steadily pushed up annual rice consumption, which has risen from 8 kg per person in 1960, to 15 kg in 1980, and then to more than 20 kg per person in 2007.

Imports Needed, Particularly Rice and Wheat. Although local products provide most of the food for cities in Nigeria, the country has a structural deficit for two grains, rice and wheat. Domestic rice demand has been about 5 million tonnes a year since 2008, and Nigeria imports more than one million tonnes annually, making it one of the largest rice importers in the world. It also imports more than two million tonnes of wheat (flour) every year.

Nigeria therefore continues to be a very substantial net importer of grains. Between 2000 and 2008, these annual grain imports represented an average annual cost of \$939 million. Nigeria alone accounted for between 30% and 40% of all grain imports in the region. Its dependence on imports

4. See article page 19.

5. See article page 25.

is relative, however, in that Nigeria is home to over half the population of West Africa and only about 10% of Nigeria's grain needs seem to be met by imports. Nonetheless, Nigeria has a large agrifood trade balance deficit, which attained nearly \$1.5 billion in 2002-2004.

In conclusion, Nigeria is the most powerful agricultural economy in the region, and exports to neighbouring countries (millet, sorghum, gari and yams).⁶ But it is also the ECOWAS country that imports the most (in particular grains) to satisfy urban consumption needs, accounting for 36% of ECOWAS' agrifood imports. How will this situation evolve as the

6. Nigerian grain exports to neighbouring countries vary greatly from one year to the next. For more information, see the article on page 23.

population, urbanisation and standard of living in cities continue to rise? What are the foreseeable impacts on Nigerian imports and on the production surplus that can be exported to neighbouring countries?

Given Nigeria's weight in the regional agricultural and food economy, it goes without saying that this country holds the key to "regional food sovereignty", an objective pursued by ECOWAS and networks of farmers' organizations. Nigeria has the potential to reduce its food dependence and that of the region, but proactive and sufficiently stable internal policies will be needed to make the most of this potential. To achieve this goal, Nigeria must also play a more active role in harmonising and implementing agricultural, trade and fiscal policies at the regional level. ■

Dawanau Market in Kano

LOCATED IN THE CITY of Kano, Dawanau market is the largest grain market in West Africa. Created in 1985, the market houses over 10,000 stores and 662 warehouses (averaging 6,000 cubic metres each).

It occupies an area approximately 3 km long and 400 m wide, and is divided into 5 zones: cowpeas (niebe) and sesame crops in zone A; groundnut, wheat and cassava in zone B; yams in zone C; and maize, millet and sorghum in zone D. Zone E is used by transporters.

The market has a roster of twenty-seven groups, some specialised by crop or product, others not. Vendors must belong to one of these groups to operate in the market. In 1996, these groups created an umbrella organization, the Dawanau Market Development Association.

All the ethnic groups in Nigeria are represented, as well as merchants

from the sub-region (mainly from Niger, Chad, Cameroon, Benin, Togo, Ghana and Mali).

The market is a purely private enterprise, open every day from 6:00 a.m. to midnight in the off season and around the clock in the high season. Sales are mostly of crops grown in northern Nigeria: cowpea, maize, sorghum, millet and rice. Thousands of people work in and around the market: there are over 4,000 warehouse staff, 500 security guards, immigration agents, police officers, etc.

Credit can be readily obtained at the marketplace itself (in an informal manner). Prices fluctuate very rapidly and merchants make heavy use of their networks (transporters, food processors, etc.) to stay abreast of prices, quantities, etc. via mobile phone.

Poultry Farming on the Rise in Nigeria

POULTRY FARMING is the leading form of meat production in Nigeria: amounting to 350,000 tonnes per year, it accounts for 36% of total livestock production and covers 19% of domestic meat needs.

To boost consumption of animal protein in the country's growing population, Nigeria is counting on higher productivity for short-cycle livestock operations, in particular poultry. The domestic production shortfall in relation to potential demand for poultry is estimated at 25,000 tonnes per year. This rising demand is driven by the growing middle class, consumption outside of the home (restaurants) and the development of fast-food restaurants in big cities.

In July 2002, the federal government banned imports of poultry products with the aim of accelerating the growth of domestic production. Despite this ban, illicitly imported frozen chickens are found on the market. The volume of these illegal imports has dropped, however, due to regular inspection operations and confiscation by the authorities.

While there are some semi-industrial poultry operations, rural family farms are still predominant in this activity, in which women have an important place.

The place of poultry products in the household food basket and the amounts consumed vary considerably depending on the social context. In rural areas, poultry is eaten only occasionally; in urban areas, consumption is much higher. On average, Nigerians consume 1.6 kg of poultry per person and per year.

Egg production has reached a level that allows the country to export eggs to surrounding countries such as Benin, Niger and Chad. Domestic consumption of eggs has risen sharply, and the average in Nigeria of 3.2 kg per person per year is much higher than the regional average (2.2 kg per person per year).

The avian flu epidemic that affected Nigeria between 2006 and 2008 had a strong impact on poultry operations. The disease seems to have died out however, as no foyer of flu infection has been reported since September 2008.

Source: *Impacts socio-économiques de la grippe aviaire en Afrique de l'Ouest*: "Étude de cas au Nigeria", CILSS, FEWS NET, ECOWAS, Federal Republic of Nigeria, October 2006.