

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

185,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Plant Nutrition and Sustainable Crop Production in Nigeria

Romanus Osabohien and Toun Ogunbiyi

Abstract

The aim of this study is to examine the determining factors of plant nutrition and sustainable crop production in Nigeria. The study applied an in-depth review of literature and observed that different biotic and abiotic factors interact together to determine the outcome of plant nutrition and sustainable crop production in Nigeria. These factors include; types of fertilizers applied, atmospheric emissions, level of technological development, infrastructural facilities, climatic conditions, irrigation method, and level of skilled labour force. The study recommended that there should be increased and equal access to credit facilities, social protection incentives, and more innovation and technological involvement in the agricultural sector in order to increase productivity and efficiency.

Keywords: credit access, crop production, plant nutrition, productivity

1. Introduction

Farmers experience various problems in the quest to produce enough crops in order to meet the demand of the ever-teaming population and still keep constant and without comprising the standard of the available resources for generations to come. Mechanisms are needed to enhance soil and plants nutrients in order to increase crop yields, and plant nutrients are one of the requirements to enhance crop production [1, 2].

Plants' nutritional quality directly affects human nutrition in terms of productivity. It is therefore no gainsaying that the quality of food consumed in a country determines the quality of its populace. In many developing and developed countries, deficiency of micronutrients in pastures and crops has a negative effect on the health of both plants and animals [3]. In addition, the adequate provision of sunlight, air and water is a major prerequisite for optimum plant yield and improved crop management. In a bid to achieve these, various countries have devised means to reduce the negative effects of both abiotic and biotic factors in plants. After dedicating sufficient time and capital for farming, the goal of many Nigerian farmers is to produce sustainable crop yield [1].

However, certain factors come into play which might not augur well for agricultural yield in general and crop production in particular. Considering the rate of food insecurity in most developing countries, resulting from unfavourable weather condition owing to global climate change, the improved sustainable management of plant nutrition has been considered a precondition to reduce the challenge of prevailing hunger in the affected countries, Nigeria not excluded [1].

Owing to inadequate mechanisation and the small-scale nature of agricultural production, Nigeria has not been able to achieve self-sufficiency in food production.

According to Obasi et al. [4], which noted that the sub-Saharan Africa region is among the countries that have continued to experience significant food shortages, more than 40% of the region population is estimated to be suffering from hunger and poor nutrition. Just like many other developing countries, the Food and Agricultural Organisation identified that widespread poverty, poor economic conditions, institutional failure and constraints in logistics, among many other challenges, significantly affect crop production in Nigeria.

In a bid to tackle these challenges, the Nigerian government over the years has intensified efforts towards improving both plant nutrient and crop production mainly through better land use, human resource development in the agricultural sector, research in diversification of types of crops and seeds, fight against pests and diseases and increased use of fertilisers. However, despite the resources devoted to crop production in Nigeria, the productive efficiency of farmers for most crops still fall below 60% [4]. Globally, both socioeconomic and ecological factors interact to determine plant nutrients and sustainable crop production. Efforts to intensify agricultural production in Nigeria has been a continuous process which is taking place through several pathways; therefore, we examined how some of these factors affects plant nutrition and crop production in the case of Nigeria.

2. Literature review

Crop production has continued to play a major role in sustaining economic growth in Nigeria. However, its sustainability has been threatened with major challenges overtime. These challenges range from deficiency in plant nutrient as a result of unfavourable biotic and abiotic factors which includes unfavourable climatic conditions, low level of technological development in the agricultural sector, misapplication of fertilisers, infrastructural decay and so on. Various policies have been recommended overtime to address the issue of low crop production in Nigeria. However, it is salient to know how some of these factors have affected plant nutrition and crop production in Nigeria; examined below are some of the factors as identified in the literature.

In an attempt to correct the deficiencies of nutritional elements in crops, a wide range of Nigerian farmers often apply organic and inorganic fertilisers as both play a prominent role in improving soil fertility. However, fertiliser application is a necessary condition for crop yield but not a sufficient condition for an improved crop yield. According to Awodun et al. [5] cited in Ayeni et al. [6], both organic manure and fertilisers play different roles in improving soil fertility, but they both cannot supply all the nutrients in plants that can solely feed a teeming Nigerian population. Nottidge [7] further identified that fertiliser application leads to nutrient imbalance and low infiltration rate, all of which hinders the uptake of nutrients by plants. Also, Ayeni et al. [6] identified that the constant use of inorganic fertilisers can increase the level of soil acidity thereby leading to soil damage.

It has been globally recognised that the most serious threat to agricultural productivity is environmental issue [8]. For countries with higher temperature, the consequences of climate change tend to be more severe. This is most especially true for many developing countries with little adaptive capacity [9]. In recent times, atmospheric emission has been on the increase due to the improper use of agro chemicals, low level of land and environmental management and inadequate manure management. According to Yobannes [9], one of the most important

emissions that affects crop productivity and plant nutrient is nitrous oxide, which is determined by fertiliser application, irrigation methods and animal feeds.

Ufiobor [10] further identified that one of the major factors that determines crop yield in Nigeria is the climatic condition. From 1970 to 2018, temperature has increased from an average of 1.4–1.9°C [11] cited in Ufiobor [10]. The northwest, northeast and southwest of the country are especially being affected by extreme harsh weather conditions. The consequence of this is that higher temperature will decrease soil moisture which will have an attendant effect on plant nutrients and crop production.

In the developed economies, most especially Europe and North America, sustainable crop production has been increasing rapidly due to the developed nature of their farming system which has been made possible as a result of innovation and technological enhancement [10]. Farmers in these countries have accepted the evolving change and are now actively engaged in research and training for a sustainable cropping system [10]. In these countries, the government has also implemented programmes to support rigorous scientific investigation that will improve plant nutrition to produce healthy food for its populace. However, Nigeria has not yet witnessed the kind of agricultural evolution that has taken place in developed countries. One major constraint to agricultural development in Nigeria has been the slow response to technological adoption which in turn leads to low productivity and poor farming system, which affects plant nutrients. Nigeria majorly depends on traditional farming system which has an effect on the use of farmlands as the farming system is mainly carried out without the use of machines.

Just like other developing countries, the role of labour force in determining the level of output in all the sectors cannot be undermined. The agricultural system in Nigeria is highly labour intensive as labour force is a crucial part of its production system. According to Ufiobor [10], labour force accounts for over 90% of its total farm operations. Ufiobor [10] further envisaged that this could be as a result of the fact that many of its educated youth have shown little interest in the agricultural sector over the years, thus causing a shortage of skilled labour force in the agricultural sector that can also affect the nutritional value of plants and total crop production itself.

According to the Nations Encyclopedia [12], major crops cultivated in Nigeria include sesame, beans, nuts, cashew, beans, groundnut, cassava, cocoa, gum Arabic, millet, melon, rice, palm kernels, rubber sorghum, banana, plantain, beans and yams. However, the most widely produced crops are cassava and yams in the south and millet and sorghum in the north. Nigerian farmers also grow many fruits and vegetables. In recent years, the use of fertiliser in many countries has been increasing overtime. However, the use of organic wastes for pasture has been more feasible in the developed countries especially China, than in all other countries including Nigeria [13]. This is an indication of the fact that the Nigerian government has not really encouraged the use and development of organic fertiliser in Nigeria which might be responsible for the low level of manure generated for the purpose of farming.

The International Food Policy Research Institute [14] identified that there are signs of an increase use of fertilisers in countries where fertiliser subsidies are being granted to farmers by the government. Prominent among these countries are Malawi, Nigeria and Zambia. The use of fertiliser by Nigerian farmers is however quite common especially among the shareholder farmers. In some cases, these farmers also use some inorganic fertiliser which covers 70% of plots of lands [14]. Since the 1970s, efforts by the Nigerian government to stimulate the demand for fertiliser have been on the increase. This aim has been achieved by growing commercial fertiliser sector through price reduction, extension services to boost soil

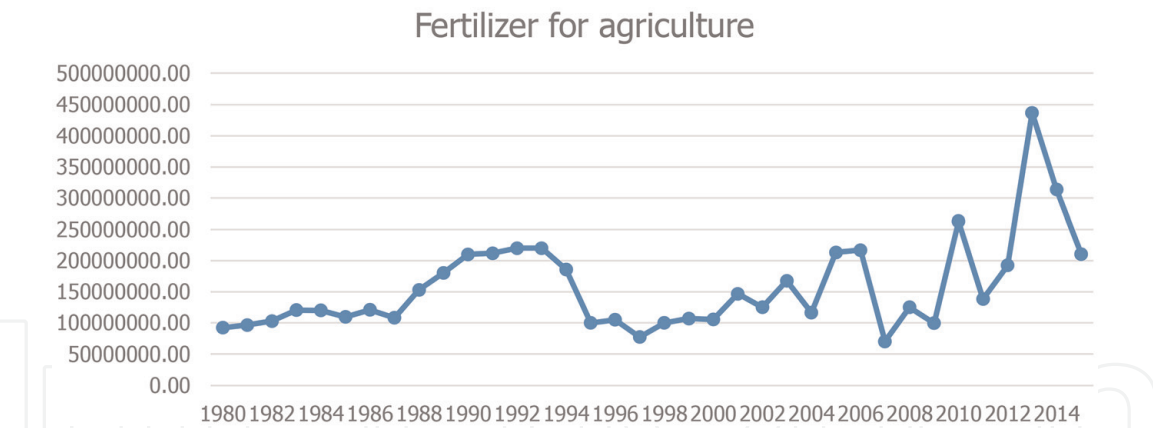


Figure 1. Agricultural fertiliser use. Source: Authors’ computation using excel [13].

fertility, increased use of technology and increased access to credit facilities by farmers [15] (**Figure 1**).

In the year 1980, fertiliser production (kilogrammes per hectare of arable land) in Nigeria was 9,220,000. Over the past 36 years, its highest value was 436,957,273 in the year 2013, while its lowest value was 70,115,000 in the year 2007. The upward and downward movement of this trend is an indication that the level of fertiliser production in Nigeria has not witnessed a stable movement.

According to the International Food Policy Research Institute [14], the types of fertiliser commonly produced and used in Nigeria include urea, nitrogen-phosphorus-potassium (NPK) and superphosphate (SSP). The most commonly used NPK blends are 15-15-15, 20-10-10, 12-12-17 + 2 MgO and 25-10-10. NPK fertilisers are further formulated to be site and crop specific. In a bid to further boost the effective procurement and distribution of fertiliser, the Nigerian government at various times has introduced several measures for its production, procurement and distribution.

In Nigeria, emphasis on increased agricultural productivity of farmers from the perspective of soil conditioning has been on chemical fertiliser, while there has been less emphasis on the impact of the bio-organic input [16]. Even as the quest to ensure the eradication of hunger and poverty has been on the increase, the Nigerian government has taken measures to ensure national self-sufficiency through local fertiliser production, supplemented by importation to ensure adequate and timely fertiliser supply to all farmers. The government also offers a subsidy on the market price of fertiliser so as to make fertiliser affordable to smallholder farmers. Given that the agenda of most successive government is to boost local food production and ensure national self-sufficiency, various efforts has to be intensified to synergise the use of both organic and inorganic medium of improving soil fertility for plant nutrition.

3. Methodology

The method used in this study is the survey of literature and stylised facts approach. Relevant data was collected from Food and Agricultural Organization data (FA) data base and the National Bureau of Statistics (NBS) of the Nigerian statistical bulletin for the indicators of crop production and other major agriculture commodities in Nigeria. Tables were used to describe the yields and prices of various agriculture commodities and determinants. **Table 1** presents crop

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Crop production	80.5	79.4	83.3	87.8	93.7	99.5	106.9	97.5	104.3	90.1	104.5	96.3	107.5	104.3	117.8	120.1	118.9	—
Total agriculture employment	57.3	57.6	60.7	58.2	51.9	51.2	49.6	48.6	44.0	40.4	30.6	33.1	35.9	38.3	36.8	36.4	36.3	36.5
Male agriculture employment	51.1	51.7	55.8	52.7	45.3	44.4	42.7	41.7	35.8	30.9	19.4	22.0	25.3	28.2	26.7	26.3	26.1	26.2
Female agricultural employment	61.9	61.9	64.2	62.3	57.0	56.3	54.9	54.0	50.5	48.0	39.5	42.2	44.7	46.7	45.2	44.8	44.9	45.3
Agriculture land area	78.3	76.3	77.5	78.8	78.8	79.8	80.5	80.9	79.8	75.8	76.9	78.0	79.1	77.7	77.7	77.7		

Source: Authors' compilation.

Table 1.
Crop production and its determinants.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Item labels	42736.0	42767.0	42795.0	42826.0	42856.0	42887.0	42917.0	42948.0	42979.0	43009.0	43040.0	43070.0
Agric eggs (medium size price of one)	47.4	42.9	43.9	46.2	45.7	45.3	44.3	42.9	45.7	42.1	40.8	41.3
Beans: brown, sold loose	353.6	337.1	353.3	357.2	365.9	374.3	382.3	370.3	404.8	382.6	369.8	362.0
Beans: white black eye, sold loose	305.5	309.9	318.5	324.0	332.3	339.6	344.0	335.7	358.1	342.1	337.1	314.9
Beef bone in	1001.2	995.6	1010.3	1035.4	1123.7	1129.0	1128.9	1151.4	1078.5	1081.3	1065.6	1067.7
Beef, boneless	1249.5	1270.7	1281.7	1323.1	1378.9	1393.4	1376.9	1276.9	1324.9	1312.7	1286.9	1236.4
Bread sliced 500 g	302.9	299.7	297.5	296.6	307.7	320.6	314.5	304.2	310.6	305.9	299.0	290.1
Bread unsliced 500 g	270.3	264.9	262.3	277.7	282.3	286.8	285.6	258.7	286.3	280.3	274.3	268.2
Broken rice (Ofada)	377.4	392.0	421.5	425.5	460.1	472.3	473.4	415.3	431.6	416.2	417.2	319.9
Catfish (obokun), fresh	899.6	885.1	884.1	886.7	900.7	916.5	910.6	921.2	894.5	906.9	902.0	919.8
Catfish, dried	2204.1	2150.2	2189.6	2189.1	2213.7	2255.2	2215.3	2176.8	2159.0	2083.7	2214.3	2146.6
Catfish, smoked	817.1	825.3	834.3	837.1	845.9	848.4	853.2	852.9	839.5	845.1	847.7	1007.4
Chicken feet	765.3	785.4	907.5	768.1	819.6	832.8	832.7	834.7	817.2	800.1	790.9	1156.0
Chicken wings	919.1	963.5	980.9	886.6	925.6	952.2	958.0	946.9	979.3	960.7	953.6	950.6
Dried fish sardine	959.1	935.5	958.7	972.7	991.6	989.5	968.8	972.6	947.6	967.0	968.8	1077.8
Evaporated tinned milk carnation, 170 g	136.3	140.5	143.6	151.5	157.9	162.8	162.7	158.8	174.4	170.6	169.4	159.7
Evaporated tinned milk (peak), 170 g	157.7	166.1	177.1	197.2	198.4	194.7	195.9	190.5	206.0	198.7	196.0	191.4
Frozen chicken	1419.8	1429.0	1555.5	1606.6	1606.0	1645.3	1623.8	1529.3	1570.3	1580.1	1571.5	1708.6
Gari white, sold loose	219.6	260.9	273.7	288.5	293.0	315.6	317.1	310.1	302.0	268.1	251.9	199.7
Gari yellow, sold loose	255.8	250.5	302.0	320.9	326.8	354.6	350.5	345.8	335.9	305.0	289.2	219.8
Groundnut oil: 1 bottle, specify bottle	477.9	482.9	494.1	494.2	500.2	503.3	505.1	508.3	478.0	504.0	503.8	660.4
Iced sardine	1880.0	1915.7	1902.2	1928.0	1919.6	1916.2	1915.2	1904.7	1878.5	1914.5	1903.7	1545.3
Irish potato	300.9	307.3	311.8	318.9	315.9	319.3	311.4	310.5	307.5	291.1	290.6	314.2
Mackerel: frozen	759.0	764.6	774.9	778.2	785.4	794.6	795.8	797.8	785.6	828.9	844.6	1015.6

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maize grain: white, sold loose	167.1	172.9	174.0	182.9	188.9	190.3	191.3	192.4	168.1	191.2	185.1	154.4
Maize grain: yellow, sold loose	168.8	174.7	178.8	185.6	190.6	191.4	193.0	193.4	168.2	191.1	189.9	161.9
Mudfish (aro), fresh	994.4	998.7	1079.2	1008.9	1047.3	1071.1	1080.3	998.6	1069.9	1074.7	1081.6	1060.0
Mudfish, dried	1812.0	1955.1	2084.8	2319.9	2388.1	2416.3	2395.8	2161.7	2204.0	2190.2	2144.2	1621.4
Onion bulb	258.9	241.4	246.9	205.6	203.6	214.8	213.1	236.7	238.3	217.6	228.5	311.1
Palm oil: 1 bottle, specify bottle	420.6	434.8	442.0	452.4	458.2	471.3	478.8	492.9	439.9	473.6	475.5	551.8
Plantain (ripe)	234.3	234.3	236.7	240.7	241.5	249.7	251.3	254.0	231.7	247.4	244.9	240.8
Plantain (unripe)	212.5	214.4	215.8	221.8	224.7	228.5	223.5	226.3	216.0	229.9	233.3	253.1
Rice: agric, sold loose	324.0	355.4	360.9	324.8	347.7	352.1	354.1	349.6	351.1	325.9	315.1	317.5
Rice: local, sold loose	286.2	306.3	308.9	299.3	323.8	325.5	323.3	320.2	316.4	292.9	278.9	278.9
Rice: medium, grained	312.1	352.7	378.0	332.8	350.4	348.2	344.4	313.5	339.5	320.6	309.9	304.9
Rice: imported, high-quality, sold loose	402.0	410.6	418.7	388.5	410.5	415.8	409.2	384.3	398.0	368.9	360.8	371.2
Sweet potato	129.4	127.2	132.9	132.4	130.3	135.8	138.0	138.6	139.0	115.7	111.4	120.2
Tilapia fish (epiya), fresh	792.2	795.3	798.1	800.8	805.2	817.6	823.3	820.3	795.6	822.4	813.8	1158.8
Titus, frozen	884.8	942.2	964.6	935.0	969.6	1012.2	1014.5	998.0	974.0	1050.4	1125.9	1109.2
Tomato	247.5	236.6	268.6	285.7	339.7	375.0	394.1	431.3	322.4	291.5	286.4	276.2
Vegetable oil: 1 bottle, specify bottle	495.3	507.4	513.4	525.7	524.8	546.3	552.9	559.0	505.5	547.1	540.2	565.0
Wheat flour: prepacked (golden penny 2 kg)	626.5	621.4	623.1	627.3	646.2	632.1	630.5	647.3	627.0	641.4	649.2	639.2
Yam tuber	210.6	215.6	255.9	250.3	279.2	292.1	294.1	343.4	259.5	223.6	212.3	211.6

Source: Authors.

Table 2.
Prices of items of various agricultural/food commodities in 2017 (January to December).

Item labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Agric eggs (medium size price of one)	38.8	41.3	41.2	42.2	41.8	41.4	41.2	41.8	41.2	41.7	42.4	42.6
Beans: brown, sold loose	385.5	387.5	395.3	395.2	407.7	418.8	411.0	410.2	416.1	411.0	396.7	386.8
Beans: white black eye, sold loose	344.5	348.6	357.0	355.3	367.2	369.4	361.3	361.7	362.7	354.2	346.4	344.7
Beef bone in	1045.6	1017.3	1024.6	980.3	1011.1	1034.6	1028.1	1061.8	1027.7	1003.3	998.7	997.7
Beef, boneless	1298.7	1274.7	1262.5	1257.7	1275.8	1271.5	1262.7	1281.0	1281.6	1260.6	1251.4	1270.8
Bread: sliced, 500 g	313.4	314.2	305.9	306.5	306.0	308.0	305.3	308.0	303.8	299.2	305.5	296.9
Bread: unsliced, 500 g	282.1	284.4	278.6	278.6	278.1	275.6	272.7	278.3	278.6	272.9	277.9	271.1
Broken rice (Ofada)	413.2	405.7	399.5	400.9	405.0	404.4	403.6	397.3	384.5	370.2	385.6	381.6
Catfish (obokun), fresh	1014.6	1037.3	1008.3	993.5	1013.1	1062.4	1064.7	1088.9	1089.3	1080.4	1112.1	1060.8
Catfish, dried	1852.9	1857.2	1793.6	1753.5	1779.7	1770.5	1792.1	1807.1	1766.5	2362.3	1815.0	1808.6
Catfish, smoked	1540.8	1896.9	1524.7	1514.5	1520.9	1527.8	1504.4	1512.4	1499.6	1482.3	1490.8	1519.8
Chicken feet	850.0	778.6	773.0	758.9	782.5	784.8	930.5	803.0	808.1	775.7	985.3	737.8
Chicken wings	950.8	955.0	935.8	921.5	925.5	960.6	963.0	992.5	1012.5	982.5	981.5	944.0
Dried fish sardine	1455.5	1405.7	1410.1	1371.8	1400.0	1378.6	1395.4	1382.9	1374.3	1365.7	1331.6	1343.0
Evaporated tinned milk carnation, 170 g	172.2	166.5	158.5	160.2	165.3	166.2	165.7	163.0	166.3	163.3	162.4	163.3
Evaporated tinned milk (peak), 170 g	196.7	191.1	187.6	188.1	192.9	189.9	187.8	184.2	189.3	187.2	187.6	190.0
Frozen chicken	1547.5	1548.9	1544.9	1537.9	1536.5	1537.2	1541.4	1533.2	1534.2	1558.2	1551.2	1625.1
Gari: white, sold loose	229.3	210.2	209.1	208.2	216.0	216.7	200.7	198.8	195.9	188.4	183.6	166.6
Gari: yellow, sold loose	271.3	250.1	244.0	246.5	256.5	259.8	248.7	246.8	253.7	236.3	222.4	196.0
Groundnut oil: 1 bottle, specify bottle	528.6	571.1	585.2	584.5	601.5	612.4	603.6	603.4	608.4	592.5	603.9	585.5
Iced sardine	861.1	885.1	899.7	907.9	941.5	923.5	940.5	937.2	931.6	916.8	921.0	906.4
Irish potato	232.9	250.9	261.8	282.1	300.6	297.1	296.6	309.5	291.9	300.1	330.1	298.6

Item labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mackerel, frozen	915.3	875.3	915.9	896.4	927.2	908.9	922.9	926.2	944.5	921.0	937.8	934.2
Maize grain: white, sold loose	190.5	185.2	231.6	173.5	180.5	183.7	179.4	180.1	179.9	171.1	165.0	161.5
Maize grain: yellow, sold loose	180.0	199.8	193.8	191.1	195.7	197.3	190.4	191.1	189.8	178.4	168.9	160.4
Mudfish (aro), fresh	1099.8	1098.6	1069.9	1039.0	1062.7	1070.6	1065.6	1104.8	1072.1	1052.1	1067.1	1032.2
Mudfish, dried	2134.7	2066.0	1945.3	1912.7	1928.2	1941.9	1907.2	1897.1	1908.0	1874.4	1894.3	1861.7
Onion bulb	248.7	252.0	235.3	234.4	234.0	240.0	246.9	252.1	251.3	232.8	287.7	259.4
Palm oil: 1 bottle, specify bottle	480.9	510.1	492.1	486.8	494.9	500.0	496.4	501.1	501.0	495.1	496.2	474.5
Plantain (ripe)	273.7	257.6	259.8	262.3	273.5	276.6	270.8	275.8	272.6	245.6	254.1	227.3
Plantain (unripe)	248.7	232.2	242.5	235.7	247.1	248.5	248.6	247.1	244.3	226.6	225.5	215.7
Rice: agric, sold loose	322.8	322.8	326.6	322.5	327.8	331.1	325.1	327.0	328.4	323.3	329.1	321.6
Rice, local, sold loose	274.7	276.3	283.6	281.5	286.2	280.8	276.3	280.3	277.8	277.9	278.5	280.8
Rice: medium grained	308.5	314.8	317.2	323.6	325.4	323.1	319.4	322.5	319.5	314.9	318.9	318.0
Rice: imported, high-quality sold loose	360.8	365.2	363.3	369.4	374.6	373.5	370.8	375.0	371.3	373.0	376.6	370.6
Sweet potato	113.4	126.4	130.3	137.4	150.5	148.7	163.3	167.1	167.3	154.7	147.7	140.7
Tilapia fish (epiya), fresh	864.0	885.7	890.1	889.5	924.1	939.4	935.2	947.8	979.2	923.1	934.1	887.5
Titus, frozen	894.7	901.5	905.8	898.6	921.0	950.3	924.8	946.5	941.5	923.9	1105.2	926.4
Tomato	272.0	267.1	267.1	289.5	307.1	317.7	336.3	336.7	328.3	306.6	294.4	271.5
Vegetable oil: 1 bottle, specify bottle	540.3	549.0	533.5	548.0	553.2	552.1	547.9	540.4	546.8	536.1	536.5	507.8
Wheat flour, prepacked (golden penny 2 kg)	655.1	646.0	657.6	649.9	659.5	660.1	657.6	661.1	651.9	656.8	659.6	662.9
Yam tuber	226.5	230.9	254.5	279.6	291.3	285.8	280.8	293.0	280.3	252.2	239.2	212.7

Source: Authors.

Table 3.
Prices of items of various agricultural/food commodities in 2018.

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Bast fibres, other	Area harvested	ha		1000	1000	1107	1000	1000	1000	1000	1000	1008
Bast fibres, other	Yield	hg/ha		6000	7000	7859	8800	9712	10,992	12,193	13,310	14,388
Bast fibres, other	Production	tonnes		600	700	870	880	971	1099	1219	1331	1451
Carrots and turnips	Area harvested	ha	20,000	20,000	20,000	22,000	22,303	24,285	26,492	27,750	25,300	25,704
Carrots and turnips	Yield	hg/ha	75,000	75,000	75,000	78,636	78,464	81,531	85,097	85,586	86,921	88,010
Carrots and turnips	Production	tonnes	150,000	150,000	150,000	173,000	175,000	198,000	225,440	237,500	219,911	226,222
Cashew nuts, with shell	Area harvested	ha	40,000	40,000	40,000	50,000	75,000	155,000	259,000	309,000	382,509	131,529
Cashew nuts, with shell	Yield	hg/ha	6250	6250	6250	6000	6000	6129	17,992	19,223	20,698	7386
Cashew nuts, with shell	Production	tonnes	25,000	25,000	25,000	30,000	45,000	95,000	466,000	594,000	791,726	97,149
Cassava	Area harvested	ha	1,200,000	1,075,000	1,095,000	1,634,130	2,551,000	2,944,000	3,300,000	3,782,000	3,481,900	6,216,434
Cassava	Yield	hg/ha	95,833	112,465	113,132	116,533	101,936	106,671	97,000	109,902	122,155	92,727
Cassava	Production	tonnes	11,500,000	12,090,000	12,388,000	19,043,008	26,004,000	31,404,000	32,010,000	41,565,000	42,533,180	57,643,271
Chillies and peppers, dry	Area harvested	ha	25,700	27,200	27,500	28,700	29,000	30,200	30,410	30,750	34,000	38,077
Chillies and peppers, dry	Yield	hg/ha	15,370	15,441	15,455	15,505	15,517	15,563	15,624	15,610	16,765	17,077
Chillies and peppers, dry	Production	tonnes	39,500	42,000	42,500	44,500	45,000	47,000	47,512	48,000	57,000	65,022
Chillies and peppers, green	Area harvested	ha	69,000	80,000	80,000	89,048	75,000	72,766	88,706	91,500	94,808	96,625
Chillies and peppers, green	Yield	hg/ha	91,304	87,500	90,000	84,224	86,667	84,105	80,677	78,798	77,381	76,941
Chillies and peppers, green	Production	tonnes	630,000	700,000	720,000	750,000	650,000	612,000	715,657	721,000	733,631	743,442

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Cocoa, beans	Area harvested	ha	700,000	700,000	700,000	715,000	726,000	788,000	966,000	1,198,902	1,272,430	1,057,174
Cocoa, beans	Yield	hg/ha	2186	2286	2114	3413	3691	2576	3499	3678	3137	2857
Cocoa, beans	Production	tonnes	153,000	160,000	148,000	244,000	268,000	203,000	338,000	441,000	399,200	302,066
Coconuts	Area harvested	ha	32,000	34,500	34,500	35,500	37,000	28,500	36,000	39,000	39,000	38,701
Coconuts	Yield	hg/ha	28,125	29,565	30,145	33,239	34,865	52,281	44,444	53,590	67,645	69,744
Coconuts	Production	tonnes	90,000	102,000	104,000	118,000	129,000	149,000	160,000	209,000	263,815	269,920
Coffee, green	Area harvested	ha	7000	12,000	2400	3434	3500	3122	3190	3670	1990	1534
Coffee, green	Yield	hg/ha	5000	5000	5000	8824	9143	9896	12,006	13,597	12,063	12,899
Coffee, green	Production	tonnes	3500	6000	1200	3030	3200	3090	3830	4990	2400	1979
Cotton lint	Production	tonnes	29,324	10,524	36,290	95,000	103,000	95,000	147,000	190,000	220,000	
Cottonseed	Production	tonnes	55,075	24,000	63,000	180,000	195,000	153,000	247,000	323,000	370,000	
Cow peas, dry	Area harvested	ha	1,463,000	1,405,000	1,405,000	1,805,000	1,885,740	3,585,000	3,583,000	4,140,000	2,859,760	3,635,700
Cow peas, dry	Yield	hg/ha	3486	4349	4569	7490	7180	4884	6001	6800	11,778	6343
Cow peas, dry	Production	tonnes	510,000	611,000	642,000	1,352,000	1,354,000	1,751,000	2,150,000	2,815,000	3,368,250	2,306,200
Fibre crops nes	Production	tonnes				11	12					
Fonio	Area harvested	ha	30,000	38,000	44,000	65,000	72,000	108,000	133,000	198,000	151,766	187,560
Fonio	Yield	hg/ha	6000	6579	6136	6000	5972	5370	5714	4798	5211	4405
Fonio	Production	tonnes	18,000	25,000	27,000	39,000	43,000	58,000	76,000	95,000	79,087	82,617
Fruit, citrus nes	Area harvested	ha	550,000	570,000	570,000	580,000	630,000	643,589	727,596	731,000	790,000	821,533

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Fruit, citrus nes	Yield	hg/ha	32,727	35,088	35,088	35,914	39,683	42,263	44,668	45,179	48,101	48,757
Fruit, citrus nes	Production	tonnes	1,800,000	2,000,000	2,000,000	2,083,000	2,500,000	2,720,000	3,250,000	3,302,611	3,800,000	4,005,520
Fruit, fresh nes	Area harvested	ha	145,000	184,500	196,000	197,349	208,520	238,082	284,711	218,500	177,000	180,210
Fruit, fresh nes	Yield	hg/ha	64,138	65,041	66,327	65,873	63,337	62,902	63,575	64,119	67,797	68,225
Fruit, fresh nes	Production	tonnes	930,000	1,200,000	1,300,000	1,300,000	1,320,713	1,497,578	1,810,060	1,401,000	1,200,000	1,229,484
Garlic	Production	tonnes									587	800
Ginger	Area harvested	ha	400	16,000	30,000	84,000	100,000	148,000	158,000	181,000	52,330	64,356
Ginger	Yield	hg/ha	5000	5000	5000	5000	5000	5338	6203	6906	31,000	44,198
Ginger	Production	tonnes	200	8000	15,000	42,000	50,000	79,000	98,000	125,000	162,223	284,440
Groundnuts, with shell	Area harvested	ha	563,000	594,000	793,000	707,000	112,7000	1,767,000	1,934,000	2,187,000	2,789,180	2,801,756
Groundnuts, with shell	Yield	hg/ha	8366	10,455	11,299	16,492	12,076	8936	15,000	15,903	13,621	12,376
Groundnuts, with shell	Production	tonnes	471,000	621,000	896,000	1,166,000	1,361,000	1,579,000	2,901,000	3,478,000	3,799,240	3,467,446
Karite nuts (shea nuts)	Area harvested	ha	100,000	94,000	87,000	184,000	204,000	235,000	232,000	257,239	342,750	409,963
Karite nuts (shea nuts)	Yield	hg/ha	11,000	10,638	11,839	15,707	15,980	16,340	15,905	15,940	9500	8786
Karite nuts (shea nuts)	Production	tonnes	110,000	100,000	103,000	289,000	326,000	384,000	369,000	410,029	325,610	360,177
Kola nuts	Area harvested	ha	140,000	175,000	175,000	125,000	130,000	105,000	91,000	94,250	270,143	244,705
Kola nuts	Yield	hg/ha	9643	9829	9943	10,800	12,692	9048	9011	9045	5366	6608
Kola nuts	Production	tonnes	135,000	172,000	174,000	135,000	165,000	95,000	82,000	85,250	144,950	161,711

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Maize	Area harvested	ha	465,000	1,556,000	2,800,000	5,104,000	5,142,000	5,472,000	3,159,000	3,589,000	4,149,310	6,771,189
Maize	Yield	hg/ha	13,161	11,735	12,679	11,301	11,299	12,666	13,001	16,598	18,502	15,599
Maize	Production	tonnes	612,000	1,826,000	3,550,000	5,768,000	5,810,000	6,931,000	4,107,000	5,957,000	7,676,850	10,562,050
Maize, green	Area harvested	ha	46,000	156,000	172,000	150,000	155,000	167,706	162,619	161,500	183,916	200,356
Maize, green	Yield	hg/ha	35,000	29,231	25,233	30,533	30,645	33,704	34,662	35,697	36,774	37,699
Maize, green	Production	tonnes	161,000	456,000	434,000	458,000	475,000	565,240	563,667	576,500	676,338	755,319
Mangoes, mangosteens, guavas	Area harvested	ha	80,000	80,000	80,000	85,000	88,000	106,000	125,000	125,500	130,000	131,132
Mangoes, mangosteens, guavas	Yield	hg/ha	50,000	50,000	50,000	59,294	59,091	59,528	58,400	58,247	65,385	68,239
Mangoes, mangosteens, guavas	Production	tonnes	400,000	400,000	400,000	504,000	520,000	631,000	730,000	731,000	850,000	894,833
Melon seed	Area harvested	ha	76,000	183,000	150,000	230,000	231,000	285,000	575,000	694,000	469,690	967,937
Melon seed	Yield	hg/ha	12,368	8033	10,200	9043	9481	10,070	6000	6499	10,802	5758
Melon seed	Production	tonnes	94,000	147,000	153,000	208,000	219,000	287,000	345,000	451,000	507,340	557,328
Millet	Area harvested	ha	2,824,000	2,346,000	3,917,000	4,778,000	4,560,000	5,107,000	5,814,000	4,685,000	4,364,140	1,591,803
Millet	Yield	hg/ha	8336	15,277	10,495	10,749	9011	10,893	10,501	15,300	11,848	9331
Millet	Production	tonnes	2,354,000	3,584,000	4,111,000	5,136,000	4,109,000	5,563,000	6,105,000	7,168,000	5,170,430	1,485,387
Nuts, nes	Area harvested	ha		100	300	2500	2500	5421	2965	2550	2800	2799

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Nuts, nes	Yield	hg/ha		20,000	20,000	24,000	20,000	6118	17,416	20,196	25,000	25,915
Nuts, nes	Production	tonnes		200	600	6000	5000	3316	5163	5150	7000	7253
Oil palm fruit	Area harvested	ha	2,300,000	2,200,000	2,220,000	2,300,000	2,450,000	2,938,000	3,080,000	3,350,000	3,200,000	3,076,881
Oil palm fruit	Yield	hg/ha	25,000	25,909	26,577	26,957	26,531	26,549	26,688	25,373	25,000	25,683
Oil palm fruit	Production	tonnes	5,750,000	5,700,000	5,900,000	6,200,000	6,500,000	7,800,000	8,220,000	8,500,000	8,000,000	7,902,277
Oil, palm	Production	tonnes	650,000	615,000	650,000	730,000	760,000	860,000	899,000	1,170,000	970,820	
Oilseeds nes	Production	tonnes				548	759	820	596	700	814	600
Okra	Area harvested	ha	200,000	230,000	250,000	260,000	231,278	259,393	292,135	350,000	397,290	1,859,900
Okra	Yield	hg/ha	21,000	20,652	19,600	20,231	22,916	24,287	25,719	27,143	27,275	11,118
Okra	Production	tonnes	420,000	475,000	490,000	526,000	530,000	630,000	751,342	950,000	1,083,620	2,067,900
Onions, dry	Area harvested	ha	30,000	30,000	35,000	36,667	63,403	87,996	115,501	264,174	179,984	434,500
Onions, dry	Yield	hg/ha	133,333	133,333	142,857	137,649	60,904	56,654	51,342	44,763	74,797	22,967
Onions, dry	Production	tonnes	400,000	400,000	500,000	504,719	386,152	498,539	593,008	1,182,520	1,346,218	997,900
Onions, shallots, green	Area harvested	ha	10,000	10,000	10,000	10,476	6046	10,128	10,794	11,250	13,232	14,366
Onions, shallots, green	Yield	hg/ha	100,000	100,000	105,000	119,320	223,291	215,057	206,277	196,000	175,089	163,848
Onions, shallots, green	Production	tonnes	100,000	100,000	105,000	125,000	135,000	217,815	222,656	220,500	231,684	235,383
Palm kernels	Area harvested	ha									450,000	
Palm kernels	Production	tonnes	279,000	360,000	355,000	356,000	369,000	543,000	577,000	465,000	233,000	
Papayas	Area harvested	ha	55,000	55,000	55,000	65,000	66,000	80,000	89,315	91,500	92,865	93,445

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Papayas	Yield	hg/ha	72,727	72,727	72,727	79,538	80,303	81,000	83,371	82,568	80,763	93,680
Papayas	Production	tonnes	400,000	400,000	400,000	517,000	530,000	648,000	744,626	755,500	750,000	875,401
Pineapples	Area harvested	ha	95,000	95,000	95,000	100,000	105,505	105,802	117,005	116,500	180,000	184,551
Pineapples	Yield	hg/ha	63,158	73,684	73,684	76,300	75,825	75,613	75,733	76,395	82,631	81,270
Pineapples	Production	tonnes	600,000	700,000	700,000	763,000	800,000	800,000	886,110	890,000	1,487,350	1,499,840
Plantains and others	Area harvested	ha	180,000	185,500	187,200	162,000	178,000	250,000	386,000	447,000	449,220	486,048
Plantains and others	Yield	hg/ha	57,889	60,000	60,203	75,000	75,225	65,280	51,010	57,964	59,559	62,977
Plantains and others	Production	tonnes	1,042,000	1,113,000	1,127,000	1,215,000	1,339,000	1,632,000	1,969,000	2,591,000	2,675,530	3,060,962
Potatoes	Area harvested	ha	5500	7000	7600	7700	9400	13,600	212,000	260,000	265,992	328,009
Potatoes	Yield	hg/ha	72,727	61,429	60,526	70,130	70,213	69,853	28,255	29,846	38,584	36,727
Potatoes	Production	tonnes	40,000	43,000	46,000	54,000	66,000	95,000	599,000	776,000	102,6311	120,4676
Pulses, nes	Area harvested	ha	115,000	120,000	120,000	131,832	74,309	87,216	102,492	119,432	130,000	140,095
Pulses, nes	Yield	hg/ha	4609	4167	4167	4162	3870	3966	4087	4104	4308	4609
Pulses, nes	Production	tonnes	53,000	50,000	50,000	54,870	28,756	34,592	41,887	49,018	56,000	64,570
Rice, paddy	Area harvested	ha	550,000	670,000	700,000	1,208,000	1,652,000	1,796,000	2,199,000	2,494,000	2,432,630	3,121,562
Rice, paddy	Yield	hg/ha	19,818	21,343	20,233	20,695	19,528	16,258	14,998	14,302	18,386	20,042
Rice, paddy	Production	tonnes	1,090,000	1,430,000	1,416,322	2,500,000	3,226,000	2,920,000	3,298,000	3,567,000	4,472,520	6,256,228
Rubber, natural	Area harvested	ha	73,000	73,000	73,000	22,5000	268,000	297,000	330,000	339,500	360,541	365,622
Rubber, natural	Yield	hg/ha	6164	8219	8219	6533	5784	4209	3242	3998	4019	4228

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Rubber, natural	Production	tonnes	45,000	60,000	60,000	147,000	155,000	125,000	107,000	135,716	144,912	154,571
Seed cotton	Area harvested	ha	476,000	220,000	285,000	575,000	643,000	431,000	538,000	659,000	398,570	401,441
Seed cotton	Yield	hg/ha	1801	1591	3509	4800	4806	5824	7416	7906	15,115	6913
Seed cotton	Production	tonnes	85,733	35,000	100,000	276,000	309,000	251,000	399,000	521,000	602,440	277,523
Sesame seed	Area harvested	ha	135,000	116,700	104,700	110,000	115,000	133,000	151,000	196,000	324,570	329,460
Sesame seed	Yield	hg/ha	3037	2999	3343	4000	4000	4511	4768	5102	4603	5218
Sesame seed	Production	tonnes	41,000	35,000	35,000	44,000	46,000	60,000	72,000	100,000	149,410	171,900
Sorghum	Area harvested	ha	3,286,000	4,862,000	5,147,000	4,185,000	5,538,000	6,095,000	6,885,000	7,284,000	4,960,130	5,899,134
Sorghum	Yield	hg/ha	11,229	10,101	10,540	10,000	9691	11,480	11,200	12,600	14,397	11,875
Sorghum	Production	tonnes	3,690,000	4,911,000	5,425,000	4,185,000	5,367,000	6,997,000	7,711,000	9,178,000	7,140,970	7,005,025
Soybeans	Area harvested	ha	270,000	205,000	210,000	729,000	468,000	617,000	517,000	601,000	281,890	609,333
Soybeans	Yield	hg/ha	2778	2927	3238	2990	3098	4652	8298	9401	12,951	9658
Soybeans	Production	tonnes	75,000	60,000	68,000	218,000	145,000	287,000	429,000	565,000	365,080	588,523
Spices, nes	Area harvested	ha	2900	3000	3000	3600	1428	1971	2634	3250	3600	4087
Spices, nes	Yield	hg/ha	13,793	14,667	13,333	13,333	12,962	13,112	13,299	13,846	15,278	15,746
Spices, nes	Production	tonnes	4000	4400	4000	4800	1851	2585	3503	4500	5500	6436
Sugar cane	Area harvested	ha	22,000	21,400	22,400	22,400	22,200	19,270	24,000	44,000	45,680	88,135
Sugar cane	Yield	hg/ha	395,455	402,804	400,446	410,714	400,000	305,656	289,583	207,727	186,055	164,516

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Sugar cane	Production	tonnes	870,000	862,000	897,000	920,000	888,000	589,000	695,000	914,000	849,898	1,449,963
Sweet potatoes	Area harvested	ha	12,000	12,000	13,000	28,000	31,000	299,000	823,000	989,000	1,298,486	1,499,015
Sweet potatoes	Yield	hg/ha	83,333	66,667	63,846	51,071	59,355	39,064	29,988	32,406	26,701	25,652
Sweet potatoes	Production	tonnes	100,000	80,000	83,000	143,000	184,000	1,168,000	2,468,000	3,205,000	3,467,073	3,845,248
Taro (cocoyam)	Area harvested	ha	65,000	70,000	91,000	141,000	166,000	229,000	587,000	667,000	520,130	826,800
Taro (cocoyam)	Yield	hg/ha	32,000	33,143	40,989	51,844	49,940	51,616	66,201	75,982	56,853	39,631
Taro (cocoyam)	Production	tonnes	208,000	232,000	373,000	731,000	829,000	1,182,000	3,886,000	5,068,000	2,957,090	3,276,700
Tobacco, unmanufactured	Area harvested	ha	20,680	19,500	20,000	22,000	18,522	17,463	37,000	25,000	14,789	9500
Tobacco, unmanufactured	Yield	hg/ha	6286	5385	4500	4091	4859	5268	5946	6000	6131	5263
Tobacco, unmanufactured	Production	tonnes	13,000	10,500	9000	9000	9000	9200	22,000	15,000	9066	5000
Tomatoes	Area harvested	ha	32,500	35,000	35,500	37,500	38,000	55,000	210,000	250,000	272,950	557,500
Tomatoes	Yield	hg/ha	100,000	100,000	100,000	100,000	100,000	103,455	60,038	81,714	65,945	75,862
Tomatoes	Production	tonnes	325,000	350,000	355,000	375,000	380,000	569,000	1,260,794	2,042,861	1,799,960	4,229,330
Vegetables, fresh nes	Area harvested	ha	210,000	260,000	265,000	350,000	380,000	440,000	620,754	725,000	724,335	753,081
Vegetables, fresh nes	Yield	hg/ha	46,286	48,231	48,792	50,314	53,289	59,273	63,552	71,517	82,818	91,171
Vegetables, fresh nes	Production	tonnes	972,000	1,254,000	1,293,000	1,761,000	2,025,000	2,608,000	3,945,000	5,185,000	5,998,811	6,865,947
Wheat	Area harvested	ha	10,000	55,000	67,000	60,000	50,000	20,000	52,000	60,000	74,399	60,000
Wheat	Yield	hg/ha	24,000	20,545	19,701	8333	12,000	21,800	14,038	11,000	14,844	10,000

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Wheat	Production	tonnes	24,000	11,3000	13,2000	50,000	60,000	43,600	73,000	66,000	110,441	60,000
Yams	Area harvested	ha	498,000	840,000	924,000	1,276,000	1,639,000	2,118,000	2,647,000	2,957,000	2,868,990	5,389,870
Yams	Yield	hg/ha	105,382	56,405	56,374	106,771	103,453	107,734	98,984	114,981	13,0109	84,748
Yams	Production	tonnes	5,248,000	4,738,000	5,209,000	13,624,000	16,956,000	22,818,000	26,201,000	34,000,000	37,328,180	45,677,939
Cereals (rice milled eqv)	Area harvested	ha	7,165,000	9,527,000	12,675,000	15,400,000	17,014,000	18,598,000	18,242,000	18,310,000	16,132,376	17,631,248
Cereals (rice milled eqv)	Yield	hg/ha	10,363	11,979	11,195	10,939	10,310	11,582	11,113	13,568	14,357	13,254
Cereals (rice milled eqv)	Production	tonnes	7,425,030	11,412,810	14,189,687	16,845,500	17,540,742	21,540,240	20,271,766	24,843,189	23,160,948	23,367,984
Cereals, total	Area harvested	ha	7,165,000	9,527,000	12,675,000	15,400,000	17,014,000	18,598,000	18,242,000	18,310,000	16,132,376	17,631,248
Cereals, total	Yield	hg/ha	10,870	12,479	11,567	11,479	10,941	12,105	11,715	14,217	15,280	14,435
Cereals, total	Production	tonnes	7,788,000	11,889,000	14,661,322	17,678,000	18,615,000	22,512,600	21,370,000	26,031,000	24,650,297	25,451,307
Citrus fruit, total	Area harvested	ha	550,000	570,000	570,000	580,000	630,000	643,589	727,596	731,000	790,000	821,533
Citrus fruit, total	Yield	hg/ha	32,727	35,088	35,088	35,914	39,683	42,263	44,668	45,179	48,101	48,757
Citrus fruit, total	Production	tonnes	1,800,000	2,000,000	2,000,000	2,083,000	2,500,000	2,720,000	3,250,000	3,302,611	3,800,000	4,005,520
Coarse grain, total	Area harvested	ha	6,605,000	8,802,000	11,908,000	14,132,000	15,312,000	16,782,000	15,991,000	15,756,000	13,625,346	14,449,686
Coarse grain, total	Yield	hg/ha	10,104	11,754	11,012	10,705	10,011	11,649	11,256	142,16	14,728	13,243
Coarse grain, total	Production	tonnes	6,674,000	10,346,000	13,113,000	15,128,000	15,329,000	19,549,000	17,999,000	22,398,000	20,067,337	19,135,079
Fibre crops primary	Area harvested	ha	476,000	221,000	286,000	576,107	644,000	432,000	539,000	660,000	399,570	
Fibre crops primary	Yield	hg/ha	616	503	1293	1664	1613	2222	2748	2897	5539	

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Fibre crops primary	Production	tonnes	29,324	11,124	36,990	95,881	103,892	95,971	148,099	191,219	221,331	
Fruit primary	Area harvested	ha	1,105,000	1,170,000	1,183,200	1,189,349	1,276,025	1,423,473	1,729,627	1,730,000	1,819,085	1,896,920
Fruit primary	Yield	hg/ha	46,805	49,684	50,093	53,660	54,934	55,699	54,288	55,902	59,166	60,973
Fruit primary	Production	tonnes	5,172,000	5,813,000	5,927,000	6,382,000	7,009,713	7,928,578	9,389,796	9,671,111	10,762,880	11,566,040
Oil crops, cake equivalent	Area harvested	ha	3,852,000	3,553,200	3,797,200	4,686,500	5,071,000	6,199,500	6,831,000	7,726,000	7,736,900	
Oil crops, cake equivalent	Yield	hg/ha	1287	1680	1920	2239	2147	2262	3110	3253	3159	
Oil crops, cake equivalent	Production	tonnes	495,908	597,030	728,900	1,049,229	1,088,695	1,402,352	2,124,177	2,513,260	2,444,181	
Oil crops, oil equivalent	Area harvested	ha	3,952,000	3,647,200	3,884,200	4,870,500	5,275,000	6,434,500	7,063,000	7,983,239	8,052,650	
Oil crops, oil equivalent	Yield	hg/ha	2599	2958	3101	3040	2994	2933	3397	3619	3322	
Oil crops, oil equivalent	Production	tonnes	1,026,982	1,078,950	1,204,640	1,480,674	1,579,318	1,887,136	2,399,149	2,888,867	2,675,077	
Pulses, total	Area harvested	ha	1,578,000	1,525,000	1,525,000	1,936,832	1,960,049	3,672,216	3,685,492	4,259,432	2,989,760	3,775,795
Pulses, total	Yield	hg/ha	3568	4334	4538	7264	7055	4862	5947	6724	11,453	6279
Pulses, total	Production	tonnes	563,000	661,000	692,000	1,406,870	1,382,756	1,785,592	2,191,887	2,864,018	3,424,250	2,370,770
Roots and tubers, total	Area harvested	ha	1,780,500	2,004,000	2,130,600	3,086,830	4,396,400	5,603,600	7,569,000	8,655,000	8,435,498	14,260,128
Roots and tubers, total	Yield	hg/ha	96,018	85,744	84,948	108,833	100,171	101,126	86,093	97,763	10,3505	78,294
Roots and tubers, total	Production	tonnes	17,096,000	17,183,000	18,099,000	33,595,008	44,039,000	56,667,000	65,164,000	84,614,000	87,311,834	1.12E+08
Tree nuts, total	Area harvested	ha	40,000	40,100	40,300	52,500	77,500	16,0421	26,1965	31,1550	38,5309	13,4328
Tree nuts, total	Yield	hg/ha	6250	6284	6352	6857	6452	6129	17,986	19,231	20,730	7772

Item	Element	Unit	1980	1985	1986	1990	1991	1995	2000	2005	2010	2015
Tree nuts, total	Production	tonnes	25,000	25,200	25,600	36,000	50,000	98,316	471,163	599,150	798,726	104,402
Vegetables primary	Area harvested	ha	617,500	821,000	867,500	955,691	971,030	1,117,275	1,527,001	1,881,174	1,891,815	3,942,033
Vegetables primary	Yield	hg/ha	51,142	47,320	46,651	48,894	48,980	52,794	54,208	59,090	63,911	40,898
Vegetables primary	Production	tonnes	3,158,000	3,885,000	4,047,000	4,672,719	4,756,152	5,898,594	8,277,564	11,115,881	12,090,760	16,122,242
Source: Authors.												

Table 4.
Crop production in Nigeria (1980–2015): harvest area, yield and production.

production index, employment in agriculture (male, female and total employment in the agricultural sector) and agricultural land.

From **Table 1**, crop production in Nigeria shows an increase and decrease trend; it was observed among those that are employed in the agriculture; the number of women in agriculture is more than the number of men in agriculture. The price of various agricultural items across Nigeria in 2017 is presented in **Table 2**.

In **Table 3**, prices of agriculture commodities resulting from production are presented. Such commodities include eggs; beans: brown; beef; rice (Ofada); catfish (obokun), fresh; catfish, dried; catfish, smoked; chicken feet; chicken wings; dried fish sardine; evaporated tinned milk carnation 170 g; and evaporated tinned milk (peak) 170 g. Frozen chicken; gari, white, sold loose; gari, yellow; groundnut oil; iced sardine; Irish potato; mackerel; maize grain; mudfish (aro), fresh; mudfish, dried; onion bulb; palm oil; plantain (ripe); plantain (unripe); sweet potato; tilapia fish (epiya) fresh; titus (frozen); tomato; vegetable oil; wheat flour, prepacked (golden penny 2 kg); and yam tuber, among other commodities not included. The prices of those commodities vary from January to December in 2017. This is also similar in 2018 as presented in **Table 3**.

Table 4 presents the area of crops harvested (ha), yield of crop production (hg/ha) and output level of various crops (tonnes) from 1980 to 2015.

Various crops presented in **Table 4** include bast fibres, carrots and turnips, cashew nuts (with shell), cassava, chillies and peppers (dry), chillies and peppers (green), cocoa, beans, coconuts, coffee (green), cotton (lint), cottonseed, cow peas (dry), fibre crops (nes), fruit, citrus (nes), garlic, groundnuts, karite nuts (shea nuts), kola nuts, maize, maize (green), mangoes, mangosteens, guavas, melon seed, millet, nuts (nes), nuts (nes), oil palm fruit, oilseeds (nes), okra, onions (dry), shallots (green), palm kernels, papayas, potatoes, pulses (nes), rice (paddy), rubber (natural), seed cotton, sesame seed, sorghum, soybeans, spices (nes), sugar cane, sweet potatoes, taro (cocoyam), tobacco, unmanufactured, tomatoes, vegetables (fresh nes), wheat, yams, cereals (rice milled eqv), cereals (total), citrus fruit (total), coarse grain (total), fibre crops primary, fruit primary, oil crops, cake equivalent, pulses (total), roots and tubers (total), tree nuts (total), vegetables primary, etc.

Therefore, to ensure sustainable crop production, the agricultural sector needs to be invested on through various means like credit facilities and incentives such as social protection for the mitigation of risk and shocks [1]. Also, the nutritional level of plants should be improved through fertiliser application among other means to enhance crop yields [17].

4. Conclusion

The study aims at examining factors that improve agricultural production, especially crop yields that can be made possible by plant nutrients. Increase in crop production (food and cash crops) will lead to food security in the long run. The study employed a review of literature and stylised fact approach using tables to know the level of crop production in Nigeria. From the stylised facts and the reviewed literature, authors noticed that there are fluctuations of prices of food items in Nigeria.

With respect to the factors contributing to crop and agricultural production, employment in agriculture was observed to be a major factor. Also, the proportion of women in agriculture is higher than the proportion of men in agriculture; this invariably implies that women actually contribute more to production level. In this regard, to further enhance productivity, there should be equal access to

production resources such land, credit facilities, access to social protection incentives to mitigate risks and shocks and more innovation and technological advancement in the agricultural sector thereby improving the sustainability of crop production.

IntechOpen

IntechOpen

Author details

Romanus Osabohien* and Toun Ogunbiyi
Department of Economics and Development Studies, Covenant University, Ota,
Nigeria

*Address all correspondence to: romanus.osabohien@covenantuniversity.edu.n

IntechOpen

© 2019 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Osabohien R, Matthew O, Aderounmu B, Olawande T. Greenhouse gas emissions and crop production in West Africa: Examining the mitigating potential of social protection. *International Journal of Energy Economics and Policy*. 2019; 9(1):57-66
- [2] United State Institute of Agriculture and National Institute of Agriculture. Crop Production. 2019. Available from: <https://nifa.usda.gov/topic/crop-production>
- [3] International Atomic Energy Agency. Crop Nutrition. 2018. Retrieved from: <https://www.iaea.org/topics/crop-nutrition>
- [4] Obasi PC, Henri-Ukoha A, Ukwuihe IS, Chidiebere-Mark NM. Factors affecting agricultural productivity among arable crop farmers in Imo state Nigeria. *American Journal of Experimental Agriculture*. 2013;3(2): 443-454
- [5] Awodun MA, Otaru MS, Ojeniyi SO, Akintunde AY, Obigbesan GO, Kiru SK, et al. Effect of inorganic fertilizer and foliage of *Azadirachta* and *Parkia* species on the productivity of maize. *Asian Journal of Agricultural Research*, 2000;1(1):35-44
- [6] Ayeni FA, Sánchez B, Adeniyi BA, Clara G, Margolles A, Ruas-Madiedo P. Evaluation of the functional potential of *Weissella* and *Lactobacillus* isolates obtained from Nigerian traditional fermented foods and cow's intestine. *International Journal of Food Microbiology*. 2011;147(2): 97-104
- [7] Nottidge DO, Ojeniyi SO, Aswalam DO. A comparative effect of plant residue and NPK fertilizer on nutrient status and yield of maize in a humid. *Soil Nigerian Journal of Soil Science*. 2005;15:1-8
- [8] Enete AA, Amusa TA. Challenges of agricultural adaptation to climate change in Nigeria: A synthesis from the literature. *Field Actions Science Reports. The Journal of Field Actions*. 2010;4. Available from: <https://journals.openedition.org/factsreports/678>
- [9] Yobannes H. A review on relationship between climate change and agriculture. *Journal of Earth Science and Climate Change*. 2016;7(2): 335
- [10] Ufiobor KA. Nigerian Agriculture and Sustainability: Problems and Solutions. 2017. <https://www.theseus.fi/handle/10024/132525>
- [11] Nwajiuba CU, Amazu GO, Nwosu CS, Onyeneke RU. Motivation factors and constraints to the growth of small scale food processing enterprises in Owerri metropolis, Imo State, Nigeria. *International Journal of Entrepreneurship and Small Business*. 2013;19(4):488-497
- [12] Nations Encyclopedia. 2019. Retrieved from: <https://www.nationsencyclopedia.com/Africa/Nigeria-AGRICULTURE.html>
- [13] Food and Agricultural Organisation of the United Nations. 2017. Retrieved from: <http://www.fao.org/faostat/en/#data/EE>
- [14] International Food Policy Research Institute. 2010. Retrieved from: http://nssp.ifpri.info/files/2010/11/nssp-report-9_final.pdf
- [15] Ayoola GB, Chude VO, Abdulsalam AA. Towards a Fertilizer Regulatory Policy for Nigeria: An Inventorization of the Fertilizer Sector. 2002

[16] Ukojie J, Yusuf R. Organic fertilizer: The underestimated component in Agricultural Transformation Initiatives for Sustainable Small Holder Farming in Nigeria. *Ethiopian Journal of Environmental Studies and Management*. 2013;**6**:794-801

[17] Osabohien R, Afolabi A, Godwin A. An econometric analysis of food security and agricultural credit facilities in Nigeria. *The Open Agriculture Journal*. 2018;**12**:227-239