MAIZE PRODUCTION AND YIELD IMPROVEMENT IN NIGERIA
(1994-2013)
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Abstract
This study examined maize production, land area, yield and seed production in Nigeria. Secondary data for a 20 year period (1994 - 2013) assessed from FAO statistical division (FAOSTAT) was used for this study. The result showed that, maize production increased by about 45% while land area used for maize cultivation declined 4% during the study period. Yield of maize crop increased about 57% while seed production decreased about 5% during the study period. The increased maize production and yield was attributed to the recent achievements by breeders in the development and release of superior maize varieties and the liberalization of seed value chain that increased the availability of improve seed to farmers. Furthermore the shift to maize production from sorghum in the northern guinea savanna, and improved access to inputs subsidies as well as the increased funding for agricultural research must have played a central role in the increased maize productivity and yield in Nigeria. The study recommended that the government should ensure an increased access of farm inputs and improved production technologies to farmers.

Keywords: Maize, Production, Land Area, Yield and Seed

Introduction
Nigeria is currently the tenth largest producer of maize in the world, and the largest maize producer in Africa (IITA, 2012). It is estimated that seventy percent of farmers are smallholders accounting for 90 percent of total farm output (Cadini, P and Angelucci F, 2013). Maize crop started as a subsistence crop in Nigeria and has gradually risen to a commercial crop on which many agro-based industries depend on as raw materials (Iken, and Amusa, 2014). Maize is most productive in the middle and Northern belts of Nigeria, where sunshine is adequate and rainfall is moderate (Obi, 1991). Earlier attempt at Agricultural research in Nigeria was made in 1899 (Fakorede, et al., 1993), which was Initially directed at promoting the development of various cash crops including cocoa, oil palm, cotton, groundnut for export purposes. The release of TZB and TZPB that combine high yield with resistance to rust and blight developed at IITA coupled with the availability of subsidized fertilizer as well as improved infrastructure and extension services spearheaded the first maize revolution in Nigeria in the 1980’s (Shuaib, et al., 1997). However, the slow turnover of maize varieties and hybrids on farm coupled with limited availability of good quality improved seed, fertilizer and other inputs have minimized the potential yield recorded on farm in Nigeria (Adenola and Akinwumi 1993). The recent achievements by breeders in the development and release of superior maize varieties with higher yield potentials and better resistance to insect pests and diseases has played a central role in increase maize production in the country (Obi, 1992)

Materials and methods
Secondary data assessed from Food and Agricultural Organization (FAO) statistical division (FAOSTAT, 2015) were used for the study. The data series covered a period of 20 years (1994 to
2013). The analysis considered the total production, land area, yield per hectare and seed production for the period 1994 to 2013. The limitation of the FAO data is that it is largely calculated rather than measured. However, it is still more complete, accurate and dependable compared to the data from other sources.

**Results**

The result of maize production in Nigeria from 1994 to 2013 is presented in figure 1. Maize production increased by 45% between 1994 and 2013, but production stayed stable in 1994 and 1995 at about 6.9 million tonnes. This was followed by a steady decrease in production reaching its ever lowest level in the year 2000 when maize production stood at only about 4.1 million tonnes. Thereafter maize production increased steadily reaching about 7.1 million tonnes in 2006 before it slightly declined in 2007 and remained stable between 2008 and 2010. A steady increase was recorded reaching slightly above 10 million tonnes in 2013. The result for land area used for cultivation of maize in Nigeria from 1994 to 2013 is presented in figure 2. Land area for maize production declined 4% between 1994 and 2013. The area progressively declined from about 5.3 million hectares in 1994 to only about 3.1 million hectares in the year 2000. This was followed by a steady increase in land area used for cultivation of maize reaching about 3.6 million hectares in the year 2005. Thereafter the area remains stable at about 3.9 million hectares between 2006 and 2008 before it drops to 3.4 million hectares in 2009. A progressive increase in land area for maize cultivation was recorded in 2009 and 2011 reaches its highest level of 6 million hectares in 2011. Thereafter land area remains stable at about 5.2 million hectares in 2012 and 2013. The result for maize yield in Nigeria from 1994 to 2013 is presented in figure 3. Maize yield in Nigeria increased 57% between 1994 and 2013. However, the yield was stable at about 1118 to 1255 kg/ha between 1994 and 1997. This was followed by a slight increase to about 1600 kg/ha between 1997 and 1999 before it drops to about 1300 kg/ha in the year 2000. The yield progressively increased reaches its peak (2196 kg/ha) in 2009 before it progressively declined to about 1850 and 1528 kg/ha in 2009 and 2010 respectively. Thereafter the yield progressively increased in 2012 and 2013 to 1810 and 2000 kg/ha respectively. The result for seed production in Nigeria from 1994 to 2013 is presented in figure 4. Seed production declined 5% between 1994 and 2013. The highest seed production was recorded in 1994 (136800 kg) which progressively decreased to only about 78875 kg in 1999. Thereafter seed production slightly increased reaching 98600 kg in 2006 before it declined to 96125 and 83764 kg in 2007 and 2008 respectively. Seed production progressively increased reaching its peak in 2010 when about 150000 kg of seed was produced; thereafter production remained stable at about 130000 kg between 2011 and 2013.

**Discussion**

The shift of maize dry grain production to the savanna especially the Northern Guinea savanna must have been responsible for the increased productivity of maize in Nigeria. Farmers in this zone tend to prefer maize cultivation to sorghum. This coupled with the availability of streak resistant varieties and high-yielding hybrid varieties for all ecological zones in Nigeria brought about increased production of maize crop in Nigeria. The recent achievements by breeders in the development and release of superior maize varieties with higher yield potentials and better resistance to insect pests and diseases has played a role in increase maize production in the country. With the establishment of National Agricultural Seed Council, seed production and certification have taken a new turn in Nigeria following the proliferation of private seed companies, thus, improved seeds are readily available to farmers. The increased access to inputs subsidies by the farmers particularly fertilizers must have been responsible for increased maize
Fig. 1 Maize production (million tonnes) in Nigeria between 1994 and 2013

Fig. 2 Land area for maize production (million tonnes) in Nigeria between 1994 and 2013

Fig. 3 Maize yield (kg/ha) in Nigeria between 1994 and 2013
Fig. 4 Maize seed production (tonnes) in Nigeria between 1994 and 2013

production in Nigeria. The decreased land area for maize cultivation despite increased maize productivity indicated positive yield improvement during the study period.

Conclusion
This study revealed that, maize production increased 45% while land area used for maize cultivation declined 4% during the study period. Yield of maize crop increased about 57% while seed production decreased by about 5% during the study period. The study recommended that the government should ensure an increased accessibility of farm inputs and improved production technologies to farmers.

References