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Promoting Maize Productivity in Edo State: Linking Data and Policy

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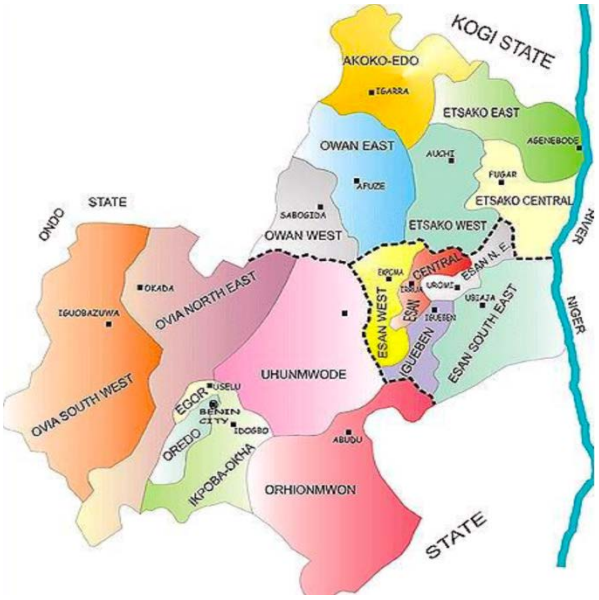
Introduction and background to Edo State

Edo State is located in the south-south geopolitical zone of Nigeria. The projected population for Edo State in 2015 was 4,124,835 (Edo State Statistical Year Book, 2013). There are 18 Local Government Area (LGA) councils (see Figure 1) spread over a land area of 1,745,000 hectares (ha), a good proportion of which is considered arable (Edo State Statistical Year Book, 2013).

Figure 1: Local Government Areas of Edo State



Source: Ogbeide (2015)

Even though the state is located in the forest agro-ecological zone, precipitation patterns are susceptible to variability. This is an important risk factor in agriculture (Odozi and Omonona, 2011).

Key Messages

- Maize production in Edo State increased three-fold between 2006 and 2015, but yields have remained low at an average of 1.35 MT/ha in 2014 and 2015.
- Current government programs have the potential to improve farmer productivity.
- Adequate attention needs to be paid to issues such as access to land, credit farm mechanization, marketing and value addition opportunities for maize.

Figure 2 presents indices of number of rainy days and rainfall over time. Relative to the base year, 2006, the rainfall index declined to – 22% in 2009 and peaked at 28% in 2011, followed by a decline to -8% in 2015. Relative to 2006, the number of rainy days registered a 52% increase followed by a decline to 5% in 2011. This indicator increased again to 83% in 2012 then fell to 18% in 2014.

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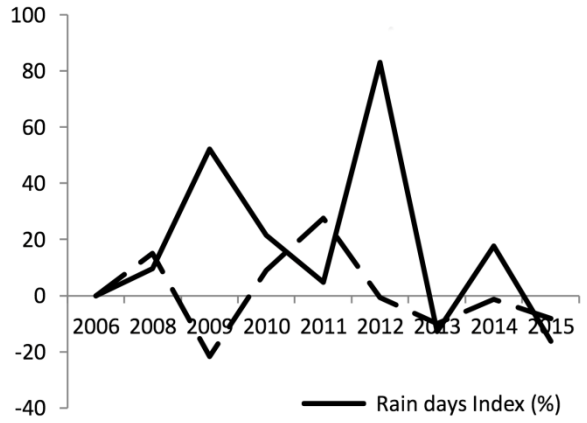
Figure 2: Pattern of rainfall and number of rainy days



Generated by authors from NAERLS data.

Maize in Edo State

One of the current administration's priority crops is maize (data.edostate.gov.ng). Besides maize, Edo State grows cassava, cocoyam, cowpea, groundnut, melon, rice and yam. The farmland allocated to maize amounted to 29% of total land devoted to food crop production between 2006 and 2009 (see Table 1). This percentage increased to 34% in the 2010-2012 period, but experienced a considerable decline to 13.1% in the 2013-2015 period. The gap between the land allocated to maize production and cassava, which is the primary crop grown in the state, increased between 2006 and 2015.

A look at the production output across different crops in the state shows that maize ranked third between 2006 and 2015 (see Table 2). However, it is important to note that maize production increased almost three-fold during the same period.

Government programs for maize in Edo State

Owing to the current government's focus on maize, there are several programs and strategies to support its production in the state. One example is the ongoing Agricultural Entrepreneurship Development program which includes targets framed around maize (data.edostate.gov.ng). The objective of this program is to generate employment for the rapidly growing youth population in the state and create wealth through agricultural activities. The target is to create 2,000 agri-entrepreneurs who would in turn create at least 30,000 jobs in crops and livestock production value chains. Specifically, 5,000 ha of land have been dedicated to maize grain production under the management of 1,000 agri-entrepreneurs for a total of 35,000 new jobs. Other areas to benefit from the program include cocoa, pig production and meat processing.

Table 1

Crops	Land allocation for maize compared with other crops, 2006-2015		
	2006-2009	2010-2012	2013-2015
	%	%	%
Maize	29.4	34.3	13.1
Cassava	29.7	44.9	43.8
Cocoyam	5.6	6.8	5.2
Cowpea	0	3.3	0.7
Groundnut	4	0.3	0.9
Rice	2.6	14	8.3
Yam	22.8	30.8	28

Source: Generated by authors from National Agricultural Extension and Research Liaison Services (NAERLS)

The Edo State Government (EDSG) is in charge of procuring the land, and carrying out land development including the setup of production infrastructures. A private company, (SARO Agrosciences Ltd), has been tasked with the provision of agro-inputs such as seeds, agrochemicals, fertilizers and land preparation activities. In addition, State-Special Purpose Vehicle (S-SPV) will ensure technical backstopping and product launching activities. Skilled nationals from the state have also pledged to support both EDSG and S-SPV as agri-entrepreneurs and out-

growers. To date, the program is being implemented on 2,600 ha of land in Usugbenu-Irrua Communal Farm, Sobe Farm Settlement, Ekpoma Farm Settlement, Igieduma community and Owuo community (data.edostate.gov.ng).

Table 2

Crops	Crop production output of maize compared with other crops 2006-2015		
	2006-2009	2010-2012	2013-2015
	'000 MT	'000 MT	'000 MT
Maize	41	77.4	117.6
Cassava	763.4	691.1	1293.5
Cocoyam	136.9	110.6	110.6
Cowpea	0	1.7	1.9
Groundnut	8.4	4.3	6.9
Rice	39	65.1	93.4
Yam	425.2	336	603.3

Source: Generated by authors from NAERLS

Land development is ongoing and should have been completed by the end of March 2017. The specific activities include the demarcation of land into 100-ha blocks per agri-entrepreneur and blocks into smaller units of 5 ha each. Each agri-entrepreneur is expected to hire 20 youths. Furthermore, there is an ongoing call for agri-entrepreneurs in the National Daily in collaboration with Edo Jobs. The online registration of agri-entrepreneurs and youths is also accessible (Edojobs.edostate.gov.ng). Finally, the campaign to raise awareness in project communities, the execution of MOUs between EDSG and the communities offering land is well underway.

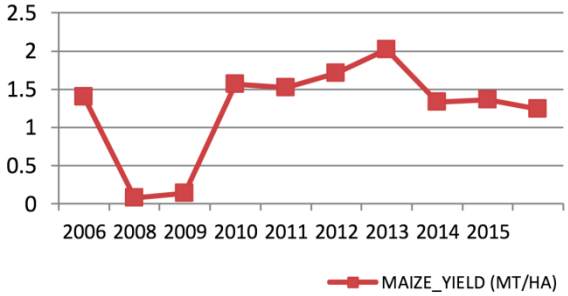
Table 3

Years	Production yield of maize and cassava, 2006 to 2015	
	Cassava	Maize
	MT/ha	MT/ha
2006	10.06	1.4
2008	10.53	0.08
2009	11.13	0.14
2010	-	1.57
2011	-	1.52
2012	3.05	1.71
2013	3.1	2.02
2014	5.41	1.33
2015	6.11	1.36
Avg.	5.49	1.24

Source: Generated by authors from NAERLS data

Table 3 and Figure 3 show that the 2014 and 2015 average yield for maize were 1.33 and 1.36 MT/ha respectively. This is lower than the national average of 1.85 MT/ha in 2014, according to the Food and Agricultural Organization (FAOStat, 2014). The years 2008 and 2009 are exceptions when Edo State registered extremely low yields of 0.008 and 0.14 MT/ha respectively due to pest, flooding, seed failure and non-availability of other inputs. On the other hand, the highest recorded yield of 2.02 MT/ha occurred in 2013 and is likely due to the positive effects of the Growth Enhancement Support Scheme and other programs in the state.

Figure 3: Maize yield in Edo State between 2006 and 2015



Source: Generated by authors from NAERLS data

Explaining the changes in maize productivity in Edo State

In the last few years, it appears that maize yields have not kept up with the 2 MT/ha attained in 2013 but remain lower at around 1.35 MT/ha. This suggests that it is important for the state to pay particular attention to the implementation of the different agricultural programs. The recent decrease in yield in 2014/2015 could be linked to the non-availability of improved seeds and fertilizer. It might also be due to other challenges in the state including limited access to land, credit and farm mechanization. Other factors limiting the effectiveness of existing programs are marketing and value addition related issues for maize. All of these negatively affect the farmers' incentives to invest in the maize enterprise.

It is generally accepted that to increase farmers' income and ensure national food security, the promotion of crop productivity is key. Productivity can be measured as the ratio of the output to unit of inputs used. It is determined by a number of factors such as the timely application of good quality fertilizer and other inputs, as well as the use of appropriate seed varieties. While conventional wisdom often suggests increasing fertilizer use, recent empirical evidence from Nigeria (Liverpool-Tasie et al, 2016a; Omonona et al, 2016) supports that increased productivity and profitability are possible through other means. These include the use of yield enhancing technologies, proper management practices, availability and use of multiple complementary inputs together (e.g. fertilizer with irrigation and improved seeds), proper attention to soil quality and nutrients, higher unit price of output and lower unit price of nitrogen. These studies also demonstrate the importance of bringing farmers closer to input and output markets. Liverpool-Tasie et al (2016b) show that a reduction in fertilizer prices induced by subsidies is less effective than a reduction in transportation costs, as subsidies reach only a few farmers. Furthermore, reducing transportation costs potentially increases the effective price for farmers' output while minimizing the price paid for inputs through lower transport costs.

Challenges to maize productivity growth

In spite of having experienced some gains in maize productivity in the past, Edo State still faces a number of challenges. These are related to issues of limited access to land, fertilizer, loan facility and farm mechanization. The state will also have to address marketing and value addition related issues, as well as inadequate extension services.

Conclusion and key recommendations

This policy note aims to link available data on farm production to existing programs on agriculture in Edo State. The objective is to help shed light on the extent to which government policies and private initiatives are driving agricultural productivity in the state.

The data reveals that Edo State experienced a drastic fall in maize yields in 2008/2009 followed by a considerable increase in yields in 2012/2013. To increase farmers' income and ensure national food security, it is critical to promote agricultural productivity. The focus of the current government in Edo State on maize productivity growth through the Agricultural Entrepreneurship Program is a promising development. Land preparation (opening up 5,000 ha of land, ploughing and harrowing) is currently underway across the state and can significantly address the limited access to land challenge in the state. Land is to be allocated to farmers, (particularly youth) who will also be provided with the necessary agricultural inputs. The government of Edo State has already secured an off-take agreement for future production from these farms. This idea of providing inputs and links to markets is key to creating the necessary incentives for rural farmers to invest in their maize enterprise. If the Agricultural Entrepreneurship Program is implemented as designed, Edo State should see a significant improvement in maize farmer productivity in the state.

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