

The Impact of Fertilizer Price Subsidy Policy on Agricultural Production in Makurdi Local Government Area of Benue State, Nigeria

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The research was undertaken to assess the effect of government fertilizer price subsidy policy on output of farmers in Makurdi local government area of Benue State, Nigeria. The study employed descriptive analysis using primary data that was obtained from structured questionnaires administered to farmers within Makurdi local government area. From the descriptive data analysis, the fertilizer price subsidy policy was found to have impacted positively on the output of farmers in the study area in

terms of fertilizer availability, accessibility and affordability. The farmers had difficulty of funds, land ownership, labour constraints, and scarcity of inputs, storage facility and poor fertilizer application.

Keywords: Fertilizer, price subsidy, agricultural production, Nigeria

INTRODUCTION

Agriculture is the economic heart of most developing countries and most likely source of significant economic growth. It has been observed as the major and certain path to economic growth and sustainability. In spite of the dominant role of the petroleum sector as the major foreign exchange earner, agriculture remains the main stay of the Nigerian economy. Apart from contributing the largest part of GDP, it is the largest non-oil export earner, the largest employer of labour and a key contribution to wealth creation and poverty reduction, as a large percentage of the population derive their income from agriculture and agriculture related activities. Agriculture has thus been and of course still remains an important and vital sector of the economy of Nigeria.

It is expected that the agriculture sector must be called upon in the future to supply more food to a growing and more prosperous population and to be a foreign exchange earner (Nagy and Edun, 2002). In order to generate more food for the growing population, the potential of agriculture has to be found. Nigeria has a great potential in food and cash crop production, to

expand output, increase productivity, become a net exporter and enhance food scarcity (Dickson, 2001). To increase productivity, Nigeria agricultural needs to enhance science-based technology and use of fertilizers improved seed and crop protection products. Since land expansion is limited, without science-based agricultural inputs, agricultural productivity will decline and fall.

African leaders and international policy makers and agricultural experts all at the African fertilizer summit on the 19th of June, 2006 highlighted both the significant challenges that African farmers face as a result of declining soil fertility and the potential productivity gain from the modest fertilizer use. They also reported that, soils which are depleted of nutrients and organic are unable to effectively retain and use water. The summit concluded that depleted soil must first be restored through the use of minerals and organic fertilizer, to make full use of the low and erratic rain that falls across the nations. Thus, various government in sub-saharan Africa have been working for decades to improve agricultural productivity in using fertilizer subsidy which is a tool that

has been used in various countries to improve yields by inducing farmers to use large quantities of fertilizers in Nigeria, the guiding principles following fertilizer use since 1976 comprised a predominant subsidy mechanism. The most important driving force to increase fertilizer use during the past three decades consists of direct market intervention policies through official procurement and distribution operation together with price subsidy.

The critical role of chemical fertilizers in agricultural future is well recognized because it is one of important means raising agricultural productivity through its enhancement of soil nutrients. Its use was projected to contribute about 60% of the incremental food output during forth national development plan period (Ogunfowora, 1993) and it was expected to play an ever increasing role in food production programmes. Fertilizer was incorporated among the class of "green revolution" technologies pushed under the Agricultural Development Projects (ADPs) launched in succession from 1970s to 1990s. The ADPs provided the gathering of farm support services namely, revamped extension services and revitalized input delivery systems, as well as improved rural infrastructures. Moreover, establishing industries for local production further enhanced availability of fertilizer. The prominent ones among these are: Federal Superphosphate Fertilizer Company (FSFC) established in the northern part of the country for phosphate products; the much larger National Fertilizer Company (NAFCON), established in the south for nitrogenous products. In addition, there are a number of small downstream blending plants for compound (NPIC) formulations (Ayoola, 1988).

Realizing the potential role of fertilizer in the process of agricultural, productivity policies were designed to stimulate the supply and demand for fertilizer. The fertilizer price subsidy policy was one of such programmes that were put in place to facilitate the accelerated food production. How efficient and effective is this fertilizer price subsidy policy on food production in Nigeria? Considering the perennial food shortage across the country as indicated by escalating food prices and massive food importation, there is the need to examine the effect of Nigerian fertilizers subsidy policy on agricultural output of Nigerian farmers. The implementation of the fertilizer subsidy policy was nationwide in Nigeria with each state and local government council benefiting (CBN, 2014). It may therefore not be out of place to select a particular local government in any state of the federation for study for the purpose of drawing inferences. Makurdi local government is chosen because of several comparative advantages as the state capital, the LGA has played host of several agricultural agencies and ministry of agriculture. The presence of river Benue has influenced irrigation farming, those given rise to two farming seasons which all requires fertilizer application. One of the ADPs, the

Benue Agricultural and Rural Development Agency (BNARDA) has divided Makurdi LGA agriculturally into stone farming blocks and respective cells. This can ease access to farmers and data necessary for completing this research work. While the broad objective of this research is to examine the effect of fertilizer price subsidy on the output of farmers in Makurdi local government area of Benue state, the specific objectives are to: assess the availability of subsidised fertilizer in the study area, assess the affordability of subsidised fertilizer in the study area, examine farmers' accessibility to subsidised fertilizer in the study area and ascertain the extent to which the output of farmers in the study has changed with the application of subsidised fertilizer. Even though, the agricultural fertilizer subsidy policy is a national policy but the work only covers Makurdi LGA as a case study. As earlier indicated, Makurdi LGA is the capital of Benue state but surrounding the metropolis are very large centre of agricultural productivity like Angbaaye, Apir, Adaka and Agan and the presence of river Benue has facilitated even dry season farming along the banks. The presence of the state ministry of agriculture and BNARDA, farmers in Makurdi LGA are more prone and exposed to agricultural information emanating from policy prescriptions of government. The scope in terms of the time period is a point estimate; it is the current year 2016. Some secondary data would be sourced from BNARDA for 10 years (2006-2015) to confirm the result that would be obtained from the respondents across the agricultural blocks in the study area using the questionnaire.

The concept and types of fertilizer

The Oxford Advanced Learners Dictionary defined fertilizer as any substance added to the soil to increase its fertility. The Glossary of Soil Science defined fertilizer as any organic or inorganic material of natural or synthetic origin that is added to the soil to supply one or more plant nutrients essential to the growth of plants. The conservative estimates reported that between 30% and 50% of crops yields are attributed to natural or synthetic commercial fertilizer (Isokari, 1995). Fertilizers can come in various forms, with the most typical form known as solid fertilizer in granulated or powdered form. The next most common form is liquid fertilizer; there are also slow release fertilizers which reduce the problem of burning the plants due to excess nitrogen. Thus, fertilizer can be grouped into organic and inorganic fertilizer. Inorganic fertilizers as the name implies, are not from organic substances. Inorganic or commercial fertilizers nearly always are readily dissolved and unless added have few other macro and micro plant nutrients or added any bulk to the soil. Nearly all nitrogen that plants use is in the form of NH_3 or NO_3 compounds. The usable Phosphorus Compounds are usually in the form of Phosphoric acid (H_3PO_4) and the Potassium (K) is typically

in the form of Potassium Chloride (KCl). Inorganic fertilizers are usually much more concentrated with up to 64% (18-46-0) of their weight being a given plant nutrient, compared to organic fertilizers that only provide 0.4% or less of their weight as a given plant nutrient. Compound fertilizers often combine N, P, and K fertilizers into easily dissolved pellets. The NPK ratio quoted on fertilizers give the weight percent of the fertilizers in nitrogen (N), Phosphate (P_2O_5) and potash (K_2O equivalent). The use of commercial or inorganic fertilizers has increased steadily in the last 50 years, rising almost 20-fold to the current rate of 100million tones of nitrogen per year (Grass, 2003). Without inorganic fertilizers, it is estimated that about one-third of the food produced now could not be produced.

Organic fertilizers include naturally occurring organic materials like chicken litter, manure worm casting, compost, seaweed, guano and borne meal or naturally occurring mineral deposits like saltpeter. Organic fertilizers normally require inorganic fertilizers and particularly synthetic nitrogen to make up for the losses to leaching, to the atmosphere, runoff and the losses impractical to cover. However, organic fertilizers have been known to improve biodiversity and long-term productivity of soil. Organic nutrients increase the abundance of soil organisms by providing organic matter and macronutrients for organisms such as fungal mycorrhiza and can drastically reduce external inputs of pesticides, energy and fertilizer, at the cost of decreased yield.

Agriculture and agricultural output conceptualized

Agriculture is an industry or enterprise employing the knowledge of the various sciences and disciplines for the production of food, feed, fiber and fuel (Youdeowei, 1985). Its development is however becoming an increasingly complex phenomenon, particularly in developing countries like Nigeria, which has to aggressively produce food to equilibrate with the growth of the population. It is defined as the cultivation of land, raising and rearing of animals, for the purpose of production of food for man, feed for animals, and raw materials for industries (Anyanwu, 1993). It also involves forestry, fishing processing and marketing of these agricultural products. Essentially, it is composed of crops production, livestock, and fishing (Anyanwu, 1993). According to Anyanwu *et al* (1997), agricultural output cannot be easily defined but rather explained. This is due to the fact that a variety of activities are involved in the production process and variety of outcomes is expected. Agricultural output is therefore the product of agricultural production. However, Dakare, (2004) defined agricultural production as a continuous process of making conscious and systematic attempts of utilizing the agricultural resources of a country for the benefit of agricultural

workers and farmers in particular and the entire economic population in general and agricultural output as the quantity of products derived from a production process. Just like in an organization, agricultural production entails a combination of input investment and output expectation.

Abubi, (2001) expanded the view when he contended that agricultural production is synonymous with rural transformation, that is, the structural change of an economy from pristine agricultural subsistence to investment dominated agriculture. According to the World Bank (2007), agricultural output is measured in terms of total produce from agricultural investment while agricultural production is be measured in terms of food prices, food supply and the share of agriculture as a percentage of the GDP. The World Bank report called for greater investment in agriculture in the developing countries to avoid the impending consequences of hike in food prices and general hunger as they also constitute obstacles towards achieving MDGs. In the context of this research work therefore, agricultural output refers to the total output produced while agricultural production refers to all activities relating to production. The two can therefore be used interchangeably.

The fertilizer price subsidy policy

The motive for government involvement in fertilizer production, procurement and distribution was that fertilizer was seen as a vital input that should not be left in the hands of private sector which the World Bank regarded as exploitative (World Bank, 2007). The justification for government involvement according to Ogunfowora (1993) was in two folds (i) to ensure availability of fertilizer on time and at fair prices throughout the country, (ii) to promote increased consumption and profitability of agriculture through intensive extension activities by agricultural agencies. Mwangi, (1997) observed that the third justification was on the grounds that small scale farmers who predominates agricultural production may not afford to pay high cost of fertilizer. As fertilizer consumption in Nigeria increases, the inadequacies of public sector controlled procurement and distribution arrangements began to manifest in leakages and transit losses, cross border trade in fertilizer, late and non- deliveries of fertilizer to designated depots, artificial scarcity and unsustainable subsidy burden on government (Isokari, 1995). Middlemen were made beneficiaries while farmers pay exorbitant prices for fertilizers when and if they get to buy (Tandem and Naraya, 2003). The fertilizer price policy was introduced in 1976 but re-invigorated with a new policy document in 2006 immediately after the summit of African Leaders and Agricultural experts to ensure that at all times; there exist a uniform price for the same products all over the country regardless of the differences in landing costs and market forces at different

locations and agro-ecological zones. The subsidy provision covered several components of the price including portions of the imported products and mark-ups of locally produced products, as well as the whole distribution cost comprising haulage, warehousing and handling.

The subsidy policy has witnessed some problems such as massive abuse in terms of diversion of benefits to unintended beneficiaries; smuggling of products to neighbouring countries; fiscal burden on government among other challenges. This led to the gradual reduction of subsidy to the current 25% level administered to the quantity of fertilizer purchased by government under the present market stabilization policy. The federal government was supposed to subsidized fertilizer by 25% while states were also to add 25% subsidy such that the farmers could purchase at ₦2,750 per bag instead of ₦5,000 and ₦6,000, which is the market price. Thus, the literature is divided on the effectiveness of fertilizer subsidies with two clear schools of thought emerging recently. Druilhe and Hurle, (2012) indicates that available evidence suggests that fertilizer subsidy policy has been effective in raising fertilizer use, average crop yields and output generally but that success depends on programme implementation. On the other hand, traditional arguments against subsidies have centred on distortions to the inputs market through displacement, welfare losses, financial costs, efficiency, and sustainability and social ends for those supporting pro-poor and vulnerable groups (Filipski and Taylor, 2011). This research will provide some inferential answers to this emerging debate using Makurdi as a case study.

Theoretical framework: The theory of optimal intervention

This is a theory of government intervention in economic development promulgated by Keynes in the 1920s. Keynes (1936) discarded the classical policy of laissez-faire because he believed that enlightened self interest did not always operate in the public interest but in the interest of the few selfish private capitalists. Keynes therefore favours government and stresses the importance of public expenditure to enhance macroeconomic performance (Jhingan, 2007). This theory focuses on government programme from which the wider society would benefit, and that these benefits were not properly reflected in the market prices. In this case, government might choose between imposing tariffs on competing imports and or directly subsidizing the economic sector concern. If tariffs are used, prices would increase but if subsidy is used, domestic would decrease and agricultural output would increase and the multiplier effect would be enormous. This serves as a good theoretical justification for government control of fertilizer prices through subsidy for increased agricultural

production.

Recent empirical literature

Ayinde et al. (2009) examined the effect of fertilizer policy on crop production in Nigeria between 1990 and 2005 using t-test and multiple regression models. The researchers discovered insufficient supply of fertilizer, low fertilizer use rate, high price of the input and poor distribution as the key problems of the policy. Ammani et al. (2010) examined the effects of fertilizer liberalization on maize production in Nigeria within the time period of 1990 – 2006. A multiple regression model was specified with aggregate fertilizer use, maize hectareage and a dummy variable designed to capture the effects of the changes induced by fertilizer liberalization measure as explanatory variables with aggregate maize output as the dependent variable. Results from the study indicated a significant decrease in aggregate maize production following the federal government's liberalization of fertilizer sector in 1997. Abula and Muhammed, (2013) undertook a study on the impact of fertilizer subsidy on cassava production in Nigeria between 1986 and 2010. Time series analysis data for the year 1986-2010 was estimated with relative price elasticity of demand in Nigeria, fertilizer price and land area used as independent variables while annual cassava output was the dependent variable. Employing the OLS regression, the result indicated positive correlation between land use and cassava output. Robert and Nie, (2015) evaluated the effects of fertilizer subsidy programmes on vulnerable farmers in Kenya using multiple regression models. The result indicated lack of title papers on land, poor collateral for financial loans and poor application of the input. It can be seen from the foregoing that, empirical literature on the subject matter is scanty and in fact, no researcher has undertaken a research to access the impact of fertilizer price subsidy policy in Makurdi. Makurdi is not just the headquarters of Benue state but also the headquarters of agricultural production for both dry and rainy seasons. This is the empirical gap this research is set out to fill.

METHODOLOGY

Makurdi LGA has an estimated population of 297,398 out of which the female population is 140,103 by the National Population Commission (NPC, 2007). Given credence to the CBN (2014) report that 70% of the population are farmers, it implies that 208,179 farmers exist in the local government and the government has provided ₦2000 subsidies for each 50kg of organic fertilizers supplied to the farmers every year. As earlier mentioned, BNARDA has divided Makurdi local government agriculturally into three blocks. The distribution of the crops and

technologies in the three blocks are not different and the cultural or management practices are almost uniform. A stratified random sampling procedure was used in the selection of farmers for the study. The sample size was statistically determined by using Taro Yamane formula at the significant level of 95% (0.05).

$$n = \frac{N}{1 + N (e^2)}$$

Where; n = sample size, N = population under study, e = margin of error (0.05) and 1 = constant. It follows that:

$$n = \frac{208,179}{1 + 208,179 (0.05^2)} = \frac{208,179}{1 + 208,179 (0.025)} = \frac{208,179}{1 + 520,4475} = \frac{208,179}{521,4475} = 399$$

Therefore the sample size is 399. The three agricultural blocks are Apir, Naka and Uikpam each with two cells (Apir - Gaadi and Angbaaye; Naka - Adaka and Agboughul; Uikpam - Agan and Kanshio) respectively. Each agricultural block was equally treated and given 133 questionnaires while a cell was given 66 questionnaires and the other one was given 67 questionnaires in each of the agricultural block. Secondary data was searched from the annual reports of the CBN, NBS, BNARDA and agricultural ministry. Data was neatly presented in tables, charts and other relevant descriptive tools.

RESULTS AND DISCUSSION

The analysis of (Table 1) shows that most of the farmers who benefited from the fertilizer price subsidy policy in Makurdi local government area were in the age groups of 25-39 years. This result is very consistent with the submission of Abula and Muhammed, (2013) that farmers who mostly adopted farm production practices in Nigeria were young in age with less number of years of farming experience but with greater energy for productive activities. Farmers who were over 40 years of age did not benefit significantly due to hazardous nature of farming activities. Farmers who fall between the age groups of 25-39 years accounted for over 65% of the farmers sampled. With respect to education as contained in (Table 2), the result showed that the farmers who benefited from the fertilizer price subsidy policy were not influenced by their level of education. The result did not conform with the submissions of Robert and Nei, (2015) that farmers' access to agricultural technologies and their ability to comprehend same is compromised where they lack basic education since 57% of the rural farmers who benefited from the subsidy policy had no serious formal education or at most secondary education. This result appeared to support the school of thought that the basic

needs of farmers is farm input and labour support for agricultural production and not formal education as this may alienate them from their traditional beliefs and extended family system. It also conforms to the practical happenings in Nigeria's agricultural sector where the most educated people are too big to be engaged in farming activities. They rather prefer searching for white collar jobs in the cities thereby worsening the food supply situation and rural-urban drift in the country.

The relative importance of the sources of information to the farmers is shown in (Table 3) above. The extension agents were the most important source of information to farmers. In essence, the extension agents carried out extensive campaign concerning the existence of the fertilizer price subsidy policy to the farmers. The survey showed that 31.6% of the farmers became aware of the policy through the activities of extension agents. Radio/Television group ranked second with 24.3% of the women benefiting from this source followed by other farmers with 22.7% of the respondents. Thus the positive contributions of the print media to early adoption of technologies notwithstanding, the minimal use of the print media as a source of information by the farmers may be attributed to the low literacy level of most of the farmers sampled. The first objective of this study was to examine whether or not the subsidized fertilizer was always available to farmers in Makurdi local government area. To achieve this objective, both primary and secondary data was used. The secondary data were obtained from BNARDA office in Makurdi while the primary data were sourced directly from the farmers through a structured questionnaire (Table 4).

Farmers were asked if the subsidized fertilizer is available in the study area. Out of the 395 farmers sampled within the three agricultural blocks in Makurdi, 63% of the farmers accepted that the subsidized fertilizer was always available to them during farming seasons. 37% of the farmers rejected that subsidized fertilizer was not always available in the study area. It can however, be concluded that since majority of the farmers accepted the fact that the subsidized fertilizer is always available to them, this represents the impact of the subsidy policy in the study area. The policy had thus made fertilizer available to majority of farmers sampled in the study area.

From (Table 5), it can be seen that fertilizer distribution in Makurdi increased from 118,100 tonnes from 2006 to 1,835,000 tonnes in 2015. The data thus confirm the availability of fertilizer in the study area as shown in table 4.4. The second objective of the study was to examine whether or not the subsidized fertilizer was always affordable to farmers in Makurdi local government area. Secondary data from BNARDA and primary data from the farmers was used to provide solution to this objective as contained in the following (Tables 6 -7).

Out of the 395 farmers sampled within the six agricultural cells in Makurdi, over 71% of the farmers

Table 1. Distribution of respondents by age.

Age of Respondents	Frequency	Percentage (%)
15-19	42	10.6
20-24	36	9.1
25-29	88	22.3
30-34	92	23.3
35-39	73	19.6
40-44	18	4.5
45-49	24	6.07
50+	22	5.6
Total	395	100

Source: Field Survey (2017).

Table 2. Distribution of respondents by level of education.

Educational Status	Frequency	Percentage (%)
None	38	9.6
Primary	108	27.3
Secondary	122	30.8
NCE/Diploma	41	10.4
Degree	42	10.6
Post Graduate	44	11.2
Total	395	99.9

Source: Field Survey (2017).

Table 3. Distribution of respondents according to sources of information.

Source of Information	Frequency	Percentage (%)
Radio/Television	96	24.3
Extension Agents	125	31.6
Other Farmers	90	22.7
Print Media	70	17.7
Field Days	11	2.7
Newspaper	3	0.7
Total	395	100

Source: Field Survey (2017).

Table 4. Whether or not the subsidized fertilizer is always available.

Responses	Gaadi	Angbaaye	Adaka	Agboghur	Agan	Kanshio	Total	%
Yes	46	37	36	49	46	36	250	63
No	19	29	20	17	20	30	145	37
Total	65	66	66	66	66	66	395	100

Source: Field Survey (2017).

accepted that the price of the subsidized fertilizer was affordable to them during farming seasons compared with market prices. Over 29% of the farmers rejected that subsidized fertilizer was not always affordable in the study area. On this objective too, it can be concluded that since majority of the farmers accepted the fact that the subsidized fertilizer is always affordable, this represents the impact of the subsidy policy in the area. The policy had thus made fertilizer affordable to majority of farmers

sampled in the study area. The record from BNARDA office as at January, 2016 shows that the price of subsidized fertilizer rose from ₦1,600 in 2006 to ₦5,400 in 2015 (Table 5). As the quantity of fertilizer continued to increase, the price responded to it accordingly. The increased demand for the commodity by farmers may have been one of the reasons for this development. Farmers were now asked to indicate whether this price is affordable or not. Their responses show that the price is

Table 5. Fertilizer distributed to farmers in Makurdi LGA from 2006 to 2015.

Year	Organic Fertilizer Distributed	Fertilizer Price	Quantity of Output (kg)
2006	11100	1600	118100
2007	365500	1800	1365500
2008	500000	3000	1500000
2009	608000	3000	1608000
2010	800000	3200	1800000
2011	745000	3800	1745000
2012	800000	4200	1800000
2013	600000	5000	1600000
2014	800000	5200	1800000
2015	835000	5400	1835000

Source: BNARDA, (2017).

Table 6. Whether or not the subsidized fertilizer is always affordable.

Responses	Gaadi	Angbaaye	Adaka	Agboghur	Agan	Kanshio	Total	%
Yes	46	40	54	56	38	46	280	71
No	19	26	12	10	28	20	115	29
Total	65	66	66	66	66	66	395	100

Source: Field Survey (2017).

Table 7. To examine whether or not the subsidized fertilizer is always accessible.

Responses	Gaadi	Angbaaye	Adaka	Agboghur	Agan	Kanshio	Total	%
Yes	50	41	48	40	56	40	275	70
No	15	25	18	26	10	26	120	30
Total	65	66	66	66	66	66	395	100

Source: Field Survey (2017).

Table 8. To examine if the fertilizer price subsidy has change the output of farmers.

Responses	Gaadi	Angbaaye	Adaka	Agboghur	Agan	Kanshio	Total	%
Yes	55	58	44	41	56	46	300	76
No	10	08	22	25	10	20	95	24
Total	65	66	66	66	66	66	395	100

Source: Field Survey (2017).

affordable as contain in (Table 6). The third objective of the study was to examine whether or not the subsidized fertilizer was always accessible to farmers in Makurdi local government area. Here there was no secondary data from BNARDA to show accessibility. The researcher reverted to primary data as opined by his respondents. The result is displayed in (Table 7).

In (Table 7), out of the 395 farmers sampled within the three agricultural blocks in Makurdi, over 70% of the farmers accepted that the subsidized fertilizer was always accessible to them during farming seasons. Over 30% of the farmers however rejected that subsidized fertilizer was not always accessible in the study area. On

this objective too, it can be concluded that since majority of the farmers accepted the fact that the subsidized fertilizer is always accessible, this represents the impact of the subsidy policy in the area. The policy had thus made fertilizer accessible to majority of farmers sampled in the study area. The fourth objective of this study was to ascertain the extent to which the output of farmers in the study area has change with the application of subsidized fertilizer. The result is shown in (Table 8).

From (Table 8), it can be seen that out of the 395 farmers sampled within the three agricultural blocks in Makurdi, 76% of the farmers accepted that the subsidized fertilizer has change the output of farmers in the study

Table 9. Major crops produced by farmers in Makurdi LGA.

Main Crops	Frequency	Percentage (%)
Cassava	35	8.9
Maize	80	20.2
Yam	15	3.8
Rice	145	36.7
Dry Season Vegetables	120	30.4
Total	395	100

Source: Field Survey (2017).

area. 24% of the farmers however rejected that subsidized fertilizer has not changed the quantity of output in the study area. On this objective too, it can be concluded that since majority of the farmers accepted the fact that the subsidized fertilizer has changed the quantity of output, this represents the impact of the subsidy policy in the study area. The record from BNARDA office as at January, 2016 as contained in Table 4.5 above shows that the quantity of the output rose from 118,100 in 2006 to 1,835,000 in 2015. As the quantity of fertilizer continued to increase, the quantity of output responded to it accordingly. This confirms the result obtained from the respondents through the structured questionnaire administered that there is a positive change on the output of farmers in study area. From (Table 9), it can be deduced that cassava, maize, yam, rice and dry season vegetables were the major agricultural crops produced in Makurdi Local Government Area. Rice was the major produce with 36.7% of the farmers' sampled producing the product. It was followed by dry season vegetables (30.4%), maize (20.2%), cassava (8.9%) and Yam (3.3%) respectively. Rice, Yam, Maize and Cassava are some of the major staple food crops in this area. Dry season vegetable farming was mass adopted by farmers based on the presence of a very conducive environment, the presence of River Benue and other smaller rivers as a sure source of water supply and the fertile alluvial banks for cultivation and proximity to Makurdi township markets such as Wurukum, North Bank, Wadata, High-level and Modern Market where the output is easily sold off.

Conclusion

The research was undertaken to assess the effect of government fertilizer price subsidy policy on output of farmers in Makurdi Local Government Area of Benue State. The study employed descriptive analysis using primary data that was obtained from structured questionnaires administered to farmers within Makurdi local government area. From the descriptive data analysis, the fertilizer price subsidy policy was found to have impacted positively on the output of farmers in the study area. Base on the questionnaire administered and collected the result shows that 63% of farmers accepted

the fact that the subsidized fertilizer is always available in the study area and 37% of farmers rejected that the subsidized is not always available in the study area. Also 71% of farmers sampled accepted that the subsidized fertilizer is always affordable in the study area, 29% of farmers rejected that the subsidized fertilizer is not always affordable in the study area. The result also indicated that 70% of farmers sampled accepted that the subsidized fertilizer is always accessible to farmers in the study area while 30% of farmers rejected that the subsidized fertilizer is not always accessible to farmers in the study area. In the same vain 76% of farmers sampled accepted that their output has increased with the application of the subsidized fertilizer, while 24% of farmers sampled rejected that there is no change on their output with the application of the subsidized fertilizer. From the findings it is clearly shown that the fertilizer price subsidy contributed positively on the output of farmers in the study area. In spite of these contributions, the policy implementation was found to have encountered some problems as the farmers had difficulty of funds, land ownership, labour constraints, scarcity of inputs storage facility and poor fertilizer application.

Recommendations

- (i) There is the need for the government to improve the operational framework of the programme to ensure continued availability, affordability and accessibility of the subsidized fertilizer in Nigeria.
- (ii) The land tenure system in Nigeria has to be amended to ensure that farm land is readily available to all Nigerian farmers. This can be easily achieved if farm settlements are created throughout the country.
- (iii) Extension agents should intensify campaign on the existence of the subsidy programme and proper usage of fertilizer for optimum productivity.
- (iv) It is high time for the government to improve on storage facilities in Nigeria to eliminate harvest and post harvest losses.
- (v) There is a very serious problem of labour scarcity in Nigeria. There must be a deliberate way of encouraging youths to be massively engaged in agriculture for farm labour availability in Nigeria.

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