

EFFECT OF NATIONAL SPECIAL PROGRAMME ON FOOD SECURITY (NSPFS) ON THE PRODUCTIVITY OF SMALL-HOLDER CASSAVA FARMERS IN SOUTH-EASTERN, NIGERIA

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Abstract

The study examined the effect of National Special Programme on Food Security (NSPFS) on cassava productivity among small holder farmers in South-East, Nigeria. Specifically, it described the socio-economic characteristics of beneficiaries of NSPFS in the area, ascertained the level of adoption of NSPFS extension recommendations on cassava production by farmers, and determined the effect of National Special Programme on Food Security on cassava production in the study area. Purposive and multi-stage random sampling techniques were utilized in selecting three hundred and sixty respondents (comprised 180 NSPFS participants and 180 non-participants) used for the study. Data were obtained with the aid of structured interview schedule and Focus Group Discussion, and analyzed using descriptive and inferential statistics such as percentages, means and Z-test. From the results, grand mean score of 2.31 shows moderate level of adoption of NSPFS extension recommendations on cassava production by farmers in South-East, Nigeria. The findings showed significant difference between cassava yield of participants and non-participants. The National Special Programme on Food Security increased cassava production in South-East, Nigeria. The null hypothesis that the National Special Programme on Food security has not significantly increased yield of cassava was, therefore, rejected, while the alternative hypothesis was accepted. The study therefore recommended that more farmers should be encouraged by Government to participate in the next phase of the National Special Programme on Food Security for increased food production, income and enhanced standard of living.

Keywords: Adoption, Cassava production and National Special Programme on Food Security

Introduction

Agriculture drives the improvement of nutrition for people, and holds the key to serious efforts to addressing their socio-economic problems worldwide. It provides employment for about 70% of Nigeria's labour force, and supplies at least 90% of the country's food requirements and raw materials for industries (Haggblade *et al.*, 2014). It contributes 40% to GDP against oil's 15 – 18% (very unstable and fluctuates with world market oil prices), and is the largest foreign exchange earner, after oil (Gregg, 2013). It is only by paying attention to the agricultural sector that Nigerian economy can grow and address such basic concern as food security. Past governments at various times have formulated and implemented various food security and agricultural extension programmes to enhance agriculture and rural development. The programmes include: National Accelerated Food Production Programme (NAFPP) in 1972; Agricultural Development Projects (ADP) in 1975; Operation Feed the Nation (OFN) in 1976; River Basin Development Authorities (RBDAs) in 1976; Green Revolution (GR) in 1980. Others are the Directorate for Food, Roads and Rural Infrastructures (DFRRI) in 1986; Better Life Programme (BLP) for Rural Women in 1987; National Agricultural Land Development Authority (NALDA) in 1992; National Fadama Development Project (NFDP) in early 1990s; National Economic Empowerment and Development Strategy (NEEDS) in 1999; and National Special Programme on Food Security (NSPFS) in 2002. These concerted efforts of government do not seem to have significantly enhanced food security in the country.

The Federal Government of Nigeria renewed its commitment to promoting growth in the agricultural sector, and with assistance from FAO, implemented the Special Programme for Food Security (SPFS) as a pilot programme in Kano State. SPFS is an integrated agricultural production programme seeking to increase household food security for poor farming communities in Nigeria. The programme's objectives include identifying, adapting, testing and promoting intervention packages that promote growth in the agricultural sector (Gberevbie, 2012). According to United Nation's Food and Agricultural Organization (2012), the Special Programme on Food Security (NSPFS) began operations in Nigeria in 2002 following the Director-General's review of FAO priorities, programmes and strategies. This review concluded that there was an urgent need to focus on the following:

- improving food security;
- increasing food production;
- improving stability of supplies, and
- generating rural employment.

However, the main objective of the SPFS was to help Low Income Food Deficit Countries (LIFDCs) improve national and household food security in an economically and environmentally sustainable way. It advocates a participatory approach through demonstrating better ways of increasing production and identifying and resolving the range of constraints which are technical and institutional. It draws on Agenda 21 (which was unanimously adopted at the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro), which states that the major thrust of food security is to bring about a significant increase in agricultural production in a sustainable way, and to achieve a substantial improvement in people's entitlement to adequate food and culturally-appropriate food supplies (Onugu, 2007).

The National Special Programme on Food Security was implemented in a stepwise fashion, starting with pilot activities initially at a few locations, which were progressively scaled up with the aim of gaining pilot experience in all major agro-ecological zones of the country. The pilot phase focused on household and community level food security and livelihood issues, while the first phase tackled these issues at national level so as to open the way for more scaling-up. The first phase was up-scaled into a five-year, nation-wide Special Programme for Food Security (SPFS) between 2002 and 2006, covering the 36 states of the country with a total programme cost of USD 45.2 million exclusively funded by the Federal Government of Nigeria. The nationwide SPFS programme was completed in June 2006 and has already demonstrated very positive impact (Dauda and Ajayi, 2009). Realizing the need to improve small-scale production and sustainable agriculture for food security to reduce hunger rapidly, the government expanded the programme to more sites in each of the 36 states and in Abuja, from 2007 to 2014. At this expansion phase, the programme was renamed National Special Programme on Food Security (NSPFS) in 2007. According to PCU-NSPFSO (2011), the broad objectives of the programme include;

- increasing food production and eliminating rural poverty;
- assisting farmers in increasing their output, productivity and income;
- strengthening the effectiveness of research and extension service training;
- educating farmers on farm management for effective utilization of resources;
- supporting governments efforts in the promotion of simple technologies for self-sufficiency;
- consolidating initial efforts of the programme on pilot areas for maximum output and ease of replication;
- consolidating gains from the pilot phase of National Special Programme on Food Security for continuity of the programme; and
- consequent termination of externally-assisted programmes and projects.

Setbacks associated with the programme were seen in the inability of majority of the beneficiaries to repay their loan on time, complexity and incompatibility of innovation and difficulty in

integrating technology into existing production systems. Others included: insufficient knowledge of credit use, poor extension agent- farmer contact, unavailability of labour to carry out essential farming activities, lack of modern storage facilities and high cost of farm input (Iwuchukwu and Igbokwe, 2012). It was expected that the programme would improve national food security, reduce pressure on national resources and reliance on food aid, and stimulate wider economic development. National Special Programme on Food Security (NSPFS) is farmer-driven as all activities are based on farmers' demands. The farmers' demand can be summarized as follows:

- timely provision of agricultural inputs; and
- access to credit to acquire inputs.

The NSPFS mandate is to respond to these farmer-driven demands in a timely and coordinated fashion (Ihekoronye, 2013). Farmers in South-East Nigeria engage predominantly in cassava production. Cassava is one of the major staple crops and is widely grown and consumed in Nigeria, and is inclusive in food security crops in the country. The implementation of National Special Programme on Food Security in Nigeria was expected to have improved cassava production in South-East Nigeria, among other objectives. However, the programme with all the laudable objectives ended in 2014, but the extent to which it has increased food production is apparently unknown. It is in this regard that this study was conceived. Specifically, the study described the socio-economic characteristics of beneficiaries of NSPFS, ascertained the level of adoption of NSPFS extension recommendations on cassava production by farmers, and determined the effect of National Special Programme on Food Security on cassava production in the study area.

Methodology

The study was conducted in South-Eastern Nigeria. The area lies within latitude 5° 20' and 7° 75' North, and longitude 6° 85' and 8° 46' East of equator and covers a land area of about 28,987 square kilometers, or 3.19 percent of the total land area of Nigeria. The Zone is made up of five states, namely, Abia, Anambra, Ebonyi, Enugu and Imo States. The states in the zone share similar characteristics (NPC, 2006). The zone covers the bulk of the Igbo-speaking ethnic territory or Igboland. The area lies mainly on plains under 200m above sea level. It is bounded on the south by Akwa Ibom and Rivers States, on the east by Cross River State, on the west by river Niger and Delta State, and on the north by Benue State (Monanu, 2000). The people of South-East Nigeria, especially the rural dwellers, engage mainly in subsistence farming. The major crops grown are yam, cassava, oil palm, cocoyam, rice, cocoa, maize, plantain, melon and okro. The respondents for the study were selected through purposive and multistage random sampling techniques from South-East Nigeria. There were four States that participated in the National Special Programme on Food Security in the zone. Three States namely Ebonyi, Enugu and Imo States were randomly selected from the four States that participated in the programme. Three agricultural zones were purposively selected from each of the selected States. This gave a total of nine agricultural zones. They were Okigwe, Orlu, Owerri in Imo State; Nsukka, Enugu, Awgu in Enugu State; Ebonyi North, Ebonyi Central and Ebonyi South in Ebonyi State. Two blocks were randomly selected from each of the selected agricultural zone; two circles were randomly selected from each of the blocks selected. Five participants of NSPFS were randomly selected from the list of participants in each of the selected circle, while five non-participants were randomly selected from the list of non-participants in the thirty-six selected circles. The lists of farmers were obtained from the respective circle extension agents. A total of Three hundred and sixty respondents were interviewed, comprised 180 NSPFS participants and 180 non-participants. Data were obtained with the aid of structured interview schedule and Focus Group Discussion, and analyzed using descriptive and inferential statistics such as percentages, means and t-test. To determine level of adoption of NSPFS extension recommendations, farmers' responses were categorized into: Never adopted (1point), Adopted and stopped (2 points), Adopted and still using recommendations (3 points). The value assigned to the adoption levels in each technology were calculated thus: $1+2+3 = 6/3 = 2.0$. Therefore, a mean score of less than 2.05 is poor/low level of adoption, mean score from 2.05 - 2.5 is moderate level

of adoption, while mean score greater than 2.50 is high level of adoption. To determine effect of the NSPFS on cassava production, the null hypothesis that the National Special Programme on Food Security has not significantly increased cassava yield in South-East, Nigeria was tested at 5% level using t-test. They participants and non-participants indicated their yield per hectare in the last cropping season from cassava production. Mean yield of cassava was computed and used to calculate the Z-test by applying this formula:

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$$

Where t = calculated value

\bar{X}_1 = Mean yield score of cassava for NSPFS participants

\bar{X}_2 = Mean yield score of cassava for non-participants

n_1 = Sample size of NSPFS participants

n_2 = Sample size of non-participants

σ_1^2 = Standard error for NSPFS participants

σ_2^2 = Standard error for non-participants

Results and Discussion

Socio-Economic Characteristics of Beneficiaries of NSPFS in South-Eastern, Nigeria

The results in Table 1 show that the mean age was 43 years. It revealed that they beneficiaries are within the active and productive working class. This is in agreement with Ifenkwe and Umeh (2014) that active age of farmers is a positive factor to sustainable food production and poverty alleviation among farmers and improved agricultural extension. The mean household size of the beneficiaries of the National Special Programme on Food Security in south-east Nigeria was 7 persons. It is an indication that families in south-east Nigeria have large family members. The mean farming experience of the NSPFS beneficiaries was 13 years.

This shows that most of the participants are young/or middle aged. Years of farming experience could give indication of the practical knowledge acquired in farming, especially the importance of participation in agricultural programmes like the NSPFS. On the average, the beneficiaries had secondary school education. This indicates that farmers in South-East Nigeria are literate. Educational attainment is a desirable condition for agricultural development, since it augurs well for adoption of new technologies and participation in agricultural programmes.

Table 1: Socio-Economic Characteristics of NSPFS Beneficiaries in South-East, Nigeria.

Variables	Imo (n=60)	Enugu (n=60)	Ebonyi (n=60)	Pooled (n=180)	Mean \bar{X}
Age (years)					
21 – 30	5(8.3)	2(3.3)	1(1.7)	8(4.4)	
31 – 40	13(21.7)	9(15.0)	9(15.0)	31(17.2)	
41 – 50	40(66.7)	46(76.7)	45(75.0)	131(72.8)	43years
Above 50	2(3.3)	3(5.0)	5(8.3)	10(5.6)	
Gender					
Male	39 (65.0)	42(70.0)	43(71.7)	124(68.9)	
Female	21 (35.0)	18(30.0)	17(28.3)	56(31.1)	
Household Size (No.)					
1 – 5	10(16.7)	16(26.7)	15(25.0)	41(22.8)	
6 – 10	46(76.6)	39(65.0)	35(58.3)	120(66.6)	7 persons
11 – 15	4(6.7)	5(8.3)	10(16.7)	19(10.6)	
Farming Experience (years)					
1 – 10	17(28.3)	11(18.3)	11(18.3)	39(21.6)	
11 – 20	29(48.3)	32(53.3)	25(41.7)	86(47.8)	13 years
21 – 30	9(15.0)	10(16.7)	12(20.0)	31(17.2)	
31 – 40	2(3.3)	6(10.0)	7(11.7)	15(8.3)	
Above 40	3(5.0)	1(1.7)	5(8.3)	9(5.0)	
Farm Size (ha)					
Cassava					
< 1	20(33.3)	17(28.3)	15(25.0)	52(28.9)	1 ha
1 - 2	40(66.7)	43(71.7)	45(75.0)	128(71.1)	
Educational level					
No formal education	1(1.7)	3(8.3)	18(30.0)	24(13.3)	
Primary	15(25.0)	16(26.7)	5(8.3)	36(20.0)	
Secondary	34(56.7)	31(51.7)	32(53.3)	97(53.9)	12 years
OND	1(1.7)	5(8.3)	1(1.7)	7(3.9)	
HND	2(3.3)	2(3.3)	3(5.0)	7(3.9)	
BSc	5(8.3)	1(1.7)	1(1.7)	7(3.9)	
PGD	-	-	-	-	
Msc	2(3.3)	-	-	2(1.1)	
PhD	-	-	-	-	

Source: Field Survey, 2016. Figures in parenthesis are percentages.

Level of Adoption of NSPFS Extension Recommendations on Cassava by Farmers

The results in Table 2 show the level of adoption of NSPFS extension recommendations for cassava production by farmers. Grand mean score of 2.31 shows that there was moderate level of adoption of NSPFS extension recommendations for cassava production by farmers in South-East, Nigeria. There was high level of adoption of cassava processing (2.98), soil fertility improvement (2.93), early planting of cassava (2.92), improved cassava variety production (2.85), cassava/maize/egusi intercrop (2.75) and fertilizer application (2.78), while there was low level of adoption of book keeping (1.47), herbicides application (1.25) and soil sampling (1.09) extension recommendations on cassava by farmers. It is expected that high level of adoption of extension recommendations on cassava would lead to increase in cassava production and yield in the study area. This agrees with Agbarevo and Obinne (2009) that there is significant effect of adoption of research and extension recommendations by farmers on the yield of crop.

Table 2: Level of Adoption of NSPFS Extension Recommendations on Cassava by Farmers
Mean Adoption Scores

Recommendations	Imo	Enugu	Ebonyi	Mean	x
Improved Cassava variety production	3.00	2.78	2.78	2.85**	
Cassava/Maize/Egusi intercrop	2.73	2.72	2.80	2.75**	
Early planting of cassava	3.00	2.88	2.87	2.92**	
Fertilizer application	2.78	2.50	2.35	2.54**	
Soil fertility improvement	2.88	2.97	2.95	2.93**	
Soil sampling	1.07	1.12	1.07	1.09	
Processing	2.95	3.00	3.00	2.98**	
Herbicides application	1.27	1.23	1.25	1.25	
Book keeping	1.88	1.37	1.15	1.47	
Grand mean	2.40	2.29	2.25	2.31*	

Source: Field Survey, 2016. **High level of adoption, *Moderate level of adoption

Effect of NSPFS on Cassava Yield of Farmers

Information in Table 3 shows the effect of NSPFS programme on cassava yield of farmers in South-East, Nigeria. Results show significant difference between cassava yield of participants and non-participants in the zone. The cassava yield of NSPFS participants was 15.69 t/ha, while that of non-participants was 7.50 t/ha. The value of t-calculated is greater than the value of t-tabulated. This implies that the National Special Programme on Food Security increased cassava production in South-East, Nigeria. Hence, the t-test rejects the null hypothesis that, the National Special Programme on Food security has not significantly increased yield of cassava in the study area, while the alternative hypothesis is accepted at 5% level. This is in agreement with Elemi *et al.* (2015) that the National Special Programme on Food Security increased yield of cassava in Cross River State, Nigeria.

Table 3: Z-test Analysis of Significance of Difference between Cassava Yield of NSPFS Participants and Non-participants

NSPFS	N	Mean	SD	t- tabulated	t-calculated
Participants	180	15.69	2.3069	1.96	1453.61**
Non-participants	180	7.50	1.7158		

Source: Field Survey, 2016. **Significance at 5%

Conclusion

The National Special Programme on Food Security has succeeded in increasing the cassava yield of participants. Hence, it has partly met its mandate of incremental food production, which is geared towards ensuring food security in South-East, Nigeria. However, the effect of this incremental food production does not seem to be very visible because of the small proportion of cassava farmers that participated in the programme. If all or majority of the farmers in the region participated in the programme, the food security would have been achieved relative to cassava production. The study therefore recommended that more farmers should be encouraged by Government to participate in the next phase of the National Special Programme on Food Security for increased food production, income and enhanced standard of living.

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