

Original Research Article

Impact of Root and Tuber Expansion Programme: the Case of Gari Processors in Kwara State, Nigeria

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Abstract

This research was conducted to assess the impact of Root and Tuber Expansion Programme (RTEP) in Kwara State, Nigeria. This impact was examined through a comparative study of project beneficiaries and non-beneficiaries, namely, their personal characteristics, economic characteristics and statistical difference between socio-economic characteristics of respondents. A total of one hundred and sixty (160) respondents were selected using a simple random sampling technique. These consisted of eighty (80) RTEP beneficiaries and eighty (80) Non-beneficiaries. Structured interview schedule was used to collect the data. Descriptive and inferential statistical tools such as frequency counts and percentages and t-test were used to analyse the data. The results of the analysis show that most RTEP beneficiaries (43.75%) and non-RTEP beneficiaries (31.25%) processors were within the age range of 41–50 years. RTEP beneficiaries (51.3%) produced higher quantity of gari (a West African food made from cassava tubers) above 500 kg per month and hence higher amount of money spent in purchasing cassava tubers as compared to the non-RTEP beneficiaries (3.75%) counterparts. Our findings further show that there were significant differences between the quantity of gari produced (t -value = 8.832 at $P < 0.05$) and the total monthly income (t -value = 7.475 at $P < 0.05$). It was concluded that the project has impacted positively on the beneficiaries through improved productivity and income generation. To reduce the high cost of purchasing cassava tubers to process into gari, this study suggests that extension agents through the RTEP programme should encourage and train gari processors to engage in cultivation of cassava.

Keywords: personal characteristics; economic characteristics; gender; beneficiary and non-beneficiaries; *Manihot esculenta*.

INTRODUCTION

The agricultural sector as the mainstay of the Nigerian economy in terms of its contribution to the Gross Domestic product, export earning, food supply and employment has not been registering appreciable increase in growth in recent years (Central Bank of Nigeria [CBN], 2005). Agriculture contributes immensely to the Nigerian economy in various ways, namely, in the provision of food for the increasing population, supply of raw materials to the local industries etc. Lack of enough capital and high level of poverty among these farmers has led to the unimpressive performance of the agricultural sector due to their inability to embark on large scale farming (Ajibefun, 2007).

Productions of root and tuber crops as well as other food crops are paramount in order to boost the contribution of agriculture to National Development. Hence, the Root and Tuber Expansion Programme (RTEP) as a National Agricultural Initiative was conceived in 2001 in Nigeria as a follow-up phase

to extend support to other roots and tubers production and processing of yam (*Dioscorea* spp.), potatoes (*Solanum tuberosum*) and cassava (*Manihot esculenta*). The RTEP was designed to be implemented in 27 cassava-producing states (Kwara State inclusive; IFAD, 2001). RTEP was formulated to address issues of food production and rural poverty (RTEP, 2010). At the local farmers' level, the program aims to achieve economic growth, improve access of the poor to social services and carry out intervention measures to protect poor and vulnerable groups. At the national level, the program was designed to achieve food security and stimulate demand for cheaper staple food such as cassava (*Manihot esculenta*), yam, cocoyam and potato.

Literature had reported that RTEP had contributed to agricultural development in Enugu South Local Government Area and more people are now involved in agriculture due to the benefit of this programme (Mgbakor et al., 2013). Root and tuber expansion programme made a significant impact on the socio-economic status of the programme

participating farmers in plateau state as their socio-economic status differed greatly from that of non-programme participant farmers (Okeh et al., 2014). A significant increase in productivity of the beneficiaries of Root and Tuber Expansion Programme technologies in Lagos and Ogun States was reported by Jaji et al. (2013).

In Kwara State, Ayinde et al. (2012) concluded that RTEP had impacted on its beneficiaries of root and tuber crop farmers in the State and that the capital investment in the programme by both the Federal and State Governments is justifiable. Putting into consideration the other focus of RTEP for improved root and tuber processing and marketing with the knowledge that gari (a West African food made from cassava tubers) processors in Irepodun LGA were aware of cassava processing innovations and majority of them adopt the innovations (Adisa et al., 2013). It is imperative to examine the impact of Root and Tuber Expansion Programme (RTEP) for improved root and tuber processing in Kwara state.

The main objective of this study is to assess the impact of RTEP among gari processors in Kwara State, Nigeria. The specific objectives of the study are to examine: (i) the personal characteristic of gari processors that are RTEP beneficiaries and non-beneficiaries in the study area, (ii) the economic characteristic of gari processors that are RTEP beneficiaries and non-beneficiaries in the study area, and (iii) the statistical difference between selected socio-economic characteristics of RTEP beneficiaries and non-beneficiaries in the study area.

MATERIALS AND METHODS

The study was carried out in Zone D of Kwara State Agricultural Development Project comprising of seven Local Government Areas: Ifelodun, Irepodun, Isin, Oke-Ero, Ekiti, Offa and Oyun with the headquarter located in Igbaja town. Members of RTEP gari processing groups, individual processors who are non-beneficiaries, both male and female were considered for the study, i.e. beneficiaries and non-beneficiaries of RTEP programme.

A three stage sampling procedure was used for the study. Two (2) (Ifelodun and Oke-ero) Local Governments Areas (LGAs) were purposely selected first. The choice of the selected LGAs was because of the high rate of gari processing activities in the area. The second stage consisted of purposive selections of four (4) villages where RTEP processing centres are located in each of the selected LGAs. Thirdly, from the list of 8 villages selected from the two LGAs, 10 beneficiaries from RTEP project sites and 10 non-beneficiaries of the RTEP were randomly selected from the list gari processors and cooperative groups. A total of one hundred and sixty (160) respondents were thus used for this study.

Structured questionnaires was used to collect information related the objectives of the study. Data collected were analyzed with descriptive and inferential statistics. Descriptive statistics used were frequency counts and percentages while inferential statistics used was t-test analysis.

RESULTS AND DISCUSSION

Personal characteristics of gari processors

Table 1 shows that both RTEP beneficiaries and non-RTEP beneficiaries were mostly within age range of 41–50 years. This study implies that large proportions of the old people were involved in cassava processing activities alongside few youths. This poses a great danger to processing as a trade in future time to come. This finding agrees with Amao et al. (2005) that most cassava processors were 45 years and younger.

Females dominate cassava processing activities among the RTEP beneficiaries and Non-RTEP beneficiaries. This is an indication that women are more involved in cassava processing than men in the study area. This finding corroborates the study by Oguleye et al. (2008); Oloyede and Ayinde (2011) that cassava processing is one of the off-farm activities carried out by the rural women and that women play a dominant role in processing and marketing of cassava as gari.

Cassava processing activities are predominantly in the hands of married processors. This implies that majority of the processors in the study area may have responsibilities to cater for in their respective homes. This factor is suggested to favourably influence the adoption of technologies of the Root and Tuber Expansion Programme in order to earn more income. In a similar view of Ogunjimi et al. (2012), the married men and women are considered to be more responsible in African traditional society. They further opined that marital status of a farmer could have significant influence on production decisions, since it is assumed that a person having family would want to have the best results that would translate to more output and consequently, income to meet family needs.

Furthermore, most of the respondents had no formal education. Education is known to be one of the important weapons for social change. It is also directly related to the level of adoption of new technologies. In essence, the literacy level of RTEP participants is somewhat higher than that of Non-RTEP and it will go a long way to influence the productivity level. Similar findings by Oluwasola (2010) reported a low level of education among cassava processors in Oyo state.

Household size of cassava processors of both beneficiaries and non-beneficiaries of the RTEP were mostly between 6 to 10 members. This is relatively

Table 1. Personal characteristics of gari processors

Variables	RTEP beneficiary (n = 80) Frequency (%)	RTEP Non-beneficiary (n = 80) Frequency (%)
Age (years)		
21–30	9 (11.25)	9 (11.25)
31–40	19 (23.75)	17 (21.25)
41–50	35 (43.75)	25 (31.25)
51–60	16 (20.00)	20 (25.00)
> 60	1 (1.25)	9 (11.25)
Gender		
Male	17 (21.25)	20 (25.00)
Female	63 (78.75)	60 (75.00)
Marital status		
Single	6 (7.50)	4 (5.00)
Married	58 (72.50)	57 (71.25)
Widow	9 (11.25)	14 (17.50)
Divorced	7 (8.75)	5 (6.25)
Educational qualification		
No formal education	25 (31.25)	28 (35.00)
Arabic Education	10 (12.50)	22 (27.50)
Adult Education	8 (10.00)	10 (12.50)
Primary Education	16 (20.00)	9 (11.25)
Secondary Education	13 (16.25)	6 (7.50)
Tertiary Education	8 (10.00)	5 (6.25)
Household size		
1–5 members	31 (38.75)	34 (42.50)
6–10 members	34 (42.50)	37 (46.25)
11–15 members	13 (16.25)	7 (8.75)
16–20 members	2 (2.50)	2 (2.50)
Year of processing experience		
1–10	30 (37.50)	29 (36.25)
11–20	45 (56.25)	40 (50.00)
21–30	5 (6.25)	11 (13.75)

large household size. With this large family size, more family labour could be available for gari processing activities thereby reducing the cost to be spent in hiring labour because family labour is a cheap source of labour compared to hired labour.

Most of the beneficiaries and non beneficiaries of the RTEP had gari processing experience of 11 to 20 years. It means that respondents in the study area have long years of experience in gari processing and could be that gari processing provides a reliable means of livelihood for the processors.

Economic characteristics of gari processors

Table 2 shows that the majority of the RTEP beneficiaries process more (1500–3000 tubers) of cassava as compared to non-beneficiaries of RTEP. This could be as a result of the supply of modern processing facilities/equipments to groups and units through the RTEP fundings. Higher amount of

money spent in purchasing cassava tubers, processing cassava tubers, quantity of gari produced and income per month were observed among RTEP beneficiaries. This could be attributed to larger quantity of cassava tubers being used by beneficiaries and their accessibility to modern processing equipment through RTEP. This result supports the assertion by Obisesan and Omonona (2013) that food insecurity incidence of RTEP beneficiaries was lower than that of the non-beneficiaries. Increase in income from cassava processing among RTEP beneficiaries is not surprising as results presented in Table 2 further show that more of the RTEP beneficiaries engage in gari processing as their only sources of income as compared to their non-beneficiaries counterparts. Findings in this study conform to Tijani and Thomas (2011) that access to improved elements of RTEP had contributed to increase in cassava output after the intervention.

Table 2. Economic characteristics of gari processors

Variables	RTEP beneficiary (n = 80) Frequency (%)	RTEP Non-beneficiary(n = 80) Frequency (%)
Average quantity of cassava tubers used (Kg):		
<1500	11(13.75)	47(58.75)
1500 – 3000	61(76.25)	33(41.25)
>3000	8(10.00)	0(0.0)
Amount spent per month on cassava tuber (Naira):		
5000–15,000	45(56.35)	74(92.50)
15,000 – 25000	20(25.00)	6(7.50)
25,000–35,000	14(17.50)	
35,000	1(1.25)	
Processing cost per month (Naira):		
<5000	3(3.75)	16(20.00)
5000–15,000	48(60.00)	60(75.00)
15,000 – 25000	21(26.25)	4(5.00)
25,000–35,000	7(8.75)	
35,000	1(1.25)	
Quantity of gari produced monthly (kg):		
< 250	6(7.50)	41(51.25)
250–500	33(41.25)	36(45.00)
500 – 750	26(13.75)	3(3.75)
750–1,000	11(13.75)	
1,000	4(5.00)	
Sources of income		
Gari Processing	44(55.00)	27(33.75)
Gari Processing & other sources	36(45.00)	53(66.25)
Monthly income from gari (N)		
<20,000	3(3.75)	40(50.00)
20,000–40,000	35(43.75)	36(45.00)
40,001–60,000	26(32.50)	36(45.00)
>60,000	16(20.00)	4(5.00)
Total income (Naira)		
<30,000	9(11.25)	40(50.00)
30,000–60,000	53(66.25)	40(50.00)
60,001–90,000	16(20.00)	
>90,000	2(2.50)	

Note: 1 Nigeria naira = 0.002778 US dollar

Test of hypothesis

Null hypothesis: There is no significant difference in the selected socio-economic characteristics of RTEP and Non-RTEP beneficiaries.

The result of the analysis presented in Table 3 revealed that there is no significant difference in the age, household size and years of experience of RTEP and non-RTEP beneficiaries, hence the null hypothesis is accepted. This implies that increase or decrease in age, household size and experience in years of gari processing of respondents, will have no effects on the level RTEP impact on gari processors in Kwara State.

Table 3 also shows that there is a significant difference between the output of RTEP beneficiaries and non-beneficiaries in the study area. The null hypothesis was therefore rejected and alternative hypothesis accepted. This implies that the quantity of gari produced by RTEP beneficiaries is significantly greater than those produced by non-RTEP beneficiaries. This difference could arise largely from the fact that RTEP beneficiaries are able to produce more due to their empowerment with modern processing equipments. A similar study by Jaji et al. (2013) also shows a significant relationship between the use of Root and Tuber Expansion Programme technologies and productivity of farmers in Lagos and Ogun States.

Table 3. Test of significance of differences between the personal characteristics of RTEP beneficiaries and non-beneficiaries

Variable	Mean	Std Dev.	SE Mn	Df	Calculated t-value	Table t-value	P value
Age							
Beneficiary	42.24	9.02	1.01	158	-1.517	1.960	0.131
Non-beneficiary	44.73	11.56	1.29				
Household size							
Beneficiary	7.09	3.28	0.37	158	1.022	1.960	0.308
Non-beneficiary	6.58	3.06	0.3				
Year of Experience							
Beneficiary	12.19	5.82	0.65	158	-1.411	1.960	0.160
Non-beneficiary	13.74	7.92	0.88				
Gari produce (kg)							
Beneficiary	571.38	253.66	28.36	158	8.832	1.960*	0.000
Non-beneficiary	295.06	118.18	13.21				
Monthly income (Naira)							
Beneficiary	48326.25	18472.35	2065.27	158	7.475	1.96*	0.000
Non-beneficiary	30321.88	11087.00	1239.57				

Significant at 0.05 level

Significant difference between the total monthly income of RTEP beneficiaries and non-beneficiaries was also observed in the results presented in Table 3. By this result, this study rejected the null hypothesis and the alternative hypothesis was accepted instead. Total monthly income is used in testing for significance because it takes care of income from other sources. The table reveals that income from gari processing alone constituted a greater part. By implication, the total monthly income of RTEP beneficiaries was higher than those of Non-RTEP counterparts and where gari processing is the only source, the total monthly income is still higher for RTEP beneficiaries. This result therefore justifies the earlier statement in Table 2. This finding also corroborates Okeh et al. (2014) who found that root and tuber expansion programme made a significant impact on the socio-economic status of the Programme Participant farmers in plateau state as their socio-economic status differed greatly from that of Non-programme participant farmers.

CONCLUSION

Based on findings in this study, Root and Tuber Expansion Programme in Kwara state was found to have impacted positively on the beneficiaries in the study area. The result shows that RTEP through their empowerment programme have helped to raise the level of productivity and income of the beneficiaries in the gari processing unit.

RECOMMENDATIONS

The following recommendations are made in relation to the findings of this study:

To reduce the high cost of purchasing of cassava tubers to process into gari, this study suggest that extension agents through the RTEP programme should encourage and train gari processors to engage in cultivation of cassava.

Government at all levels in conjunction with the donor agencies should ensure prompt payment of their counterpart funds so as to enhance the sustainability and widening their number of beneficiaries to cover all the local governments in the state as this will help to improve the economic base of the state, it will also reduce poverty.

Gari processors should be further enlightened and empowered to diversify into the processing of other economically valuable products like starch, flour, chips. This will help them to generate more income and by extension improve their living standard. It will also help to reduce wastes.

REFERENCES

- Ajibefun I. A. (2007): Technical Efficiency Analysis of Nigerian Cassava Farmers; A guide for food security policy. A paper prepared for presentation at the Annual Conference of Nigerian Association of Agricultural Economic (NAAE), Consolidation of Growth and Development in Agricultural sector, Abubakar Tafawa Balewa University, Bauchi 2nd to 5th October, 2007. www.ideas.repec.org/p/ags/iaa06/25473.html. Accessed 10/7/2017
- Adisa R. S., Olatinwo K. B., Shola-Adido O. (2013): Adoption of Cassava Processing Innovations among Rural Women in Irepodun Local Government Area, Kwara State, Nigeria. *PAT Journal* 9: 1–12.

- Amao J. O., Oluwatayo I. B., Ladipo T. O. (2005): Influence of organizational innovations on gari processing in Nigeria. *Nigerian Journal of Rural Sociology* 5: 74–79.
- CBN (2005): Nigeria's Agricultural Sector Assessment: Issues of Technology Development and Transfer in Ikpi Ag USAID, Washington D. C., USA, pp. 12–15.
- IFAD (2001): <http://www.fidafrique.net/ntbrique174.html> Accessed October, 2016
- Jaji M. F. O., Yusuf-Oshoala M. A., Issa F. O. (2013): Root and Tuber Expansion Programme Technologies and Farmers productivities in Lagos and Ogun states of Nigeria. *International Journal of Sustainable Development* 6: 95–102.
- Mgbakor M., Damian O., Nnenna C. A. (2013): Contributions of Root and Tuber Expansion Programmes to Agricultural Development in Enugu South Local Government Area of Enugu State, Nigeria. *Academic Journal of Plant Sciences* 6: 122–126. DOI:10.5829/idosi.ajps.2013.6.3.1112
- Obisesan A. A., Omonona B. T. (2013): The Impact of RTEP Technology Adoption on Food Security Status of Cassava-Farming Households in Southwest, Nigeria. *Greener Journal of Agricultural Sciences* 3: 474–480.
- Ogunjimi S. I., Obaniyi K. S., Adedeji I. A. (2012): Peri-urban and urban farmers' perceptions of mini-livestock farming in Southwestern Nigeria. *Research Journal of Social Science and Management* 2:81–83.
- Oluwasola O. (2010): Stimulating rural employment and income for cassava (*Manihot* sp.) processing farming households in Oyo state, Nigeria through policy initiatives. *Journal of Development and Agricultural Economics* 2(2): 18–25. www.academicjournals.org/journal/JDAE/article-full-text-pdf/44D52DB4301
- Okeh B. I., Atala T. K., Ahmed B., Omokore D. O. (2014): Socio-Economic Impact of Root and Tuber Expansion Programme on Rural Farmers in Plateau State. *Journal of Agriculture and Veterinary Science* 7: 1–7. <http://www.iosrjournals.org/iosr-javs/papers/vol7-issue7/Version-3/A07730107.pdf>
- Tijani S. A., Thomas K. A. (2011): Effectiveness of root and tuber expansion programme on cassava farmers production in Remo area of Ogun State. *Ozean Journal of Applied Sciences* 4: 295–306.

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