



**Evaluation of Potentials for Commercialization of Crops by Smallholder Farmers in South East
Nigeria.**

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ABSTRACT

The study evaluated potentials for commercialization of crops by smallholder farmers in South-East Nigeria. Data were collected with a structured questionnaire from 408 randomly selected crop farmers. The data were analyzed using descriptive statistics. The results show that the crop with the highest potential for commercialization was cassava enterprise. The major products generated are gari (80%) and cassava fufu (60%). Farmers that adopted more technologies have a higher level of commercialization. The major source of credit is personal savings. However, cross-tabulation between technology level and credit source shows that most of the farmers (34%) engaged in Isusu adopted more technologies than those involved in personal savings. Improvement in the farmer's credit source and requisite training skills would enhance the potentials for commercialization of the crops by farmers in the area.

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1.0 Introduction

In South-East Nigeria, yield-enhancing technologies have been employed in agricultural practices to increase farm productivity (Maetins and Barret 2019). There seems to be an inadequate expansion of market opportunities for products, such that smallholder farmers can benefit more from the increased crop production.

This would result in a cycle of abundant harvest or glut during the on-season followed by scarcity and high cost during the off-season. The resultant decline of available and affordable food coupled with the increasing population becomes a national challenge. Increased crop yield

coupled with market-oriented technology adds value to the farmer's produce and minimizes post-harvest losses, thereby enhancing the commercialization potentials of the crop.

Commercialization entails technology changes that enhance the use of increased input and transformation of the produce generated into competitive processed forms for home consumption or as industrial raw materials. The potential to add value to a product depends on the ability to keep the intermediate input cost low and increase the price of the finished product (Kasie et al., 2011). The high operational cost associated with poor technologies results in low product quality with non-competitive prices. This therefore, affects viability and profitability (Eboh, Lemchi,

Nwajiuba, Enwere and Osa-Afiang 2008). Commercialization based on the technological progress of smallholder production increases income and employment through intersectional linkages with the long-run goal of enhancing food security. It basically transforms the farm into a venture that would create opportunities to access competitive markets characterized by sales at higher prices and large quantities. According to Pradham et.al 2010, agricultural commercialization refers to the process of increasing the proportion of agricultural products sold by farmers. This may be achieved either through an increase in output from the same input or the same output from the reduced quantity of input. Abu 2015, indicated that the market value of the traded and non-traded inputs are assessed. And as commercialization increases, there is a gradual substitution of non-traded inputs for traded ones such as human labour for mechanized labour and local foodstuff for specialized food packages.

However, the bulk of the farmers are smallholder farmers characterized by the use of indigenous, labour-intensive, less efficient technologies resulting in considerable post-harvest loss. It becomes imperative to evaluate commercialization potentials of major crops in the area.

2.0 Materials and method

The study was carried out in three states in South-East Nigeria; Abia, Ebonyi and Enugu States. South-East Nigeria has a population of 22 million people (NPC, 2006). A multistage, sampling technique was used to select the Agricultural zone, Local Government Areas and registered farmers. In the first

stage, purposive sampling was employed in selecting three states. Secondly, one agricultural zone was selected from each state, and three Local Government Areas (LGAs) from each state gave a total of 9 LGAs. In the fourth and fifth stages, four communities and one village in each community were randomly selected from the LGA. This gave a total number of 36 Communities and 36 villages respectively. Finally, proportionate and random sampling techniques were used to select 408 registered farmers comprising 32 farmers from Abia state, 72 farmers from Ebonyi state and 304 farmers from Enugu State.

Primary data were collected using an interview schedule based on a structured questionnaire. The data collected were analyzed using descriptive statistics and Household Commercialization Index.

The household commercialization index (HCI) was captured using the formula defined by Strasberg et al 1999.

$$\frac{\text{Gross value of crop sales per household per year}}{\text{Gross value of crop production per household per year}} \times 100$$

Values closer to 100 depict high commercialization

3.0 Results and discussion

3.1. Awareness of technologies by farmers

The awareness of technology predisposes the farmers to its adoption

Table 1: Awareness of Improved Technologies by Farmers

Crop	Frequency	Production Technologies							Processing Technologies				Percentage
		IV	IF	H	P	YB	TR	RM	TM	GM	DM	YM	
Cassava	306	25	15	7	4	-	2	-	-	22	-	-	75
Yam	163	13	11	3	2	8	2	-	-	-	-	1	40
Rice	216	12	10	7	6	-	1	9	3	-	-	-	53
Maize	224	21	14	10	9	-	1	-	-	-	-	-	55

Source: Survey data, 2019

key; IV = improved variety, IF= inorganic fertilizer, H= herbicide, P=pesticide
 RM =rice mill, TR = tractorisation; YB =yam barn; TM = threshing machine
 GM =Gari processing machine; DM= destoning machine; YM= Yam miniset.

Table 1 shows that the farmers are aware of improved technologies in all the crops. But the highest level of awareness is in cassava (75%). Such a level of awareness would lead to technology change and adoption. The major technologies are inorganic fertilizer, improved varieties and gari processing machines. The implication is that there is a less intensive use of processing technologies. This would limit the commercial-

ization potential of the crop. According to Asfaw, Shiferaw and Simtowe 2010, technology changes enhance commercialization by paving way for higher specialization and productivity.

3.2. Sources Of Information on Technologies Utilized

The sources of information were investigated

Table 2: Distribution of Farmers according to Major Sources of Information

Sources	Frequency	Percentage
Other farmers	338	83
ADP in zone	99	24
Ministry of Agriculture	50	12

Survey Data, 2019

Table 2 indicates that the major source of information is other farmers (83%). This is probably because the farmers tend to live a communal life where they circulate information among themselves. The implication is that there is a paucity of information dissemination by requisite extension personnel to the farmers. However, this contradicts the findings by Odoemenem and Obinna 2010, where the major sources of information is extension personnel

Table 3. Technology Level and Gender

Level of technology	Gender	
	Male	Female
≤10	15	30
11 -21	35	40
22-32	29	19
33- 43	17	8
≥44	4	3
Total (n)	312	96

Source: Survey Data, 2019

Table 4: Technology Level and Household Commercialization Index

Level of technology	HCI				
	≤19	20-30	40-59	60-79	≥80
≤10	-	1	10	5	1
11-21	1	2	32	7	1
22-32	1	1	18	6	-
33-43	-	1	5	3	1
≥44	1	-	2	-	-

Source: Survey Data, 2019

The result shows that 50% of the farmers with 40-59% commercialization adopted 11- 32 percent of the available technology. This implies that the farmers have a good disposition towards technology adoption and commercialization. With the adoption of technology, there is a gradual shift from subsistence production to more market oriented production. According to Awotedi et al 2016, improved agricultural technology adoption has the potential to increase the market share of agricultural output.

Table 5. Distribution of Farmers according to Major Sources of Credit For Farming

Sources	Frequency	Percentage
Personal Savings	348	85
Thrift collection	85	21
Microfinance	27	7
Commercial Bank	10	3

Source: Survey Data, 2019

Table 5 shows that the major source of credit for the farmers are personal savings (85%) and thrift collection (21%). This implies that the farmers are resources poor owners with limited access to financial services probably due to inadequate collateral. However, the result in Table 6 indicates that the highest level of technology utilized by most of the farmers

3.3. Relationship between Relevant Factors, HCI and Level of Technologies Utilized

The result indicates that the level of technology utilized is higher among male farmers. This means that male farmers have more access to available technologies and this predisposes them to commercialization. The reason may be attributed to their role as household heads. It is their responsibility to acquire and operate mechanized facilities. According to Chukwudi and Oyaide (2005), male farmers have more access to production credit and extension services and this enhances their dominance in crop production. However, Simtowe, 2010 indicate that male smallholder farmers are less likely to participate in agro-processing activities than their female counterparts. This may eventually bring about some limitations on the extent of commercialization of the crops in the area.

under personal savings is 11-21 percent while under thrift collection, it is 22-32 percent. The implication is that farmers engaged in thrift collection can acquire more credit. This enhances their enablement to purchase modern inputs and improve production and marketing skills. According to Olagunju and Ajiboye 2010, farmers fail to adopt innovations when their purchasing power is ineffective.

Table 6. Technology Level and Sources of Credit

Level of Technology	Credit sources			
	Personal savings	Micro finance	Isusu	Commercial Bank
≤10	24	15	15	20
11-21	39	33	25	50
22-32	29	26	34	10
33-43	6	19	22	20
≥44	3	7	4	0

Source: Survey Data, 2019

3.4. Products Generated From The Crops

The products generated were examined and presented in Table 7

Table 7. Distribution of farmers according to Major products generated

Crops	Product	Frequency	Percentage
Cassava	Fufu	246	60
	Flour	154	40
	Gari	328	80
	Tapioca	184	45
Yam	fufu	211	52
	Flour	108	27
	Roasted yam	116	28
Maize	Shelled maize	222	54
	Flour	166	41
	Pap	118	29
Rice	Milled rice	205	50
	Destoned rice	112	28

Source: Survey Data, 2019

The result in Table 7 indicates that cassava has highest commercialization potential. It can be processed into four products. But most of the farmers (80%) process cassava into gari. This is probably because of the high demand of gari and the availability of gari processing machines. Other major products are cassava fufu (60%), yam fufu (52%), shelled maize (54%) and milled rice (50%). There is need for a more intensive use of processing technologies so as to harness the commercialization potentials of these crops.

4.0 Conclusion

The utilization of improved technologies increased physical productivity and value-addition processes. There is more intensive use of productive technologies such as improved variety and inorganic fertilizer. Hence, there is an increase in the unit of input utilized. However, there are no adequate corresponding sophisticated processing technologies to add value to the product and expand the market opportunities. This limits the integration of farm produces into the output market.

5.0 Recommendations

There is a need to introduce more and also encourage an intensive utilization of the available processing technologies, through a collaborative effort of Government, Non-Governmental organizations and Farm associations. This would complement the benefits of changes in production technologies by enhancing the commercialization potentials of the crops for domestic consumption and export. The target is to ensure the optimum utilization of agricultural produce through effective downstream sector so as to meet market demand and comply with international quality standards.

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