
CAUSATIVE FACTORS OF DECLINE IN COCOYAM PRODUCTION IN EZEAGU LOCAL GOVERNMENT AREA OF ENUGU STATE: IMPLICATIONS FOR SUSTAINABLE FOOD SECURITY

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ABSTRACT

The study was designed to investigate the causes of decline in cocoyam production in Ezeagu Local Government Area of Enugu State. Multistage sampling method was used to select 80 respondents for the study. Primary data were collected using structured interview schedule, personal observation and focus group discussions. Non parametric and parametric statistical tools including means, percentages, and factor analysis. The data were analyzed using percentage, mean scores and factor analysis. Majority (58.7%) were males while only 31% of the farmers had no formal education. The ten grown cultivars include Ugwuta Ezi Nkashi Okparakara/Belekwu Agbaka Akonoke/Eyionke Ikapo Indian Coco Nachi Obuguo Enyemenya Akupe. While the three most prominent among them were Okpakara, Ugwuta and Ezi – Nkashi. The major causes of decline in cocoyam production among farmers in the area were agronomic, socio – cultural, logistic and marketing problems. The causes of decline in production of cocoyam can be tackled by making loans available to farmers, subsidizing the cost of cocoyam and other farm inputs used in the production processes. The study recommended that government should encourage and finance cocoyam based research programmes and introduce improved practices for cocoyam production and processing in all ecologically suitable localities in the study area and the state as whole.

Key Word: *Production, Cocoyam, Food security and Income*

INTRODUCTION

Cocoyam belongs to the monocotyledonous family *Araceae* known as the Aroids. The name cocoyam is generally applied to a variety of useful and edible species belonging to different genera including *colocasia*, *Xanthosoma*, *Alocasia*, *Crytospema* and *Amorphophallus*. Nigeria is the greatest producer of cocoyam in the world, she produces 40% of the world output followed by Ghana which produces 31% (Onwueme, 1978) By far, more important and more extensive cultivation in Nigeria are *Colocasia* and *Xanthosoma* (Ekpo, 2001; Nwauzor, 2001). Nigeria has the largest population of cocoyam consumers, followed by Ghana (Sagoe, Marfo and Dankyi, 2001). Small-scale farmers who operate within the subsistence economy grow most of the cocoyam in Nigeria. The surplus of the product is supplied to the market in the rapidly growing urban centers. The bulk of the production of cocoyam is in Southern Nigeria (Enyinnia, 2001). Cocoyam is mostly planted in combinations with other crops, for examples, cocoyam + maize + vegetable; yam + cocoyam + maize + vegetable + plantain or banana + cocoyam and plantain + cocoyam, maize +vegetable. Cocoyam tolerates shade and can be inter - planted in already existing stands of plantain and banana, and tree crops such as rubber or palms. Sagoe et al., (2001) observed that per capital production of the crop is on the

decline and that its ecological restriction in the humid zones further compounds this. From a socio-cultural and economic point of view, the crop has a low rating and as a result, the cultivation and consumption are of secondary importance. In this connection, Eze (1991) noted that cocoyam is often referred to as women's crop in some cultures, although observations show sub-cultures like Nsukka having men equally growing the crop. Olaniyan et al, (2001) showed that cocoyam production plays a very significant role in the socio-economic life of people in Nsukka zone. According to them a large number of households grow cocoyam as a cash crop, selling at least half of their yearly production. As a food, cocoyam tubers are eaten in homes in various forms. They can be boiled or roasted like yam. They can also be pounded or mixed with cassava and eaten with soup. The most popular form of preparation of cocoyam in the zone is processing into *achicha* forms (Obiechina and Ajala, 1987). They noted that *achicha* has a long shelf life and provides food all year round especially, during the lean planting season. A major problem identified in some part of African countries as limitation to the production period of prolonged drought. The author further noted that inadequate planting material was also a problem to cocoyam farmers in some districts of Ghana. Agronomic studies suggested a number of problems that are responsible for the decline in the production of cocoyam. These included scarcity of planting materials, high incidence of field disease and pest attack, and high post-harvest storage losses Onwueme (1978) and Eze (1991) also pointed out that the oil boom had an adverse effect on cocoyam production as in other areas of agriculture. Other factors identified were poor cultural practices by the small holder farmers, inability to adopt new belief systems as well as economic constraints. These factors have reduced production of the crop in the state. Cocoyam plays an important role in the socio-economic life of people in Nsukka while more research and attention has been given to other crops such as cassava and yam neglecting cocoyam (IITA, 1992; Tambe, 1995). In nutritional composition, cocoyam contains 2.0 g of protein, while that of cassava is 0.9g (Skott, Best, Rosegrant and Bokanga, 2000). Consequently, it is more nutritious than cassava in terms of protein content. The objectives of the study were therefore to; identify the commonly grown species of cocoyam, determine the forms in which they are consumed, and to ascertain the problems associated with production, processing and storage of the crops. Specifically, the study described the socio-economic characteristics of the respondents, identified commonly grown species and forms of consumption and ascertained constraints associated with cocoyam production, processing and storage.

METHODOLOGY

The study was conducted in Ezeagu Local Government Area of Enugu State. The Local Government lies between latitude 0° of Awka North and Longitude 6° North of Enugu in the Greenwich meridian. Structured interview schedule was used to elicit information for the study. The selection was based on the fact that cocoyam cultivation is intensive in the local government. A total of 80 respondents were used for the study. The respondents

were cocoyam farmers in Ezeagu Local Government Area. The local government area is made up of 14 towns while 8 of them were randomly selected and used for the study. The towns include Imezi – owa, Aguobu – owa, Mgbagbu – owa, Umana – ndi – agu, Awha – imezi, Oghe, Olo and Umana – ndi – uno. Five villages were selected from each town, giving a total of forty villages. Two farmers were randomly selected and this gave a total of (80) farmers used as respondents for the study. The selection was based on the fact that the farmers in the area grow cocoyam extensively and also for social, economic, and cultural importance of the crop in the area. Cocoyam meals are regarded as a prime delicacy in different forms. Data for the study were collected from the respondents through structured interview schedules, observations and focus discussions. Data were analyzed using mean scores, percentages and focus analysis.

RESULTS AND DISCUSSION

The results of the study are presented in Tables 1, 2, 3 and 4.

Table 2: Distribution of respondents according to the production systems. (n = 80)

* Variables	Percentage (%)
<u>Type of farm</u>	
Compound farm	71.07
Distant farm	6.07
Both	21.70
<u>Time of planting</u>	
March – April	7.5
May – June	58.3
July – August	34.2
<u>Method of land clearing</u>	
Clearing with machets	70.8
Burning and clearing	20.8
Burning only	8.3
Use of herbicides	0.0
Use of tractor	0.0
<u>Sources of planting materials</u>	
Farmers' own planting material	70.8
Local market	62.5
Extension service office	0.0
Research station	0.0
Other farmers	0.0
<u>Innovations used</u>	
Pesticides	0.0
Herbicides	0.0
Improved Cultivars	0.0
Fertilizer	25.0
Mini sett	0.0
None of the above	75.0
<u>Harvesting Time</u>	
November	8.3

December	50.0
January	41.7
February	0..0

Source: Field survey (2007)

* **Multiple** responses

A majority (71.7%) of farmers used compound farms for growing of cocoyam. About (21.7%) of them used both distant and compound farms and 6.7% used distant farms only. The farmers believed that the compound farms are richer in manure that cocoyam requires to produce large corms and cormels. It was observed from Table 2 that more than half (58.3%) of the farmers cultivated their cocoyam between May and June, (34.2%) between July and August while only (7.5%) planted between March and April. Onwueme and Sinha (1999) observed that the reason for planting of cocoyam around May, June, and July is because cocoyam requires enough moisture and rainfall provides adequate water in the soil during this period of the year.

Table 3: Food Forms patterns of cocoyam consumption by respondents. (n = 80)

*Variables	Percentage (%)
Forms of Consumption	
Cooked tuber	60
Achicha	85.8
Soup thickner	80
Fufu	60
Roasted tuber	35
Consumption Pattern	
Daily	45
Once a week	23.3
Twice a week	22.5
Once in two weeks	15.7

Source: Field survey (2007)

* Multiple response

Majority of the respondents (85.8%) consumed cocoyam in locally processed form called "achicha", followed by cocoyam consumption as soup thickener (80%), least consumption is roasted cocoyam tubers (35%). Cocoyam consumption as fufu and cooked tuber were (60%) and(60%) of the respondents respectively. This result shows that the farmers in the area prefer "achicha" to other forms of cocoyam consumption. This could be attributed to the fact that "achicha" last for a long period when dried properly and used during the lean period. Results also revealed that only (45%) of the respondents consumed cocoyam in various forms daily, while (22.5%) consumed cocoyam twice a week. About (15.7%) of them consumed cocoyam once in two weeks. Since majority of

the respondents consume cocoyam once or twice a week, cocoyam can be said to be a major food staple in the area.

Table 4: Distribution of the respondents according to gender roles in productions, processing and storage.(n = 80)

***Variables Percentage (%)**

Planting

Men and women	5.0.8
Men and children	20.0
Everybody	27.5
Men only	39.2
Women only	5.0
Children only	2. 5

Weeding

Men only	25.9
Women only	20.0
Children only	8.3
Men and children	25.0
Men and women	10.0
Everybody	10.0

Storage

Men only	75.0
Women only	4.2
Children only	17.0
Men and Women	5.2
Men and Children	8 .3
Everybody	6.7

Processing

Women and children	45.0
Women only	35.8
Children only	4.2
Men only	0.0
Men and Women	0.0
Everybody	18.3

Source: Field survey (2007) * Multiple responses

Results on the gender roles in the planting of cocoyam production revealed that 39.2% was done by only men in the household and 5% was done by only women. The table also showed that 20% of cocoyam planting was done by men and children together, while 27.5% of the planting was done by everybody in the family. About 6% of them indicated that men and women do the planting while 2.5% indicated that planting was done by children only Data in Table 4 revealed that (25.9%) of respondents reported that weeding in cocoyam was done by men. While 10%, 20%and 25.0 weeding was done by men and women, women, men and children respectively,. the result also showed that a greater

amount of weeding (25.9%) was done by men only. This may be due to the fact that weeding in cocoyam farms involves heavy topping with soil unlike in cassava farms where it is done with weeding knives. Table 4 further showed that (75%) of the storage functions were performed by men. While 4.2% and 8.3% of storage was done by women and men and children respectively, only 6.7% of the respondents reported that everybody was involved in the storage of cocoyam. Data in table 4 also revealed that majority (45%), of the respondents indicated that women and children carried out the processing activities in cocoyam. About 35.8% of the respondents reported that only women were involved in the processing while 18.3% of respondents indicated that processing was done by everybody. Processing of most crops were usually done by women. These findings showed that most activities involved in cocoyam production in the study area were carried out by men. It should be clear therefore, that contrary to the general belief that cocoyam is a "women's crop" in which men were not involved, the perceived high level of participation of men in this study has placed cocoyam in the list of men's (major) crops and not necessarily women's.

Varimax rotated constraint factors faced by the cocoyam farmers

Constraint	factor 1	factor 2	factor 3	factor 4
*Variables (Marketing problem)	(Logistic problem) (Socio-cultural problem)	(Agronomic problem)		
Lack of improved cultivars.	0.72	-.14	- 8.73	0.29
Lack of processing facilities.	0.67	-7.94	-4.37	-2.47
Lack of money to invest.	0.64	-7.18	- .24	0.25
High cost of fertilizer.	0.62	0.19	- 1.00	-.34
High cost of transportation.	0.57	-8.06	-.34	-2.59
Non availability of modern inputs	-0.57	-4.79	-7.42	8.44
Shortage of planting materials.	0.53	0.25	-9.96	0.27
Lack of government support.	0.28	-7.68	-.68	-9.07
Ineffective extension service.	0.18	-.35	-.59	0.15
Low demand for the crop.	0.11	0.27	0.54	-6.39
Lack of ready market.	0.14	0.47	0.45	0.46
Diseases and pests in the field.	-1.88	0.76	0.11	-3.40
Low soil fertility.	0.11	0.72	-9.11	-2.11
Poor storage facilities.	-1.62	0.66	0.24	0.21
Labour shortage.	0.18	0.58	5.22	0.12
Scarcity of organic manure.	0.22	0.50	0.19	0.11
Rot and decay during storage.	6.61	-4.46	-.45	. 29
Poor feeder roads.	0.11	0.24	0.59	-7.25
The product is unattractive to children in the household.	8.68	4.50	-7.56	0.74
Limited range or varieties of processed product.	0.19	-3.87	-6.73	0.66
Irritant nature of fresh cocoyam.	0.44	0.33	-3.64	0.29
Shortage of cultivable land for production expansion.	0.17	0.21	-4.61	0.3

Source: Field survey (2005)

* Multiple responses

Data in Table 5 showed that four constraints factors were critical in the decline of cocoyam production in the study area. The extracted factors include; logistic, agronomic, marketing and socio-cultural problems. Specific issues with high loading under logistic problem were lack of improved cultivars (0.72); lack of processing facilities (0.67); lack of money to invest (0.64); non availability of modern inputs (0.57) and shortage of planting materials (0.53). Provision of logistic support in the form of adequate planting materials, improved cultivars and other farm inputs should be made available to farmers. The items with high loading under agronomic problems include diseases and pests in the field (0.76); low soil fertility (0.72); poor storage facilities (0.66); labour shortage (0.58) and scarcity of organic manure (0.50). The issues implicated under marketing problems were poor feeder roads (0.59) and low demand of cocoyam and its product (0.54). This implies that low demand of cocoyam tends to decrease its production. Marketing of farmers' produce is a constraint due to lack of good roads and a reliable transportation network. Under socio-cultural problems the items that loaded high were, product being unattractive to children (0.74); limited range of varieties of processed product (0.66) and shortage of cultivable land for production expansion (0.31). Most people prefer yam to cocoyam in terms of taste and attractiveness.

Implications for sustainable food security

The study revealed that cocoyam is a major food and cash crop in Ezeagu Local Government Area (LGA) of Enugu State. This implies that cocoyam farmers should use their knowledge and potentials in their environment to expand cocoyam production capacities in Ezeagu L.G.A. This will generate employment for their youth, increase their self sufficiency in food production all through the year, raise income generation and standard of living of people in rural areas. Government should be involved in cocoyam production through the efforts of the extension agents. This will enable the introduction of newly improved cocoyam cultivars and inputs such as fertilizers, herbicides and pesticides which should be provided to the rural farmers enhance their productive capacity. The governments should enlighten farmers on the high nutritional values of cocoyam as food crop and the various forms which cocoyam can be processed. The recent innovation of processing cocoyam into chips that lasts for a long period of time should be encouraged. Food security can be improved by expanding cocoyam production since the crop can be stored in the ground and harvested during the lean period when most crops are scarce. The four major problems, namely logistic, agronomic, marketing and socio-cultural problems should be remedied by the collective effort of the government, extension agents and the farmers. Unavailability of improved processing facilities, poor funding and lack of production inputs, Lack of improved cultivars lead to the continued use of low – yielding local cultivars as planting materials. Cocoyam flakes "*achicha*" is known to keep for a long period, lack of improved processing facilities remains a drawback to its production, because unprocessed tubers are bound to rot shortly after harvest. Poor funding, unavailability and shortage of farm inputs have also continued to retard cocoyam production efforts among farmers in Ezeagu L.G.A.

CONCLUSION AND RECOMMENDATION

The study ascertained the causes of decline in cocoyam production among farmers and its implications for sustainable food security in Ezeagu L.G.A. The study showed that cocoyam production is yet to be maximized since several constraints still limit its production. The severe problems included rot and decay during storage, lack of government support, ineffective extension service and shortage of planting materials. These constraints constitute serious impediments to cocoyam production and need to be addressed adequately before cocoyam production can be improved in the area. Other problems found to militate against cocoyam production is lack of improved cultivars. It was obvious from the study therefore that cocoyam production was declining as a result of the major constraints namely logistic, agronomic, marketing and socio-cultural problems. It is recommended that agro based industries should be encouraged by the government to support research and production of cocoyam products for commercial purposes. Schools and institutions should be encouraged to serve cocoyam dishes in different forms in the school – meal programme.. There should be public enlightenment on radio and television by extension agency to teach new and improved practices for cocoyam production processing and utilization in every ecologically suitable environment. There should be cocoyam based research programmes on genetic improvement on cocoyam species commonly grown in the area. Modern processing facilities should be developed and given to farmers. More research should be carried out on other uses such as medicinal and industrial and supported by the government. Cocoyam dishes in different forms should be encouraged in schools and institutions of learning. The use of cocoyam flour as a composite in specialty food should be explored.

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