

Towards Promoting Agricultural Production and Entrepreneurship: The Place of Pineapple in Nigeria

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Abstract

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This study determined the production and marketing activities of pineapple farmers in Iguegben local government area of Edo State. It identified constraints faced by pineapple farmers in their farming and entrepreneurial practices. The place of pineapple in promoting agricultural production and entrepreneurship was also determined. The study involved a multi-stage sampling procedure for the study. Eighteen local government areas were randomly sampled. Two communities were also randomly sampled from the communities selected out of which 50 household were also randomly sampled. In each household one respondent was picked, the head of household. Therefore, 100 pineapple farmers were purposively selected for this study because its predominance in the area. The result showed that income from many of the farmers either through pineapple business or other sources would not be enough to set up a large pineapple farming business. The constraints affecting pineapple producers are inadequate capital to invest in large scale entrepreneur. Lack of high yielding planting materials that farmers require for effective farming, cost of farming materials and chemicals, cost of labor required on the farm land, lack of hired labor constitutes the bulk of the very severe problems being faced by pineapple farmers with 85.9 percent, 82.1 percent, 65.4 percent and 52.6 percent of the respondents respectively. Storage of pineapple is with low technology and techniques thereby leading to waste. Pineapple distribution is still at the hand of retailers who do not purchase large quantities at a time. Chi square test of relationship showed that there is significant relationship between sex ($X_2 = 13.545$; $p = 0.035$), income ($X_2 = 20.198$; $p = 0.017$) from pineapple and the activities involved in the production of pineapple. The result showed that income from pineapple is equally as high as income from other sources. Therefore pineapple has potential for large scale production and for export, if post harvest processing technology should be improved through setting up of processing industries. The farmers should be encouraged by extension agents in providing information and techniques needed not just to increase their production but to produce more than once a year. This will promote rural entrepreneurship and sustainable livelihoods.

Key words: pineapple, commercialization for export, processing, sustainable livelihoods

Introduction

Nigeria has abundant natural resources and favorable tropical climate, which allows for the increase diversification of agricultural crops. The agricultural sector provided food for the country's population and was a major exporter of several agricultural crops that included cocoa, groundnut, and coffee contributing about 60 percent of the Gross Domestic Product (GDP). It provided raw materials for industries, employment and income for those in agriculture and also indirectly providing employment for about half of the country's total labor force. However, as earnings from crude oil exports increased substantially in the seventies, the nation's agriculture started to fall and its contribution to GDP began to reduce. In the eighties, Nigeria became a net importer of food since the nation's agriculture could no longer provide adequate income for those in agriculture. Interestingly, recently there has been increase in the contribution of all agricultural sub sectors to total agriculture GDP. It is important to observe that the crop sub sector alone contributes about 80 percent. The share of agriculture in non-oil GDP remained the same in the period considered while its share in total GDP increased marginally signifying a slight improvement in agricultural performance. Agriculture's share of total export has been uneven over the years but very low due to the decrease in the quantity and value of agricultural export.

The main traditional tradable crops are cocoa, coffee, rubber, palm kernel, cottonseed and groundnut. In the five-year period under review, production increased for

cocoa, cotton and groundnut by 17.9, 15.9 and 14.3 percents respectively. For others, the growth rate was 12.7 (palm kernel), 11.2 (rubber), 9.8 (coffee) and 5.8 (soybean) percents. Cocoa has the highest growth rate, which explains the high index of trade for the crop during the period. With the exception of rubber, the index of trade for cocoa, oil palm and groundnut have shown a reduction over the period from 1965 to 1994. Food crops are being intercropped with tradable annuals with similar production objectives. Trade statistics shows that today, Nigeria is a net exporter of crops like oil palm, rubber, groundnut, cotton and their derivatives (Akanji, 2001). The non-traditional crops with potentials for export include cassava, soybean, benniseed, fruits (pineapple) and other spices. These crops are being produced often with commercial objectives but are being traded within the regions in the country. The immediate market response was the increase in the volume and value of exports. The proposed commodity exchange is yet to take off. It is expected that it will improve farm production and trading activities.

There has been increase in the need for fruit production stemming mainly from three sources: - the increased consumption of fresh fruit locally due to increased awareness of the dietary role of fruits and recent increase in the export trade of fresh fruit (Samson, 1986). However, fruit production in Nigeria has been accorded low priority, despite the fact that satisfactory yield can be obtained. Fruits play an important role in contributing to the requirements of the metabolic needs of the body. Generally, fruits are sources of vitamins

and minerals and have long been valued for their health giving qualities. According to Oyenuga and Fetuga (1976), fruits are important food items in human nutrition for the supply of minerals and vitamins, certain types of hormone precursors, in addition to protein and energy and therefore should be recognized as important in the process of feeding the Nation. Also, according to Woodroof (1990), in addition to their nutritional qualities, fruits have unique and desirable factors in the diet that requires more consideration by those who do family food planning. They have a natural laxative effect because of the cellulose and organic acids present. Fresh pineapple has 60 percent edible part. The fruit contains 80-85 percent of water, 12-15 percent sugars, 0.65 percent acid, 0.4 percent protein, 0.1 percent fiber and several vitamins mainly A & C. It could be used for cosmetic purposes, pharmaceuticals, fuel and ultimately food. The pineapple fruit is adequately suitable for the preparation of beverages, syrups and cocktails. It is also used for the production of frozen concentrates, which is becoming very popular due to their remarkably preserved fresh fruit flavor and potent enzyme. The most important products are canned slices, chunks, bottled juice as well as crushed fruit. There is no doubt that the quality of life in Nigeria particularly in rural areas is currently poor and loathsome. Fruit production if well commercialized is capable of generating vast sums of money from proceeds of local and export sales of fresh fruits and industrial raw materials to for sustainable for sustainable income and nutrition security. Asoegwu (1986) emphasized that the industrial potential of many fruits available is enormous and what Nigerians need do is to embark on massive fruit production,

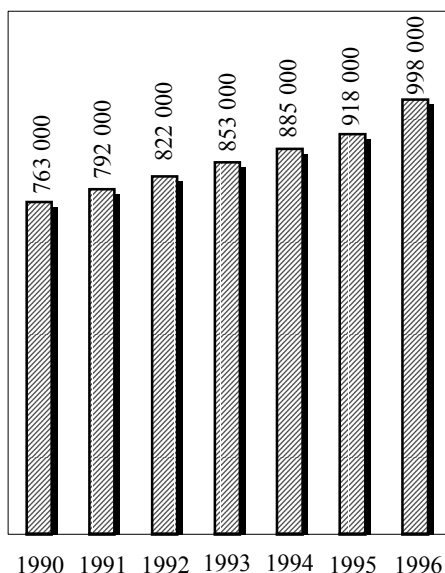
not only for their high nutritive value but also for enhancing the establishment of many processing industries.

Tropical fruit production currently stands at about 56 million tones, most of which are absorbed domestically in the producing countries either in fresh or processed forms. They include citrus (orange, tangerine, grapes lemon and lime). Guava, paw-paw, mango, and of course the pineapple which make up 25 percent of the total percentage produced. It should be emphasized that there exists the need for extensive research into the processing of our local fruits and of setting up industrial enterprises for their effective and timely processing that will boost commercialization. The pineapple (*Ananas comosus* L; merr) which is the principal focus of the paper is the most widely traded tropical fruit belonging to the family Bromeliaceae. It is one of the important fruits in Nigeria with great potential for commercialization and export. They are produced in many tropical regions of Africa, where rainfall is adequate. The pineapple is strictly a tropical plant thriving best in areas where average annual temperature is between 25 and 32°C. Rainfall is 100-150 cm with a high humidity. The crop can be grown on a wide range of soils but will not tolerate water logging. World production of pineapples currently stands at about 12.6 million tones of which a third is utilized for processing and the balance consumed fresh. Global demand for fresh pineapples has grown significantly in the 1990's due to a combination of increased distribution networks and increasing consumer awareness. Some pineapple producing states in the country are Edo State, Rivers, Imo,

Anambra, Oyo, Ogun, and Delta. The annual production has been pegged at 881,000 (metric tonnes) Oyenuga and Fetuga (1976). The prospects of the pineapple are of world net importance, which is expected to expand over the next decades with Nigeria being one of the largest exporters. Local processing is also on the rise as a result of increased local demand for pineapple drinks. But this notwithstanding, it is believed that often over 70 percent of the crops get wasted due to lack of proper agro processing and storage facilities. Often one of the most serious problems facing African growers of export pineapples is improving harvest and post harvest handling. According to the perspective plan for agricultural development, 1990-2005, by the Federal Department of Agri-

culture (1991) fruit (pineapple) production was estimated/recorded as follows in Figure 1.

This production rate is about 3 times less than the requirement, which means that both fruits and juices are grossly undersupplied. There is thus a yawning gap to be filled by the efforts of cottage and food industries. Middle East market has been clamoring for Nigeria pineapple fruits, juices and syrups for commercial purposes. According to FAO (1986) post harvest losses of fruits are more serious in developing countries than developed ones because the number of professionals concerned with post harvest loss is significantly lower than those involved in the production research. Since the pineapple fruit has an accumulation of starch, there is no reserve for major post-harvest quality improvements. As a non-climacteric fruit, obvious compositional changes after harvest are mostly limited and decrease in acidity Woodroof (1990). Being able to maintain a level of freshness from the field to the table or the processing industry presents many commercialization challenges and consequently the employment of various sustainable management technologies. The focus of this paper is to assess the production and marketing activities of pineapple farmers in Igueben local government area in Edo State and determine the implication for commercialization.



Adapted from FDA, 1998

Fig. 1. Yearly estimate of pineapple production (Metric tonnes)

Methodology

The study area is Igueben Local government area in Edo State. Geographically, it falls in the Mangrove vegetation zone of the country. It shares boundary with Ebelle Ewossa, Udo and Amahor. It is one of the eighteen local government areas in Edo State of which arable land area is about

60 percent of the total land area with high thick forest and undergrowth that makes it suitable for agriculture. The rainfall is seasonal with the peak distribution pattern in most of the areas. Igueben local government area is situated on a hilly ground and covers a total land area of an approximate 38,146 square kilometers. The climate favors the cultivation of a very wide range of food crops such as yam, cassava, maize, rice, tobacco, vegetables, and the cash crops such as cocoa, oil palm and rubber. This means that their main occupation is agriculture with pineapple as predominant crop grown. The target population for this study comprises pineapple farmers in Igueben local government area in Edo State. The study involved a multi-stage sampling procedure. There are 18 local government areas in Edo State out of which Igueben local government was purposively selected because the predominance of pine apple farmers. Two communities were randomly selected out of which 50 household were also randomly selected from each community. In each household one respondent was picked, the head of household. Therefore, 100 pineapple farmers were purposively selected for this study. In an attempt to obtain a more exact and reliable result, the head of the farmer's association in the local government areas assisted in conducting of information gathering.

Results and Discussion

The age distribution of the respondents is presented in Figure 2, which shows that 39.76 percent of the respondents belong to the age group 41-50 years.

The least percentage (5 %) of the respondents is 20 years. This implies that highest number of the respondents involved in production and marketing of pineapple rests mostly in the hands of adults, as the respondents re heads of households.

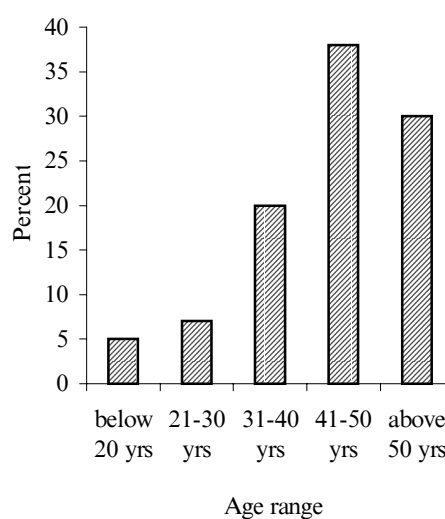


Fig. 2. Distribution of age range the respondents

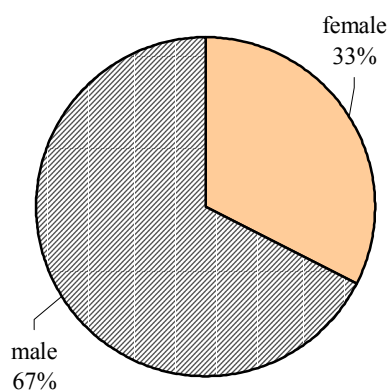


Fig. 3. Distribution of the male and female respondents

The result in Figure 3 shows that most of the respondents, 67.5 percent were males and the number of females was 32.5 percent. This shows that more male adults are interested in the production of pineapples than the female adults who are more interested in the production, processing and marketing other crops. A large number (79.0%) of the farmers were married. Married farmers would have to produce a lot of pineapple for sales to generate income for the upkeep of the family. Very few, 14, 3.7 and 2.5 percent of the farmers were widowed single and divorced respectively. The result also shows that most of the farmers have no formal education 38.1 percent while 28.6 percent of the respondents have secondary education. Those with adult literacy are 11.9 percent, N.C.E/OND/HND constitutes 9.5 percent and lastly the respondents with M.Sc qualification are 7.1 percent. This reveals that majority of the farmers involved in the production and processing of pineapples do not have remarkable educational status. However it is encouraging that more educated people are going into full time farming.

Table 1 shows the total income gained by the farmers in each pineapple season with 56 percent having the highest income (N16,000.00 - N20,000.00+). Those earning between N1,000.00 - N5,000.00 income constitute just seven percent and those earning between N6,000.00 - N1,0000.00 were 16 percent while 21 percent of the farmers earned a total income of N11000 - N15,000.00. Pineapple production and yield is seasonal therefore farmers do engage in other income generating activities. From the section of income from other sources, it is observed that the highest income from other sources

is N1,000.00 constituting very few of the respondents (18 %) while the least is N11,000.00 - N15,000.00. Comparing the amount of income gained by the respondents, it is interesting to note that N16,000.00 - N20,000.00 was the highest realizable income from other sources. However income from any of the farmers either through pineapple business or other sources would not be enough to set up a large pineapple farming business. This must be the primary reason why they are faced with lack of capital as one of the constraints to sustainable pineapple production and processing. This income level would have been affected by the size of their farms.

Distribution of respondents' income in Naira per year

Income from pineapple source	Frequency	Percent
₦ 1000.00 -5000.00	3	3.6
₦ 6000.00-10000.00	12	14.3
₦ 11000.00-15000.00	17	20.2
₦ 16000.00-20000.00 ⁺	52	61.9
Income from other Sources		
₦ 2500	2	3.2
₦ 3000	1	1.6
₦ 5000	6	9.5
₦ 8000	2	3.2
₦ 10000	9	14.3
₦ 15000	2	3.2
₦ 20000	16	25.4
₦ 25000	9	14.3
₦ 50000	11	17.5
₦ 60000	1	1.6
₦ 65000	1	1.6
₦ 70000	2	3.2
₦ 100000	1	1.6

Majority (50.6%) of the farmers had an average of 4-6 years experience in pineapple farming while 23.5 percent had an average of 1-3 years. About 25.9 percent had an average of over 7 years in pineapple farming. The result revealed that the respondents are experienced pineapple farmers of between 4 years and above. Also 26.5 percent of the respondents have pineapple orchard of between 1 and 3 years. More than half (53%) of the respondents have theirs between 4 and 6 years while 20.5 percent of the respondents had their pineapple orchard for 7 years and above. This implied that the respondents have sufficient experience in pineapple farming that will enable them for improve their income generation if not for the small nature of their farms.

Table 2 revealed that 74.1 percent

Table 2
Distribution of respondents' cropping pattern

Cropping pattern	Frequency	Percent
Sole	60	74.1
Mixed	20	24.7
No response	1	1.2

Table 3
Respondents sources of labor

Source of labor	Frequency	Percent
Family	35	42.3
Hired causal labour	37	45.1
Hired permanent labour	7	8.2
Both family & hired	3	3.4

of the respondents' practice sole farming system. That is, they planted only pineapple on their farm while 24.7 percent planted pineapple alongside other crops. This implies that most of the farmers are sole pineapple producers. Most of the farmers start harvesting their pineapple fruit after 12 months while a very few (11.11%) of the respondents start harvesting between 9 and 11 months. Other harvested their pineapple before 9 months. This means that pineapple farmers can conveniently produce pineapple twice a year.

The respondents' sources of labor as had shown Table 3 reveals that 35.0 percent use family labor, while 37.0 percent use hired causal labour. This distribution pattern was expected based on their low income from pineapple production that will not be enough to have permanent hired labor, which determines the type of labor to use.

Table 4 shows that 74.1 percent of the respondents sell their pineapple produce as retail, 11.1 percent sell theirs as wholesale while 8.6 percent sell their pineapple fruits at farm gate. Only 6.2 percent sell to juice processing industry. This is as a result the quantity of pineapple being produced and lack of processing devices by the farmers and it was only expedient to sell to retail consumers.

Distribution of the respondents' sources of capital for their pineapple farming is presented in Table 5.

Personal savings as a source of capital formed the bulk (61.0 %) of the respondents' sources of capital. This was closely followed with loans from cooperative (28 %). Bank loans to farmers constitute only 4.9 percent while friends and families provide fund to only six

Table 4
Respondents sources of marketing pineapple products

Where fruits are sold	Frequency	Percent
Farm gate	7	8.6
Wholesale market	9	11.1
Retail market	60	74.1
Fruit processing industry	3	3.7
Others	2	2.5

Table 5
Respondents' sources of credit

Sources of capital	Frequency	Percent
Personal savings	50	61.0
Bank loans	4	4.9
Cooperative loans	23	28.0
Friend/relatives	3	3.7
	2	2.4

Table 6
List of storage systems used by respondents

How harvested fruits are stored	Frequency	Percent
On heaps	24	72.7
Open air	3	9.1
Dry leaves	5	15.2
Juice	1	3

percent of the farmers. This would have limited from growing in large scale.

Table 6 revealed that majority (72.7%) of the pineapple farmers store their pineapple using the on heaps method, while 15.5. percent of the respondents use dry leaves to cover their pineapple. Others (9.1 %) use open air and juice pro-

cessing 3.0 percent as a storage device for their pineapple when harvested. The farmers did not consider the use of refrigerator and freezer as options as they could not afford to buy such, coupled with erratic power supply. This may have affected the quantity produced.

Duration of storage as presented in the Figure 4 shows that 50.7 percent of the respondents store their pineapple for only 1 day, while 26 percent store their pineapple for 2 days before they are sold or consumed. About 19 percent of the respondents store their pineapple for 3 days with only 2 and 1 percent of the respondents respectively storing their pineapple for 4 and 6 days before being sold or consumed. The inability for not storing for a long time is due to lack of processing and preservation technique and technology. The farmers prefer to sell off even at a reduced rate instead of allowing it to spoil. The farmers faced this among other constraints. Lack high yielding planting materials that farmers require

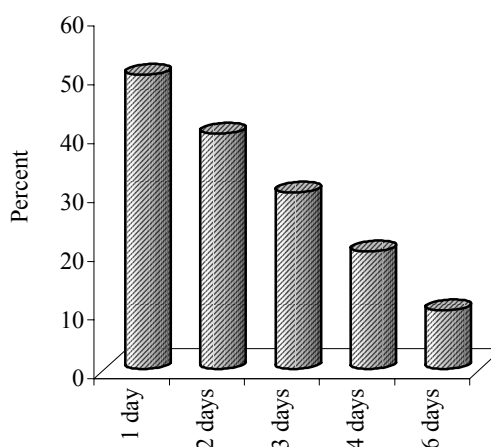


Fig. 4. Number of days the respondents could keep pineapple

Table 7
Relationship between farmers' socio-economic characteristics and production activities

Variables	DF	χ^2	P	Remark
Age	15	15.838	0.393	Not significant
Sex	6	13.545	0.035	Significant
Marital status	12	19.033	0.088	Not significant
Educational level	15	21.32	0.127	Not significant
Income from pineapple	9	20.198	0.017	Significant
Income from Other sources	39	48.151	0.149	Not significant

for effective farming, cost of these materials and chemicals, cost of labour required on the farm land, required funds & capital and lack of hired labour constitutes the bulk of the very severe problems being faced by pineapple farmers with 85.9 percent, 82.1 percent, 65.4 percent and 52.6 percent of the respondents respectively. Pest and diseases and marketing of produce constitute 16.7 percent and 14.1 percent of respondents respectively as severe problems. However, 67.9 percent and 74.4 percent of the respondents believed that pests and diseases control as well as marketing of produce do not constitute severe problem as the farmers can easily tackle them.

Farmers often require development agencies particularly when there are noticeable problems that are not easily solved by the farmers due to scarcity of funds or lack of planting materials or even when there is a disaster in terms of an outbreak of a disease or pest. In this regard, development agencies are required to provide such assistance as may be required. The result of this study showed that extension agencies constituted the highest intervention with 63.1 percent of the respondents been visited.

The Chi square test of relationship

shows that there is no significant relationship between age, marital status, educational level and income from other sources and the activities involved in the production of pineapple. This means that these variables do not determine the type of production activity employed by the farmers. On the other hand sex and income from pineapple production determines the type of production activities employed by the farmers.

Conclusion

Pineapple production has potentials for large scale entrepreneurial and export potential but the production is still at the subsistent level. Further more the results revealed that their income from pineapple produce was not sufficient for feeding their families hence the dependence on other sources. However income from any of the farmers either through pineapple business or other sources would not be enough to set up a large pineapple entrepreneurship and for export. This must be the primary reason why they are faced with capital as one of their constraints to sustainable pineapple production and processing. The in-

come level may have also been affected by the size of their farms. The result also revealed that they had the problem of procuring capital for funding large scale production, which was coming mainly from their personal savings and cooperatives. Storage of pineapple was another major constraint. It was also discovered that the marketing of pineapple is still on the hand of the retailers. It is therefore, suggested that with trade liberalization amongst ECOWAS members, export potentials of pineapple juice within the sub-region will be enhanced.

Extension agents in providing information should encourage the farmers and techniques needed not just to increase their production but to produce more than once a year. This will promote rural entrepreneurship and sustainable livelihoods.

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