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CONTRIBUTIONS OF LOCUST BEAN (*PARKIA BIGLOBOSA*, JACQUE BENTH) SEEDS
PRODUCTION AND MARKETING TO THE HOUSEHOLD ECONOMY OF KAJOLA
LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA.



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ABSTRACT

The study focused on the contributions of production and marketing of Locust bean (*Parkia biglobosa*, Jacque benth) seeds to the household economy in Kajola Local Government, area, Oyo state Nigeria, with a view to evaluating the percentage of population engaged in its production and marketing, and hence its contribution to rural employment and income generation as well as the proportion and frequency of consumption in local diets. Data were collected through the use of structured questionnaires. A total of 136 questionnaires were administered using stratified random sampling. The data generated were analyzed using descriptive statistics, cross tabulation and chi-square analyses. It was found out that about 47% of the respondents are involved in the commercial production of the species to supplement farm income. The product plays a crucial role in household food security in the study area as majority of the respondents (95.6%) consume it as part of their meals while 91.7% consume it at least once every other day. Although Chi-square test indicated that its contribution to household income is not significant ($P > 0.523$) its contribution to the household economy is very important as the fund comes handy during emergency cash needs and as an important supplement to farm income. Similarly Chi square test indicated that the quantity of iru consumed as a proportion of total quantity of household food intake is not significant ($P > 0.063$). However, chi-square value for preference for 'Iru' was significant ($P > 0.001$) indicating that majority of the respondents has preferential taste for iru against other condiments. It is recommended that research on silvicultural and conservation techniques be carried out on this species to ensure its sustained production.

Introduction

Forest as a renewable natural resource can be defined as an entity that includes all resources that can produce forest products (Arnold, 1994). These comprise woodland, shrub land, bush fallow, farm bush and trees on farm, as well as forests. Moreover, the contribution of forests to human welfare is measured not only by the timber and non-timber products they provide, but also by the services they offer. People living in and around forest environment practicing hunting, collecting non-timber forest products (NTFPs) and practicing shifting cultivation draw heavily on forest products, not only for

subsistence but also for supplementary income. Forest related income also includes the obtained by selling crops or livestock for which forest nutrients or fodder were essential (Hoskins, 1990).

Access to forest food from forest products is often particularly important for poorer groups within the community, although the wealthier a community, with more resources to devote to forest products gathering and production, often the heaviest users; the poor usually derive a greater share of their overall needs from forest products and activities. The more we understand the risk-reducing, secur

increasing quality of forests and their complementarities to a wide range of rural livelihoods, the more we understand the fundamental nature of the need of the poor for them and hence the need to manage them sustainably.

Although the full potentials of many of them have not been tapped, the growing realization of the importance of non-timber forest products (NTFPs) has brought about a gradual change in the focus of forest management in many countries (Barham et al 1999; Ruiz et al. 1999; and Cavendish, 2001). In Nigeria, there is a long tradition of forest products' use by communities living in close proximity to forests, either as an economic mainstay or as a supplementary source of household income. In Kajola Local Government Area of Oyo State, Nigeria, The seeds of *P.biglobosa* is used in the production of 'iru' which is an household condiment and is said to be more nutritious than most of the industrial condiments pervading our markets (Omafuvbe et al, 2004).

The plant has also been used as medicine, food and for other non-consumptive uses that are indispensable for human existence (Chandrasekaman, 1993). In the light of this, the contributions of *Parkia biglobosa*'s seed to household economy were examined in order to show-case its socio-economic importance and

attract attention to its conservation and sustainable utilization.

The main objective of this study therefore is to evaluate the contributions of *Parkia biglobosa* seeds to households' Socio-economic welfare in Kajola Local Government Area of Oyo state Nigeria, the specific objectives are as follow:

- i. to determine the percentage of the respondents' population engaged in production and marketing of the product;
- ii. to evaluate the contribution of production and marketing of iru to household income of respondents, and
- iii to evaluate the level and frequency of consumption of iru in traditional dishes.

METHODOLOGY

The Study Area

Kajola Local Government Area is situated in the upper course of Ogun River. It lies between Latitude 8° - 9°N and Longitude 0° - 4°E with a landmass of 4,320 square kilometers. It shares boundaries with Iseyin Local Government area to the East, Iwajowa

Local Government area to the West and Itesiwaju Local Government area to the Northwest (figure 1).

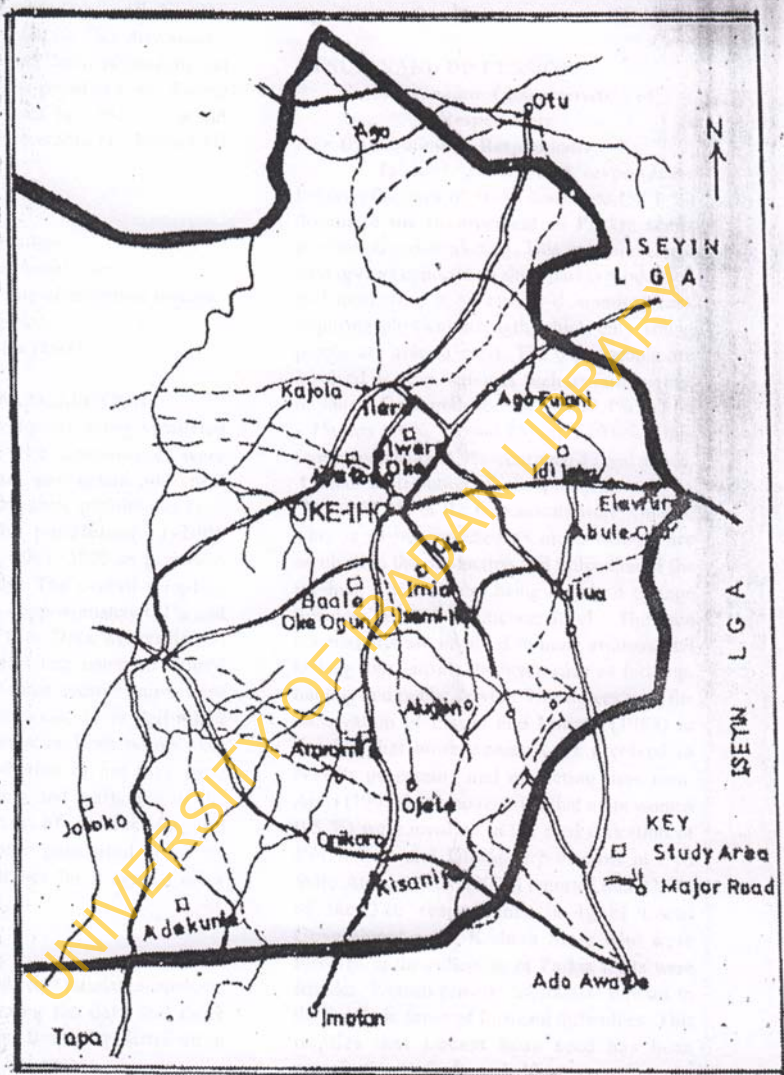


Fig.1: Map of Kajola Local Government showing the sampled communities .

Government Secretariat, Okeho.

Kajola Local Government is composed of eight (8) principal towns including: - Okeho (The headquarters), Ilero, Isemi-ile, Ihua, Ayetoro-oke, Iwere-oke, Ilaji-oke and Imia. (Ojedokun and Oluwanike, 2000). The population of Kajola Local Government area in 1991 was about 96,430 and this was projected to 146,766 in 2005 using the formula:

$$P_t = P_0 e^{rt} \dots$$

equation (1)

P_t = the present population

P_0 = the population at initial time

r = the percentage of rate of increment (usually 2.83% for Nigeria).

t = the time interval (in years).

METHOD OF DATA COLLECTION

Data were collected using stratified random technique. The communities were stratified into urban, peri-urban and rural communities based on their populations (viz: communities with population 1-2000 categorized as rural, 2001 -5000 as periurban and 5000+ as urban). The overall sampling intensity is 0.0927% - approximately 0.1% and the sample size is 136. Data was collected through personal interviews using structured questionnaires. Sixty-three questionnaires were administered in urban areas, 31 in Peri-urban and 42 in rural communities. Respondents were asked to indicate whether or not they were involved in processing and marketing of the product, frequencies of production and consumption, income generated from its marketing and preference for it against other condiments.

Data Analysis

Descriptive and cross tabulation analyses were used in analyzing the data and these include: percentages, frequency distribution cross tabulation and Chi-square.

Hypotheses Tested

The following hypotheses were tested:

H_0 : Contribution of *Parkia biglobosa* seeds to household income in the study area is not significant.

H_1 : Consumption of *Parkia biglobosa* in

traditional dishes in the study area is not significant. ,

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents

Age Distribution of Respondents

Table 1. shows that respondents between the ages of 16-55 constitute (58.1 %) dominate the involvement in *Parkia* seeds production and marketing. This is in agreement with *a priori* expectation since *parkia* production and marketing is an energy-demanding task requiring physical strength which only young people are able to exert. The older people are involved in other activities such as farming and trading in farm produce. 56 - 65 18.4% and 66 - 75years 9.6%. 76 and 85years, 10.9%. Only four respondents, 2.9% were aged 85 and above.

Gender Distribution of Respondents

About 63.2% of the respondents were females. This is to be expected as more women are involved in the production and utilization of the product. The business being largely a cottage business with low income level. The men counterparts are involved in more arduous and tasking jobs outside the home such as farming, hunting and public service. This agrees with the observation of Fischa and Milimo (1988) in Zambia that more women were involved in NTFPs processing and marketing than men. Ajayi (1993) has also reported that more women (95 %) were involved in the seed collection of *P.biglobosa* and *Vitellaria paradoxa* in Oyo State. Anamayi et.al (2005) reported that 83.3% of the 350 respondents in Igabi Local Government area, Kaduna State who were involved in the collection of *Parkia* fruits were females. Women provide substantial support to the family in times of financial difficulties. This implies that Locust bean seed has been contributing to the household economy in terms of rural employment and supplementary income. Educational qualifications of Respondents Majority (57.3%) of the respondents had no formal education, 16.2% had Primary education, (11.8%) had secondary education, 7.4% had Diplomas while only 1.5% are graduates. Eight respondents (5.8%) were silent about their

education status. Anamayi et.al (2005) similarly reported that 85% of the collectors of *Parkia* fruits in Igabi Local Government Area of Kaduna State were not educated. The collection, processing, marketing of this product therefore does not require any educational qualification. In fact it is apparent that it is mainly the illiterate masses who are involved in the business as an alternative source of income to farming particularly during lean periods

Primary Occupation of Respondents

Sixty-one respondents constituting 44.8%

are farmers, 36.8% are traders, and 7.4% are civil servants, artisans 4.4% and cloth weavers 1.5%. Seven respondents did not respond to this question. Farming is the singular most common occupation in the study area, therefore rural off-farm activities such as harvesting, processing and marketing of NTFPs play a significant role in food security and supplementary household income by providing alternative sources of employment and nutrient supplements which are essential to sustain household nutrition.

TABLE 1 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

a. AGE DISTRIBUTION OF RESPONDENTS

AGE CLASS (YEAR)	FREQUENCY	PERCENTAGE (%)
16-25	11	8.1
26-35	21	15.4
36-45	25	18.4
46-55	22	16.2
56-65	25	18.4
66-75	13	9.6
76-85	15	11.0
>85	4	2.6
Total	136	100

b. GENDER OF THE RESPONDENTS

GENDER	FREQUENCY	PERCENTAGE (%)
Male	86	63.2
Female	50	36.8
Total	136	100

c. LEVEL OF EDUCATION OF RESPONDENTS

EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE (%)
No Response	8	5.8
No formal education	78	57.3
Primary education	22	16.2
Secondary education	16	11.8
OND/HND	10	7.4
B.sc / M.sc	2	1.5
	136	100

d. PRIMARY EDUCATION OF RESPONDENTS

PRIMARY	FREQUENCY	PERCENTAGE (%)
No response	7	5.1
Farming	61	44.8
Trading	50	36.8
Civil servant	10	7.4
Artisan	6	4.4
Cloth weaving	2	1.5
	136	100

e. SECONDARY OCCUPATION OF RESPONDENTS

SECONDARY	FREQUENCY	PERCENTAGE (%)
No response	68	50
Farming	34	25
Trading	28	20.6
Civil servant	1	0.7
Artisan	4	3
Cloth weaving	1	0.7
Total	136	100

SOURCE: FIELD SURVEY, 2005

Involvement in Processing of *Parkia Biglobosa* seeds

Sixty-four respondents were involved in processing which represents 47.1%, 56 respondents which represent 41.2% indicated that they were not involved in processing of *Parkia biglobosa* seeds while 16 respondents (11.7%) did not respond. (Figure 2) This implies that close to half of the population is directly involved with the harvesting and processing of *Parkia biglobosa* seeds. This compares well with the estimate of Haggblade and Harzell (1989) that 20-45% of full time employment is provided

by non-farm work in rural communities. Also according to Haggblade and Liedholm (19991), in near stagnant or slowly growing agricultural communities, small scale forest based enterprises provide employment to surplus labour while they contribute to the process of growth, diversification and the shift to more productive uses of rural resources in growing agricultural communities. The result is an indication that production of iru provides employment to surplus labour to the tune of about 47% in the study area particularly among the women.

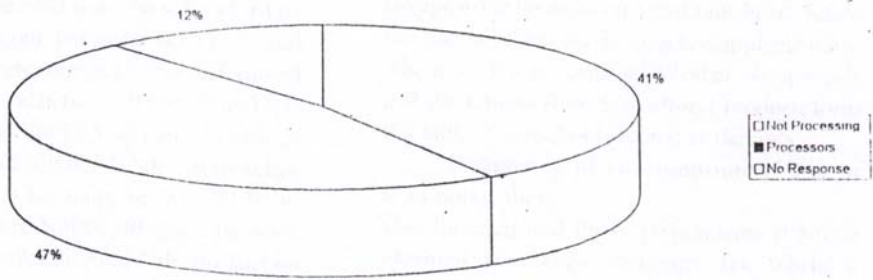


Fig.2 Proportion of the Respondents Population involved in the processing of iru in the study Area.

Sources of *Parkia biglobosa* seeds

Parkia biglobosa seeds are sourced largely from crop farms, forest reserves and farm fallow. About 53.2% of the respondents indicated that they got their supplies from these sources. Other respondents (3.7%) bought from the market, while 43.4% of respondents did not respond to this question. This result compares favourably with Anamayi et al. (20005) which reported that 50% of the 3000 respondents in Igabi Local Government Area of Kaduna State got their supplies of *Parkia* fruits from crop

farms, farm fallows and forest reserves. The clear indication from this is that the local people recognize this species as an important economic species hence they retain them on their crop farms and farm fallows in spite of its shading effect on crops.

Marketing of *Parkia biglobosa* seeds

Fifty-seven respondents (41.9%) were involved in the marketing while fifty respondents 36.8% were not (figure 3).

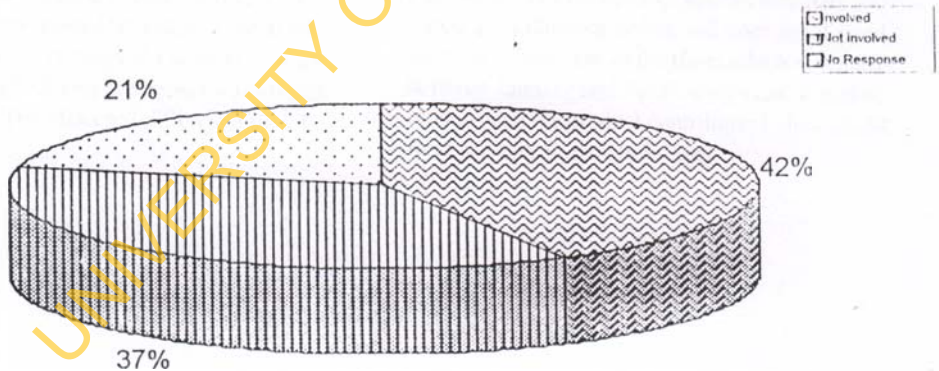


Figure3: Proportion of the Respondents Involved in Marketing of "Iru"

Daily income from sales of Iru

Income generated from the sales of iru by respondents ranged between N500.00 and N3000.00. Eight respondents (5.9%) each earned at least N500.00, and between N 501.00 and N1, 000.00, 2 respondents (1.5%) earned between N1, 501.00, and N2000.00. While 1 respondent (0.7%) each was in the range of N2, 501.00 to N3000.00 and over N3000.00 daily incomes respectively. As earlier discussed, the production is done mainly on a small scale thus the income generated is moderate. However this income level is far above the local average of about N150.00 generated from other businesses in the study area and serves as a lifeline for those engaged in the business. This finding agrees with FAO (1989) that forest based activities provide supplementary sources of family income apart from agriculture. In agreement with Arnold (1994), Chi square test indicates that the daily income from sale of iru was not significant ($P= 0.523$). This only implies that income generated from marketing of *Parkia biglobosa* by respondents is relatively low compared to their total income from other sources. This is at variance with the work of (Anamayi et. al., 2005) in Igabi Local Government area of Kaduna state where he reported significant contributions of *P.biglobosa* to household income. However the moderate income reported here plays crucial role in house hold financial and food security as such funds come handy during emergency cash needs (Hoskins 1990). The observed difference may be

because majority of the producers / marketers engage in the business on a part time basis, hence the income from iru is largely supplementary. About 85.3% are engaged in other occupations and the returns from agricultural produce form the bulk of household income in the area.

Frequency of consumption of Iru in traditional diets

One hundred and thirty respondents (95.6%) claimed that they consume Iru while 6 respondents (4.4%) claimed they did not. Eighty-eight respondents (64.7%) consumed iru daily, 27 respondents (19.9%) consume it at 3 days interval, 4 respondents (2.9%) consume it weekly, and one (1) respondent (0.7%) consumes it fortnightly while 3 respondents (2.2%) consume it only intermittently. Thirteen respondents (9.6%) did not respond to this question (figure 4). It is clear from the result above that the consumption of the product is wide spread and continuous in the study area. This result differs from the reports of Falconer (1990) and Okafor (1994) who believe that the consumption of non-timber forest products is seasonal. It is however in line with the observation of FAO (1991) that processed / stored forest foods products help ensure continuity in food supply. In this case, the consumption of the product has become part and parcel of traditional dishes and does not depend upon the seasonality of the fruits which is usually between January and April every year. It is thus obvious that the product contributes to household food security in the study area.

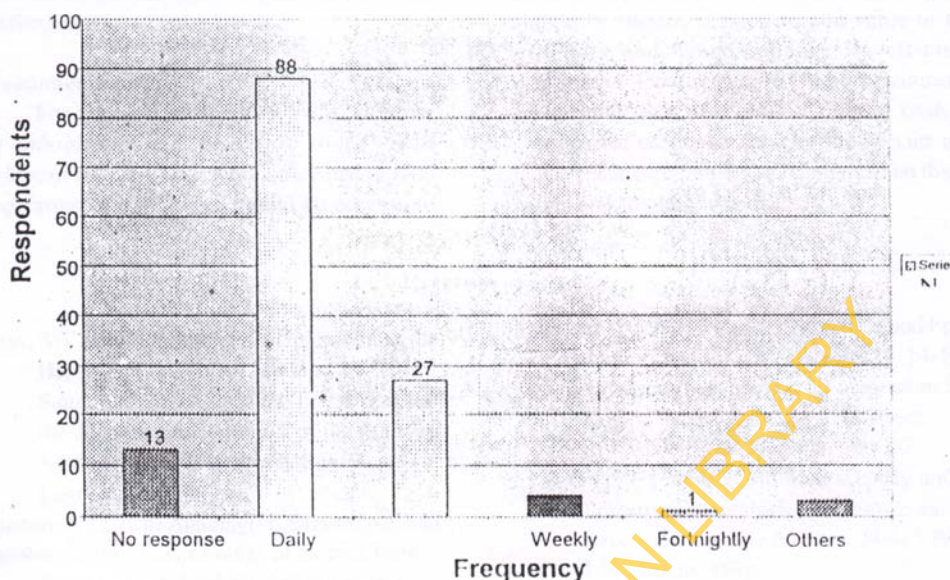


figure 4 : Frequency of consumption of Iru among the respondents

On preference of Iru to other condiments the test gives asymptotic value of 0.005 which is less than 0.05. This implies that preference for Iru against other condiments by consumers in the study area is significant. This may be attributed to the realization among respondents of its nutritional value and its limited side effects (Omofurbe et.al 2004).

Quantity of Iru consumed daily by respondents in the study area

Thirty eight respondents (27.9%) did not specify the quantity of Iru they consume daily in their household, 9 respondents (6.6 %) consume 20 grammes, 47 respondents (34.6%) consume 40 grammes, 3 respondents (2.2%) consume 60 grammes, 24 respondents (17.6%) consume 80 grammes, 6 respondents (4.4%) consume 100 grammes, 5 respondents (3.7%) consume 120 grammes, 2 respondents (1.5%) each consume 160 grammes and 200 grammes and above respectively. The significance of quantity of Iru consumed as a proportion of the total household food intake was tested using Chi square and this gave asymptotic value of 0.063 which is greater than 0.05, implying that the test is not

significant and hence the quantity of Iru consumed as a proportion of the total household food intake in this area is not significant. This is in agreement with *a priori* expectation since Iru consumption is not as a whole meal but basically, as a soup condiment, therefore its consumption is only in small quantities which may not be significant when compared to the over all quantity of household food consumption. This does not affect the essentiality of this product in household diet since it is only consumed as a condiment which does not have to be in large quantity but only as a dietary supplement.

Conclusion and Recommendations

Conclusion

The contributions of production and marketing of Locust bean (*Parkia biglobosa*) seeds to the household economy though not statistically significant is crucial in sustaining household economy. About 47.9% of the respondents are involved in processing of *Parkia biglobosa* seeds while 41.9% are involved in the marketing implying that the contributions of the activities to rural employment is substantial. Over sixty four percent (64.7 %) of the

respondents consume *iru* on a daily basis while about ninety percent (80.9%) prefer *Iru* to other condiments.

Recommendation

For a continued supply of *Iru* in this area the inhabitants should ensure that *Parkia biglobosa* trees are adequately protected in food crop farms while farmers should be advised to

plant new trees for future income generation. The production process, which is still largely crude, should be improved upon to add value to the products and hence enhance its efficient utilization. Finally, people should be educated on the other uses of *Parkia biglobosa* seeds to enhance the economic value of the species and hence encourage farmers to retain them on their farms and to plant new ones.

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