

SOCIO-ECONOMIC CONTRIBUTIONS OF SELECTED NON-TIMBER FOREST PRODUCT (LOCUST BEAN) TO THE LIVELIHOOD OF TRADERS IN YEWA DIVISION OF OGUN STATE.

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ABSTRACT

The African locust bean (*Parkia biglobosa*) is mostly a wild-growing crop-tree whose fruit possesses widespread food and non-food usefulness throughout West Africa. This study elicits the socio-economic factors affecting the livelihood of locust beans traders in Yewa Division of Ogun State. Multi-stage random approach was employed through questionnaire and interviews to collect information from one hundred and twenty (120) locust beans traders. Descriptive and inferential statistics were used in data analysis. The results revealed that all (100.0) the locust beans traders sampled were female and they obtained locust bean seeds from Ibadan market (97.5%) due to the relative abundance of the trees in the region. The major NTFPs available in the study area as indicated by the locust beans traders are food (100.0%), Charcoal (100.0%), fruits (99.2%), Fuel-wood (98.3%), Honey (97.5%), Medicinal herbs (96.7%) and Bush-meat (95.0%). The gross margin and net income of the trading business were NGN 9,718.33 and NGN 8,335.00, respectively. The benefit-cost ratio (BCR) of 1.64 implies that every ₦1 invested in locust bean trading yielded ₦0.64 profit. These reveal that the enterprise was profitable as it yielded extra income over the investments into the business. Generally, it is evident that the return from the trading of Locus beans is higher than the cost of production. Thus, it can be

concluded that Locust bean trading is a profitable and lucrative business in the study area which can be embarked upon with little start-up capital. It was therefore recommended that an evaluation of the genetic constitution and production capacity of *Parkia biglobosa* populations within the entire area of distribution is needed as a basis for developing sustainable management systems as this will reduce the purchase cost.

Key words: Locust beans, Food, Sustainable management, Socio-economic

INTRODUCTION

Non-Timber Forest Products (NTFPs) encompass a wide variety of items derived from the forest other than timber. They are goods of biological origin other than timber from natural, modified or managed forested landscapes (Pandey et. al., 2016). They include wild plants and animals harvested from forest, savannah and other natural vegetation. These include fruits and nuts, vegetables, medicinal plants, gum and resins, bamboo, rattans and palms, fibres, grasses, leaves, mushrooms, honey, fodder, fibres and craft materials (Agbogidi, 2010; Aiyeloja et al., 2012; Chidebere-Market. al., 2016).

Non-Timber Forest Products (NTFPs) have become atypical issue that has attracted global interest in recent years. Forest plays a crucial role in promoting the economic advancement and welfare of the people and it is accepted as a veritable means of alleviating poverty among rural communities because of its role in livelihood sustenance, food and environmental security. Apart from timbers derived from the forest community, Nigeria forests houses numerous Non-Timber Forests Products (NTFPs) which provides food, medicine, aesthetics and most importantly income to sustain the livelihood for people living around and outside the forest communities (Chidebere et al., 2016).

Non-Timber Forest Products (NTFPs) such as bamboo, seeds, leaves, rattan, raffia, and other fibres contribute immensely to the subsistence, daily life and welfare of people all over the world especially in rural economies of the developing world (Mahaptara and Mitchell, 2011; Farinola et al., 2014). Millions of people especially those living in rural areas in developing countries collect these products daily and many regard selling NTFPs as a means of earning a living (Agbogidi 2010). Forests have been valued for many products and benefits they provide (i.e. food, fodder, medicine, fuel wood, timber, etc.) and as a source of income from harvesting, processing and trade in these items (Tewari, 2012).

Millions of households in developing countries and in Nigeria particularly depend on various products other than timber and other industrial round wood i.e. Non-Timber Forest Products (NTFPs) which have always constituted a large part of the forest economy (Ahenkanet et al., 2011). The use of non-timber forest products (NTFPs) is as old as human existence (Aiyeloja and Ajewole, 2006). In subsistence and rural economies the role and contributions of NTFPs in the daily life and welfare of people all over the world are crucial because of their richness of variety, as sources of food for example fruits, nuts, honey, insects, animals etc. fodder, fibre, fertilizers, medicinal extracts, construction materials, cosmetic and cultural products, natural dyes, tannin, gums, resins, latex and other

exudates, essential oils, spices, edible oils, decorative articles, horns, tusks, bones, pelts, plumes, hides and skins, non-wood lingo cellulosic products, phytochemicals and aroma chemicals. Therefore, this study seeks to identify the various NTFPs in the study area and their importance as they contribute to household economies.

Considerable number of people throughout the world makes extensive use of biological products from the wild. Thus, the NTFPs play important role in the livelihood of millions of rural and urban dwellers across the globe (Areki and Cunningham, 2010; Asfawet al., 2013). Indeed, about 80% of countries in developing world depend on NTFPs for their primary wealth and nutritional needs. In these countries, the NTFPs are part of household subsistence strategies providing macronutrients, carbohydrates, fats and protein or other essential micronutrients such as various minerals (Pandey and Kori, 2011). They are harvested for subsistence and commercial use either regularly or during the time of need (Ahenkan and Boon, 2011; Ayeni et al., 2018), thereby providing a wide range of benefits to the local people. Jimohet al.(2013)have observed that rural households in Nigeria derived up to 80% of their incomes from the sales of NTFPs. In addition, Zaku et al. (2013) reported that over 70% of the country's households depend directly on fuel-wood as their main sources of energy, with daily consumption estimated at 27.5 million kg/day. Thus, harvesting and processing of NTFPs in many areas in the country have shifted from subsistence exploitation and sales at the local markets to international cross-boundary trade. For example, in the high forest zones of Eastern and Western Nigeria, harvesting of game meat and snails for sales are now major income generating activities almost all year round (Onuche 2011). While in the Savannah zone of Central and Northern Nigeria, honey, fuel-wood, locust bean seeds, gum arabic, and charcoal production generate lots of incomes for the rural households (Jimohet al. 2013). The world is grappling with a myriad of problems, including deepening poverty situations in many countries; especially the forest-dependent communities (Suleiman et al. 2017). These communities are mostly located in remote areas where most of the services and provisions are limited. Hence, the relevance of this study cannot be over emphasized. It will be useful for the economic policy makers especially those formulating policies relating to NTFPs and chiefly to make important decisions about Locust beans production. It will also be useful for any prospective investor in the NTFPs.

In spite of the importance of NTFP and their contribution to rural livelihood in Nigeria, and Ogun State in particular, markets for NTFPs to add value at the local level are not well known. It is paradoxical that in spite of their real and potential value, most NTFPs remain as minor or secondary products of forest (Oyun, 2009) while attention has been concentrated on timber forest products. Both rural and urban economies are dependent on NTFPs to generate income and provide food and medicine; hence, there is need for more attention to this important natural renewable revenue earner. It becomes pertinent that this study assesses the socio-economic contributions of Non-Timber Forest Products (NTFPs) to the livelihood of traders in Yewa Division of Ogun State, Nigeria. The broad objective of this study is to elicit the socio-economic contributions of selected non-timber forest product (locust bean) to the livelihood of traders in Yewa Division of Ogun State. The specific objectives are to;

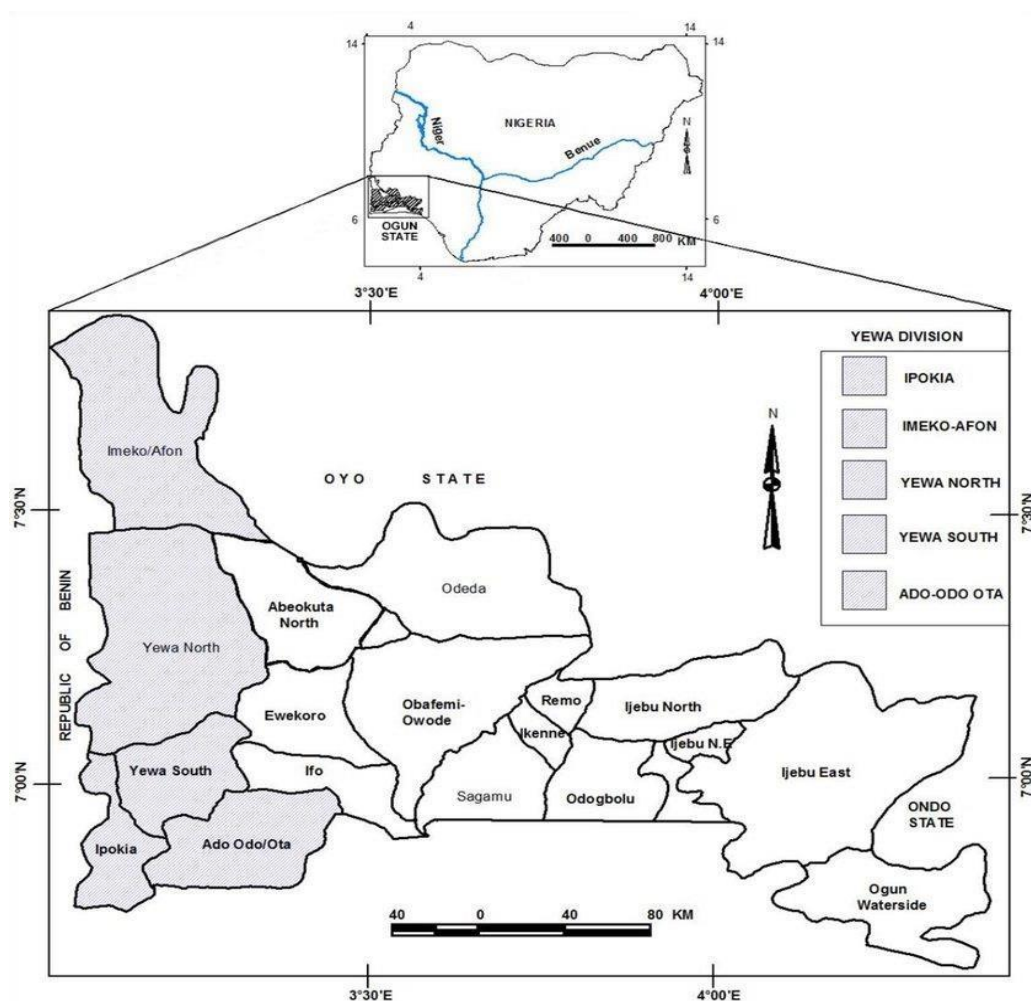
- I. describes the socio-economic characteristics of the traders;

- II. identify major NTFPs available in the study area;
- III. ascertain the net income realized from marketing of Locust bean in the study area;
- IV. elicit the socioeconomic factors that determine the sales of locust beans; and V. identify constraints faced by NTFPs marketers in the study area.

METHODOLOGY AND MATERIALS.

Study area

Figure 1: Map of Ogun State showing the Study Area



Source: Adapted from Lawal-Adebawale et al. (2018)

The empirical setting for this study is Yewa Division of Ogun State, Nigeria. This division of Ogun State is bounded in the West by the Republic of Benin, East by Abeokuta division, North by Oyo State, and South by Lagos and the Atlantic Ocean. The Division is composed of five (5) Local Government Areas (LGAs), namely Yewa South (Ilaro), Yewa North (Ayetoro), Imeko-Afon (Imeko), Ado-Odo/Ota (Ota) and Ipokia (Ipokia), with a total land mass of about 5,878 km² (Figure 1). The people are predominantly Yewas, Aworis and Eguns which are Yoruba speaking. Rainfall in Yewa Division has a bi-modal distribution (early rains from April to July and late rains in September and October) with a total of

about 1,300 mm/year (Apantaku et. al., 2003). Temperature ranges from 240 c to 320 c and average relative humidity between 80% to 90% is usually experienced. The climatic condition favours the livestock production especially poultry production. The Division is largely characterized by wide distribution of natural grasses/pasture and other herbaceous plants and shrubs (derived savanna), and is considered as attractive to pastoralists for grazing or for settlement. Economic activities are largely farming with maize, cassava, vegetables and spices as dominant crop production **Data collection method.**

Survey data were collected from locust beans traders in Yewa Division of Ogun State. Primary data was sourced with the aid of well-structured questionnaire. The data were collected from the respondents in the study area through the use of the oral interview mode.

Sampling techniques.

Multi-stage random sampling technique was used for this study. The first stage involves the selection of three (3) local government areas (Yewa North, Yewa South and Imeko) in Yewa Division. The second stage involves the random selection of two (2) villages from each local government area. In the last stage, twenty (20) locust beans traders were selected in each village to make up a sample size of one hundred and twenty (120) traders for this study.

Method of data analysis.

Data were analyzed using both descriptive statistics and econometric tools.

RESULTS AND DISCUSSION

Socio-economic characteristics of the traders.

Table 1 reveals that majority (60.8%) of the respondents are within the age range of 31-50 years while only 1.7% were above 60 years, On the average the respondent were 41 years old. This implies that the respondents are young agile and active in production and marketing of locust beans therefore capable of the tasks involved in the enterprise. All (100.0) the locust beans traders sampled were female. Indeed, in most parts of Nigeria, African locust beans processing is seen as a feminine occupation. This is in line with the findings of Babalola (2012) who indicated that all the traders of the *P. biglobosa* were female in South-West Nigeria.

It was observed from the survey that majority (81.7%) of the locust beans traders were married while 8.3%, 7.5% and 2.5% of the respondents were divorced, widowed and separated respectively. This implies that majority of the respondents have someone to cater for, hence improve productivity. In addition, the table revealed that majority (62.5%) of the respondent had 1-5 household members; about 34.2% of them had 6-10 persons

while 3.3% respondents had 11-15 persons. The mean household size was 6 which could imply relative availability of family labour for servicing the spectrum of processing activities. This is in line with Alao et al (2020) who indicated an average of 6 household members among women who involved in the production of locust beans as a livelihood activity in Osun State.

The table further revealed that 65.8% the respondents had education at various levels, majority (43.3%) had primary education and 22.5% had secondary education while 34.2% had no formal education. This generally implies low level of education and this could be responsible to some of challenges, innovation and other technology ought to put in place, which results to level of their productivity.

Experience of a marketer determines their ability to make effective marketing decisions. Table 1 also revealed that majority (54.2%) of the respondents had above 10 years of experience in locust beans trading, while 45.8% of them had between 1 to 10 years of experience. The average year of experience was 15 years. This implies that many of them had being involved in the activities for about 2 decades which means they might be able to effectively explore the business opportunities. This therefore agrees with Adejobi et al. (2011) who claimed that the more the number of years a marketer engage in a business, the better he will be equipped in exploring the business opportunities due to business tactics and networking he would have developed over the years.

About 97.5% obtained locust bean seeds from Ibadan market due to the relative abundance of the trees in the region. Akintan et al. (2013) reported that this Forest species form part of the very common Agro-forestry Parkland system in the regions where they occur.

Table 1: Socio-Economic Characteristics of Respondents

Variables	Frequency	Percentage	Mean
Age ≤ 30	25	20.8	41 years
31 – 40	43	35.8	
41 – 50	30	25.0	
51 – 60	20	16.7	
> 60	2	1.7	
Sex			
Male	0	0.0	
Female	120	100.0	
Marital status			
Married	98	81.7	

Divorced	10	8.3	
Widow	9	7.5	
Separated	3	2.5	
Household size			
1 – 5	75	62.5	
6 – 10	41	34.2	6 members
11 – 15	4	3.3	
Education			
Primary education	52	43.3	
Secondary education	27	22.5	
No formal education	41	34.2	
Years of experience			
1 – 10	55	45.8	
11 – 20	32	26.7	15 years
21 – 30	30	25.0	
> 30	3	2.5	
Source of locust beans			
Forest Reserves	3	2.5	
From market	117	97.5	
Total	120	100.0	

Source: Field survey, 2020

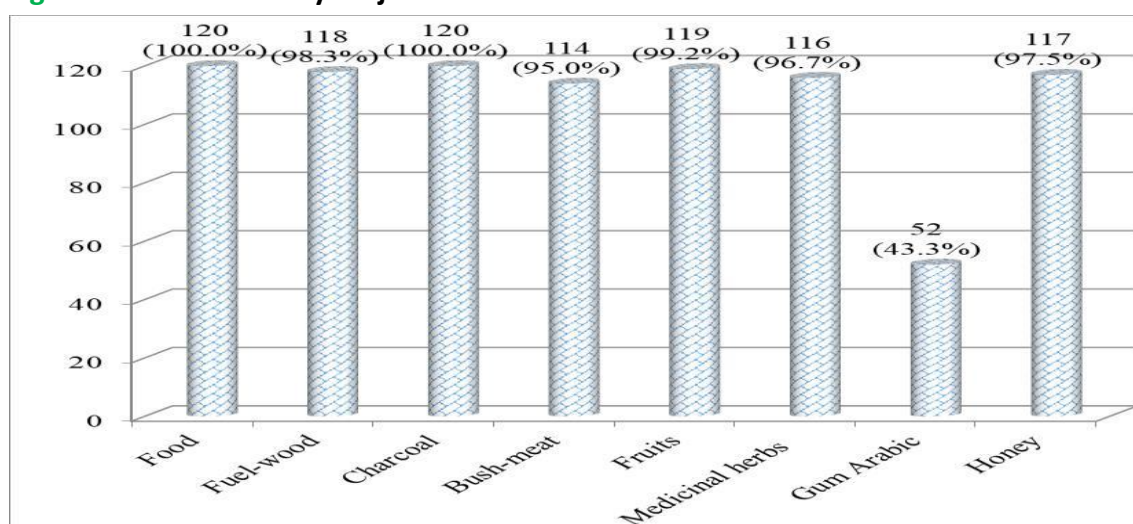
Major NTFPs available in the area.

The major NTFPs available in the study area as indicated by the local bean's traders are food (100.0%), fruits (99.2%), Bush-meat (95.0%) and Honey (97.5%). As Andel (2006) stated that food products include: wild fruits, vegetables, nuts, edible roots, bush meat, edible insects, honey and food additives like spices, flavorings, food colorants, fermentation agents.

Charcoal (100.0%) was also indicated by all the respondents while Fuel-wood was represented by 98.3% of the population. All rural households rely on fuel wood to meet all their energy needs and most fuel wood is collected from farms, bush fallow and forest.

Medicinal herbs were indicated by 96.7% of the respondents. Forests supply medicines for the vast majority of urban and rural people and medicines are consistently ranked as one of the most-valued forest products by local people. All people use plant medicines and the majority of them rely on wild plants as their main medicinal source even amongst urban household's plant medicines are widely used, especially as first aid. The implication is that forest reserves are very significant to the livelihood of the rural dwellers and urban dwellers. Government should encourage the effective management of forest resources for sustainability.

Figure 2: Distribution by Major NTFPs available in the area



Source: Field survey, 2020

Net income realized from marketing of Locust bean.

An investigation of the cost-revenue structure among respondents yielded the data contained in Table 2. Total returns from the sale of processed locust bean per week amounted to NGN 21,360.83 and it can be deduced from Table 2 that the cost of value addition (Total Cost) to locust bean seeds in the study area was NGN 13,025.83 while the gross margin was NGN 9,718.33.

The amount of locust beans purchased accounted for about 30.6% of the total variable cost of the total cost (TC) in the study area. The total labor cost accounted for 12.0% of the total cost (TC) in the study area. This is not surprising as the respondents used mainly family labour.

However, Table 2 further indicates that the business was profitable in the short run, as the gross margin and net income were NGN 9,718.33 and NGN 8,335.00, respectively. Finally, the benefit-cost ratio (BCR) of 1.64 implies that every ₦1 invested in locust bean trading yielded ₦0.64 profit. These reveal that the enterprise was profitable as it yielded extra income over the investments into the business. This is in line with the findings of Akintan *et al.* (2013) and Alao *et al* (2020) which indicated that locust beans processing was a profitable and viable enterprise.

Table 2: Cost and return estimates of locust beans trading.

Variables	Average (₦)	% of total cost
Total Revenue (TR)	21,360.83	
Variables		
Locust bean seeds	3,992.50	30.6
Transportation	2,967.50	22.8
Labour employed	1,555.83	12.0
Other expenses	3,126.67	24.0
Total variable cost (TVC)	11,642.50	89.4
Total Fixed Cost (TFC)	1,383.33	10.6
Total Cost (TC = TVC + TFC)	13,025.83	100.0
Gross margin (GM = TR-TVC)	9,718.33	
Net income (NI = TR-TC)	8,335.00	
Benefit Cost Ratio (BCR =TR-TC)	1.64	

Source: Field survey, 2020

Socioeconomic factors that determine the sales of locust beans.

Regression analysis result as presented in Table 3 shows that, the coefficients of household size and years of experience in the enterprises are positive and significant at 5% and 1% level of significance, respectively. The implication of all these is that, the higher the household size, the larger the net revenue obtained; then, the more the years spend in business, the more the net revenue. This is in line with the factors identified by Farayola et al. (2012) as including length of experience, family size and production size. This might be underscored by increased household responsibility necessitating greater exploration of the enterprise as a livelihood source.

The coefficient determination of 0.509 implies that the independent variables explained 50.9% of the total variation in the dependent variable which is the net revenue, while the remaining 49.1% is attributed to other factors not included in the model i.e. error term. The F-value was found to be significant at 1%; this implies that all the explanatory variables taking together have significant effect on the net revenue.

Table 3: Regression analysis result.

Variables	Coefficient	t-value
(Constant)		-1.079
Age	0.070	0.846
House hold size	0.180**	2.203
Income from non NTFP trade	0.068	0.778
Source of locust beans	0.089	1.069

Years of experiences in locust beans trading	0.418***	4.775
R square	0.543	
Adjusted R Square	0.509	
F statistics	17.301***	

Source: Field survey, 2020

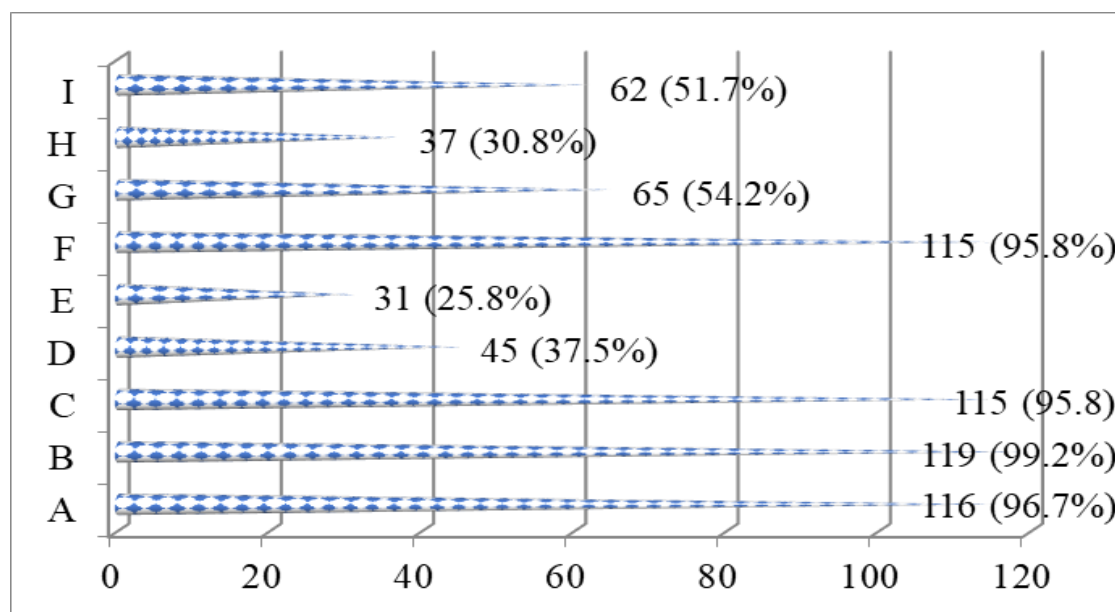
** -Statistically significant at 5% probability level

*** -Statistically significant at 1% probability level

Constraints faced by NTFPs marketers in the study area.

An investigation of the constraints encountered by the respondents yielded the data contained in Figure 3. The table showed that the respondents' greatest constraint was that, inadequate fund which was ranked first. This was closely followed by high cost of locust beans (96.7%), lack of affordable and modern equipment for extraction and processing (95.8%), price fluctuation (95.8%), poor feeder roads (51.7%) and protection of reserve (54.2%). This is line with Aderounmuet *al.* (2019) who indicated that that the respondents' greatest constraint was processing of locust bean is strenuous, Scarcity of water/ flowing River and Inadequate capital.

Figure 3: Distribution of Constraints Encountered by the Respondent.



Source: Field survey, 2020

Where:

A = High cost of locust beans

B = Inadequate fund C = Lack of affordable and modern equipment for extraction and processing D = Inadequate market information

E = Inadequate storage facilities

F = Price fluctuation

G = Protection of reserve

H = Theft

I = Poor feeder roads



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CONCLUSION

This study concluded that women were highly involved in locust beans trading in the study area for their livelihood despite the limitations posed by the high level of drudgery involved and increasing inputs costs. They had an average of 41 years, married with an average six (6) household members. They go beyond primary school level of education and they had an average of 15 years of experiences. *P. biglobosa* seeds are mainly obtained from Ibadan market. Generally, it is evident that the return from the trading of Locus beans is higher than the cost of production. Thus, it can be concluded that Locust bean trading is a profitable and lucrative business in the study area which can be embarked upon with little start-up capital. Household size and years of experience are the factors that determine the respondents' net revenue and the respondents' greatest constraint was inadequate fund.

Recommendation.

The following recommendations are therefore worthy of note to achieve the study objectives:

An evaluation of the genetic constitution and production capacity of *Parkia biglobosa* populations within the entire area of distribution is needed as a basis for developing sustainable management systems as this will reduce the purchase cost.

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