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# Perceived Influence of Locust Beans Processing on the Income of Rural Women in Kwara State, Nigeria

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## Abstract
*One of the biggest challenges in using African locus beans is the processing method, depriving many rural women of the opportunity to earn daily income. However, this study was conducted to determine the perceived impact of African locust bean processing on rural women's income in Asa and Ilorin East Local Government Areas. A multi-stage sampling procedure was used to select 300 respondents. Primary data was collected using a structured interview schedule. The results showed that the majority of the respondents (71.2%) use traditional methods to process African locust beans. There was a positive and significant ($p<0.05$) relationship between earned income, perceived limitations and impact of African locust bean processing on rural women. Inadequate technical know-how (63.84%), low demand for African locust beans (62.32%), high cost of African locust beans seeds (23.56%), and high loan interest rate (16.34%) were found to be the main limitations in African locust beans processing. It was concluded that African locust bean processing has the potential to improve the economic situation of processors.*

**Keywords:** Locust bean processing, income of rural women, rural households in Nigeria

## Introduction
African locust beans, scientific name Parkia biglobosa, is a legume tree native to the African continent and is widely distributed especially in West Africa. It is also called "iru" in (Yoruba) and dadawa (Hausa) & ogiri okpi (Igbo). The African locust bean plant is known to contain a remarkable protein composed of several amino acids in most African sub-regions (Elemo et al., 2021). This study examines the diverse meanings

of African locust beans and explores their traditional uses, nutritional value, culinary applications, and socio-economic impacts in the African context. Due to the high price of animal protein, interest has been focused on the seed proteins of several legumes as potential plant protein sources for human and livestock feed. Among plant species, grain legumes are considered to be the main source of dietary protein. They are consumed worldwide, especially in developing and underdeveloped countries where economic, social, cultural, and religious factors limit animal protein intake (Farayola, 2021).

African locust bean processing involves labour-intensive steps such as harvesting, de-hulling, washing, cooking, de-hulling, rewashing, and fermentation (Akomolafe et al., 2021). Traditional ways of processing African locust bean seeds (ALB) has been left to processors in a manner described by Aiyeloja et al., (2022) as “labour-intensive, time-consuming, and exhausting for the women and children involved.” Despite the high labour input, especially during the dry season, which is usually associated with water scarcity, African locust bean processing remains attractive to rural households in Nigeria, possibly due to low financial investment as most processors harvest wild African locust bean trees (Aiyeloja et al., 2022).

For centuries, rural households in Nigeria and other African nations have made their living by harnessing the benefits of the African locust bean tree. The somewhat low info prerequisites make the tree a genuine device for neediness lightening in provincial families. The role that African locust beans play in household economics, food security, and national economics is becoming increasingly acknowledged. At the end of the day, it assumes a crucial part in gathering the food security and well-being needs of rustic individuals who face hunger in this present reality. Therefore, it cannot be denied that Africa's locust bean aids rural areas in terms of generating income and sustaining livelihoods (Akande et al., 2019). It provides farmers and women in Nigeria who harvest, process, and sell agricultural products a steady income and serves as a food buffer during times of food shortage.

According to Farayola, (2021). It is a source of income, and poverty alleviation, contributing to Nigeria's food security (FAO, 2020). Despite the enormous nutritional and health benefits as well as income from the sale of African locust bean seeds, the economic prospects of this product have long been ignored by economic planners. It is time to focus on the importance of the African locust bean as a spice in various cuisines and its marketing assessment to properly determine its economic and social contribution to the common good and well-being of the people.

Studies by Farayola, (2021) and Ayanrinde et al., (2023) report that if the distribution of African locust beans improves, it can be a very good source of income and livelihood, especially for rural areas, and also a means of generating national wealth. About 200,000 metric tons of African locust bean seeds are estimated to be collected annually in Nigeria alone, with large quantities produced in the savannah regions of Oyo, Osun, and Kwara States of Nigeria (Musara et al., 2022). Much research has been done on African locust bean seed production and related aspects such as storage, preservation, processing, cooking time, packaging, and other areas (Non-Wood News, 2009). Efforts have also been made to scientifically study the traditional processing, marketing, physical and chemical modifications of African locust beans, and the micro-organisms involved in processing (Farayola, 2021). However, it is of

utmost importance and value to conduct research, as it is known that the indigenous people of Kwara have not only relied on “Iru” for their household speciality for many years but are also considered to be the major processors of the product. This study, therefore, aims to investigate the impact of African locust bean processing on the income of rural women in Kwara State and identify the challenges they face in African locust bean activity and consumption in the study. Africa locust bean processing is still traditionally and crudely carried out by women, which contributes to the low price of the product. Despite the benefits of Africa's locust bean to human nutrition, its economic prospects have long been ignored by economic planners. Moreover, it is very disheartening to point out that producers and the women involved in processing still live below the poverty line ( Adeumo et al., 2022 ).

This study assessed the perceived impact of African locust bean processing on rural women’s income in Kwara State.
The primary objective of the study was to assess the perceived influence of locust bean processing on the income generating of rural women in Kwara State Nigeria.
The specific objectives were to:

1. identify the processing method commonly used by women processors in the study are;
2. ascertain benefits derived from utilization of locust bean;
3. ascertain the constraints limiting locust bean processing;

**Methodology**

The study was carried out in Kwara State, consisting of 16 local government areas. Agriculture is the mainstay of the activities of the citizens. A multi-stage sampling procedure was used for the study. The first stage was a purposive selection of two LGAs known for processing locust beans. They are Asa and Ilorin Easts. Second stage Five (5) districts of each of the two LGAs known for the processing of locust beans were selected. They are: Ogbondoroko, Afon,Laduba, Aboto, and Eyenkorin, from Asa L.G.A and Iponrin, Apado, Okeoyi, Ile-Apa, and Lajikifor in Ilorin East L.G.A. Third stage a hundred and fifty (150) respondents were selected from each of the local government areas and distributed amongst the respective districts.

**Results and Discussion**

**Processing Method Used**

Table 1 reveals that 71.2% of the locust bean processors used manual processing methods, 17.4% used mechanical processing methods, while 11.4% used both manual and mechanical methods of processing locust beans. The result implies that the majority of the locust bean processors are very comfortable with the manual method, despite the benefits the mechanical method offers. However, it is encouraging to know that some of the locust bean processors have been combining both manual and mechanical methods to process locust beans. Dosumu et al., (2022) reported that the manual processing method of locust bean processing is very rampant among its processors in rural communities, because based on their low level of orientation about the mechanical method; most of them believe that the mechanical method would have adverse effects on their health or other things associated with them.

**Table 1:Processing methods commonly used**

| Processing Methods | Percentage (%) |
|---|---|
| Manual | 71.2 |
| Mechanical | 17.4 |
| Both | 11.4 |
| Total | 100 |

Source: Field survey, 2023

**Benefits Derived from Locust Bean Processing**

Table 2 shows that a greater proportion (45.98) of the respondents indicated that locust bean processing adequately helped them to make savings from their incomes, Also, 44.46% also indicated they were adequately able to meet their domestic requirements, 43.32% were able to meet the health budget, while 41.42% indicated they derived income that was adequate to satisfy the education expenses of their children. However, only 23.32% of locust bean processors believed that what they are deriving from locust bean processing is not enough to cater for their domestic requirements, while 25.08% also believed that their derivations are not enough for the education expenses of their children.

The results are consistent with the responses of the locust bean processors that the majority of them earn a substantial amount of more than #4,000 daily. This is affirmed by Farayola, (2021) that locust bean processing could be a very good source of income and means of livelihood, most especially for rural communities, and could also be a means of national wealth creation.

Dosumu, et al., (2022) also noted that locust bean processing is a potent source of financial freedom for most people in rural areas, most especially in the dry season when they gather the locust bean seeds. They would preserve the locust bean seeds till the rainy season when they become scarce and start selling based on demands and prices that meet their needs.

**Table 2: Benefits derived from locust bean processing**

| Items | V. Adequate. | Adequate. | Inadequate |
|---|---|---|---|
| | % | % | % |
| I was able to meet my domestic requirements | 31.54 | 44.46 | 23.32 |
| Was able to make savings out of the return on processing | 32.68 | 45.98 | 21.66 |
| The income from the processing was able to satisfy the education expenses of my children | 33.82 | 41.42 | 25.08 |
| Was able to meet my health budget | 34.58 | 43.32 | 22.42 |
| I was able to participate in cooperative activities | 33.44 | 40.28 | 20.6 |

Source: Field survey, 2023

**Constraints Limiting Locust Bean Processing**

The result in Table 3 reveals that inadequate modern processing facilities are the major (63.46%) constraint to locust bean processing, followed by inadequate capital to buy locust beans and equipment (62.7%), inadequate water supply (61.94%), and a lot of drudgery involved in locust bean processing (58.14%).

On the other hand, it is impressive to discover that inadequate technical know-how is not a constraint with 63.84%, while 63.32% believed that low demand for locust beans is not also a constraint. 48.64% of locust bean processors also believed that high-interest rates on credit facilities are a severe constraint to locust bean processors, 49.02% believed that competition from another seasoning (e.g. Maggi) is also a severe constraint, while 45.98% believed that an inadequate market for the locust bean has a severe impact on its processing. Observations made during the interview revealed that the majority of the locust bean processors were still using the crude traditional method of locust bean processing. This means that the rural women were sincere in their responses that inadequate modern facilities are strongly affecting their processing of locust beans. This point was also raised by Gbekley et al., (2022) that locust bean processors heavily relied on the traditional method, which makes it difficult to buy the modern processes. Dosumu et al., (2022) reported that inadequate technical know-how of modern facilities for locust bean processing may cost processors the potential benefits of the modern methods. They argue that locust bean processors may believe that they have the requisite skills to process locust beans in the traditional method.

However, it would pose a threat to them in the future because people may not want to buy locust beans processed through traditional means. It seems the argument of Dosumu et al., (2022) is becoming valid since the majority of the locust bean processors now see the inadequate market for the processed locust bean as a constraint that has a highly severe impact on their jobs and means of survival, affectionate that locust bean processing requires an enormous amount of water means that the locust bean processors understudied were conscious of the constraints of their jobs. This is evident by the results more than 90% of the locust bean processors believed that inadequate water supply deeply affected them when processing locust beans.

**Table 3: Constraints limiting locust bean processing**

| Constraints | HighlySevere % | Less Severe % | Severe % |
|---|---|---|---|
| Inadequate capital to buy locust beans and equipment | 62.7 | 27.74 | 9.88 |
| Processing of locust beans is time-consuming | 53.58 | 34.96 | 11.78 |
| Locust bean processing involves a lot of drudgery | 58.14 | 33.82 | 8.36 |
| Inadequate market for the processed locust bean | 39.14 | 45.98 | 15.2 |
| Low demand for locust bean | 7.98 | 30.02 | 62.32 |
| Inadequate supply of water | 61.94 | 29.26 | 9.12 |
| Inadequate modern processing facilities | 63.46 | 27.74 | 9.12 |
| Inadequate technical know-how | 8.74 | 27.74 | 63.84 |
| Competition from other seasoning (e.g. Maggi) | 45.98 | 49.02 | 5.32 |
| Locust bean seeding are costly | 31.54 | 45.22 | 23.56 |
| Interest on credit facilities is high | 35.34 | 48.64 | 16.34 |

Source: Field survey, 2023

## Conclusions and Recommendations

The involvement of rural women in the utilization of African locust beans has contributed immensely to their welfare status, also, there are numerous benefits derived from the utilization, among the benefits are; nutritional and economic benefits. The financial benefits involve helping the processors earn some income and possess other social amenities required to sustain their daily living. Rural women in Kwara State mainly used manual processing methods.

Locust bean processors should embrace the modern method of processing because of its potential to reduce the physical and mental rigour they go through during processing.

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