

## Alleviating Rural Poverty Through Integrating Indigenous Tree Fruits among Cultivated Crops by Rural Famers in Cross River State, Nigeria

<sup>1</sup> UKAM, Victor Efut, <sup>2</sup>UKAM, Odubo Efut

Corresponding author: [ukamvictor2016@gmail.com](mailto:ukamvictor2016@gmail.com)

<sup>1</sup>Department of Agricultural Education, University of Education and Entrepreneurship, Akamkpa

<sup>2</sup>Government Day Secondary School, Akamkpa, Cross River State

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### Abstract

*The study examined ways of alleviating poverty among rural farmers in Cross River State, Nigeria through integrating indigenous fruit trees into the farming system. Causes of rural poverty among farmers were enumerated as decline in economic development, unstable political system, corruption, rural-urban migration, occurrence of pests and disease. Characteristic features of four indigenous fruit trees were highlighted. The paper enumerated the benefits which farmers may derived from such integration, as food supply, income generation, employment, environmental protection and improvement in the health of the farmers. Constraints which may hinder effective integration were identified as insufficient land holdings, lack of capital and collaterals by prospective farmers, poor yield of indigenous species and incidence of pests and diseases. Based on the findings, it is hereby suggested that government should create awareness through seminars, talks using local dialects on the benefit of growing fruit trees, encourage and assist farmers acquire soft credit facilities to expand their hectare cultivation. Also, farmers should be encourage to establish private orchards, revoke the traditional land use policy to enable prospective farmers have access to land as well as teach farmers on proper ways of harvesting, processing and storage to avoid spoilage of fruit tree crops.*

**Keywords:** Poverty, Poverty Alleviation, Indigenous fruit trees, Farmers, Cross River State

## Introduction

The term “poverty”, is derived from the Latin word “paupertae”, meaning producing “little”, and reflects a condition that has shaped human societies for centuries. It is a multidimensional condition characterized by lack of access to essential resources and opportunities required for a decent standard of living. It typically includes limited access to income, food, clean water, health care, education, and shelter as well as inability to acquire basic goods and services necessary for survival with dignity (World Bank, 2022)

According to the World Bank (2023), poverty is a condition of living on less than \$2.15 per day (International poverty line), while many countries also use national poverty line to define context specific poverty. The United Nations Development Programme (UNDP) takes a broader approach, using the Multidimensional Poverty Index (MPI) to assess poverty based on indices like health, education and standard of living (UNDP, 2002). In simple terms, poverty means a condition where people’s basic needs for food, clothing and shelter are not being met.

Poverty Alleviation on the other hand refers to efforts made to reduce or eradicate poverty through improving income levels, reducing inequality, and increasing access to essential services (UN, 2021). It is a central goal of the United Nation Sustainable Developmental Goal I (SDGI), which stipulates “End poverty in all ramification everywhere by 2020.

UNDP (2020) identified the following as forms of poverty:

- i. Absolute or extreme poverty: Is a condition characterized by several deprivation of basic human needs including food, safe drinking water, sanitation, health, shelter, education and information. It depends not only on income but also access to services
- ii. Relative poverty: Is contextually an economic inequality in the society in which people live. It varies from country to country and sometimes within the same country, it is said to be increasing and may never be eradicated

- iii. Multidimensional poverty: Is a measure of acute-poverty that reflects the overlapping disadvantages poor people face across different aspects of life, such as education, health and living standards (OPHI,2022).

Poverty has become a global issue and remains one of the most persistent developmental challenges in developing countries. According to World Bank (2023), over 700 million people globally and 129 million Nigerians live below the national poverty line, with rural areas experiencing higher poverty rates due to structural inequalities, low agricultural productivity, and limited access to infrastructure and services. In Cross River State, Nigeria, where a significant portion of the population live in rural communities, poverty remains a troubling issue despite the state endowment with natural resources. For instance, Cross River State recorded a 25.4% poverty rate in 2018, one of the lowest in the country.

Among the underutilized resources in these communities are indigenous fruit trees (ITFS) like bush mango (*Irvingia gabonensis* and *Irvingia wimbula*), Coconut (*Cocos nucifera*), Pawpaw (*Carica papaya*), Avocado pea (*Persea gratissima*). These trees are not only a source of food and nutrition but equally contribute to income generation, climate resilience, and biodiversity conservation. However, their potential contributions to household income and rural poverty alleviation have not been adequately documented in formal poverty reduction strategies (Leakey, 2012).

Despite the documented socio-economic and environmental benefits of (ITFS) in other parts of the world including Africa, farmers in Cross River State face a number of problems that hinder the full integration of these trees into livelihood projects. These include poor market access, lack of domestication techniques, weak policy support, and limited extension service (Iwara, Otu & Akinyemi, 2018). Thus, chances to leverage ITFS as instruments for sustainable rural development remain greatly unutilized.

This paper intends to highlight ways of harnessing poverty among rural farmers in Cross River State through the growing of indigenous fruit trees as a means of enhancing economic capacity and standard of living.

## Causes of Poverty in the Society

Poverty is a global scourge. In Nigeria, and especially rural areas in Cross River State, the main causes include:

i. Unemployment and underemployment

The scarcity of formal job opportunities, mainly for youths and women, leads to widespread underemployment. Okorie (2025) posited that unemployment and unstable jobs are major drivers of poverty among rural households in Nigeria.

ii. Poor access to education

UNDP (2002) reported that lack of quality education and vocational training restricts the ability of individuals to secure well-paying jobs or start business, perpetuating cycles of poverty.

iii. Inadequate infrastructure

Iwara *et al.* (2018) stated that limited access to transportation, electricity, clean water, and storage facilities hinders productivity and access to markets, especially in remote rural areas like parts of Boki, Obubra and Ikom Local Government Areas in Cross River State

iv. Land tenure and resources inequality

Lack of secure land ownership among small holders prevents long term investments in agriculture while large portions of arable land remain underutilized or controlled by the elites.

v. Environmental degradation and climate change

Floods, soil erosion, and unpredictable rainfall, common in Cross River's rainforest belts, reduce crop yield and income, exacerbating rural poverty.

vi. Weak governance and corruption

Mismanagement of public resources and poor implementation of poverty reduction programmes further entrench poverty in many Nigerian communities (CCSNET, 2023).

## **Prospects of Growing Some Indigenous Fruit Trees for Poverty Reduction in Cross River State**

Fruit tree occupies a large spectrum in agriculture. Some common indigenous trees whose potentials may enhance its utilization in contributing towards poverty reduction programmes among rural farmers in Cross River States are:

### **Bush Mango (*Irvingia gabonensis* and *Irvingia wombulu*)**

Bush mango is a common forest fruit tree found in the rainforest of Cross River State and grows up to a height of 35 meters. Two species found here are *Irvingia gabonensis* (rainy season bush mango with sweet flesh) and *Irvingia wombulu* (dry season bush mango with bitter flesh).

Although bush mango is a forest specie, its high value means that farmers often leave mature trees when cleaning for farming. Seedlings discovered by farmers are sometimes nurse to maturity and where tenure arrangements are strong, planting is also undertaken. Today, hybrids with short gestation periods of 5 years have been developed with high yield production by the Ministry of Agriculture and Cross River State Community Forest Project (CRSCFP,2002). The main harvesting areas of bush mango in Cross River State are Akamkpa, Biase, Ikom, Obubra and Odukpani Local Government Areas (Bisong,2001). The two main fruiting seasons for bush mango are June to September and February to April depending on the species.

The kernel or nut inside the flesh of the fruit it a major source of income and used widely as a soup thickener and condiment. The harvest and sale of bush mango is a major source of income for rural women and youths in Cross River State, were in some localities it often accounts for 50% of total household income during it season of collection (CRSCFP,2002).

CRSCFP (2002) stated that the local and international trade in bush mango is estimated to worth \$50 million United States of America and the product is listed on the weekly commodity index in Nigeria. It added, annual estimated value of bush mango exported from Cross River State is over 600 metric tonnes with a market value of 72 million naira. The wholesales unit per 50kg bag at peak of collection is N40,000.00 and which can be resold at N50,000.00. The retail price per cup is between N1,500 to N2,000. However, during periods of scarcity both wholesale and retail prices may rise up to 30%. The mesocarp (flesh) of the sweet type is often eaten as food.

From the above attributes, it is hoped that if community dwellers are encouraged to cultivate bush mango seedlings, especially the early maturing hybrid species, would assist in alleviating the poverty level of most rural community dwellers, mainly the womenfolk.

### **Coconut** (*Cocos nucifera*)

The coconut is a plant with a single un-branched stem with a crown of leaves which radiates from the top of the stem. The trees may attain a height of 30 meters, sometimes more, and live for 60 to 100 years. They start to bear fruit at five to six years and continue to do so through out its life span. It is a plant of low land tropics.

The coconut is one of the oldest and most widely distributed crops in the tropics and often called the “tree of life” because it yields so many of the resources essential for survival and traditional lifestyle. The leaves of the palm are used for roofing and making mats, the flesh as source of food and raw material in soap and cooking oil, the husk in making of ropes, mats and mattresses, the shells for the production of charcoal, the roots for making dyes and traditional medicine. Even the trunk is being used to build up local furniture making industries. No other plant on earth is as versatile like the coconut (Mabbet,1994).

On the wider geographical and economic factor, oil extract of coconut is commonly used in cooking, making soap, candles, body lubricant, digester of albumoses, non-diary creamers and detergents. Its water is clear, sweet, sterile and compose of unique chemicals such as sugar, vitamins, minerals, electrolytes, enzymes, amino acids, cytokines and phyto-hormones (Mabbet,1994).

Today, hybrids exist (Dwarf females x Tall males) and can yield more than five tonnes of copra per hectare (Mabbet,1994). Thus, with such hybrid varieties and it high yielding capacity were locally sold at least at N500/fruit, several grown stands per hectare or even at the family backyard can provide income to families, improved their standard of living thereby help in reducing poverty.

### **Pawpaw** (*Carica papaya*)

Pawpaw scientifically called *Carica papaya* is commonly grown as a backyard plant throughout the wetter parts of Nigeria, Cross River State inclusive. It is usually self- sown on household refuse dumps

where it thrives, but hybrids with early maturity and high yield capacity have been developed by the state ministry of agriculture.

Papaya (ripe or green) is available all the year across the state and is a valuable food and vegetable for human consumption. The green form has both nutritive and medicinal values. Rashed (2021) reported that papaine an alkaloid present in it can be used as heart depressant, amoebicide and diuretic. The author added when grown in sizeable hectares can be used for the extraction of papain, a proteolytic enzyme presents in the latex. Papain, is reported have varied uses in the beverage, food and pharmaceutical industry, chilling-proofing beer, tenderizing meat, drug preparation for digestive ailments and treatment of gangrenous wounds (Babalola, Akinwande, Otunba, Adebami, Babalola & Nwufo, 2024). It is equally used in bating hides, degumming skin and softening wool. Eating fresh papaya, after or during a meal make it easier for the body to digest proteins, which help to ease stomach upset (Iboroma, 2009). Today, with the availability of high yielding hybrid species whose fruit sells at least N200 to N300 per fruit, when farmers are encouraged to grow them in large hectares can be sold to help alleviate the poverty burden of the grown farmers.

#### **Avocado pear** (*Persea gratissima*)

Avocado pear (*Persea gratissima*) is an indigenous plant of South America and was introduced to Nigeria by the missionaries about 90 years ago (Philips, 1979). It does very well in moist soils of the hot moist climates of South-South Nigeria. The flesh of the fruit is edible and is being much priced.

Due to its high nutritive value and wide utilization possibilities, avocado fruit has become more popular in Cross River State. Apart from being consumed as fresh fruit for its palatability, food value with high protein, vitamin E and digestible fat content, its oil extract can be used in the cosmetic industry.

Health wise, avocado fruit, seed and leaves have been found to help combat cancer, reduce blood sugar level, weight management, digestive health, slow down ageing process as it is rich in Vitamin E, a powerful anti-oxidant and prevent heart diseases since it is rich in Potassium (Fulgoni, Dreher & Davenport, 2021). Avocado pear fruit is sold at N200 per fruit and several grown stands at the family backyard can change their economic level.

Other fruit trees not elaborately discussed that farmers may be encourage to grow to help alleviate rural poverty include mango, guava and oranges.

### **Contributions of indigenous fruit trees (ITFs) in poverty reduction.**

From the above attributes associated with indigenous fruit trees, it is believed if integrated into the farming systems of rural farmers may help in alleviating rural poverty in the following ways:

i. Income generation

Many rural households earn income from collection, processing, and sales of fruits and seeds from ITFs. For instance, bush mango (Ogbono) is processed and sold in local and national markets, often fetching high prices during off-season. Daily Trust (2024) reported that in Obanlikwu and Akamkpa Local Government Areas, women co-operatives have used bush mango sales to support households' income and fund children education.

ii. Employment creation

Harvesting, processing, packaging and marketing ITFs product create seasonal and permanent jobs particularly for women and youths.

iii. Food and nutritional security

ITFs provide essential nutrients to the ruralites. Ejimofor and Oledibe (2022) reported that African Breadfruit (*Treculia africana*) is a carbohydrate and protein-rich staple food; while African pear (*Dacryoides edulis*) provides essential fatty acids and vitamins. Utilizing the two ensures better nutrition for poor rural households especially during hunger seasons.

iv. Sustainable agriculture and environmental benefit

IFTs are resilient and adapted to local ecosystems. Their cultivation enhances soil fertility through leaf fall and organic matter decomposition, reduce deforestation and when integrated into agroforestry systems supports biodiversity conservation (Leakey, 2012).

v. Gender empowerment

Women are the primary collectors and processors of many IFTs. Access to fruit tree-based livelihoods increases their income, authority and role in community decision making (Arowosoge and Adebwale,2009).

vi. Climate change resilience

Fruit trees especially contribute to climate adaptation through carbon sequestration, moisture retention and erosion control, helping rural communities sustain its livelihood under changing environmental conditions.

vii. Health benefit

Indigenous fruit trees improve human health by providing essential nutrient like vitamins, minerals, fiber, and antioxidants that prevent malnutrition and boost immunity. They help reduce micronutrient deficiencies, protection against infections and chronic diseases, and support overall well-being. Their medical properties also offer affordable treatment options in rural areas. By providing dietary and food security, they enhance physical strength, cognitive development, and productivity thereby contributing to poverty reduction (Shackleton, Pasquini & Drescher 2015; Omotayo and Aremu 2021).

viii. Contribution to Sustainable Development Goals (SDGs)

Indigenous crops (including fruit trees) contribute to multiple SDGs, including SDG 1 (No poverty), SDG 2 (Zero hunger), SDG 3 (Goal health & well-being) SDG 8 (Decent worth & economic growth) through employment and local economic stimulation, and SDG 15 (Life on land) via biodiversity conservation (Omotayo & Aremu, 2021; FAO, 2023).

**Constraints towards utilization of indigenous fruit trees**

According to Ndwandwe, Sibanda and Khumalo (2021); common constraints towards utilization of indigenous fruit trees in poverty reduction programmes as it may equally affect Cross River State include:

- i. Insufficient land holding due to tenure system by prospective farmers to cultivate extensive plots of economic value.

- ii. Lack of capital to purchase hybrid seeds/seedlings from reputable nurseries.
- iii. Lack of collateral by farmers to obtain loans from banks to expand their plot size.
- iv. Poor yields output of local varieties of species
- v. Incidence of pest and diseases which attack grown stands
- vi. Lack of awareness and low value recognition among rural farmers
- vii. Limited domestication, propagation technologies, and genetic improvement
- viii. Weak market access and value chain coordination
- ix. Poor storage, preservation and processing infrastructure
- x. Insecure land tenure system which limits tree planting incentives
- xi. Neglect of ITFs in agricultural forestry policy frame work.
- xii. Environmental threats such as deforestation, bush fire and climate variability.
- xiii. Limited research, extension and policy support.

## **Conclusion**

Indigenous tree fruits are important sources of food, income and medicine which are important in sustaining life. Although, several local species abound their yield potential is low. To achieve the aim of introducing indigenous tree fruit into the poverty reduction programmes of Cross River State Government, there is need to integrate hybrid species into the rural farming system. Awareness creation on its utilization is very vital and farmers should be encouraged to grow them within their nearest vicinity as it will in the long run improve their income status as well as their standard of living.

## **Recommendations**

To actualize the integration of indigenous fruit trees into the poverty alleviation programmes among rural farmers in Cross River State, the following recommendations are suggested:

- i. There should be regular and intensive awareness campaign among community dwellers and policy makers about the numerous benefit that maybe derived from growing tree fruits. Teaching should be carried out using local dialect/languages in addressing the farmers during national poverty alleviation days as well as national tree planting days
- ii. Government should encourage and assist prospective farmers to acquire soft credit facilities from commercial and microfinance banks at reduced interest rates to establish farm orchards. This will enable them cultivate large plot which at the end will improve their livelihood.
- iii. The establishment of private orchards by farmers should be encouraged. Planting could equally be carried out around individual dwelling and farm boundaries. The aggregate of such holdings is increased in total output yield.
- iv. The state ministry of agriculture in conjunction with the forestry and horticultural department should organize training programmes for intending members of community dwellers on how to raise seedlings, plant and grow them to maturity. There is need to mainstream indigenous fruit trees into agricultural policy and development programmes of government.
- v. Support women and youth participation in fruit tree growing programme since they serve as key actors in harvesting marketing. Targeted empowerment programme like training, funding, and entrepreneurship development should be implemented to enhance their livelihood outcomes.
- vi. The traditional land holding policy should be revoked to enable intending land-less members access to land and grow fruit trees. The land reform Act of 1979 should be uphold.
- vii. Government should encourage the planting of indigenous fruit trees by carrying out research on hybrid species and distribution to farmers at subsidized rates.
- viii. Government and stakeholders should link the rural fruit producers with possible market outlets, including international markets. In order to check fruit spoilage, community farmers should be provided with information on harvesting, processing, storage, uses and marketing of grown fruits.

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