



Economics of Pepper fruit (*Dennettia-Tripetala*) production in Nsukka Agricultural Zone, Enugu state Nigeria.

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ABSTRACT

This research work dealt with the Economics of Pepper Fruit Production in Nsukka Agricultural Zone, Enugu State. Despite the preference of pepper fruit to other vegetable fruits, its pharmaceutical and organoleptic properties, enough has not been written on it. The specific objectives were to examine the socio-economic characteristics of pepper fruit farmers, examine the production practices of pepper fruit, examine the level of income generated, determine the factors limiting pepper fruit production, identify the possible measures to improve the production practices. Random and purposive sampling techniques were used to administer a structured questionnaire to 120 respondents. Data collected were analyzed using frequency, percentage and gross margin to determine the profitability of pepper fruit production. The results show that (65%) of the respondents were males with an age bracket of (24-65years) with a mean of 40 years. The findings show that majority of the respondents have 5-15 years of farming experience with a mean of 7.75. The result also shows that many of the respondents do not have beyond secondary education qualification, rather are literate (40%). The results of the budgeting analysis showed a gross margin of ₦42,400 and a benefit-cost ratio of ₦1.4 so for every ₦1 made, a profit of 4kobo is realized. Pepper fruit is therefore profitable. The result also shows that net profit is ₦17,600, a gross ratio of 0.7. The major problems confronting pepper fruit farmers in the zone, were land tenure, poor storage facilities and poor marketing channels. It is therefore recommended that the establishment of low-interest rates for land procurement loans be enacted.

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1.0 Introduction

Pepper fruit botanically known as *Dennettia tripetala* belongs to the Annonaceae family. It is a tropical plant that is most dominant in the West African region especially in Nigeria, Ivory Coast and Cameroon. *Dennettia tripetala* found in the compound farms and have undergone various phases of domestication.

Over the past two decades, there has been increased recognition of the importance of wild or locally cultivated food plants as a source of micronutrients and plant secondary metabolites. More recently, the role of these biological diverse species in maintaining human and environmental health has been highlighted particularly with glob-

al food security. (Friso 2006): Johns and Eyzagurre, 2006). One of these essential beneficial plants is *Dennettia tripetala* (*D. tripetala*) commonly known as pepper fruit. Peeper fruit is an indigenous fruit tree found in the West African Region. The fruit trees are of high nutritive, medicinal, cosmetic, economic, and environmental values currently under domestication as new "cash crops" to farmers in most countries of West Africa. Domestication techniques such as (rooting of cutting, air layering, grafting) are being developed aimed at reducing the long juvenile phase of fruiting while maintaining trueness in the transfer of desirable traits for (fruit, seed and bark).

Dennettia tripetala is widely consumed by the inhabitants

of West Africa due to its distinctive spicy taste.

The fruits have been reported to contain important nutritive substance such as vitamins, minerals and fibre (Okwu 2005). It was also indicated that the rich presence of essential oil (oleoresins) determines the aromatic flavor, colour and pungent properties of pepper fruits. (Nwaogu 2007) investigated the phytochemical content and detected the presence of saponins, flavonoids, tannins and cyanogenic glycosides. Also, Adedayo (2006) reported the presence of flavonoids in *Dennettia tripetala*. The intake of flavonoids in any fruit and vegetable tends to decrease cancer risk (Neuhouse, 2004; Graf 2005). Flavonoid according to (Harpens 2013) contributes to the colour of plants, their fruits and flowers.

The rapidly expanding population and consequent pressure on land for socio-economic, agricultural and industrial development as well as increasing human interference on the forest and the environment have put the future of Nigeria forest and agricultural land in greater danger (Bifarin, Folaya & Omoniyi, 2013).

The drive towards ensuring an increase in a high level of income should be channelled towards developing agricultural practices and system that will be environmentally friendly and also focus on productivity in the long term rather than immediate production and accruing returns (Bankole, Adekoye & Nwawe, 2012). But, there is a gap in the production of D.T in the study area.

According to Sylva Oghogho and Seghohi (2015), the scientific knowledge on *Dennettia tripetala* is limited despite its use in African traditional medicine in alleviating a wide range of diseases like cancer and high Blood Pressure. Therefore, more work must be done in the study.

However, the sustenance of the role of Pepper fruits is hinged on better storage facilities improved marketing efficiency and enhanced commercial cultivation of this species (Ogbonna, 2010).

2.0 Methodology;

This study was carried out in 2018 at Nsukka Agricultural Zone, Enugu State. Nsukka Agricultural zone is made up of three Local Government Areas. Nsukka Agricultural

zone is situated on a gentle slope with hills and valleys and located between latitude 7^o 21 and 7^o 36 East and longitude 6^o45 and North(Ezike,2008). A random sampling technique was adopted for the study. Out of the three Local Government Areas that made up Nsukka Agricultural Zone which included Nsukka, Igbo-Etiti and Uzowani Local Government Areas. Four communities were selected from each Local Government Area making it a total of 12 communities and in each community 10 pepper fruit farmers were selected and interviewed using a structured questionnaire giving a total of 120 respondents. Secondary data were collected from past literature, thesis, internet and agricultural-related documents. Objective I was analyzed using frequency, mean, and percentages. Objective ii was analyzed using frequency and percentage. Objective III was analyzed using frequency, mean, charts, percentage and gross margin. Objective IV was measured using the Likert scale. Objective V was analyzed using frequency, percentage. Frequency = number of times a given response occurred.

$$\text{Percentage} = f/n \times 100 \quad 1$$

Where f = frequency of response

n= total number of response

$$\text{Gross Margin GM} = \text{TR} - \text{TVC}$$

where;

TR = Total revenue

TVC = Total variable cost

3.0 Results and Discussion

3.1 Analysis of Cost and Returns

Variables cost includes Labour cost, seedling cost, fertilizer and transportation cost, pesticides.

Total fixed cost consists of Cost of cutlass, wheelbarrow, in addition to the fixed cost is the incurred for the lands leased by some government bodies.

Labour Cost

The quantity of organic fertilizer is 3kg.

The cost of transporting the produce to the market is 800.

3.1.1 Profitability of Pepper Fruit Production in the Zone

Table 1: Average variable input cost of Pepper Fruit in the zone (n-120)

Inputs	Unit	Quantity	Unit cost (₦)	Total cost (₦)
Labour	Manday	-	2,000	2,000
Planting Seedlings	Kg	20	150	3,000
Fertilizers (organic)	Kg	3	700	2100
Transportation	-	-	800	800
Pesticide	Litre	2	1,500	3,000
Land rent	Hectare	Annually	13,000	13,000
Total (VC)				₦23,900

Source: Field Survey 2018

Table 2 Average fixed cost for pepper fruit production

Items	Unit cost (₦)	Quantity	Total cost	Useful life (yrs)	Depreciation
Cutlass	900	2	1,800	3	150
Basket	200	3	600	2	50
Wheel	14,200	1	14,200	20	1,200
Barrow					
Hoe	500	2	1000	3	100
Total (FC)					1,500

Source: Field Survey 2018.

Total Cost (FC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)

TC = TFC + TVC

TC = 17,000 + 23,900

TC = ₦41, 500

Table 3 Farm Returns on Pepper Fruit in the zone (n-120)

Items	Unit Cost	Quantity	Total Cost (₦)
Sales of Pepper fruit	200	100kg	20,000
Sales of the tree	2,000	20 stands	40,000
Total Revenue			₦60,000

Source: Field Survey 2018.

TR = Total Revenue

TVC = Total Variable Cost

Gross margin = TR-TVC

GM = TR-TVC

GM = 60,000 - 17,600

GM = ₦42,400

Net farm profit = Total revenue – Total cost.

NFP = ₦60,000 – ₦42, 400

NFP = 17, 600

Benefit Cost ratio

BCR = Total revenue

Total cost

BCR = ₦60,000

₦41, 500

BCR = ₦ 0.4

An investment is profitable if the BCR is greater than 1

Rate of return (ROR) = Net Profit

Total Cost

ROR = ₦17,600

₦41, 500

ROR = 0.42

Gross Ratio = Total cost

Total revenue

= ₦41,500

₦60,000

= ₦0.7

From the above calculations, it is shown that pepper fruit production is a profitable business. A farmer makes a profit of ₦17,600 after the maturation of fruits. The budgeting analysis shows that the total output realized in the production of pepper fruit maturity stage is ₦17,600, the result also shows that the benefit-cost ratio is ₦1.4 meaning that every ₦1 invested in the enterprise will yield an additional 4 kobo.

4.0 Conclusion;

The economic prospects of pepper fruit in the study area is

bright. It is, therefore, necessary since the majority of the respondents engage in the production to create more awareness of its peculiar benefits. The need to create more awareness of this fruit crop should be done by extension workers so that it will be adopted as a new agricultural management practice. The production and marketing do not only generate income but also help in the improvement of soil structure and texture, conserving the environment and boost tree planting programmes. It is therefore recommended that the government should assist by supplying high yielding and disease-resistant varieties. More research should be undertaken to add to the existing knowledge of its uses and benefits. It is also imperative to boost agro-forestry/agro farming, marketing and development.

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