



## ASSESSMENT OF ECONOMIC RELEVANCE OF MORINGA OLEIFERA TO ITS FARMERS AND MARKETERS IN KATSINA STATE

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### Abstract

*This research assessed the economic relevance of Moringa oliefera to the farmers and marketers in Katsina state this was prompted due to inadequate information in terms of the quantity of leaves and seeds produced and the turnover of Moringa in the study area. The research is a survey where twenty-four(24) M.oliefera farmers and sixty-five(75) M.oliefera marketers respectively were randomly sampled within nine(9) local government areas selected from the thirty-four LGAs'.Survey and interview were methods employed for data collection from farmers and marketers in the selected local government Areas. It was found that majority of Moringa farmers and marketers in the study areas are aged and receive no assistance from the government. Just as there is difference between farmers prices and marketers prices of Moringa ( $t\text{-cal } 6.160 > t\text{-tab } 6.030$   $df$  8 at 0.05 level of significance), so also is there a difference between the demand of Moring leaves and seeds in the state( $t\text{-cal } 11.170 > t\text{-tab } 2.306$   $df$  8 at 0.05 level of significance), implying that the business is not only gainful in the state but Moringa leaves are used for nutritional and medicinal purposes in the state. It was recommended that the state government should not only enlighten the youths on the need for Moringa farming and marketing but as well provide the needed assistance to Moringa farmers and marketers so as not to eliminate the production and marketing of the product in the near future in the state.*

**Keywords:** *Moringa oliefera, farms, markets, Katsina and survey.*

## Introduction

*Moringa oleifera* is called in various names which includes ewe ile (Yoruba), Zogalla gandi, Rimin turawa (Hausa) Ikwe Oyigbo (Igbo). It's English name include horseradish tree or India Ben tree, *M. oleifera* is also called mother's best friend in the Philippines where the leaf of the Malunggay, as they call it, is cooked and fed to babies (Fahey, 2005). *M. oleifera* is a slender soft wood tree, with free branches and can be extremely fast growing although it can reach a height in excess of 10m (33ft) it is generally considered small to medium size tree. It is used as raw material by the cosmetic industry (Fahey, 2005).

*Moringa* was well known to ancient world, but only recently has it been rediscovered as a multi-purpose tree with a tremendous variety of potential uses. The edible oil which can be extracted from the seeds of *Moringa peregrine* was highly valued by the ancient Roman, Greek and Egyptian civilizations for use in making perfume and as a skin lotion and during the 19<sup>th</sup> century *M. oleifera* plantations in the West Indies were exporting the seed oil (known as Ben oil) to Europe for use as a lubricant for fine machinery. In the Indian sub-continent *Moringa* has long been cultivated for its edible fruit; today these are exported, fresh and in tins, to consumers in Asia and Europe. The edible leaves of the tree are very nutritious and are consumed through West Africa, in parts of Ethiopia and in some countries of Asia (Fuglie, 2001).

*M. oleifera* also has compounds with antibiotic activity such as the glucosinolate 4 alpha-rhamnosyloxy, benzyl isothiolyganate (Fahey, 2005). *M. oleifera* is a true miracle of nature; India and Africa have known about the medicinal properties of the tree for generations and have thus used it to cure various diseases. However, the knowledge was mainly considered as alternative science and herbal remedy. Modern medical science has only just begun to accept their long held knowledge. In fact some are of the opinion that *M. oleifera* is probably the most medicinal plant ever discovered (Foidl, Makkar and Becker, 2001).

*Moringa oleifera* is a tree with a unique range of properties that makes it one of the most versatile on the planet and known to many as the miracle tree. The production of *Moringa oleifera* in Nigeria is being dominated by small scale farmers, despite the globally accorded significance and medicinal value attached with its consumption. Its

production, processing and marketing is grossly inadequate because the crop is mostly used as a border crop or background tree thus serving as fence to most of its farmers Sanusi,(2014).

The current challenges in the global economy necessitate moves towards entrepreneurship and could no doubt be part of the bid to stimulate and sustain growth in national economies (Sa'adu, 2016). In many instances Moringa products (stem, root, bark, flower, fruit or seed) serves more than one function, the most important uses are broadly categorized as; food, medicine, traditional and source of income. Since Moringa leaves are vegetables which are rich in vitamins, hence are included in the daily diet (Abdulkarim, Long, Lai, Muhammad and Ghazah, 2005). The edible leaves of the tree are very nutritious and are consumed throughout West Africa as well as in some parts of Asia. Powder from seed kernels work as a natural coagulant which can clarify even vary turbid water, removing up 99% of the bacteria in the process. "*Moringa Oleifera*" is use as vegetable, seed, oil gum, hedge tree, ornamental and medicinal plant, and its easy propagation and cultivation justify more intensive research into its biological and economic potentials (Abdulkarim, Long, Lai, Muhammad and Ghazah, 2005).

Also observation showed Moringa to be sources of various herbal medicines, which are very important in treatment of conditions ranging from fever, throat, intestinal, urethral, skin and venereal diseases. The infusion leaves of *M. oliefera* can be used for the treatment of diseases caused by intestinal worms.

### **Justification**

In developing countries, malnutrition is a major factor in the high rates of infant mortality in the tropics and sub-tropics. In the poorest countries, in every five child one will die due to malnutrition. Worldwide it is estimated that seven million people die each year from hunger- related causes, and the vast majority of these deaths are caused by chronic under nutrition. Moringa oleifera (leaves, flower, pod, roots and its gum) have numerous medicinal properties. In fact the claims of effective therapy for the treatment of diseases like pneumonia, typical ulcer, diarrhea, dysentery, malaria fever, skin infections, boils, jaundice, asthma, cough, bronchitis, gynecological diseases, diabetes and others by traditional herbalists worldwide have prompted interest in general investigation on the various uses and application of the plant. Several studies were conducted

on Moringa oliefera products especially in the areas of nutrition: Reyes (2006), Fahey(2005) and Nikolas et al(2001), all confirmed that as far as growth and development of man, animals and plants is concerned, Moringa and its products play positive roles.

It is quite pertinent to note that in spite of all these benefits and potentials of Moringa, its products in the Nigerian market are still relatively new and are not produced on a commercial scale and quantity. Equally in terms of quality, there is variation in the local markets as a result of poor standard in processing and packaging, the Moringa market is thus informal as commercial production is very scanty

Animashaun(2013), conducted a research on how consumers behave to different Moringa products but there was no determination on the products returns and profits among participants. Additionally a research on the culture and economy of Moringa in Kano and Katsina states was undertaken by Sanusi(2014), his findings revealed that some of the problems associated with production of Moringa in the study area includes lack of knowledge regarding planting and cultivation of the plant though one weakness with the research is that it did not consider the value chain as well as the performance of Moringa products in the market. Consumption of Moringa leaves is part of the culinary traditions among the Hausas who Katsina. Women also play an important role in the commercialization of leaves of Moringa, they dominate the marketing network of this product (Fuglie, 2001), there is no available information in terms of the quantity of leaves seeds produced and the turnover of Moringa in Katsina state.

## **Methodology**

### **The Study Area**

Katsina state is located in the north-western part of Nigeria. Katsina state is located approximately between latitude  $12^{\circ}15'00''$  and  $12^{\circ}25'00''$  N and Longitude  $12^{\circ}15'00''$  and  $12^{\circ}25'00''$  N and longitude  $7^{\circ}30'00''$  and  $7^{\circ}50'00''$  E of the Greenwich meridian(National Geo-Spatial Intelligence Agency,2015).

The state occupies a total land area of about 23,930km<sup>2</sup>. It is estimated that Katsina state has a human population of 5.3million Katsina State with a total population

of 5,801,584 persons as at the Nigerian population census of 2006

(NPC, 2006); when this population is projected using a growth rate of 3% the population of the state becomes 8,030,749 million persons as of 2017.

Katsina state is made up of 34 local governments' areas. It is bounded in the East by Kano State, in the west by, Zamfara state, in the south it is bounded by Kaduna state while in the North it is bounded by the Niger Republic. Its climate is that of tropical continental(tropical wet and dry),with an annual rainfall of about 700mm which normally starts from May to September the peak is usually August. The soil in the state is mostly ferruginous tropical red and brown. The general vegetation pattern of Katsina state is sudan semi-arid grasslands, dotted shrubs,trees and the spare drought resistant trees.

The people of Katsina state are mainly engaged in agricultural practices and live in rural areas.Crops cultivated in the state includes millet, Guinea corn,beans,wheat,beni-seed, onions, tomatoes, sorghum, maize [25]. The availability of vast landmass in the state allows the people practice agriculture extensively even in dry season . These activities are tremendously important as they provide huge economic potential to the people of the area. A huge amount of revenue is generated and the people in the rural areas depend on the revenues from them. This is because they sell these products to the other states and even to Niger republic. Among the agricultural products produced and sold is groundnut and groundnut oil. These activities the Katsina people engaged in are activities that have economic relevance to the citizens, state and the nation.

The 34 local government areas of Katsina state are divided into three(3) senatorial zones these are Katsina Central,Katsina North and Katsina South.Each zone comprises of 11 local government areas except Katsina North senatorial zone that has 12 local government areas(Transparency for Nigeria,2011).Thus, 3 local government areas were randomly selected from each senatorial zone making a sample size of nine(9) local government areas.

The selected local government Areas are; Batagarawa, Batsari, Daura, Dutsinma, Faskari, Katsina Malumfashi, sabuwa and Zango.

Survey and interviews were used to collect comprehensive information required in the study areas selected. The total count was used to determine the total number of *M. oliefera* trees against other tree species in the study area, In this technique individual species of tree in the study area was counted (Buckland,

Anderson, Burnham, and Laake, 1993 and Hill, Matthew, Graham and Michael, 2005). Descriptive statistic was adopted for data through the use of simple percentages and inferential statistics of t-test was used to test hypotheses.

### **Results and Discussion**

The total number of twenty-four(24) and sixty-five(65) Moringa farmers and marketers were interviewed respectively, it was recorded and the information obtained presented as shown in tables 1-8 below;

Table 1: Age of Farmers

<b>Age</b>	<b>Frequency</b>	<b>Percentage</b>
<b>18 – 39 years</b>	4	16.6%
<b>40 – 49 years</b>	4	16.6%
<b>50 years to above</b>	16	66.6%
<b>Total</b>	<b>24</b>	<b>100%</b>

Table 1; indicates that 16 (66.6%) of Moringa farmers are aged 50 years and above, while 4 (16.6%) of farmers are within 40 – 49 years and 4 (16.6%) are 18 – 39 years, showing that Moring farmers are mostly aged, implying that over time without immediate enlightenment on Moringa farming its production continuity might be difficult.

Table 2: Type of Assistance from Government

<b>Type of Assistance</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Loan</b>	0	0%
<b>Transport</b>	0	0%
<b>Measuring unit</b>	0	0%
<b>Enlightenment</b>	0	0%
<b>Fertilizer</b>	8	33.3%
<b>None</b>	16	66.7%
<b>Total</b>	<b>24</b>	<b>100%</b>

From table 2, it clearly shows that 16(66.7%) of Moringa farmers don't receive any assistance from the government while, 8(33.3%) received fertilizer from the government thus majority of the farmers receive no assistance from the

government and few that receive,( fertilizer) could not be purposely meant for Moringa farming.

## MARKETERS

Table 3: Age of Marketers

Age	Frequency	Percentage
18-29Yrs	10	15%
30-39Yrs	15	23%
40-49Yrs	15	23.0%
50Yrs& Above	25	39%
Total	65	100%

The above table shows that of the 65 marketers, 25(39%) are aged 50Yrs and above, 10 (15%) are age 18-29Yrs, while 30-39Yrs and 40-49Yrs have 15 (23%) each, thus further confirming with that of the farmers where those with 50Yrs and above are the major actors the business.

Table 4: Type of assistance received from government

Type of Assistance	Frequency	Percentage
Loan	0	0%
Transport	5	7%
Measuring instrument	0	0%
Enlightenment	0	0%
None	60	93%
TOTAL	65	100%

The above table shows that 60 (93%) of the marketers do not receive any assistance from the government while 5 (7%) receive assistance in form of transportation from the government.

Table 5 :Farmers and marketers prices of M. Oleifera daily turn over in Naira (₦)

LGA	Farmers Prices (₦)	Marketers prices (₦)
Batsari	100	250
Batagarawa	400	600

<b>Dutsin-ma</b>	120	250
<b>Daura</b>	210	310
<b>Faskari</b>	200	250
<b>Katsina</b>	450	700
<b>Malumfashi</b>	250	300
<b>Sabuwa</b>	200	200
<b>Zango</b>	220	300

Table 6:T-test for farmers and marketers prices.

<b>Test value =0</b>						
95% confidence interval of difference						
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
<b>Farmer s prices</b>	6.160	8	.000	238.889	149.46	328.32
	6.030	8	.000	351.111	216.84	485.38
<b>Market ers prices</b>						

Table 6, showed the calculated t-value 6.160 and 6.030 for moringa farmers and marketers price respectively is greater than 2.306 the tabulated t-value at 0.05 level of significance. This implies that moringa production and marketing is gainful and economically relevant in the study area

Table 7: Demand of M. Oleifera seed and leaves in study area.

<b>LGA</b>	<b>Seed Demand (000,000Sacks)</b>	<b>Leaves Demand(000,000sacks)</b>
<b>Batsari</b>	25	50
<b>Batagarawa</b>	25	50
<b>Dutsin-ma</b>	24	51
<b>Daura</b>	19	56



<b>Faskari</b>	15	60
<b>Katsina</b>	28	52
<b>Malumfashi</b>	22	53
<b>Sabuwa</b>	10	65
<b>Zango</b>	20	55

Table 8:T-test for demand of moringa seeds and leaves in the study area.

Differences								
	95% conf. interval of the diff.					t	df	Sig. (2-tailed)
	Mean	std. deviation	Std. Error mean	lower	Upper			
<b>Demand of Moringa seeds and leaves</b>	-40.77778	10.95192	3.65064	-49.19616	-32.35939	-11.170	8	.000

Table 8 showed that there is statistical difference between the demand of seed and leaves of *M.oliefera* where t-calculated value 11.17 is greater than t critical 2.306 df 8 at 0.05 level of significance, implying that the demand of Moringa leaves is higher than that of seed due to the awareness of the nutritional and medicinal value of Moringa leaves by the people of the study area.

### **Conclusion**

The economic relevance of Moringa oliefera to farmers and marketers in Katsina state has been assessed in this research it includes employment creation and income generation through the provision of varieties of Moringa products. There is immediate need to tackle the challenge of extinction of Moringa production and marketing in Katsina state as this will go a long way to boost the production, marketing, availability of Moringa products in the state, reduce youth unemployment, increase self empowerment, self employment, poverty reduction as well as wealth creation in the state.

### **Recommendations**

Based on the hypothesis and findings of this research, the following are hereby recommended;

1. The state government should embark on massive and immediate enlightenment campaign on Moringa farming and marketing in the state specially targeted at the youths to ensure the survival and non-extinction of Moringa production and marketing in the state.
2. The government in collaboration with ministries of health, agriculture, and education should support, conduct and finance researches to explore the uses of other parts of Moringa.
3. The state government should provide assistance in the form of transport and soft loans fully targeted at the Moringa producers and marketers to make their business financially stronger.
4. The government should educate and enlighten the youths to realize the employability, income provision, availability as well as profitability of producing and marketing Moringa.
5. The state government should encourage production and marketing of Moringa by providing the needed land to interested individuals to produce Moringa, this will go a long way to reduce youth idleness and unemployment in the state.

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