ECONOMIC IMPORTANCE OF FARMED PARKLAND PRODUCTS TO LIVELIHOOD SUSTENANCE IN LAU LOCAL GOVERNMENT AREA TARABA STATE, NIGERIA.

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ABSTRACT

This research was specifically designed to determinethe economic importance of farmed parkland products as it sustains the farmers livelihood in Lau Local Government Area of Taraba State, Nigeria.A total of 80 respondents were randomly selected from 45.5% of the ward, and were interviewed using a well pretested questionnaire. The data obtained were analyzed using simple descriptive statistic such as percentage. The results indicate that 37.5% respondents utilized products such as fruits, leaves and nuts, 35% utilized seeds/seedling (murichi) in Hausa language. 27.5% obtained fibres, bark and roots for medicinal purpose. 37.5% respondents retained parkland trees as source of food for their families, while 35% retained parkland products as source of income. 42.5% opined that contribution of parkland products was high to their livelihood sustenance. The other 22.5% respondents believed that parkland products contributed low to their livelihood. Recommendation such as government should enlighten farmers through electronic and mass media on the importance of parkland products was made.

Key word: Economic, importance, parkland, livelihoods.

INTRODUCTION

The term 'farmed parkland' as used in this study specifically applies to landscapes derived from human agricultural activities. Sometimes 'parkland' is easily confused with the common meaning of park as an enclosed or delimited land area managed for preservation or recreation. According to Bonkoungou*et al.* (1994), farmed parklands "are land-use systems in which woody perennials are deliberately preserved in association with crops and/or animals in a spatially dispersed arrangement and where there is both ecological and economic interaction between the trees and other components of the system". Nair, (1985) stated that, In the ICRAF Agroforestry Systems Inventory, farmed parklands are included in the category of 'multipurpose trees on farmlands'.The term 'farmed parkland' also encompass parklands being farmed as well as land lying fallow, and does not exclude a pastoralist component.

Farmed parklands are common types of agroforestry systems in the tropics that were over looked for a long time (FAO, 1997). Recent studies by Gideon and Verunumbe(2013) observed that trees feature prominently in traditional farming system because of their contributions to famers' livelihood. Woody species form a major component of the bush fallow system and are widely retained in permanent land.

In farmed parkland, cereals are cultivated, sometimes manured, and grazed after harvest by livestock. This is in line with the assertion by Gideon and Verunumbe(2013) that, rural Fulani farmers in Jen-petel Karim Lamido local government area, retained some indigineous trees like *Ficus species (fig tree), Balanitesaegyptiaca*

(desert date), *Vitexdoniana (black plum), Borassusaethiopum (fan palm),*for their livestock forage. This form of forage production is trees/food crop combination where priority is given to food crops during the cropping season.After the removal of their crops, they come back with their livestocks to feed on the residues of the crops and fodder in exchange for manures.

Parkland trees are excellent 'multipurpose' species e.g*Adansoniadigitata (baobab) , B. aethiopum (fan palm), P. biglobosa (locust beans), T. indica*(Termarind) and *V. paradoxa (shear butter)* are particularly remarkable in the large number of end-use products they provide. In the case of *B. aethiopum (fan palm)* at least eight different parts of the tree are used for different purposes. Both the nut and mesocarp of the fruit are consumed fresh by children and adults. The seedlings (murichi) in Hausa language are widely traded. The trunk offers one of the best all-purpose woods. The leaves are used as fencing and roofing material. The petioles are used as fuelwood and for furniture-making. Fish-traps ('*nasses*') are woven from the leaf fibres and roots. The terminal buds are used to tie up bunches of millet and sorghum and the male flowers make an excellent fodder.

The economic importance of parkland products for home consumption and food security has been emphasized by a number of authors (Poulsen, 1982; Falconer, 1990). Schreckenberg (1996) reviewed that, wild foods can be differentiated according to the parts of the trees being used or according to the purpose and intensity of use (collection for emergencies, regular consumption, gathering for sale, semi-cultivation or cultivation). They can also be grouped by type of edible products such as vegetables, fruits and nuts, condiments, beverages, and edible fats and oils. He further emphasized that Parkland foods are important to human diets and nutritional health both quantitatively and qualitatively and they make a vital contribution to food variety as well as to achieving a seasonal nutritional balance.

The priority species consumed and marketed in the study area include *Adansoniadigitata* (Baobab), *Ziziphusmauritiana (Jujube), Borassusaethiopum (Fan Palm), Pakiabiglobosa (locust beans), Vetelleriaparadoxa (Shear Butter), Balanitesaegyptiaca (desert date), Tamirandusindica (Termarind), Annonasenegalensis (wild custard apple) and Vitexdoniana (black plum)*. The objectives of this study are to investigate the socio-economic characteristics of the respondents and to determine the importance of parkland products to the livelihood sustenance of respondents in the study area.

METHODOLOGY

The study area, Lau Local Government area was created in 1987, and it is geographically located on longitude $11^{0}7^{1}$ to $11^{0}40^{1}$ East of Greenwich meridian. And latitude $8^{0}48^{1}$ to $9^{0}35^{1}$North of the equator. The area was bounded by Karim-Lamido L.G.A in the North, Yorro Local Government Area to the Sourth, Jalingo Local Government Area, in the North and to the East by Demsa and Mayo-Belwa L.G.A of Adamawa State. The local Government comprised of the following major ethnic groups; Lau habe, Kunini, Fulani, Mumuye, Jenjo, Yandang, Hausa and other minor tribeswith the population of 60,702 (NPC 2006). The multistage and simple random sampling was adopted for data collection in the study area. The tools for data collection is the questionnaire and oral interview. Eighty (80) farmers were sampled, eighty (80) copies of questionnaire weredistributedto farmers by simple random method in four wardsand simple descriptive statistics such aspercentage was used for data analysis.

Table 1 Socio Economic characteristics of Respondents in the Study Area

Age VarianceNo of Respondents (Fq)	Percentage (%)
20 – 30	2227.5
31 – 40	20 25.0
41 – and above	38 47.0
Total	**80 100**
Gender	
Male	31 38.75
Female	4961.25
Total	**80 100**
Marital Status	
Married	38 47.5
Single	22 37.5
Others	20 18.75
Total	**80 100**
Respondents Religion	
Religion	
Christianity	38 47.5
Islam	22 27.5
Pagans	20 25.0
Total	**80100**

Source: Field Survey (2015)

RESULT

Table 1 shows the result of the age classes of respondents. The highest percentages of the respondents (47.5%) were in the age bracket of 41 and above years, followed by age bracket of 20 - 30 years (27.5%). The least was that of the age bracket of 31 – 40 years (25%). Result on gender of the respondents indicates that (38.75%) of the respondents were male farmers, while (61.25%)

were female farmers. Reason for female farmers outnumbering male farmers is in line with the report of Gideon and Othaniel (2014), that women assume the role of care-takers for their families such as domestics works, tendering of arable crops, gathering of fruits and fuelwood. Result of marital status of the respondents in the study areas shows that the highest percentage of the respondents (47.5%) were married, followed by single (27.5%) while the least (others) widow and divorce (25%). Result on religion shows that the highest percentage of the respondents (47.5%) were Christians, (27.5%) were Muslims, while pagans (25%).

Table 2 **Educational Level of Respondents in the Study Area**

Educational	**No of Respondents (Fq)**	**Percentage (%)**
Formal Education	49	61.25
Have not been school	**31**	**38.75**
Occupation		
Farmers	26	32.5
Traders	18	22.5
Civil Servant	24	22.5
Businessmen/Artisan	12	30.0
Total	**80**	**100**
Monthly Income from sales of parkland products		
N1,000 – 5,000	22	27.5
N6,000 – 10,000	38	47.5
N11,000 and Above	20	25.0
Total	**80**	**100**
How parkland Trees were Established		
Planting	26	32.5
Naturally	34	42.5
Protection of Wildlings	20	25.0
Total	**80**	**100**

Source: Field Survey (2015)

Table 2 shows the result of the educational background of respondents in the study area. The result indicates that the highest percentage of respondents with formal education was (61.25%) while those that have not been to school was (38.75%). The result on occupation of respondents in the study area indicates that the highest percentage of respondents were farmers (32.5%) followed by civil servant (30%), traders (22.5%) while business/artisans were the least (15%). Findings on monthly income shows that the highest percentage (47.5%) was recorded for the monthly income range of N 6000 – N 10,000 followed by (27.5%) for income range of N 1,000 – N 5,000, (25%) was recorded for N 11,000 and above. Findings on how parkland were established revealed that (42.5%) were established naturally, (32.5%) were through planting and (25.0%) were through protection of the wildones.

Table 3 Benefit derived from Parkland trees

Option	**No of Respondents (Fq)**	**Percentage (%)**
Yes	80	100
No		
Total	**80**	**100**
Products Used		
Seed/Seedling oil	28	35.0
Leaves, Fruits/Nuts	30	37.5
Fibres, Bark/roots	22	27.5
Total	**80**	**100**
Reason for Retention		
For income generation	28	35.0
For Medicinal purpose	10	12.5
For soil improvement	12	15.0
As source of food	30	37.5
Total	**80**	**100**

Impact		
Very high	28	35.0
High	34	42.5
Low	14	17.5
Others specified	4	5.0
Total	**80**	**100**

Source: Field Survey (2015)

Table 3 revealed that (100%) respondents derived benefits from parkland products. The survey also showed that the highest respondents (37.5%) said they obtained leaves, fruits and nuts, (35%) said they obtained seeds/seedlings "hypocotyls" (murichi) in hausalanguage from *Borassusaethiopum*, while (27.5%) said they obtained fibres, barks and roots. The same trend was observed on reason why parkland trees was planted or naturally established and retained by respondents. (37.5%) respondents said that they retained it as a source of food. (35%) respondents said for income generation, (12.5%) said for medicinal purpose and (15%) said for soil improvement and erosion control. The impact of parkland products to livelihood sustenance of respondents was high with (42.5%) very high (35%), while (17.5%) respondents said parkland products has low impact on their livelihood.

Checklist of some parkland trees in the study area

Scientific Name	English Name	Hausa Name
ParkiabiglibosaAfrican locust beansDoruwa		
VitexdonianaBlack plumDinya		
FicussppFig treeBaure		
*AdansoniadigitataBaobab*Kuka		
*BorasusaethiopumFan palm*Gigginya		
Acacia senegalGum Arabic	*Kaimi*	
AnonasenegalensisWild custard apple	*Gwandadaji*	
BombasecastatumRed flowered silk cottonJininKafiri		
BalanitesaegyptiacaDesert date	*Aduah*	
CeibaPentandraSilk cottonRimi		
FaiderbiaalbidaWinterhornGawo		
TamarindusindicaTamarindTsamiya		
VitellariaparadoxaShear butter treeKadanya		
ZiziphusmauritaniaaJujubeKurna		

Source: Field Survey (2015)

DISCUSSION

The economic importance of parkland products to livelihood sustenance of farmers in Lau Local Government area was evaluated. The highest percentages of the respondents are within the age group of 20 – 30 years. This is similar to the report of Gideon (2014) that men from their early age were active in forest activities. Gender variable showed that women have the highest percentage in collection and processing of the parkland products. Schreckenberg (1996) emphasized the importance of forest and parkland products for home consumption and food security. He further observed that most women in the Basilla region of Benin engage in a number of activities to cover their regular weekly expenditures. Madge (1995) also reported on the contribution of parkland/forest products in sustaining women's household and village seconomies.The highest percentage of parkland trees were established naturally which concurs with the findings of Gideon (2010) that trees are often retained when their direct or indirect usefulness to rural people is recognized particularly in provision of fruits, green manure, fodders, fuelwood and nitrogen fixation/soil stabilization. The highest monthly income of respondents is N6,000 – N10,000. These findings agree with that of Ounteni (1998) that beyond contributing to food security, parkland/forest products are an important source of local income generating activities to many

families. Additional data on income provided by several parkland species wasfurther observed by Ounteni (1998).He reported that the weekly sale of *B. aethiopum*newly formed roots (Murichi) in hausa language at kambaand Gunki market in Nigeria, amount to 1.5 and 1.2 million FCFA respectively, or 33 million FCFA over a period of three months production. He further emphasized that about 800 to 1500 mats worth 200 – 2000 FCFA were sold daily in Gaya market. Parkland products used by respondents in the study area include; oil extraction from seeds, leaves, fruits, nuts, fibres, bark and roots, which confirmed with studies by Gideon and Verunumbe (2013) that some products of agroforestry trees play a major economic role in the livelihood of the rural farmers and their entire family. They further reported that the rural women in Nwamunshi and Jenpetelvillage used the seed of *Balanitesaegyptiaca* to extract cooking oil and is highly valued, 35cl of the oil is sold between ₦250 – ₦500 depending on season. Farmed parkland products traditionally provide food and marketable products during emergency periods of illness or famine. The same is probably true for parkland resources. Elders tell of famines which villagers survived by spending time in the surrounding forest harvesting wild plant foods, honey and bushmeat. Beside income generation, some respondents retained the parkland trees for medicinal purpose.This findings agrees with that of Gideon and Verunumbe, (2013) that farmed parkland provide greatest part of the rural people medicine and treatments of some ailments.This is in addition to supplement roles, and are used extensively to meet dietary short falls during particular season of a year. Parklands and forests are essential components of traditional medical systems in semi-arid West Africa. They further observed that for common illnesses rural dwellers rely mainly on remedies based on plants found in forest lands surrounding their villages. However, for more serious diseases, they may see local specialists who use a combination of drugs and herbal medicine. Hall et al (1997) reported that the average vitamin C content of the pulp of *Termirindusindica*(baobab) fruit is over 2500 mg/kg, which also helps inlow blood pressure, enhance immunity against tropical diseases and reduce incidence of coronary diseases. Survey also showed that respondents in the study area obtained food/edible parkland products which supplement the nutritional value of basic cereals in lipids, proteins, vitamins and minerals. The products also diversify diets and enhance villagers' seasonal food balance since they become available at different times of the year. The respondents possess extensive knowledge about local food resources/the food values.Products originating from common parkland trees represent a very rich pool of food nutrients. Nutritional contents of woody plants obtained in parkland play significant role in livelihood sustenance. Campel-Plant (1980) reported that nutrients analysis of *Zizipusspina-christi (Jujube), Balanitesaegyptiaca (Desert date),* have shown that parkland fruits serve as an important indigineous sources of nutrients. It has been noted that the fruits of*Adansoniadigitata (Baobab),* far supasses the orange's famous vitamin c content. While the *Adansoniadigitata (Baobab)*fruits has 360mg per 100g, orange has only 57mg per 100g and *Zizipusmauritania(Jujube)*only 100mg per 100g, Elaborating further on the nutrients of parkland fruits over agricultural crops as observed by (Becker, 1983) he emphasized that parkland products provide vitamins, flavourings and compounds of nutritional gastronomic and such social importance as alkaloids, essential oils and phenolics derived from secondary metabolism may not be present in the normal agricultural food.

The study also reviewed that parkland products contribute high to steady supply of food to the livelihood of the respondents throughout the year.Their availability in the dry season and early part of the rainy season, which relates to flowering, leafing and fruiting stages helpthem to overcome the 'lean season. They often depend on edible parkland products to replace the missing or insufficient staple foods.

CONCLUSION

This study was carried out in Lau Local Government Area to assess the economic importance of farmed parkland trees to household wellbeing. The result indicates that farmers utilized some parkland products such as the fruit/leaves of ***Adonsoniadigitata (baobab)*** fruit and bark of ***Vitexdoniana (black plum)*** seed of ***Pakiabiglobosa (locust beans)*** fruits/Root of ***Anoniasenegalensis (Wild custard apple),*** seed of ***Acacia Senegal (Gum Arabic)*** oil from the seed of ***Balanitesaegyptiaca (desert date)*** and ***Vitalleriaparadoxa (Shear butter trees).*** Fruits, newly formed root or hypocotyls (murichi) from ***Borasusaethiopum (Giginya)*** *can* retain the parkland trees as sources of foods and for income generation. Just less than half of the respondents opined that contribution of parkland products to their livelihood sustenance was high.

RECOMMENDATION

The economic importance of parkland products to livelihood sustenance has been clearly shown by the study findings. The following recommendations are made as means of enhancing food-security and poverty alleviation.

1. Government should enlighten the farmers through the electronic media and mass contact method through films show to convince the farmers on the importance and the benefits derived from parkland agroforestry trees this is to encourage them to retain and plant more trees.
2. Forestry Extension agent should train farmers how to integrate fast growing species with scattered trees species on their farm land.

Multipurpose/classical agroforestry seedlings should be encouraged and at subsidized rate to the rural farmers willing to practice agroforestry parkland.

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