

CONSTRAINTS AND FACTORS AFFECTING AGROFORESTRY PRACTICES AMONG RURAL FARMERS IN EBONYI STATE, NIGERIA

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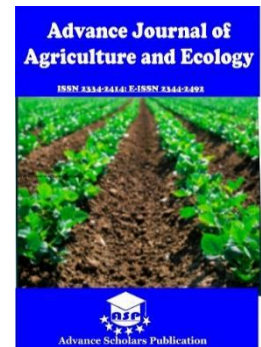
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Keywords:

agroforestry practices, rural farmers, Perceived effect, Welfare.

Abstract: This study was conducted to evaluate the constraints and factors affecting agroforestry practices among rural farmers in Ebonyi State, Nigeria. Agroforestry practices in the study area is hindered in many ways. This study, therefore described the socioeconomic characteristics of the rural farmers, identified the factors affecting the practice of agroforestry among the rural farmers, and identified the constraints to the practice of agroforestry in the study area. Multistage sampling technique was used in the selection of agroforestry farmers. A total of 351 farmers were sampled using structured questionnaire. Data obtained were analysed using descriptive and inferential statistics. The result revealed that 68.7% of the farmers were males. The mean age was 48.5years. Majority (72.4%) were married, having an average household size of 5 persons. On education of the farmers, 91.5% of them received formal education, with an average farm size of 1.2ha and average monthly income of N67,523. Majority (71.5%) were members of social organization, with 89.5% having access to extension service, while 62.1% and 34.2% accessed agroforestry information from Ebonyi State Agricultural Development Programme and Agro dealers respectively. The result showed that the dominant factors which influence the practice of agroforestry in the study area were access to formal agroforestry training (89.2%), access to inputs (83.5%), access to land (78.9%), and access to credit facilities (74.1%) while the major constraints to the practice of agroforestry were inadequate market for products ($\bar{X} = 3.6$), land tenure system ($\bar{X} = 3.6$), and inadequate labour availability ($\bar{X} = 3.5$). The study concluded that inadequate labour, inadequate capital, land tenure system, access to formal agroforestry training and access to credit and input, among others were the major constraints and factors affecting the practice of agroforestry. It was therefore recommended that farmers should form cooperatives societies to pull resources together for better productivity.

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Introduction

The World Agroforestry Centre defined agroforestry as an ecologically-based natural resource management system that integrates trees (for fibre, food and energy) with crop/ or animal on farms, with the aim of diversifying and sustaining income and production, while maintaining ecosystem service (International Centre for Research in Agroforestry [ICRAF], 2000). De Baets *et al.* (2007) defined agroforestry as an integrated system of rural land resources management, based on combining shrubs and trees with crops and/or livestock whose interactions generate economic, environmental and social benefits.

Rural areas are home to one-quarter of the world's population, and contain vast majority of the land, water and other natural resources. They are complementary to cities through connections related to the flow of people, goods and services (Organization for Economic Cooperation Development, OECD, 2019). Commons (2018) defined a rural area as an area with low population density, low levels of urbanization, large distance/proximity to urban centres, and isolated or remote areas. Ekong (2010) described it as areas where the dominant occupation is agriculture, and in which half, or more than half of the adult male working population is engaged in farming.

The contributions of agroforestry practices to the development of the rural areas cannot be over-emphasized. Agroforestry practices has the ability to provide short-term economic benefits (which are sales from diverse tree products – fruits, vegetables, spices, food, fuel wood, herbal medicine, etc.) (Organization for Economic Cooperation Development; OECD, 2019). It offers huge opportunities and resources for the rural dwellers, such as

livelihood sources for farmer's income generation, for fuel wood dealers, for food processors, crop and livestock farmers, lumber men (timber), herbal medicine practitioners, carpenters and artisans who generate their raw materials from agroforestry products. OECD (2019) further opined that agroforestry practices has the ability to provide short-term economic benefits for rural farmers who depend on forest products for their livelihood.

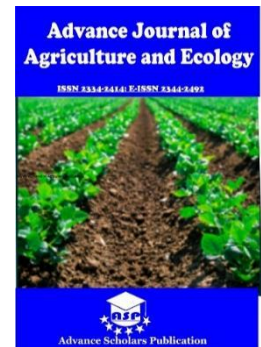
The need for sustainable agroforestry practices is key to optimizing the mix of products and services from the forest. The forest and its resources are economic resources because they have utility in the face of poverty, unemployment and lack of resources for meeting their economic needs such as farm lands, timber, firewood, fruits, oil etc. (Bargali *et al.*, 2004). Most-forest-dependent people live on the forests for their sustenance, some at subsistence level, while some others at commercial level (Kiltur *et al.*, 2014).

A study by Akinwalere (2016) reported that education enhance the practice of agroforestry in South-west Nigeria. Education enables farmers to appreciate the relevance of a technology. According to Ntshangase *et al.* (2018), a more educated farmer is expected to appreciate new ideas better and quicker than their counterpart (the less educated ones).

The purpose of this study therefore was to ;

- describe the socio-economic characteristics of the rural farmers in the study area;
- identify factors affecting agroforestry practices among rural farmers in Ebonyi State and;
- identify constraints to the practice of agroforestry by the rural farmers.

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Methodology

This study was conducted in Ebonyi State, Nigeria. It lies within longitudes 7°30'E and 8° 30'E and latitudes 5° 40'N and 6° 45'N (Nigerian Metrological Agency; NIMET 2017). The State has a population of about 4,339,136 people, and a land area of about 6,400 kilometer square (National Population Commission (NPC), 2006; National Bureau of Statistics (NBS 2016). The state enjoys luxuriant vegetation with high forest zone (rain forest) in the south and sub-savannah forest in the northern fringe (<https://www.cometonigeria.com/region/south-east/ebonyi-state/>). Farming is the predominant occupation of the people of Ebonyi State.

The population of the study comprised all farmers that practice agroforestry in Ebonyi State, Nigeria. Multi-stage sampling technique was used for the selection of the farmers. The first stage involved purposive selection of the three agricultural zones to achieve a well representative sample.

In the second stage, three Local government Areas (LGAs) from each of the zones, namely; Ezza South, Ezza North and Ikwo (Ebonyi Central), Ohaukwu, Izzi and Ebonyi (Ebonyi North), Afikpo North, Ohaozara and Afikpo South (Ebonyi South) were purposively selected based on the dominance of agroforestry practice in the LGAs and their representation of the three agricultural zones. The third stage involved the selection of two (2) communities from each of the selected LGAs, using purposive sampling technique to give a total of eighteen (18) communities. At the community level, the community heads provided list of households practicing agroforestry in the area. The list from the various community heads were merged to form the sampling frame of 630. From the list,

20 households practicing agroforestry were selected from each of the eighteen communities using simple random sampling technique to give the sample size. In all, a total of 360 agroforestry farmers were used as the sample size for the study.

Data for the study was generated from primary source. This was achieved with the aid of a structured questionnaire, and complemented by Focus Group Discussion (FGD).

Descriptive and inferential statistical tools were used to analyse data for the study. Specifically, the objectives were achieved using frequency count, percentages and Likert-type rating scale.

RESULTS AND DISCUSSION

Socio-economic characteristics of the rural farmers

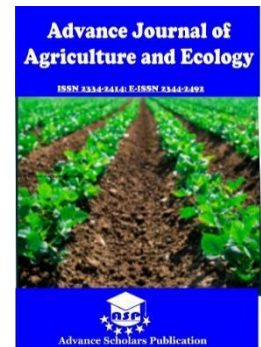
The socio-economic characteristic of the rural farmers is presented in Table 1.

The distribution of the farmers according to age in Table 1 indicated that the mean age was 48.5 years. This implies that the farmers were young adults and were likely to be active in agroforestry practices. This result agrees with Ugwoke *et al.* (2005) who found that young farmers are more likely to increase agricultural productivity.

The sex distribution shows that 68.7% of the farmers were males and the remaining (31.3%) were females. This suggests that agroforestry practices in the study area was gender sensitive. The dominance of male farmers could be linked to socio-cultural factors that give men higher access to natural resources such as land than their female counterparts. This result is consistent with the findings of Kipot and Franzel (2011) who reported gender disparity in participation in agroforestry.

The distribution by marital status shows that majority (72.4%) of the farmers were married.

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This implies that these farmers have family responsibilities which agroforestry produce had helped to carry. Also, labour requirement of the practice could be met by pool of family labour force. This result is in agreement with the findings of Oluwasegun (2013) who opined that married farmers support their spouses in farming, thus enhancing the sharing of agricultural information and provision of labour.

As regards to education majority (91.5%) of the farmers received one form of formal education or the other but much of them (39.3%) received secondary education. The implication is that the farmers were educated and could incorporate modern techniques of agroforestry practices for more benefits. This result corroborates the findings of Gasperini (2000) who reported that a World Bank survey on the relationship between education and agricultural efficiency found out that educated farmers were more productive than their uneducated counterparts.

The distribution according to household size revealed that majority (67.5%) of the farmers had a household size of 4 – 6 persons. The average household size of the farmers was found to be 5 persons. This implies that the farmers had a relatively large households. The implication is that it connotes more responsibility to the head of household. Anigbogu *et al.* (2015) noted in agreement with the result of this study that a large household size would increase the dependency ratio of the farmers.

The result further shows that the mean farm size was 1.2 ha. This suggests that the respondents were smallholder farmers who need to expand their farms for efficient performance. The implication of small farm size is that farmers might limit their scale of practicing agroforestry systems in the study

area. This result is in line with FAO (2018) which found that Nigeria farmers own 0.5 hectares of farm size on the average.

The distribution by membership of social organization shows that majority (71.5%) of the farmers were registered members of social organizations such as farmers' cooperative society. The implication of being member of a joint group for production could be beneficial in providing financial help in form of credit and knowing more about new technologies in agroforestry practices needed for their operation. This result agrees with Ojiagu and Uchenna (2015) who found that membership of cooperative societies improved members' income, increased members' agricultural profitability and access to credit and inputs.

The result revealed that the average monthly income was ₦67,523. This implies that the farmers were moderate income earners which needs to be increased by increase hectarage and other farm production activities. The implication of earning moderate income is that it could limit the farmers' ability to invest and diversify in agroforestry practices.

The distribution of the farmers according to their access to extension service shows that majority (89.4%) of the farmers had access to extension service but at varying degrees. The implication of this result is that many of the farmers were denied knowledge of modern techniques of agroforestry practices, which in turn would manifest in their low performance. Result revealed that the farmers accessed information on agroforestry practices from multiple sources. However, the majority (62.1%) of them obtained their information through Ebonyi State Agricultural Development Programme (EADP). It could, however, be drawn from the result that the farmers never relied on only one source of

Advance Journal of Agriculture and Ecology

Adv. J. Agric. & Eco.

Volume: 7; Issue: 8

August-2022

ISSN 2334-2414

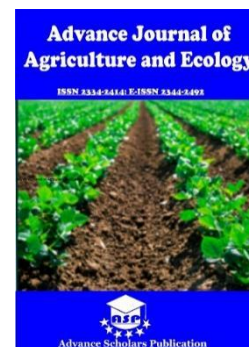
E-ISSN 2344-2492

Impact Factor: 4.98

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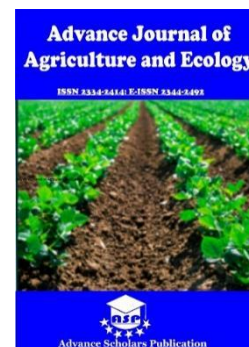


obtaining production information for agroforestry.

Table 1: The socioeconomic characteristics of the rural farmers

VARIABLES	FREQUENCY (F)	PERCENTAGE (%)	MEAN
Age (Years)			
41-50	125	35.6	48.5
51-60	74	21.0	
Sex			
Male	241	68.7	
Female	110	31.3	
Marital Status			
Married	254	72.4	
Single	66	18.8	
Educational Qualifications			
Non-formal education	30	8.5	
Primary	88	25.1	
Secondary	138	39.3	91.5
Tertiary	95	27.1	
Household size			
4-6	237	67.5	5 persons
7-9	47	13.4	
Farm size (Ha)			
<1.0	96	27.3	
1.0	141	40.2	1.2 ha
≥ 1.5	114	32.5	
Membership of social organization			
Member	251	71.5	
Non-member	100	28.5	
Monthly Income			
61,000 – 80,000	160	45.6	N67.523
121,000 – 140,000	20	5.7	
Access to extension service			
Frequently	32	9.1	
Occasionally	170	48.4	
Rarely	112	31.9	
Never	37	10.6	
Sources of agroforestry information			
EADP	218	62.3	
Agro-dealers	120	34.2	

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Farmers group	114	32.5
Friends	91	25.9
Neighbours	84	23.9

Source: Field Survey Data, 2020

Factors affecting agroforestry practices amongst rural farmers

Table 2 shows the factors that affect agroforestry practices in the study area. The dominant ones included access to formal agroforestry training (89.2%), access to inputs (83.5%), access to land (78.9%), access to credit facilities (74.1%) and availability of market for their products (73.5%). The implication of this result is that access to formal agroforestry training, access to inputs, access to land, access to credit facilities and

availability of market for products largely affected the practice of agroforestry among the farmers. In other words, there were multiple factors that could enhance or discourage the practice of agroforestry among the farmers in the study area.

This result is consistent with Kwesiga *et al.* (2003), who noted that access to agroforestry training would enhance the acquisition of skills by the farmers for optimal performance/high production.

Table 2: Distribution of Farmers according to factors that affect their Agroforestry practices

Factors	Frequency (f)	Percentage (%)
Access to credit service	260	74.1
Access to inputs	293	83.5
Availability of market for product	258	73.5
Access to extension services	249	70.9
Government policies	254	72.4
Access to land (land tenure system)	277	78.9
Technical competence	252	71.8
Access to formal agroforestry training	313	89.2
Cultural factors (hunting)	198	56.4

*** Multiple Response recorded**

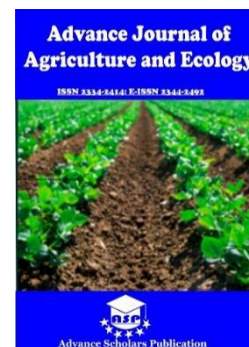
Source: Field Survey Data, 2020

Constraints to agroforestry practices by the rural farmers

Table 3 shows the constraints which hindered the smooth practice of agroforestry among the

farmers in the study area. The problems were ranked in a four-point likert scale type of questions. Following the mean score analysis method, it was discovered that all the listed

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possible constraints were accepted as serious constraints. This is because all of them produced mean value greater than 2.5 index. These constraints might limit their scale of operation and practice of agroforestry technologies. The implication is that for farmers to realized full benefits of agroforestry technology, they have to contain with all these problems.

This result is consistent with the findings of Ibrahim *et al.* (2019) who identified lack of machineries, poor access to credit, land tenure and poor marketing channels as problems facing agroforestry practices in Nigeria. On the issue of land tenure, they observed that land owners sometimes feel reluctant to lease their lands totally for farming, when leased, stiff conditions may be attached making it difficult for farmers to acquire land.

Further corroborating the finding of the study on the constraints to agroforestry practices, Hamisu *et al.* (2017) identified impediments to effective extension service delivery in

Nigeria as poor government policies, poor funding, strategic and structural impediments. During FGD; The farmers decried many constraints which may restrain their practice of agroforestry. About two-third of them mentioned inadequate/high cost of labour, poor skill, inadequate capital, access to market for their products and land tenure system as the major constraints to agroforestry practices.

Particularly, they exclaimed, “*small farm size, insecure land tenure and lack of specialized skills required to manage the various combination of products at certain stages on the farms discourage us from engaging in agroforestry practices*”. In their words, “*the condition is worsened by poor extension coverage*”. However, they continue to contain with what is within their disposal because of the benefits associated with agroforestry practices.

Table 3: Distribution of farmers according to constraints to agroforestry practices

Constraints	VS	MS	S	NS	Total	Mean (X̄)	Rank
Inadequate labour availability	214	115	20	2	351	3.5	Accept
Lack of awareness of improved seedlings	161	151	14	25	351	3.3	Accept
Pest infestation/disease outbreak	176	121	39	15	351	3.3	Accept
Small farm size/holding	220	81	30	20	351	3.4	Accept
None or inadequate compensation for destroyed crops	198	137	16	0	351	3.5	Accept
Inadequate market for products	210	135	1	5	351	3.6	Accept
Lack of credit facilities	221	84	46	0	351	3.5	Accept
Urbanization/population increase	184	114	35	18	351	3.3	Accept
Land tenure system	223	107	21	0	351	3.6	Accept

Advance Journal of Agriculture and Ecology

Adv. J. Agric. & Eco.

Volume: 7; Issue: 8

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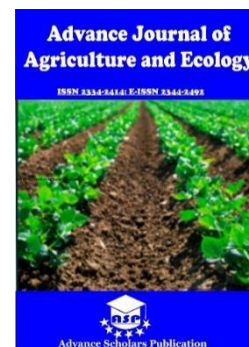
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Poor government policies	226	93	21	11	351	3.5	Accept
High cost of establishment	188	106	50	7	351	3.4	Accept
Long gestation period (trees)	155	157	35	4	351	3.3	Accept
Problem of communal conflicts	184	137	30	0	351	3.4	Accept
Lack of technical knowledge	217	123	11	0	351	3.6	Accept
Inadequate capital	198	121	32	0	351	3.5	Accept
Poor access to extension service	194	140	17	0	351	3.5	Accept
Limited use of machines	155	150	36	10	351	3.3	Accept
Total	3324	2072	454	117	5967	3.5	Accept

Discriminating index $\bar{X} = 2.5^*$

Grand $\bar{X} = 3.5^*$

Source: Field Survey Data, 2020

VS: Very Serious, MS: Moderately Serious, S: Serious, NS: Not Serious

Conclusion and Recommendations

There were several constraints and factors affecting the practice of agroforestry in the study area. They include; inadequate labour supply, inadequate capital, poor land tenure system, access to formal agroforestry training, access to credit and input, among others. The study therefore recommended that farmers form cooperative societies to enable them pull their resources together to solve their problems. The moribund government agricultural banks should be revitalized to enable farmers access credit at less stringent conditions.

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Advance Journal of Agriculture and Ecology

Adv. J. Agric. & Eco.

Volume: 7; Issue: 8

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ISSN 2334-2414

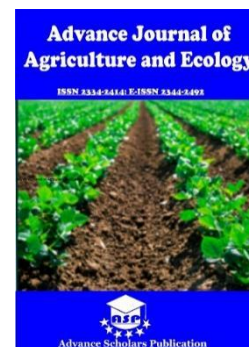
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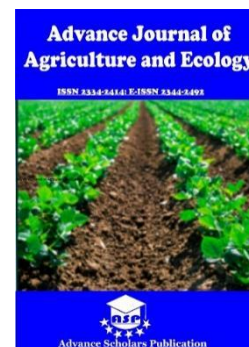
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