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Factors Affecting the Adoption of Agro-Forestry Practices in Mubi North Local Government Area of Adamawa State, Nigeria

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Abstract

A study was conducted to determine the factors affecting the adoption of agro-forestry practices in Mubi North local government area of Adamawa state. The study was conducted in Mubi North L.G.A. of Adamawa State. Five (5) wards were randomly selected from the study area (Muchalla, Digil, Mayo bani, Pahuli and Vimtim). Data were collected using structured and unstructured questionnaires. Hundred (100) questionnaires 20 per ward were randomly distributed to the respondents in the study area. Data were collected on personal information, education background, occupation, types of agro-forestry and factors affecting the adoption of agro-forestry. Data collected were analyzed using simple percentage and they were tabulated. The result indicated that females were more in the study area with percentage value 51%. Married men and women were 90% and the most predominant age grade was 36 years and above. Non education (50%) and farmers (49%) form most of respondents. The major agro-forestry practiced was agro-forestry (54%).The study therefore revealed that adoption of agro-forestry in the study area was generally affected by lack of farm inputs/ high price (26%) and lack of technical know-how. It is recommended that government should provide farm inputs and educate the farmers in the study area through the use of extension workers.

Keywords: Agro-forestry, Adoption, Factors, Farmers, Questionnaire and Mubi North

Introduction

Agro-forestry is a farming system that integrates crops and or livestock with trees and shrubs. The resulting biological interactions provide multiple benefits, including diversified income sources, increased biological production of better water quality, and improved habitat for plants and wildlife. Kennedy, (2003) defined agro-forestry as the growing of both trees and agricultural/horticultural crops on the same piece of land they are designed to provide trees and other crop products and at the same time protect, conserve, diversify and sustain vital economic, environmental, human and natural resources. It can also be defined as a system of farming where arable crops, forest trees and shrubs which are compatible are integrated together with animals in the same piece of land. Agro-forestry combines agriculture with both crop and animals with forestry, in sustainable production system on the same piece of land, either simultaneously or sequentially. Agro-forestry involves wide range of practices which include Silvil-pastoral, Agro-silvilcultur, Silvil pastoral and Silvil-fishery system which are geared towards soil fertility improvement.

Indeed, agro forestry can play a key role in soil conservation. More interesting, however, is its role in soil improvement. Agro forestry is one of the technical options integrated in soil fertility management. It concerns with the combine use of soil amendments (organic matter, phosphate) and inorganic fertilizers. It has therefore been a good choice to link agro-forestry with soil conservations.

The fertility is to contribute to maintenance of soil organic matter and physical condition and take up nutrient and water. For trees, the nutrient role include taking up nutrient from deeper soil layers returning them via liter to the soil surface and increasing the ratio of the up take to leaching loss. There is a further indirect function of stabilizing the soil, thereby reducing nutrient loss by erosion. Gideon, (2010) reports that trees are often retained when their direct or indirect usefulness to rural farmers is recognized particularly provision of fruits, green manure,

fodders, fire- wood and nitrogen fixation/soil stabilization. Agroforestry being a traditional land use system has satisfied a large socio-economic need in a sustainable way and in many different agro ecological conditions, agroforestry is ignorantly practiced in Mubi North Local Governments Area of Adamawa State. Slash and burn system of Agricultural practice has decreased soil fertility and low yield due to the fact that the land is subjected to serious wind and water erosion, soil degradation due to ravines and gullies, excessive sunshine on crop causing uncontrollable transpiration which has continue to pose threat to agricultural productivity. Border planting and integration of trees and crops will reduce soil leaching and serves as nutrient fixers to the soil and can improve good harvest in the study area. The study is therefore designed to assess factors affecting the adoption of agro-forestry practices in Mubi North Local Government Area of Adamawa State, Nigeria.

MATERIALS AND METHODS

Study Area

Mubi North Local government is one of the largest Local Government Area in Adamawa State in terms of land mass. It lies between Longitude 13° 12′E to 13° 35′E and latitude 10° 32′ N/10° 11′N. Mubi North has land area of 506,4km^2, it is bordered to the South of Michika, Madagali, north of Mubi South, Maiha and Hong Local Government respectively. Mubi North Local Government has a population of 759,045 (NPC, 2006). Mubi North is densely populated with various ethnic groups. The Fali formed the majority which is mostly agriculturally oriented while the Gude, Margi and other tribes are engaged in farming and trading. The Fulani are cattle rearers though the Fali also rears domestic animals. The tribes are been together in harmony for time immemorial. Mubi North LGA has annual rainfall duration of 5-7 months i.e. from April to October; rain dwindles and gives way to dry season from November to March. It has the average rainfall of 998mm and 1262mm average temperature of about 36^{0}C. The vegetation of Mubi North is within Sudan savanna belt, below the Mandara Mountains. The soil fall under the category of ferruginous tropical soil (Adebayo, 2004). Dominated by grasses with scattered emergent vegetation of African Savannah such as *Acacia species philoshgma spp*. the grasses and trees covers ranges from *Andropogon spp pennisetum spp and imperata spp.*

Data Collection

Data were collected using structured and unstructured questionnaires by simple random (Balloting) techniques. The questionnaires were distributed to the respondents in the study area within three days. The questionnaire, after distribution the respondents were given two days to fill in the questionnaire.

Distribution and collection of questionnaire were done by the researcher and research assistant. A total of one hundred (100) well designed questionnaires were administered to the five (5) randomly selected wards (Muchalla, Digil, Mayo bani, Pahuli, and Vimtim). Out of each ward twenty (20) respondents were randomly selected and were given the questionnaire fill.

Data Analysis

The data generated were analyzed using descriptive statistic and the results were tabulated into simple percentage.

RESULTS /DISCUSSION

Gender, Marital Status and Age grade of the respondents

The gender, marital status and age grade of the respondents is shown in Table 1. The result showed that, about 49% of the respondents were males, 51% were females and most of them were married men and women with percentage respondents of 90%. However, only 10% were not married. The reason for higher number of females than males could be attributed to religion and social reasons that women are limited to domestic and family chores (Gideon & Verunumbe). The most predominant age grade was 36 years and above (70%). The higher percentage of married men and women and age grade of 36 years and above in the study area is a good indication that, they will be able to know the factors affecting the adoption of agro-forestry practices, since most of the engage in farming and there are not youth. This study is in conformity of the earlier study of Gideon & Verunumbe (2013), in their work on contribution of agro-forestry products to rural farmers in Karim Lamido L.G.A.

Educational Background and Qualification of the Respondents

The educational background and qualification of the respondents is shown in Table 2. The result revealed that, 50% had non- formal education, 20% were primary school leavers and 30% attended post primary education. The probable reason for higher percentage of respondents who did not attended formal education, may be due to the fact that, high number of the population were composed of farmers and may not bother to go to school.

The same Table shows the occupation of the respondents. Civil servants were 18%, business men and women 30%, farmers 49% and students 3%. The higher percentage of farmers in the study area will help in understanding the factors affecting the adoption of agro-forestry practices. This report agreed with the earlier findings of Gideon et al. (2015), on their study on economic importance of farmed parkland products to livelihood sustenance in Lau L.G.A. of Taraba State.

Table 1: Gender, Marital Status and Age grade of the respondents

Sex	Number of the respondents	Percentage (%)
Male	49	49
Female	51	51
Total	100	100
Marital status		
Single	10	10
Married	90	90
Total	100	100
Age grade		
15-20	-	-
21-25	1	1
26-35	29	29
36 above	70	70
Total	100	100
Source; Field Survey (2019).		

Table 2: Educational background of the respondents

Education	Number of the respondents	Percentage (%)
Non formal	50	50
Primary	20	20
Post primary	30	30
Total	100	100
Occupation		
Civil servant	18	18
Business men	30	30
Farmers	49	49
Students	3	3
Total	100	100

Source; field survey, (2019).

Major Agroforestry Practice Adopted in the Area

The agro-forestry practices practiced in the study area is shown in Table 3. The result showed that 54% of the respondent engaged in agro-silviculture,12% agro-silvipostoral, only 1% practiced silvil-postoral and 28% silvi-fisheries. The probable reason for higher number of respondents that practiced agro-silviculture which is care and development of forest in order to obtain it product or provide a benefit, may be due to the higher number of farmers coupled with their lower level of education. This finding did not agreed with the report of

Tukor (2005), who reported higher percentage of silvi- fisheries than agro-silviculture.

Factors Militating Against the Adoption of Agro-forestry Practices in the Study Area

The factors affecting the adoption of agro-forestry practices in the study area is shown in Table 4. The result revealed that 10% of the respondents claimed that agro-forestry is labour intensive and they cannot adopt it. Lack of capital was 19%. They lamented that they cannot get loan from government due to lack of collateral and they do not have money to buy farm inputs (seed, fertilizer, herbicides etc). 20% of them claimed that, lack of knowledge of agro-forestry was their major factor preventing them from practicing agro-forestry. This result confirm the earlier study of Gideon (2010), who reported that lack of technical know- how was the major determinants for practicing agro-forestry. The same Table 4 shows, lack of government support was 14%, lack of extension worker 11% and lack of farm inputs/high price 26%. According to these categories of respondents, government does not support them with any farm inputs nor educate them through extension agents. These problems weighed them down and cannot adopt agro-forestry.

Table 3: Major Agroforestry practice adopted in the area

Types	Number of the respondents	Percentage (%)
Agro- silvilculture	54	54
Agro- silvipostoral	12	12
Silvil- postoral	1	1
Silvi -fisheries	28	28
Total	100	100

Source; field survey, (2019).

Table 4: Factors militating against the adoption of agro forestry practices in the study area

Factors	Number of the respondents	Percentage (%)
Labor intensive	10	10
Lack of capital	19	19
Lack of technical known how	20	20
Lack of Government support	14	14
Lack of extension workers	11	11
Lack of farm inputs/high price	26	26
Total	100	100

CONCLUSION

The benefit of adoption of agro-forestry practiced by farmers in the study area is enormous, but has low level of participation adoption, majority of the farmers have little or no benefit from the practiced. The paper Assess the factors affecting the adoption of agro-forestry practices in Mubi north local government area of Adamawa state. The wards randomly selected are Vimtim. Pahuli, Muchalla, Digil, and Mayo-bani .Questionnaires were prepared and distributed to farmers in the study area. Results obtained were analyzed using simple percentage and tables. Results revealed the importance of growing trees with agricultural crops\animals. Agro-forestry play essential and paramount role in soil stabilization, maintenance of soil fertility and soil conservation. But the practice of agro-forestry in the study area have been impeded by some factor like illiteracy, lack of technical know-how, inadequate capital and poor extension service from the ministry of Agriculture AADP and Local Government Areas. Majority of the respondents practiced Agros-silvilcultural with 54%

RECOMMENDATIONS

Base on the findings emanating from this study the following recommendation are made.

- Governments should review the traditional land tenure system to make land available to prospective farmers willing to adopt agro-forestry practice.
- Government should give and improve credit facilities in such a way that funds will reach the targeted farmers willing to adopt agro-forestry practiced
- Public enlightenment campaign should be launched in order to make farmers understand the optimum need for adoption of agro-forestry (i.e. by Government and, non-governmental organizations that are interested in agro-forestry practice).
- Training and retraining of extension agents should be enhanced for sustainable practice of agro-forestry.
- Extension agents should help farmers at the local level to ensure adequate incorporation of agro-forestry practices.
- Seeding and planting equipment be made available to farmers at subsidize rate.

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