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## FARMERS' WILLINGNESS TO USE SOIL AND WATER CONSERVATION PRACTICES IN AKINYELE LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA.

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### ABSTRACT

*This study was conducted to determine the farmers' willingness to use soil and water conservation practices in Akinyele Local Government Area of Oyo State, Nigeria. Multi stage sampling techniques were used to select 120 respondents used for this study. Descriptive statistics and multiple regression were used to analyze data. The results on socio economic characteristics showed that the mean age of the respondents was 48years, majority (82.5%) of the respondents were male, above, 51.7% had tertiary education, 26.7% purchased the land they used for their farming activities, 49.2% had between 11-20 years of farming experience. Results on types of soil and water conservation practices used by farmers showed that inorganic fertilizer (100%), organic fertilizer (100%), mulching (100%), cover cropping (100%), contour vegetative hedges of vetiver (100%), were majorly practiced. Results on farmers' willingness to use soil and water conservation practices indicated that rational use of ground water (100%), renovation of traditional water source (100%), use of modern irrigation methods (100%), change in crop pattern (100%), planting of drought tolerant crops (100%) and capturing and storing water (100%) were the majorly practiced. Results on farmers' reason for choosing soil and water conservation showed that all (100.0%) reasons for choosing soil and water conservation practices was that it increases yield of their farm product. Results on constraints to use soil and water conservation were inadequate extension contact ( $\bar{x}=2.9$ ), lack of incentive from government ( $\bar{x}=2.92$ ) and unavailability of information on soil and water conservation ( $\bar{x}=2.77$ ). The results of the multiple regression analysis showed that there is significant relationship between the socio economic characteristics of the respondents and their willingness to use soil and water conservation practices in the study area with  $R^2$  value of 89.9%. From the findings of this study, it is recommended that Farmers association and extension agents should provide timely information for farmers on soil and water conservation*

**Key Words:** Soil, Water, Conservation, Farmers, Nigeria

### INTRDODUCTION

Conservation of soil and water resources is a significant socio-environmental issue that affects the well being of people in farming communities in Nigeria. For instance, soil conservation activities in both short and long run increases crop yield and prevents further deterioration of cultivable soil. Badejo and Togun (2011) stated that, effective soil and water conservation on agricultural lands guarantees sustainable food productivity potential of the soil. Mekonnen and Michael (2014) noted that, the failure of farmers to adopt appropriate soil and water conservation practices contributes significantly to the degradation of a considerable portion of agricultural land. Effective soil and water conservation practices are classified into three major strategies which include: soil and water management, mechanical and agronomic soil conservation strategies (Junge et al., 2019). At the community and government levels, soil and water conservation

measures are soil management and mechanical-based such as: fencing, gully control, river bank protection, trail improvement, community based-irrigation schemes, afforestation, construction of water ways, supply of fertilizer inputs to farmers at subsidized rate, construction of drainage among others. Whereas, at farm level, Mbagwu (2003) observed that, agronomic soil conservation strategies promote farm households capacity to cope with the threat of soil degradation, erosion and its associated low crop yield (Igbokwe, 2017).

The need for sustainable soil and water conservation (SWC) practices in farming activities has been at the forefront and remains a top priority of policy debates among agricultural researchers, government agencies and development stakeholders. Soil degradation and depletion as a result of natural occurrence, and human-induced factors have significantly affected crop output among resource-poor farmers in sub-Saharan African countries and Nigeria in particular;

hence, the need to be pro-active in mitigating this environmental problem associated with agricultural production (Egbetokun *et al.*, 2014). In line with this objective, Ezeaku noted that good and efficient combination of SWC practices could sustainably guard against soil depletion and ground water loss (Ezeaku, 2012).

Importantly, soil and ground water management practices efforts offer and promote minimum disturbance of the soil by tillage (minimum tillage) as well as balanced application of chemical inputs which are required to improve soil quality for healthy crop production (Dumanski *et al.*, 2016) Further, the authors noted that effective SWC practices can potentially boost soil productivity, reduce long-term dependency on external inputs which often times lead to increased cost of production and enhance environmental management as well as reduce emission of greenhouse gases from human activities such as burning. All else being equal, achieving these in Nigeria suggests that increased productivity, safe environment, less cost of production and increased farmers' income are assured (Dumanski *et al.*, 2016). Similarly, Nyangena (2019) opined that land resource degradation remains a significant threat to food crisis and persistent poverty among the populace especially the agrarian ones. Unsustainable land management practices have adverse effects on the agricultural production due to gradual loss in capacity of the soil to sustain crop yields. There is evidence that crop yields are declining day by day; these are directly connected to soil erosion health and human activities (Egbetokun *et al.*, 2014). The resultant effect is manifested in decreased ground water retention and loss of soil nutrients, with devastating effects on food and nutrition security as well as well-being of many farmers in Nigeria. Majority of the households in rural areas in Nigeria engage in farming activities for family sustenance and to earn meager income from the sales of their agricultural produce because of subsistence nature of their farming activities. Suffice it to say that smallholder farmers constitute the bulk of farm families in Nigeria (Ajayi, 2015).

The need for improved and expanded usage of soil and water conservation has led to a numbers of strategies for changing the ways soil and water are conserved. These alternative patterns call for a change in the financing and implementation with the idea of the users charge emerging as one of the most probable steps in the adjustment programmes (Ajayi, 2015). However, the present socio-economic conditions of the farmers are such that they cannot adequately and willing to use soil and water conservation (Dumanski *et al.*, 2016). Based on the above,

The broad objective of this study was to determine the farmers' willingness to use soil and water conservation practices in Akinyele Local Government Area of Oyo State. **Specifically to:**

- i. describe the socio economic characteristics of the respondents in the study area,
- ii. identify the types of soil and water conservation practices used by farmers in the study area,
- iii. determine the farmers' willingness to use soil and water conservation practices in the study area,
- iv. ascertain the farmer's reasons for choosing soil and water conservation practices in the study area,
- v. identify the constraints affecting farmers willingness to use soil and water conservation practices in the study area

#### **1.4 Hypothesis of the study**

**H<sub>01</sub>:** There is no significant relationship between the socio economic characteristics of the respondents and their willingness to use soil and water conservation practices in the study area

### **2.0 Methodology**

#### **2.1 Study Area**

The study area for the research work was Akinyele Local Government Area of Ibadan Oyo State. Akinyele Local Government Area is one of the eleven Local Government Areas that make up Ibadan suburb. Its headquarters is at Moniya. Akinyele Local Government Area was created 1976 and it shares boundaries with Afijio local government to the North, Lagelu local government to the East, Ido local government area to the west and Ibadan North local area to the South. The town is located on latitude 7°21'N and longitude 4°02' – 4°28'E. It occupies a land area of 464.892 square km with a population density of 516 persons per square 456 kilometer. Using 3.2% growth rate from 2006 census figures, the 2010 estimated population for the is 239,745. Akinyele is sub-divided into twelve (12) wards Ikereku, Olanla / Oboda / Labode, Arulogun / Eniosa / Aroro, Olode / Amosun / Onidundu, Ojo-Emo / Moniya, Akinyele / Isabiye / Irepodun, Iwokoto / Tolonta / Idioro, Ojoo / Ajibode / Laniba, Ijaye / Ojedeji, Ajibade / Alabanta / Elekur, Olorisa`Oko / Okegbemi /Mele, and Iroko. The major crops grown in the area include cassava, maize, yam, tomatoes e.tc. The major livestock reared include cattle, sheep, goat, fish production and poultry production.

#### **2.3 Sampling techniques and sample size**

Multi-stage sampling techniques were used for this study. In the first stage Akinyele Local Government area was purposively selected due to the predominance of farmers in the area. In the second stage, out of the 12 wards in Akinyele Local Government Area, 6 wards were randomly selected. In the third stage 2 villages each were randomly selected from the 6 wards to give a total number of 12 villages. In the fourth stage 10 farmers were randomly selected from each village to give a total number of 120 respondents.

#### **2.4 Instruments for Data Collection**

Primary data were used for this study and were collected through a well-structured questionnaire.

## 2.5 Data Analysis

Data for this study were analyzed using descriptive statistics such as frequency, mean count, percentage and inferential statistics such as regression analysis. Objective i,ii,iii,iv and v were analyzed with descriptive statistics while the hypothesis was achieved using regression analysis

### 2.5.1 Model specification

The empirical model for the ordinary least square multiple regression specified as follows:

$C = f(x_1, x_2, x_3, x_4, x_6, \dots)$ .....implicit form (1)

$C = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + B_6 X_6 + B_7 X_7 + \mu$  explicit form .....(2)

Where

C = farmers' willingness to use soil and water conservation practices (Yes=1, No=2)

$X_1$  = Age of the farmers (in years);

$X_2$  = Sex (1=male, 2=female)

$X_3$  =Marital status (married=1, single=2, divorced=3, widowed=4)

$X_4$  = Educational level (Adult education=1, primary education=2, secondary education=3, Tertiary education=4)

$X_5$  = Secondary occupation (Farming=1, Trading=2, Civil servant=3)

$X_6$ =Farming experience (Years)

$X_7$ = Access to extension services

$X_8$ =Income (Naira)

$\mu$  = Error term

## 3.0 RESULTS AND DISCUSSION

### 4.1 Socio-economic characteristics of the respondents

#### Age

Result in Table 1 showed that 27.5% of the respondents were between the ages of 40-49 and 50-59 years respectively, 25.0% were between 30-39 years, 15.0% were between 60 and above years of age and 5.0% were between 20-29 years of age. The mean age is 47 years. This implies that most of the respondents are active farmers who are still in their active age of farming. This is in line with the findings of Adesope, (2007) who found that age significantly contributes to the qualities associated with young and middle aged people; such as their active involvement in farming activities.

#### Sex

Result of Table 1 showed that majority (82.5%) of the respondents were male while 17.5% were female. This implies that male farmers will have the ability to carry out the rigorous activities involved in crop production. This is in consonance with findings of World Bank (2012) that studies in Africa have shown that when a crop is perceived as a commercial crop, men are more likely to be more involved than women.

#### Marital status

Table 1 showed that (83.3%) of the respondents were married, 10.8% were single, 5.0% were widowed while 0.8% were divorced. This implies that most of the respondents had more people to cater for which signifies family responsibility. This could make them to use soil and water conservation to improve their farming activities.

#### Educational status

Table 1 revealed that half (51.7%) of the respondents had tertiary education, 37.5% had secondary education. 9.2% had primary education while few (1.7%) of the respondents had no formal education. This shows that nearly all of the respondents are literate who have one form of education or the other. This could possibly make them understand and the usage of soil and water conservation. This finding agrees with Nnadi and Akwivu (2008) who stressed the importance of education amongst farmers, increased understanding of the need for farming and that education is an asset for adoption decisions. Thus increased education was associated with increased of the usage of soil and water conservation.

#### Household size

Result in Table 1 showed that above average (53.3%) of the respondents had between 1-5 persons in their households while 46.7% had between 6-10 persons. The mean household size was 5 persons. This implies that most of the respondents have a fairly low number of persons living in their households. This does not corroborate with the findings of Nwaiwu *et al.* (2012) who found larger household size in their study area among farming households.

#### Secondary occupation

Result of in Table 1 revealed that majority 47.5% of the respondents engaged in farming as their secondary occupation, 40.8% engaged in trading while 11.6% of them were artisans. This shows that most of the respondents also engage in other farming activities to acquire more income to improve their farming business and to support family responsibilities.

#### Mode of land ownership

Result of land ownership in Table 1 showed that 26.7% of the respondents purchased the land they used for their farming activities, 24.2% inherited and gifted their farm land, 22.5% rented their farm land while 2.5% leased their land they used for their farming activities. This implies that majority of the farmers purchases the land they use in farming in the study area.

#### Farming experience

Result in Table 1 showed that 49.2% of the respondents had between 11-20 years of farming experience, 45.0% had between 1-10 years of experience while 5.8% had between 21-40 years of farming experience. The mean of farming experience was 11 years. This is an indication that most of the respondents are experienced farmers. This is supported by the findings of Assefa and Van den

Berg (2010) that larger farming experience is important in good agricultural production.

#### Access to extension services

Table 1b shows that most (60.00%) of the respondents had no access to extension services while 40.00% have access to extension services. This low extension service could decrease the chances of

the farmers using soil and water conservation in the study area. This is in accordance with the work of Idrisa and Ogunbameru (2012) supported Food and Agricultural Organization (FAO) recommendation that farmers are expected to be visited at least once in every two weeks (fortnightly).

**Table 1: Socio-economic characteristics of the respondents**

Variable	Frequency	Percentage	Mean
Age			
20-29	6	5.0	
30-39	30	25	
40-49	33	27.5	48years
50-59	33	27.5	
60 and above	18	15	
Sex			
Male	99	82.5	
Female	21	17.5	
Marital status			
Single	1	0.8	
Married	100	83.3	
Divorced	13	10.8	
Widowed	6	5.0	
Religion			
Islam	52	43.3	
Christianity	67	55.8	
Traditional	1	0.8	
Educational status			
Primary	11	9.2	
Secondary	45	37.5	
Tertiary	62	51.7	
No formal education	2	1.7	
Household size			
1-5	64	53.3	5
6-10	56	46.7	
Secondary occupation			
Farming	57	47.5	
Trading	49	40.8	
Artisan	14	11.6	
Mode of land ownership			
Purchased	32	26.7	
Inherited	29	24.2	
Rented	27	22.5	
Gifted	29	24.2	
Lease	3	2.5	
Farming experience			
1-10	54	45.0	
11-20	59	49.2	12
21 and above	7	5.8	
Access to extension			
Yes	48	40.0	
No	72	60.0	

Source: Field survey, 2022

#### 4.2 Types of soil and water conservation practices available to farmers in the study area

##### Soil conservation

The result in Table 2 showed types of soil and water conservation practices available to farmers in the

study area. The results showed that inorganic fertilizer (100%) organic fertilizer (100%), mulching (100%), cover cropping (100%), shifting cultivation (100%), bush fallowing (100%), contour vegetative hedges of vetiver (100%), had the highest percentage

and were the major types of soil conservation practices used by the farmers. Others include; minimum tillage (85.0%) and intercropping (84.2%). Also, terracing (59.2%) and contour ridging (52.5%) have the least percentages.

**Water conservation**

Table 2 further revealed types of water conservation practices by farmers. The result indicated that rational ground use of ground water (100%), renovation of traditional water source (100%), use of

modern irrigation methods (100%), change in crop pattern (100%), planting of drought tolerant crops (100%) and capturing and storing water (100%) had highest percentage and were the major types of water conservation practices used by all farmers, closely followed by redistribution of water (98.3%). Furthermore use of geothermal water (50.0%) and use of urban waste water (44.2%) had the least percentage.

**Table 2: Types of soil and water conservation practices by farmers**

Types of soil and water conservation practices	Yes	No
Soil conservation		
Inorganic fertilizer	120(100.0)	0(0.0)
Organic fertilizer	120(100.0)	0(0.0)
Mulching	120(100.0)	0(0.0)
Cover cropping	120(100.0)	0(0.0)
Shifting cultivation	120(100.0)	0(0.0)
Bush fallowing	120(100.0)	0(0.0)
Crop rotation	120(100.0)	0(0.0)
Contour vegetative hedges of vetiver	120(100.0)	0(0.0)
Minimum tillage	102(85.0)	18(15.0)
Terracing	71(59.2)	49(40.8)
Contour ridging	63(52.5)	57(47.5)
Intercropping	101(84.2)	19(15.8)
Water conservation		
Redistribution of Water	118(98.3)	2(1.7)
Rational Use of Groundwater	120(100.0)	0(0.0)
Renovation of Traditional Water Sources	120(100.0)	0(0.0)
Use of Modern Irrigation Methods	120(100.0)	0(0.0)
Change in Crop Pattern	120(100.0)	0(0.0)
Planting of drought tolerant crops	120(100.0)	0(0.0)
Capturing and storing water	120(100.0)	0(0.0)
Use of Geothermal Water:	60(50.0)	60(50.0)
Use of urban waste water	53(44.2)	67(55.8)

Source: Field survey, 2022

(Multiple Responses)

Figures in parenthesis are in percentage

**4.3 Farmer’s reasons for choosing soil and water conservation practices**

Result in Table 3 showed the farmer’s reasons for choosing soil and water conservation practices. The result revealed that all (100.0%) of the respondents reasons for choosing soil and water conservation practices were its increases in yield, scarcity of rain, improve soil fertility, minimizes the effects of

drought and water shortages and water supply limitations. Other reasons include improve water supply reliability (99.2%), cost effectiveness (94.2%) and less labour intensive (90.0%). This implies that all the above listed are major the major reasons for choosing soil and water conservation practices in the study area

**Table 3: Farmer’s reason for choosing soil and water conservation practices**

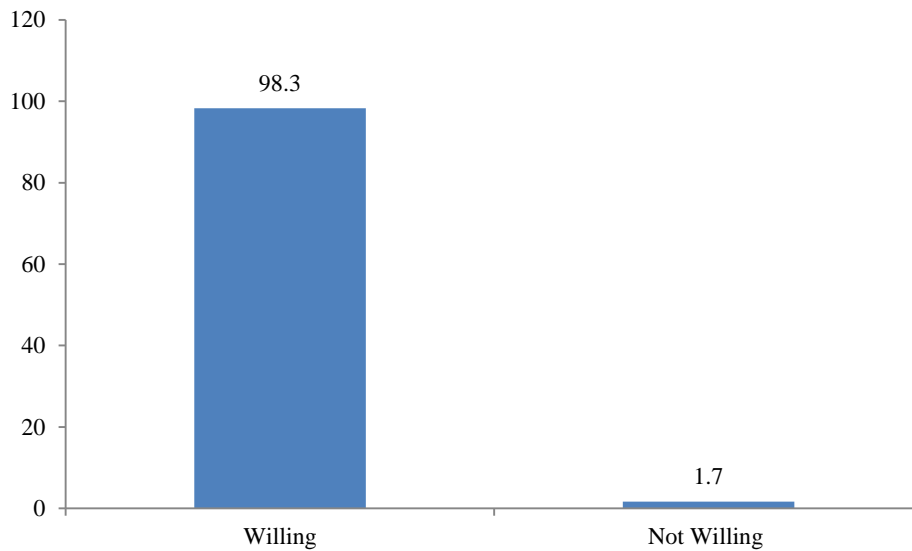
Farmer’s reason for choosing soil and water conservation practices	Yes	No
Increase yield	120(100.0)	0(0.0)
Less Labour intensive	108(90.0)	12(10.0)
Cost effectiveness	113(94.2)	7(5.8)
To improve soil fertility	120(100.0)	0(0.0)
Scarcity of rain	120(100.0)	0(0.0)
minimizes the effects of drought and water shortages	120(100.0)	0(0.0)
minimizes the effects of drought and water shortages	120(100.0)	0(0.0)
Water supply limitations	120(100.0)	0(0.0)
Improved water supply reliability	119(99.2)	1(0.8)

Source: Field survey, 2022

(Multiple Responses)

Figures in parenthesis are in percentage

### Willingness of farmers to use soil and water



conservation and few (1.7%) were not willing to use soil and water

### conservation

Result in Figure 2 showed the farmers Willingness to use soil and water conservation practices in the study area. The result showed that majority (98.3%) of the respondents were willing to use soil and water

conservation. This implies that majority of the s farmers are willing to use soil and water conservation and this might be due to the fact soil and water conservation improved the farmers' production

Figure 1: Percentage distribution of farmers' to use soil and water conservation practices

### Willingness to use soil conservation practices

The results showed that all (100.0%) of the respondents were willing to use mulching and cover cropping, closely followed by majority (98.3%) of the respondents also willing to use inorganic fertilizer, organic fertilizer, shifting cultivation, bush fallowing and crop rotation, majority (97.5%) of the respondents willing to use crop rotation and 85.8%

willing to use minimum tillage. This results above indicate that majority of the respondents are willing to use soil and water conservation and this might be due to the fact that soil conservations improves soil quality and productivity, increased fertility improves crop yields, reduces the need for chemical fertilizers, and saves money.

### Willingness to use water conservation practices

The results revealed that all (100.0%) of the respondents are willing to use capturing and storing of water, closely followed by change in crop pattern (99.2%), planting of drought tolerant crops (99.2%), redistribution of water (97.5%), rational use of ground water (95.8%), renovation of traditional water source (95.8%) and use of modern irrigation methods (91.7%). Most of the respondents are not willing to reuse urban waste (60.8%). This implies that majority of the respondents were ready to use capturing and storing of water, change in crop pattern, planting of drought tolerant crops,

redistribution of water, rational use of ground water, renovation of traditional water source and use of modern irrigation methods. While most of them were not willing to use reuse urban waste. From the results it shows that respondents use capturing and storing of water, change in crop pattern, planting of drought tolerant crops, redistribution of water, rational use of ground water, renovation of traditional water source and use of modern irrigation methods. This might be due to the fact that water conservation technologies reduces the need for costly water supply, saved water for crop production, minimize water pollution among others.

**Table 4: farmers' willingness to use soil and water conservation**

Willingness to use soil and water conservation practices	Willing	Not willing
<b>Soil conservation practices</b>		
Inorganic fertilizer	118(98.3)	2(1.7)
Organic fertilizer	110(91.7)	10(8.3)
Mulching	120(100.0)	0(0.0)
Cover cropping	120(100.0)	0(0.0)
Shifting cultivation	118(98.3)	2(1.7)
Bush fallowing	118(98.3)	2(1.7)
Crop rotation	117(97.5)	3(2.5)
Contour vegetative hedges of vetiver	17(14.2)	103(85.8)
Minimum tillage	103(85.8)	17(14.2)
Terracing	39(32.5)	81(67.5)
Contour ridging	25(20.8)	95(79.2)
Intercropping	107(89.2)	13(10.8)
<b>Water conservation practices</b>		
Redistribution of Water	117(97.5)	3(2.5)
Rational Use of Groundwater	115(95.8)	5(4.2)
Renovation of Traditional Water Sources	115(95.8)	5(4.2)
Use of Modern Irrigation Methods	110(91.7)	10(8.3)
Change in Crop Pattern	119(99.2)	1(0.8)
Planting of drought tolerant crops	119(99.2)	1(0.8)
Capturing and storing water	120(100.0)	0(0.0)
Use of Geothermal Water	52(43.3)	68(56.7)
Reuse of urban waste	47(39.2)	73(60.8)

Source: Field survey, 2022

(Multiple responses)

Figures in parenthesis are in percentage

### 4.5 Constraints affecting farmers' willingness to use soil and water conservation

Results in Table 5 showed the constraints affecting farmers' willingness to use soil and water conservation. The result revealed that inadequate extension contact ( $\bar{x}$ =2.98) had the highest mean and was ranked first. Closely followed by lack of incentive from government ( $\bar{x}$ =2.92), unavailability of information on soil and water conservation

( $\bar{x}$ =2.77), insufficient fund ( $\bar{x}$ =2.75) and inadequate soil and water conservation skills ( $\bar{x}$ =2.72) were ranked second, third, fourth and fifth. Furthermore, lack of technical knowhow ( $\bar{x}$ =2.68) and insufficient farm labour ( $\bar{x}$ =2.34) have the least mean and were ranked seventh and eight respectively. This result implies that inadequate extension service is the major constraints to their willingness to use soil and water conservation

**Table 5: Constraints affecting farmers willingness to use soil and water conservation practices**

Constraints	very severe	severe	Not severe	Mean	Rank
Inadequate extension contact	118(98.3)	2(1.7)	0(0.0)	2.98	1
Lack of incentive from government	110(91.7)	10(8.3)	0(0.0)	2.92	2
Unavailability of information on soil and water conservation	93(77.5)	26(21.7)	1(0.8)	2.77	3
Insufficient fund	90(75.0)	29(24.2)	1(0.8)	2.74	4



Cultural barrier	83(69.2)	37(30.8)	0(0.0)	2.69	6
Lack of technical knowhow	81(67.5)	39(32.5)	0(0.0)	2.68	7
Inadequate soil and water conservation skills	86(71.7)	34(28.3)	0(0.0)	2.72	5
Insufficient farm labour	61(50.8)	39(32.5)	20(16.7)	2.34	8

Source: Field survey, 2022

Multiple response

Figures in parenthesis are in percentage

**Regression analysis showing the relationship between the socio economic characteristics of the farmers and their willingness to use soil and water conservation practices in the study area**

The result revealed that age (p=0.044) and secondary occupation (p=0.048) of the farmers had negative coefficient value implying that there is an inverse with their willingness to use soil and water conservation practices in the study area. On the other hands, sex(p=0.028), marital status(p=0.045), educational status(p=0.015), household Size(p=0.027), member of cooperative society(p=0.0971), mode of land ownership(p=0.0022), years of farming experience(p=0.043) and access to extension

services(p=0.037) had positive coefficient value which had direct positive influence on their willingness to use soil and water conservation practices in the study area.

The adjuster R<sup>2</sup> was 0.899 indicating that 89.9% of the farmers willingness to use soil and water conservation practices was explained by the influence of the socio economic characteristics. Since the p-value (0.029)<0.05. Therefore, the null hypothesis was rejected while the alternative was accepted meaning that there is significant relationship between the socio economic characteristics of the respondents and their willingness to use soil and water conservation practices in the study area

**Table 7: Regression analysis on the relationship between the socio economic characteristics of the respondents and their willingness to use soil and water conservation practices in the study area**

Variables	Coefficient value	Error	T	Sig
Constant	0.975	0.072	13.535	0.000*
Age	-2.8775	0.101	-0.031	0.044*
Sex	0.030	0.023	0.310	0.028*
Marital status	0.028	0.015	1.867	0.045*
Religion	0.015	0.015	1.029	0.306NS
Educational status	0.005	0.014	0.353	0.015*
Household size	0.000	0.005	0.054	0.027*
Secondary occupation	-0.005	0.012	-0.403	0.048*
Member of cooperative	0.000	0.016	-0.037	0.971NS
Mode of land ownership	0.006	0.007	0.935	0.022*
Years of farming experience	0.001	0.002	0.689	0.43*
Access to extension services	0.038	0.018	2.106	0.037*

**Source: Field survey, 2022**

Adjust R<sup>2</sup>= 0.899

f-value = 2.069

sig = 0.029

\*= Significant

NS= Not significant

## 5. 0 CONCLUSION AND RECOMMENDATIONS

### Conclusion

From the findings of this study it is concluded that majority of the farmers are educated married male who have an average age of 48 years with average 5 members of household size. It is also concluded that inorganic fertilizer, organic fertilizer, mulching, cover cropping, shifting cultivation, bush fallowing, contour vegetative hedges of vetiver, are the major types of soil conservation, also, rational ground use of ground water, renovation of traditional water source, use of modern irrigation methods, change in crop pattern, planting of drought tolerant crops and capturing and storing water are the major soil and water conservation practices in the study area. Also it is concluded that reasons for choosing soil and water conservation practices is because it contributes to increases in yield, scarcity of rain, improve soil fertility, minimizes the effects of drought and water shortages and water supply limitations were major reason for choosing soil and water conservation practices. Furthermore it is concluded that majority of the respondents are willing to use soil and water conservation. Inadequate extension contact and lack of incentive from government were the major constraints affecting farmers' willingness to use soil and water conservation practices. Finally it is concluded that there is significant relationship between the socio economic characteristics of the respondents and their willingness to use soil and water conservation practices in the study area.

### Recommendations

From the findings of this study, it is recommended that:

1. There should be adequate extension services to teach farmers more skills on practice soil and water conservation to improve their agricultural production

2. Government should provide incentives to the farmers so that they will be able to use soil and water conservation which will promote their agricultural production
3. Farmers association and extension agents should provide timely information for farmers on soil and water conservation

### References

- Adesope, OM (2007). Agricultural youth organizations: introductory concepts. *Second edition, University of Port Harcourt Press, Port Harcourt, Nigeria, pp.1-3.*
- Ajayi A.S (2015). Land Degradation and the Sustainability of Agricultural Production in Nigeria: *A Journal of Soil Science and Environmental Management, 2015; 6(9): 234-240.*
- Assefa Y, Van den Berg J (2010). Genetically modified maize: *adoption practices of small-scale farmers in South Africa and implications for resource-poor farmers on the continent. Asp. Appl. Biol. 96:215-223*
- Badejo, M.A. and Togun, A.O. (2011). Strategies and Tactics of Sustainable Agriculture in the Tropics. College Press Ltd., Ibadan, Nigeria,
- Dumanski J., Peiretti J., Benitis R., McGary D., and Pier C. (2016). The Paradigm of Conservation Tillage. *Proceedings of World Association of Soil and Water Conservation, 2016; 58-64*
- Egbetokun O.A., Omonona B.T., and Adedeji A.S. (2014) Effects of Land Degradation on Maize-based Farm Resource Productivity in Oyo state, Nigeria. *Direct Research Journal of Agriculture and Food Science (DRJAFS), 2014; 2(1): 8-12.*
- Ezeaku, P.I (2012). Soil conservation and management options for adaptation to climate change in the 21st century In: Enete,

- A.I. and Uguru, M.I. (eds). *Critical Issues in Agricultural Adaptation to Climate Change in Nigeria*, Enugu, Chengo Limited, 2012; 84-113.
- Idrisa, Y.L. and Ogunbamerun, B.O. (2012) Effect of adoption improved maize seed on household food security in Gwoza Local Government area of Borno state, Nigeria. *Agricultural Science Research Journals Vol.2(2)*pp.70-75
- Igbokwe, E.M., (2017). A Soil and Water Conservation System Under Threat. A Visit to Maku, Nigeria. In: *Sustaining the Soil-Indigenous Soil and Water Conservation in Africa*, Reij, C., I. Scoones and C. Toulmin (Eds.). *Earthscan Publication, London, UK*, pp: 219-343.
- Junge, B., O. Deji, R. Abaidoo, D. Chikoye and Stahr, K. (2019). *Farmers' adoption of soil conservation technologies: A case study from Osun state, Nigeria*. *J. Agric. Edu. Exten.*, 15: 257-274.
- Mbagwu, J.S.C., (2013). Aggregate stability and soil degradation in the tropics. *Lecture Given at the College of Soil Physics Trieste*, March 3-21, [http://users.ictp.it/~pub\\_off/lectures/Ins018/22Mbagwu1.pdf](http://users.ictp.it/~pub_off/lectures/Ins018/22Mbagwu1.pdf)
- Mekonnen, G.T. and Michael, A.G. (2014). Review on overall status of soil and water conservation system and its constraints in different agro ecology of Southern Ethiopia. *J. Natural Sci. Res.*, 4: 59-69.
- Nyangena W. (2019). Social Networks in Sustainable Agriculture. In: UN Expert Group Meeting on 'Sustainable Land Management and Agricultural Practices in Africa, bridging the gap between Research and Farmers'. Organized in University of Gothenburg, Sweden April 16-17, 2019.