

Attitude of Women Farmers Towards Sustainable Land Management Practices in South-Western Nigeria

¹E.O. Fakoya, ²M.U. Agbonlahor and ²A.O. Dipeolu

¹Department of Agricultural Extension and Rural Development,
²Department of Agricultural Economics and Farm Management,
University of Agriculture, Abeokuta, Nigeria

Abstract: The knowledge of the fungibility and renewability potential of natural resources are critical determinants of the attitude and management conservation measures adopted to achieve a sustainable use. Women farmers have taken dominant roles in primary agricultural production in Nigeria over last two decades. The study was carried out among women farmers in Ondo State, South-West Nigeria, to investigate their knowledge and attitude towards sustainable land management practices in arable food crop production. Multistage sampling technique was adopted in selecting a total of 160 women farmers drawn from 18 extension blocks in the state. Data was collected on socio-demographic characteristics, knowledge/attitude towards land management practices and measures adopted by the women. The data was then analysed using both descriptive and inferential statistics. The results revealed that the mean age of the women farmers in the state was 45.3 years, most of the farmers (about 58.77 percent) were married and that majority of the farmers presently cultivated personal land. Also, it was observed that most of the farm lands were inherited or family-owned. Mixed cropping is the most dominant cropping system and the women were mainly farmers though about 12 percent of them are also involved in off-farm processing. The correlation analysis revealed that there is a strong positive ($r = 0.63$; $p < 0.05$) correlation between the attitude score and land management practices adopted by the women farmers. The study recommends increase in awareness campaigns on land use fertility and management practices, also that women farmers, through appropriate policy of land tenure and ownership be given equal access to land resources.

Key words: Attitude • women farmers • arable-crops • sustainable land management practices

INTRODUCTION

Agricultural production and land productivity are influenced to a considerable extent by the native soil fertility status of the land and also by the cultural practices adopted as the land husbandry method. The most pressing challenge of Nigerian agriculture, in the new millennium, is how it can meet the food need of an ever-burgeoning population in the face of the myriads of social, cultural and economic problems that negates sustainable land management [1-3]. The role of agriculture in an agrarian economy like Nigeria cannot be overemphasized. Over 70 percent of the economically active population is employed in agriculture and agro allied industries, the sector provides over 90 percent of the food consumed locally and it is a major earner of foreign exchange after the petroleum sector [4].

The pivotal roles of women in Nigerian agriculture have been extensively researched. Women and gender issues are increasingly being stressed in the environmental management parlance, this is however not unconnected to the pivotal roles of women in environmental resources harvesting and utilization but also considering their mediatory roles in rural households decision making process [5, 6].

The evolving trend in contemporary farm management suggests a cursory look at the attitude of women towards sustainable land management practices as a pathfinder to understanding the sustainability of the system. The sustainable management of environmental resources, such as land requires emphatic consideration of women. This is due to the fact that in an agrarian economy, the land forms the critical link between the past and future successes or failures and women are more dependent upon and closer to the land [7-9].

George [10] explained that the relationship between women and the environment may be examined in terms of agricultural production and direct products exploitation e.g. fuel wood collection. In most African communities where bush-fallow method is practiced, after the first one to three years of intensive cultivation, the land is left to the women to crop and manage during fallow [5, 11]. Ibrahim [12] observed that while men generate environmental problems, the women deal with the consequences. Attempts to tackle the age long problem of land degradation should therefore take into consideration the pivotal role of women in land management. Okali [13] explained that the involvement of women in environmental management will not only ensure their active participation, but would also aid the participation of men, as they exercise a lot of influence on the men. Conservation and management of the natural resources base (land, water and forest) must be promoted among women, who as wives and mother, play a crucial role in the preservation of resources and also establish a balance between population growth and resources constraints, to sustain the environment [14].

Sustainability is a concept increasingly used in reference to economic performance, of human activities and actions that affect not just the present but also the future generation, such as farming, logging and mining, in relationship to the environment. Following the most general definition, an economic activity is considered sustainable if it could be carried out indefinitely. Agbonlahor [11] reported that a sustainable system is one that considers the environment as a determinant of the long-term economic well-being of the society. He further reiterated that for a system to be sustainable it must meet the twain objectives of being economically viable and ecologically self-dependent.

Attitude of women towards environmental management practices:

Attitude has been defined as the predisposition to feel, think or act in a particular way with some degree of consistency [15]. The way people hold the environment and regard environmental resources and systems will in the long run, determine their attitude towards environmental changes and action [16, 17]. Stroup and Baden [18] argued that there is a strong relationship between beliefs, values and norms and men's attitude to environmental management practices. This has led to the development of new body of discipline called environmental education. Keholf [19] also observed that environment (ecological zone), income level, age and education influences attitude to environmental management practices.

Problem statement: Land as a factor of production and as a natural resource is a critical input in agricultural production. The criticality is imposed by its availability, accessibility, quantity and quality. In Nigerian agriculture, the quality factor stands out as a major determinant of land productivity this is due to the problems associated with sourcing artificial amendments that can improve the productivity of land especially by the women farmers that dominates the arable crop production landscape. The understanding of the quality use and management interaction of land as well as attitudes towards management are therefore key indicators of the sustainability of the resource. A good management objective, that is hinged on proper knowledge and the right attitude are therefore sine qua non to sustainable land use.

The study will therefore seek to provide answers to the following research questions:

- What is the attitude profile of the women farmers towards sustainable land management?
- How knowledgeable are the women farmers in land management practices?

Objectives of study: The borad objective is to assess the attitude of women farmers towards sustainable land management. Specifically, the study will:

- Determine the knowledge profile of the farmers.
- Assess the attitude of the farmers toward land management practicws.

MATERIALS AND METHODS

Study area and data collection: The study was carried out in south-western Nigeria; Specifically Ondo state was used as the study area due to the large population of women farmers in arable crop production. Geographically, the State is located within latitude 6° and 8°N and longitude 4° and 6°W of the equator. Two distinct vegetation belts predominate in the state, the southern rainforest and the northern derived savanna. Food crops such as cassava, maize, yam and vegetables are widely grown in the state. For administrative reasons, the Agricultural Development Projects (ADP) divided the state into 2 agricultural zones and 18 extension blocks. A Block Extension Supervisor (BES) heads each block. There are also 18 Women-in-Agriculture (WIA) supervisors in the state. Data for this study was sourced from the women farmers registered with the ADP. The respondents were randomly selected from the sample

frame of the registered women farmers with the state WIA supervisor. Data collection was effected with the assistance of the BESS' using well-structured questionnaire as interview guide.

Operationalization of variables and data analysis:

Dependent variable: The attitude of the farmers towards sustainable land management practices was measured by summing up the reaction of positive, negative and neutral responses to a list of questions that seek knowledge/attitude of the farmers towards sustainable practices. To achieve this, a five point Likert scale containing items with response categories ranging from Strongly Agree (SA) with a score of five points to Strongly Disagree (SD) with a score of one point for favourable statements/question was developed, while the scoring was reversed for unfavourable statements. The respondents were asked to indicate which option best describe their opinion with respect to the question asked. A total of 27 questions were asked for the attitude analysis, the maximum and minimum scores were 135 and 27, respectively. For the description of responses to each question, the scale was further trichotomized as favourable (91-135 points), neutral (46-90) and unfavourable (1-45).

Independent variables: Other variables operationalized in the study include the socio-economic characteristics of the women farmers such as age, marital status, farming experience, sources of land, educational level, religion, years of residence in the community, Variables such as marital status, religion were measured by categorization. The respondents merely indicated the category they belong i.e. marital status: single, married, divorced or widowed; religion: Christian, Islam or traditional. Educational level were ordered hierarchically for the respondents to indicate their highest level attained. Age and years of farming experience were measured as actual years the farmers had engaged in farming. Other data includes types and numbers of land management practices (including cultural practices) involved in, information on actual farm size and crops cultivated were also collected.

Analytical procedures: Descriptive statistics, using measures of dispersions, frequencies and percentages were used to describe the socio-demographic characteristics of the women farmers studied. This was done in order to relate (appropriately) the inference that may arise from the study. Also, bivariate correlation was used for the analyses of data. The correlation analysis was used to test the significance of the

relationship between the attitude score of respondents as indicated by the scores of the Likert analysis and the numbers of land management practices actually adopted or practiced by the women farmers.

The Pearson Product Moment Correlation (PPM) was used to determine if there exist a significant relationship between the land management attitudinal score of the women and the numbers and extent of land management practices actually carried out on the respondent farmland. While information on the individual farmer attitude score was from the Likert scale attitude score, the land management practices adopted was obtained by a summation of the proportion of the total land cultivated that were actually affected by the management practice.

RESULTS AND DISCUSSION

The distribution of the respondents according to some socio-economic characteristics is shown Table 1. The mean age of 45.3 years is an indication of the youthfulness of the farmers and their likely amenability to changes and education. The age is also an incentive for a long lasting development of a sustainable cultural practice. It is also evident from the Table that majority (86 percent) of the farmers cropped on owned farmlands (family or inherited). This tenural arrangement provides a positive frame for the adoption of a long termed management plan and also presents investment opportunities in maintaining soil fertility for future benefit. However, as observed by Olawoye [7], there is a significant difference between personally owned and family land particularly for women, as the final decisions on land investment is determined by the male household head. The result also revealed that, most of the respondents (58.75 percent) were married. It was found out that a high proportion of the women farmers (71 percent) had completed one form of formal schooling, since adequate education enhances farmers' level of land management practices, it is therefore expected that the farmers would be inclined to sustainable land management. Almost half of the respondents had between 3-8 hectares of farmland. This also has implication on the ability of the farmers to effectively manage the land to meet the demand for food production.

The women farmers were found to combine several income generating activities. Table 2 shows that farming is the major occupation in the study area for women, followed by trading. The economic activity distribution also reflects the income generating activities that are prevalent among women in the study area being a largely agrarian area. It is also shown other activities including

Table 1: Distribution of respondents by their socio-economic characteristics

Variables	Categories	Frequency	Percentage	Mean
Age (years)	Below 34	6	3.75	45.3 years
	35-39	13	8.13	
	40-44	51	31.88	
	45-49	54	33.75	
	50-54	29	18.12	
	55 and above	7	4.35	
Marital status	Single	36	22.50	
	Married	94	58.75	
	Divorced	21	13.12	
	Widowed	9	5.63	
Religion	Christian	91	56.80	
	Islam	53	33.20	
	Traditional	16	10.00	
Educational level	No formal education	47	29.37	
	Adult literacy	30	18.75	
	Primary education	35	21.88	
	Secondary education	38	23.75	
	Tertiary education	10	6.25	
Sources of land	Owned/inherited	138	86.30	
	Rented/lease	22	13.70	
Farming experience (years)	1-3	17	10.63	7.3 year
	7-9	78	48.75	
	10-12	42	26.25	
	Above 12	23	14.37	
Farm size (ha)	< 3	61	38.10	3.02
	3-5	41	25.60	
	6-8	33	20.60	
	9-11	14	8.80	
	12-15	10	6.30	
	Above 15	1	0.60	
Years of residence in community	0-5	29	18.12	16.34 years
	5-10	12	7.50	
	11-15	21	13.13	
	16-20	32	20.00	
	Above 20	66	41.25	

Source: Field survey (2005)

Table 2: Distribution of respondents by their income generating activities

Activities	Major	Minor
Farming	104 (65.0)	56 (35.0)
Trading	32 (20.0)	50 (31.25)
Craft making	24 (15.0)	39 (24.37)
Livestock rearing	79 (49.3)	48 (30.0)
Selling snacks	67 (41.9)	31 (19.4)
Snail gathering	48 (30.0)	14 (8.8)
Tailoring	64 (40.0)	22 (13.7)

Source: Field survey (2005)

livestock rearing, craft making, snail gathering, selling of snacks and tailoring are engaged in by the women

farmers. The diversity of activities is a risk management strategy adopted to smooth consumption.

Table 3 shows the attitude scores range from 27-135 on certain land management practices commonly practiced in the area. Most of the scores fell within the range of 46-90. The mean attitude score of 56.5 also support the fact the majority of the farmers fell into neutral attitude scores.

The trichotomized attitudinal scores in Table 4 revealed that majority (64 percent) of the respondents showed neutral attitudes to sustainable soil management practices. This shows also the perception of the women farmers to soil fertility conservation/maintenance as an environmental resource. The implication of this is that,

Table 3: Distribution of farmers by their attitude towards sustainable land management practices

S/N	Attitude statements	SA	A	U	D	SD	Mean
1.	Planting of legumes improve soil fertility	17	84	36	15	3.54	3.54
2.	Legumes prevent soil erosion	61	40	27	26	3.77	3.77
3.	Legumes act as weed to disturb crop	37	43	34	33	3.36	3.36
4.	Tree planting is good for proper land use	31	40	37	32	3.87	3.87
5.	Tree should be in forest not on the farm	29	40	39	32	3.62	3.62
6.	Land management can only be practiced by farmers	27	52	41	26	3.32	3.32
7.	Mulching reduces evaporation	35	37	39	35	3.27	3.27
8.	Water loss due to run off is prevented by mulching	32	35	55	27	3.31	3.31
9.	Manuring improve water conservation in the soil	39	40	39	29	3.39	3.39
10.	More weed is a problem with manuring	41	40	31	33	3.36	3.36
11.	There is inadequate information on land management	51	43	27	23	3.56	3.56
12.	Only land owner can plant trees	34	44	44	28	3.40	3.40
13.	Crop rotation require more labour than agricultural activities	46	58	22	25	3.66	3.66
14.	I loose more money when I practice crop rotation	26	38	21	65	3.03	3.03
15.	Crop rotation improves soil texture	22	53	52	24	3.34	3.34
16.	Drainage prevent water logging in the soil	26	47	39	34	3.23	3.23
17.	Farmers would engage in irrigation with more information	43	57	26	25	3.62	3.62
18.	It is not necessary to use composting since farmers still use fertilizers to replenish the soil	39	44	35	34	3.45	3.45
19.	Land management are important for benefit of future generation	38	47	34	30	3.44	3.44
20.	Industrialist are major land destroyers	42	29	35	40	3.28	3.28
21.	Environmental problem may hinder productivity	36	50	33	29	3.43	3.43
22.	Without use of chemical agriculture is not possible	39	44	32	31	3.39	3.39
23.	Use of chemical accomplish by voluntary	37	42	31	34	3.31	3.31
24.	Bush fallow maintains soil fertility	36	39	40	27	3.30	3.30
25.	Bush fallow exposes soil to erosion	34	44	34	31	3.29	3.29
26.	Bush burning causes all pollution	38	43	38	24	3.38	3.38
27.	Manual cultivation require much labour	7	22	26	51	2.23	2.23

Source: Field survey (2005)

Table 4: Summary of trichotomized attitudinal scores

Attitude Score	Trichotomy	Frequency	Percentage
Favourable	91-135	50	31.2
Neutral	46-90	102	63.8
Unfavourable	1-45	8	5.0
Total		160	100.0

Source: Field survey (2005)

there is a rapid depletion of soil fertility in the area, considering the declining fallow periods, high population growth rate and the non-adoption of technologies to compensate declining soil fertility. And as opined by Pingali and Binswanger [20] that the relative speed with which technology evolves compared with the rate of decline in soil productivity and the increase in population growth determines the rate of change in agricultural productivity. There is no gain saying the fact that there is a dire need, to increase and intensification of

environmental education in the state, particularly in the area of land resource management. This is also reflected in the high positive correlation between attitude scores and sustainable soil management practices adopted by the farmer. The high positive correlation implies that as attitude score increases (awareness) the practice of sustainable soil management techniques increases and vice versa amongst the women farmers in the area.

The correlation analysis result revealed that there was a strong positive ($r = 0.63$; $p \leq 0.05$) between attitude score and land management practices adoption. The implication of this is that as the attitude scores increases favourable attitude the management practices embarked upon also increased. Women farmers, in the area, that had favourable attitude to cultural land management practices were found to perform more land management practices than those with lower attitude (unfavourable) score.

CONCLUSIONS

Agricultural production and productivity is directly linked to the land fertility status and hence to land management practices inherent in the production plan adopted. The much needed increase in agricultural production cannot be achieved without the involvement of the women farmers that markedly influences the type and quantities of harvest, arising from their high involvement in agricultural production. The study reveals that there is a neutral attitude amongst women farmers in Ondo state. The neutral attitude is evidenced in their responses to land management questions asked in the interview guide. Though there is the recognition of the fact by the researchers that the responses are influenced by a myriad of extraneous factors, such as the psychological frame of mind, understanding of the question etc. by the farmer, the large sample size however, has helped to reduce the so called noises in the data set used for the study.

The low to neutral attitude is also attributable to ignorance on the part of the farmers as majority of them are not aware of the beneficial/or damaging effects of certain practices. The present levels of the farmers (financial and knowledge) cannot support the technicalities of certain practices towards ensuring sustainable soil management practices. Based on these findings, the study recommends an increase in environmental education campaign, particularly on land management, an improvement in the supply and access to production inputs such as chemical fertilizer. Also, government policy must continue to be directed towards both improving the application of technology (education) and provision of production inputs and rural infrastructures.

REFERENCES

1. World Bank, 1993. World Development Report, 1993: Investment in health. Oxford University Press, New York. pp: 33-37.
2. Akinbile, L.A., 1997. Measurement of Agricultural Indigenous knowledge of crop farmers in two agro-ecological zones of Oyo state. Unpublished Ph.D. Thesis in the Department of Agricultural Extension Services, University of Ibadan, pp: 65-70.
3. Chambers, R. and J. Jiggins, 2000. Political aspects of ecological sustainable development. *Environmental Conservation*, 23: 61-74.
4. Adedipe, A.O., 2000. Fluxes and Flash Flosses in Nigerian Agriculture. University of Agriculture Inaugural Lecture Series 3.
5. World Bank, 1999. Towards the development of an environmental action plan for Nigeria. Washington DC, pp: 14-16.
6. Fakoya, E.O., D.K. Ojo and O.B. Oyesola, 2002. Categorization of farmers in relation to use of sustainable land management practices in Ondo state. *ASSET Journal Series A*, 2: 29-36.
7. Olawoye, J.E., 1993. Gender analysis in agriculture. An invited discussion paper presented at the WORDOC Workshop Institute of African Studies, University of Ibadan, February 1993.
8. Asaju, A.S., 1999. Sustaining agriculture in an era of ecosystem abuse. Insights from Yoruba culture and world view. In: Badejo, M. A. and A. O. Togun Eds. *Strategies and tactics of sustainable agriculture in the tropics*. College Press Ltd., Ibadan, 1: 113-116.
9. Aina, P.T., 2003. Human ecology on environmental approach. Duxbury Press Nirth Scituate Macssachusetts, pp: 69-72.
10. George, K.B., 1999. Tropical soil Biology and fertility. Interregional Research Planning Workshop. Special Issue, biology Internation. Paris France IUBS., pp: 57-72.
11. Agbonlahor, M.U., 2000. Economics of mixed farming: The case of Poultry/Arable crop production in Edo state. An unpublished M. Agric. Thesis submitted to the Department of Agricultural Economics, University of Agriculture, Abeokuta, Nigeria, pp: 134.
12. Ibrahim, F.N., 2002. The Role of women peasants in the process of desertification in Western Sudan. *Geo J.*, 6: 147-149.
13. Okali, D.U., 1991. The Nigerian Environment and non-governmental actions: In Proceedings of NEST 1989 workshop at Lagos. NEST, Ibadan, pp: 30-34.
14. Fakoya, E.O., 2000. Farmers' use of sustainable land management practices in Ondo state. Unpublished Ph. D Thesis. Department of Agricultural Extension and Rural Development, University of Ibadan, pp: 38-54.
15. Nigerian Environmental Study Team (NEST), 1991. Nigeria's Threatened Environment: A National profile, Ibadan, pp: 45-50.
16. Adekoya, A.E., 1997. An Analysis of farmers participation in Agro-forestry in Oyo state. Unpublished Ph.D Thesis of the Department of Agricultural Extension Services. University of Ibadan, pp: 15-27.
17. Stroup, R.L. and J.A. Baden, 1983. National Resources Bureaucratic Myths and Environmental Management. Pacific Institute for Public Policy Research. San Francisco California, pp: 65-72.

19. Kerhoft, P., 1990. Agroforestry in Africa. A survey of project experience. In Foley, G. and G. Bernard (Eds.). Ponas Institute, London, pp: 10-41.
20. Pingali, A.A. and T.K. Biswanger, 1984. Sustainable production systems in arid savanna zones. *Journal of Development Studies*, 45: 58.