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TRADITIONAL FARMING PRACTICES: ESPOUSAL AND COMMITTED BY FARMERS IN NORTHERN SENATORIAL DISTRICTS OF GOMBE STATE, NORTH – EASTERN NIGERIA.

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ABSTRACT: *This study was conducted in the northern senatorial district of Gombe state which comprises of local government areas like Gombe, Dukku, Nafada, Funakaye and Kwami respectively. The objective of the research is to ascertained the use of traditional farming practice in the said study area, Quantitative and descriptive research design was adopted for this study and the cluster sampling technique were used to randomly select 50 farmers from each of the five clusters in the study area making a total of 250 farmers as sample size. Structured questionnaire containing nine different organic farming practices on two point scale of yes and no that indicate use or not use was administered. Data generated for this study was analyzed using mean and standard deviation whereby six out of nine traditional farming practices was found to be commonly used by the farmers which are: Farm sanitation (use of fire) (mean value = 1.83, standard deviation (SD) = 0.6), Use of animal manure (mean value = 1.75, SD = 0.5), Light tillage (mean value = 1.65, SD = 0.4), intercropping (mean value = 1.63, SD = 0.4), Use of cover crops (mean value = 1.55, SD = 0.3), Application of compost (mean value = 1.45, SD = 0.3). The trend of traditional farming practice used by the farmers in the study area shows that the above six practices are the prominent ones among the farmers, the demography of the respondents shows that farming is solely a venture of the men. However, this study recommended that farmers in the study area should have to increase their knowledge of the traditional farming practice for judicious and better conservation of soil, also they should adopt and increase their awareness of the traditional farming practices to drive home the benefits of eco-friendly nature of the practices. However, others include introduction of the practice as practical course in the curriculum of basic learning level and reorientation of the younger ones on the benefits of the practice ecologically and environmentally.*

KEYWORDS: Intercropping, Crop Rotation, Cover Crop, Mulching, Animal Manure

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INTRODUCTION

Traditional farming practice commonly known as organic farming is a coordination of planned attempt by the farmer to use the available natural resources in farming, prudently for copious harvest as well as maintaining the soil under cultivation in admirable form, it is an environment friendly approach to farming that guarantee ecosystem conservation devoid of external inputs especially the synthetic ones. Anderson, Green and Jolly (2005) affirmed that organic farming is a system of farming production that does not include the use of synthetic formulations and their relatives such as fertilizer, pesticide, growth regulators, livestock feed additives etc., traditional farming system / organic farming is all encompassing production management system that promote agro ecosystem health including biodiversity, biological cycles and soil biological activity. It capitalized on the importance of management practices in farming operations rather than usage of off - farm efforts, taking into cognizance that regional conditions require traditional indigenous adapted systems. This is achieved by using agronomic, biological and mechanical methods where possible as against the use of mock materials to satisfy any desirable function within the system (Food and Agricultural Organization (F.A.O), 1999). The F.A.O and World Health Organization (W.H.O) codex Alimentarius explain organic farming vis a vis agriculture as a full management practice which in its core lies the optimization of the health and productivity of interdependent communities of soil life, plants, animals and people. This is more than just production system but absolute rebranded and repackaged Agricultural system that has a single and primary goal of combined, caring, environmentally and economically worthwhile agricultural systems in which indigenous and on – farm renewable resources are enormously relied upon, and the use of mock materials and other peripheral inputs are abridged as per as possible.

One of the important indicators of any agricultural land usage and sustainability is the soil quality of which traditional farming practice is the leading system in that regard as observed by Marinari, Mancinelli, Campiglia and Grego (2006) in their studies on soil quality in Italy, that traditional farming upsurges soil nutrient availability through augmenting soil chemical and microbiological chattels (microbial biomass and microbial activity) which represent a set of subtle pointers for soil quality that translate into a better soil for good agricultural production.

Traditional farming practice in Northern senatorial district of Gombe state is an old age practice since before the coming of a white man and the post-independence discovery of limestone leading to the establishment of Ashaka cement factory later privatized and become Lafarge-Holcim Plc. as it is today, majority of people there are farmers as such their communities can be rightly describe as agrarian society, their experience as far farming even though they have not been to any contemporary Agricultural school, ranges from crop rotation, intercropping, mixed farming, mulching, preparation of animal manure etc. Furthermore, subsistence farming is the common practice even today in which farmers are competing to farm for the purpose of serving their families, but with market drive agenda; as such farming is all year round business. This study attempts to analyze the espousal and committed level of traditional farming practices among farmers in northern senatorial district of Gombe state, Nigeria as well as their demographic characteristics.

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METHODOLOGY

The study was conducted in Gombe north senatorial district of Gombe state in North-eastern geopolitical zone of Nigeria which comprises of five local government areas namely: Gombe, Kwami, funakaye, Dukku, and Nafada. Agriculture form the overall main drive of development in the zone, hence the choice of the study area. The zone covers an area ranging from true Guinea Savannah to real Sahel Savannah, mostly in areas bordering Yobe state at the far northern corner of the state (Table 1)

Table 1: Land Size, Population and Location of the Study Area.

Local Gov't	Land Size (Km^2)	Population	Latitude	Longitude	Ann. Rainfall Range (mm)	Ann. Temp. Range (^oC)
Gombe	52	2,365,040	10^o 15'N and 10.250^o N	11^o 10'E and 11.167^o E	750-900	21 - 40
Kwami	1,787	193,995	10^o 15'N and 10.252^{o}N	11^o 10'E and 11.168^{o}E	750-900	24 - 38
Funakaye	1,415	237,687	11^o 13N and 11.235^{o}N	12^o 8'E and 12^o 95'E	750-800	23 - 42
Dukku	3,815	207,658	10^o 29'N and 10^o 254'N	11^o 14'E and 11.175'E	750-850	22 – 40
Nafada	1,586	140,185	11^o 17'N and 11^o 18'N	12^o 9'E and 12^o 111'E	750-800	22 - 41

The research design of the study is descriptive and quantitative which is defined by Bless and Higson-Smith (2000), as a study concerned with the condition that exist, practices that prevail, beliefs and norms that are held, processes that are on-going and trends that are emerging. The study outlined traditional farming practices in northern senatorial district of Gombe state, Nigeria. The population of the study is the entire population of rain-fed and irrigation farmers in the study area, Cluster sampling technique was espoused for selecting the required sample of farmers. From collected works and preliminary surveys, farming in towns that are market oriented is mostly carried out along perennial sources of water or lowlands. This constrains farmers to clusters around these sources of water for irrigation purpose. Therefore, cluster sampling is considered appropriate. The sampling technique involves random selection of farmers from highest farming areas in the study area. A cluster of farmers was selected from each of the local government areas to give total of five clusters, fifty farmers were randomly selected from each of the five clusters to give a total sample size of 250 respondents for the study. Data for this study was generated from primary sources based on the objective of the study. Interview schedule was used to stimulate information from the respondents. The questionnaire consisted of nine organic farming practices commonly used by the farmers in the study area, from which the respondents indicated use and non-use. These practices are crop

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rotation, application of compost, mulching of crops, inter cropping, mixed cropping, use of crop residues, cover crop, animal manure, organic fertilizer, hand weeding, farm sanitation (use of fire).

RESULT AND DISCUSSION

Table 2: Traditional Farming practices use by the farmers

Traditional Farming practice	Mean	Standard Deviation (SD)
Crop Rotation	1.21	0.2
Application of Compost	1.45	0.3
Mulching of Crops	1.11	0.1
Intercropping	1.63	0.4
Light Tillage	1.65	0.4
Cover Crops	1.55	0.3
Animal Manure	1.75	0.5
Organic Fertilizer	1.24	0.2
Farm Sanitation (use of fire)	1.83	0.6

Source: Field Survey, 2017

From table 2, list of nine traditional farming practices were asked from the questionnaire of which the respondents' answers used or not used, using a two point scale of Yes and No. the actual mean is 1.3 due to the rating scale and the mean greater than 1.3 indicated the use of the practice by the farmers while less than 1.3 denote non-use, the mean score of six out of nine were above the actual mean which implies that those traditional practices were used by the farmers in the study area, however, three out of nine has a mean score of less than 1.3 which showed that those practices were not use by the farmers, these include: Crop rotation, Mulching, and use of organic fertilizer. The result also indicated that the most prominent traditional farming practice in the study area is the farm sanitation using fire (1.83, SD=0.6), where by it is a common practice particularly in the northern Nigeria to get farmers clearing their farms and maintaining of some sanitation using fire from time to time, such practice make the renowned writer Cyprian Ekwensi in his novel "the burning grass" in the opening pages make an allusion to this practice to characterized the northern Nigeria. However, farmers has the belief that preparing the soil with fire during clearing add nutrients to the soil because the ashes of the debris been burn can improve soil nutrients, so they believed. Second in ranking is the use of animal manure as fertilizer (1.75, SD= 0.5), manure from livestock goes a long way in improving and conserving soil organic matter level, an important aspect of soil health (Vanlauwe, 2004), more so, in Nigeria and indeed Africa the most common source of soil amendment in farming practices is animal compost manure as noted by Omiti *et al*., (1999). A study conducted by Mafongoya *et al.*, (2006) indicated that in Africa Animal manure is one of the greater source of soil nutrients but as the need for increased Agricultural production rises, due to population increase and industrialization it is found to be limited in quantity and quality.

Other traditional farming practices that are also prominent after these two above mention ones are: Intercropping (1.63, SD= 0.4) and Mixed Cropping (1.65, SD=0.4). Zhang and Long Li

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(2003) observed that soil nutrient efficiency usage is more in intercropping system than monocropping. Also Baumann *et al*., (2000) showed that intercropping as a cultural method can be used to check weeds and beat down the pest population because of the diversity of crops grown. Little tillage on the other hand is the cultural practice of minimum disturbance of the soil with the aim of improving soil structure, texture and moisture retention capacity for the purpose of integrated cultivation to achieved highest performance of crops in terms of growth and development. Under this practice the left over crop residue of previous year is left on the soil, so that erosion by wind and evaporation of water from the soil can be greatly reduced. The combination of light tillage and other good soil management practice can be used to build up soil structure, this practice is commonly used by many farmers across the world as noted by Baldwin (2006) and such farmers are known as conservational tillage practitioners. Other traditional farming practices that follows are: Compost application (1.45, SD=0.3), Cover Crop (1.55, SD=0.3), Hand Weeding (1.53, SD=0.3). Composting as observed by Singh and George (2012) in their article Awareness and beliefs of farmers in Uttrakhand India noted that compost manure has the capacity to improve the activity of beneficial micro and macro flora in the soil thereby fulfilling sufficiently the demands of crops in terms of soil nutrients. Also, Ouédraogo *et al*., (2001) showed that the role of compost in sustaining yield and improving soil quality were long been known by our farmers but lack of adequate training couple with unavailability of equipment's make it almost impossible in achieving adequate compost usage by our indigenous farmers, Olayide *et al*., (2011) in assessing farm-level limitations and potentials for organic agriculture in northern Nigeria, discovered that the current levels of compost use among the variables, in terms of minimum requirements for launching, in organic agriculture in Nigeria was low despite its promising prospects. Use of cover crops was well known among peasant farmers of northern Nigeria to reduce evaporation of water from the soil as well as erosion by wind, more so Dabney *et al*., (2001) in their treatise on plant analysis vis a vis soil and water quality through the use of cover crops asserted that cover crops improve soil quality via series of complex microbial and other physical soil parameters interaction, also Langdale *et al*., (1991) resolved that cover crops drop soil erosion by 62 per cent based on an evaluation of bare soil and soil planted with a cover crop in the south eastern United States of America.

The demographic characteristics of the respondents was shown in table 3 whereby the majority of the respondents are active population within the age bracket of 18 to 31 years, however all of them are men this reveals the fact that in northern senatorial district of Gombe state farming is exclusively a business of the men in which women are only found on farm as hired labor. The educational level of the respondents reveals that 40 percent of them are literate to the point of attending tertiary institution, however their monthly income is somehow meagre in the range of ₦10, 000 to ₦30, 000. Their household size can be considered average but on deeper analysis it points to the fact that there is population increase because about 70 percent have a household of 7 - 9 persons.

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Table 3: Demographic Characteristics of the Respondents

Demographic Characteristics	Categories (n =250)	Frequency	Percentage
Age	1- 30 years	137.50	55.0
	31- 60 years	106.25	42.5
	61- 90 years	6.25	2.5
Gender	Male	250	100.0
	Female	0.00	0.00
Marital Status	Married	125	50.0
	Divorcee	43.75	17.5
	Single	81.25	32.5
Educational Level	No formal education	50	20.0
	Primary education	50	20.0
	Secondary education	65	26.0
	Tertiary education	100	40.0
Monthly income (in Naira)	10,000 – 30,000	200	80.0
	30,001 – 50,000	30	20.0
	50,001 – 70,000	0	0.0
Household size	1-3 persons	20	8.0
	4-6 persons	75	30.0
	7-9 persons	175	70.0
	10- many	20	8.0

Source: Field survey, 2018

CONCLUSION AND RECOMMENDATIONS

This study shows the trend of traditional farming practices adopted by farmers in the Northern senatorial district of Gombe state, some of these practices are popular with the farmers in the study area whereas others are less prominent. Following are some of the recommendations this study made:

(a) Farmers in the study area should have to increase their knowledge of traditional farming practices (light tillage, intercropping etc.) to enable them achieve better use of soil (soil conservation).

(b) They should also adopt and increase their awareness of the traditional farming practices to enable them drive home the benefits of traditional farming practices which are highly eco-friendly.

(c) Farmers and other stakeholders should educate and reorient the younger ones on the benefits of traditional farming practices ecologically and environmentally wise

(d) The schools in the area should include these traditional farming practices as a practical course in their curriculum at the basic level of learning

(e) Extension agents and the farmers should give this knowledge a priority in their quest for lasting solution to the soil degradation and desert encroachment in the study area

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