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ABSTRACT

This study assessed the influence of information sources on farmers' indigenous knowledge on soil fertility management in Nigeria. Multi-stage sampling technique was employed to select one hundred and eighty respondents and the instrument for data collection was the questionnaire. Data collected were analyzed using descriptive statistics of simple frequency and percentage. The findings show that majority of the farmers sampled were female 57.2%, single 50.5%; and tertiary education 39.5%. The result on the sources of farmers' information about soil fertility management indicated that television was 31.7%, and social media accounted for 31.1% of the total respondents while extension agents accounted for 22.2%. Indigenous ways of determining soil fertility by respondents was by crop appearance 55.5% followed by 22.2% for soil color, whereas indigenous way of soil fertility management by respondents was shifting cultivation 22.2%. Information source highly influence indigenous soil fertility management. It is recommended that government should increase their support for agricultural extension services to fulfill their mandate of appropriate information dissemination to farmers.

KEYWORDS: Information, influence, indigenous knowledge, management, soil fertility

INTRODUCTION

Information sources play key role in communicating innovative technologies to the ultimate users making them not only aware of the useful information but also create interest, promote understanding, assist in mental evaluation and ultimately motivating them for adoption (Gupta & De, 2011). Besides, information is the most essential element in the decision making process. The value of information is directly dependent on its content, relevance and timeliness. In this context, to access the right information at the right time, users have to be aware of the various sources of information, the services being offered and existing information systems (Mosharraf et al. 2009, Jain, 2007). According to Idiku et al., (2020) information is a management and decision-making tool. Information has been considered as an important input and factor for agriculture and rural development (Garforth*et al.,* 2003). . Tadesse (2008) defined agricultural information source as the various sets of information and messages that are relevant to agricultural production activities of farmers and contribute significantly to agricultural production. There are various types of information on agriculture related activities. These could include information on crop production and protection, livestock production, agro-forestry, pest and diseases control, fertilizer availability and application, agricultural credit facilities, market prices, improved seeds varieties, rainfall gauge and so on. Oduwale and Ikhizma (2013) identified various types of agricultural information, such as information on pest and diseases control, services available from government and private organizations, marketing farm produce, credit and loan facilities to farmers, utilization of fertilizer etc.

Knowledge derived from formal research, or developed in other localities, can stimulate new thinking and practices (Figueroa *et al.,* 2002). So it is evident that for agricultural development proper dissemination of information is highly necessary. Information has received a wide range

of acceptance as an essential resource of this century. It has been described as a simulating creativity, resulting in new outcomes and processes. The major function of information is to increase the knowledge of the user, to reduce his level of uncertainty or reduce the varieties of choices available to the users of information. For information to be effective, it must be accurate, timely and relevant. Ayanyemi (2006) referred to information as an essential resource for individual growth and survival. An informed mind is an enriched mind and if one is not informed he will be deformed. Information is a common term. It is often in the mouth of people, attracting diverse and ambivalent meanings and interpretations. Uhegbu (2007) opined that hardly can one mention the word 'information' without referring to somebody; the educated understand information from their various backgrounds. Improving farmers' knowledge and their capacity to observe and experiment is an essential element in the development of Integrated Soil Fertility Management (ISFM). Indigenous knowledge in the form now-how and cultural practices is the set of tools that communities use to manage natural resources, which include genetic resources, the building blocks of biodiversity and agriculture (Eyzaguirre, 2001). According to Ashley (2000), indigenous knowledge, is a science of adjustment and adaptation, which is produced by and reflects the interest of local farmers as a group within society. Traditional farming involves the development of knowledge and skills and the various processes that take place within the farm are generally well understood (Ashley, 2000). It is also important to build on local systems of knowledge, as they relate to specific locations and are based on experience and understanding of local conditions of production. Such systems are a source of site-specific ecological information, and provide the key to understanding peoples' socio-cultural background.

There is a drastic decline in soil fertility in several parts of Sub-Saharan Africa (SSA) and inadequate supply of nutrients is one of the major constraints to crop production by smallholder

farmers. Thus, farmers are either practicing shifting cultivation or bush fallowing by abandoning the entire land to regain fertility before returning to them or the use of inorganic fertilizers to replenish soil fertility. More so, even the use of mineral fertilizers is declining as well due to high cost and unavailability in planting season; hence, sustaining soil fertility has become a major issue in agricultural development. However, there have been total disregard for farmers indigenous knowledge on soil fertility management especially where to obtain information for proper guidance. Several studies have been undertaken to assess local knowledge about soils. Research in this area has predominantly focused on documenting how farmers classify their soils (Talawar & Rhoades, 1997). Less attention has been paid to studying and understanding how soil fertility is perceived and managed at farm level, and how various physical, economic and socio-cultural factors interact. It is against this background that this study intend to characterize and understand farmers' perceptions and technological knowledge of soil fertility in Nigeria by showing how the prevalent sources of information influence indigenous soil fertility management practices in Cross River State.

METHODOLOGY

This study was conducted in Cross River, one of the thirty-six states in Nigeria and the Federal Capital Territory. The State comprises eighteen (18) Local Government Areas and is multi-ethnic with diverse cultural groups and languages and situated within the tropics sharing common boundaries with Cameroon Republic in the East, Benue State in the North, Enugu and Abia States in the West and Akwa-Ibom State in the South. Cross River State is divided into three agricultural zones, namely: the Calabar agricultural zone in the Southern part of the state, the Ikom agricultural zone in the Central part of the state and Ogoja agricultural zone in the Northern part of the state. The mangrove and rain forest belts covering Calabar agricultural zone

in the South lies between latitudes 8°10' and 8°51' East and longitudes 8°10' and 5°50' North, the predominantly rainforest belt of Ikom agricultural zone lies between latitudes 5°51' and 6°40' North and longitudes 8°10' and 8°51' East and the Northern Savannah Belt with fringes of rain forest covering Ogoja agricultural zone lies between latitudes 6°40' and 6°58' North and longitudes 8^{8}50' and 8°31' East. Cross River State has a typical tropical humid climate characterized by distinct wet and dry seasons known as the rainy and dry seasons. There are a variety of wildlife species such as chimpanzees, gorillas, leopards, reptiles, monkeys and buffaloes. The rivers, creek and coastal waters breed rich species of shrimps, fishes etc. Animal breeding pastures are extensive on the grassland of Obudu Plateau or Cattle Ranch and Gabu in Yala Local Government Area.

The research design adopted for this study was survey research design. Multi-stage sampling technique was employed to select one hundred and eighty respondents. In the first stage, two agricultural blocks were selected from the three agricultural zones in the state making a total of six (6) blocks. The second stage involved the selection of three (3) agricultural cells from the selected blocks making a total of eighteen (18) cells and the third stage was the selection of ten respondents each from the agricultural cells to make one hundred and eighty (180) respondents.

The instrument for data collection was the questionnaire and data collected were analyze using descriptive statistics of simple frequency and percentage.

Table 1: Demographic data of Respondents N = 180

VARIABLES		FREQUENCY	PERCENTAGE
GENDER	Male	77	42.8
	Female	103	57.2
	Total	180	100
MARRITAL STATUS	Single	91	50.5
	Married	73	40.5
	Divorced	16	9.0
	Widowed	0	0

	Total	180	100
EDUCATIONAL QUALIFICATION	No education	19	10.5
	Primary	22	12.2
	Secondary	68	37.8
	Tertiary	71	39.5
	Total	180	100
SOURCES OF INFORMATION	Radio	45	25.0
	Television	57	31.7
	Newspaper	18	10.0
	Social media	56	31.1
	Village meetings	14	7.8
	Age grade	50	27.8
	Extension Agents	40	22.2
	Others	25	13.9

Source: Field survey, 2021

The result shows that majority of the farmers sampled were female with 57.2% while marital status showed that 50.5% of the respondents were single, and educational qualification of 39.5%. The result on the sources of farmers' information about soil fertility management indicated that 31.7% of respondents got information through television followed by 31.1% from social media and age grade 27.8%. Those that said they heard from and those that heard via Newspapers were only 10.0% respectively. Social media accounted for 31.1% of the total respondents. Village meeting was the least with only 7.8% while age grade accounted for 27.8% of the total respondents sampled. 22.2% of the respondents got information through extension agents. Those that indicated other sources were only 13.9%.The result is agreement with the studies of Gupta & De,(2011).

Table 2: Indigenous ways of determining soil Fertility

Fertility	**Frequency**	**Percentage**
Soil colour	40	22.2
Crop appearance	100	55.5

Crop appearance & soil colour	20	11.1
Crop yield	10	5.5
Soil texture	10	5.5
Total	**180**	**100,0**

Source: Field survey 2021

The result of Table 2 shows the indigenous ways of determining soil fertility by respondents. The result indicated that 55.5% of the respondents agreed that it was by crop appearance of the soil, followed by 22.2% for soil color and 11.1% for crop appearance and soil color. Others include 5.5% for both crop yield and soil texture. This result agrees with the assertions by Ashley (2000) and Eyzaguirre, (2001) the traditional farming involves the development of knowledge and skills and the various processes that take place within the farm are generally well understood. In other words, the indigenous knowledge of the farmers should not be disregarded in matters of soil fertility management.

Table 3: Indigenous soil fertility management system

Management method	**Frequency**	**Percentage**
Shifting cultivation	40	22.2
Crop rotation	20	11.1
Application of crop residues	10	5.5
Use of animal dung	5	2.8
Use of compost manure	10	5.5
Application of inorganic fertilizer	10	5.5
Shifting cultivation and use of animal dung	15	8.3
Crop rotation and use of plants residues	12	6.7
Crop rotation and compost manure	8	4.4
Crop rotation and inorganic fertilizer	3	1.7
Shifting cultivation and use of plant residue	12	6.7

Shifting cultivation, crop rotation and compost manure	8	4.4
Shifting cultivation, crop rotation and Animal dung	9	5.0
Crop rotation, organic fertilizer and compost manure	8	4.4
Total	**180**	**100.0**

Source: Field survey, 2021

Table 3 result shows the indigenous ways of soil fertility management where 22.2% of the respondents used shifting cultivation, 11.1% used crop rotation method, followed by 8.3% of a combination of shifting cultivation and use of animal dung; and 6.7% crop rotation and use of plant residues and shifting cultivation and use of plant residues respectively. Others include 5.5% the application of crop residues, use of compost manure and application of inorganic fertilizer etc. In other words, the respondents used a combination of different methods thereby showcasing their indigenous expert knowledge on soil fertility management depending on the soil types and conditions. This result corroborates the findings of Ashley (2000) that indigenous knowledge is a science of adjustment and adaptation which is produced by and reflects the interest of local farmers as a group within society.

Conclusion and Recommendations

Sources of information significantly influence farmers' indigenous knowledge of soil fertility management in Nigeria. Hence, all sources of information should be made relevant to farmers. Mass media especially Television and Radio should always incorporate effective and efficient agricultural programmes to assist farmers increase their indigenous knowledge on soil fertility management and government should increase their support for agricultural extension services to fulfill their mandate of appropriate information dissemination to farmers.

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