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ENVIRONMENTAL AWARENESS CREATION THROUGH EXTENSION OFFICERS AND SUSTAINABLE CROP FARMING AMONG FEMALE FARMERS IN CROSS RIVER STATE, NIGERIA.

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ABSTRACT

This study investigated the extent to which environmental awareness creation through extension officers influences sustainable crop farming among female farmers in Cross River State, Nigeria. To achieve the purpose of this study, one hypothesis was formulated to guide the study. Literature review was carried out accordingly. Survey research design was adopted for the study. A sample of seven hundred and ninety-one (791) respondents was used for the study. The sample was selected through stratified and simple random sampling techniques. A four-point modified Likert scale instrument entitled Environmental Awareness Creation through Extension Officers and Sustainable Crop Farming Questionnaire and Focus Group Discussion (EACTEOSCFQFGD). The questionnaire and focus group discussion was the main instrument used for data collection. The reliability estimate of the instruments was established through Cronbach Alpha reliability method .077. Regression analysis was the statistical technique employed to test the hypotheses under study. Each hypothesis was tested at .05 level of significance. The result of the analysis revealed that, extension officers significantly influenced sustainable crop farming. Based on the findings of the study, it was recommended that awareness creation through extension officers should be recommended to increase farmers' awareness of the Health implications of Agro-chemicals they use and also to increase crop yield This should be done by educating female farmers through interactive discussion and training sessions on the field and incorporate safety use of Agro-chemicals in our educational curriculum.

Keywords: Environmental Awareness, Extension Officers, Sustainable Crop Farming and Female Farmers.

Introduction

The practice of crop farming has been in existence since the inception of man on planet earth. Immediately after the hunting and gathering stage, man began to look for a better way of sustaining his family by providing food for them. People therefore started growing different types of food crops

such as rice, wheat, sugar-cane, maize, soya beans, beans, potatoes, vegetables, palm oil, cassava, yam, coco-yam, water-yam, ground nuts, millets, melon, bene- seeds, bananas, and others. Crop farming is very useful to man and the environment. It provides food for man's consumption. Food crops such as cassava, yam, beans, maize, wheat, rice, groundnuts and others are products of crop farming. Through crop farming different types of nuts and oil are produced.

Despite the importance of crop farming to man, most women farmers globally and in the area of study are yet to adopt strategies that will lead to sustainable crop farming. Sustainable crop farming is a way of growing or raising crops in an ecologically and ethically dependable method. This includes adhering to standard Agricultural practices that do not harm the environment, provide fair treatment to farmers, support and sustain local communities. Sustainable crop farming is in contrasts to industrial crop farming, which generally relies on monocropping, intensive application of fertilizers, heavy use of pesticides, and other inputs that are degrading the environment. Crop farming that is based on sustainable practices leads to higher yields over time, with less need for expensive and environmentally damaging inputs.

Unsustainable crop farming has contributed greatly to environmental degradation through Agricultural expansion and practices. Some of these problems are orchestrated by the type of crops and farming activities adopted by individual farmers in carrying out their daily farming operations. Some practices include the opening up of new forestland for the purpose of Agricultural expansion, over grazing, indiscriminate bush burning, deforestation, slash and burn, farming methods, the use and application of obnoxious and poisonous Agro-chemicals for reducing weeds and herbs, for pests, insects and disease control and for preservation of Agricultural produce during storages. These and many other farming activities have contributed seriously to environmental pollution, erosion, flooding, and desertification leading to adverse environmental problems facing man today. In Ulayi ,Okpe & Omang (2021) opined that deforestation has contribution greatly to erosion. Soil erosion in deforested watershed increase water turbidity and accelerates the leaching of soil nutrients which affects female farmers.

The Concept of Environmental Awareness

Environmental awareness has to do with the knowledge about environmental situation orchestrated by the farmers in the course of carrying out their farming activities and the knowledge of the extent to which environmental awareness and its resources including all the services provided by the environment can carry the type of crop farming done by the farmers .According to Ayoola (2008) this critical stage, of our environmental concern global climate regime change, resulting in high rainfall, high temperature, poor crop production, increased crop pest and sudden inversion of exotic grass species destroying our agricultural lands, it is

necessary that sound environmental awareness creation through extension workers and policies designed, adopted and transmitted to the rural female farmers to guide them on farming operations thereby guaranteeing continuous and sustainable crop farming activities. Ntongha and Ubana (2026) asserts that environmental education is a potent tool to national development. Augustine et al (2025) sees community environmental education as a significant instrument for environmental protection.

Mabe & Danso Abbeam (2017) further investigated the concept of environmental awareness strategy and sustainable agricultural practices in Kenya. To him environmental awareness refers to the inculcation of enlightenment about general environmental aspects related to pollution(air, water, soil, and land), biosphere, and energy conservation, conservation of natural resources including wild life population, and environmental issues. Ecological behavior is the actions or activities which contribute towards environmental preservation and conservation. Andong et al (2025) sees games and simulations as method for adult education environmental management. Environmental education is an important tool through which the goal for awareness among the masses particularly among female farmers in order to adopt more environmentally friendly agricultural practices in the rural areas.

The Concept of Sustainable crop farming

A crop is a plant that can be grown and harvested extensively for profit or subsistence. Crop may refer either to the harvested parts or to the harvest in a more refined state. Most crops are cultivated in agriculture or aquaculture. Sustainable crop farming refers to agricultural production in such a way that does not impose harm to environment, biodiversity and quality of agricultural crops. Producing crops sustainably increases the ability of the system (Pretty, Toulmin & Williams, 2011). Sustainable crop farming seeks to optimize skills and technology to reduce environmental degrading thus enhancing sustainable environmental practices. Sustainable crop farming is considered to be the methods of farming which is based on principles of ecology. It is an integrated system in which plant production practices have a site- specific application which has long term benefits. Sustainable crop farming not only satisfies human food and fiber need but also enhances quality of environment and quality of natural resources; agricultural ecosystem in such a way that maintains its biological diversity, productivity, regeneration capacity, vitality and ability to function well without devastating the environment.

Ulayi *et al.* (2025) advocate that sustainable crop farming involves cultivating crops through methods that conserves natural resources, improve soil quality, and ensure long- term food security. It includes practices such as: crop rotation, integrated pest management, organic fertilizer, and water

conservation. These approaches help reduce the use of synthetic inputs while promoting the regeneration of ecosystem. The grace communication foundation (2017) states that sustainability preserves the environment: examples are good practices such as crop rotation to improve soil health and reduce plant diseases. Pasture based grazing and livestock integrated into crop rotation system to improve the land.

Information on crop farming importance is transmitted to farmers on better farming system because of the diverse issues associated with unsustainable farming practices; there is urgent need to ascertain the best medium to create environmental awareness among female farmers. To be able to create the needed awareness to enable female farmers adopt more environmentally friendly practices for crop farming, the public campaigns is a necessary tool in creating that needed awareness. the broadcast media is to inform and educate the People, because it can play an important role in awareness creation bringing about change in attitude. Scientists and policy makers have been communicating issues of environmental problems to the Public through the broadcast media which have been a subject of major interest because of its implication for creating national public understanding of global environmental issues. The use of Agro-chemicals that have been banned in other countries, the ecological impacts of these agro-chemicals, the new technologies available to farmers, the replacement of improved varieties of crops in place of traditional crop species, the patronage of genetically modified organism which are fast yielding to lower producing traditional crops by local fanners among others (Zhen & Zoebisch, 2006; Wright, 2009; Arfini & Donati, 2013).

Reimer, Thompson and Prokopy (2012) observed that awareness creation through public enlightenment campaign carried out in their study have identified methods for effective awareness creation using a sample of 450 farmers in Punjab District of India, chi square analysis was used to analyze data, the result shows a positive relationship between Mass media and Environmental awareness creation. In another multidimensional study, the Authors observed that series of attempts to understand farmer conservation behavior based on quantitative socio-demographic, attitude, and awareness variables have been largely inconclusive. Therefore, in order to understand fully how farmers are making conservation decisions during their agricultural practices, 32 in-depth interviews were conducted in the Eagle Creek watershed in central Indiana. Through effective awareness creation, coding for environmental attitudes and practice adoption revealed several dominant themes, representing multidimensional aspects of environmental attitude. Reimer (2012)

In the related study carried out by Ulayi, Betiang, Acha Arikpo ,Udie & Ojong (2023) investigates the awareness creation through public enlightenment campaign in Cross River State Nigeria. To achieve the selected objective of the study four research hypotheses were formulated to direct the

study and based on the findings of the study it was recommended that female farmers awareness should be intensify to incorporate safety use of Agro chemicals.

More so unsustainable crop farming in areas such as monocropping, crop rotation, shifting cultivation, and others causes deforestation, erosion, flooding, biodiversity depletion, global warming and exposure of soil to harsh climatic conditions and even loss of soil fertility. Unsustainable crop farming is in contrast to mechanized crop farming which generally relies on monocropping, application of fertilizers, heavy use of pesticide or herbicide and other inputs that degrade the environment. Also, socio-economic and environmental degradation of human race is associated with unsustainable crop farming there is a shortage of domestic fuel wood and industrial timber, loss of genetic resources, destruction of wildlife habitats, decline of watershed and desert encroachment.

Environmental awareness on the other hand has to do with the knowledge about environmental situation orchestrated by the farmers in the course of carrying out their farming activities and the knowledge of the extent to which environmental awareness and its resources including all the services provided by the environment can carry the type of Agricultural practices as done by the farmers. At this critical stage of our environmental concern, global climate regime change, resulting in high rainfall, high temperature, poor crop production, increased crop pest and the sudden inversion of exotic grass species destroying our Agricultural lands, it is necessary that sound environmental awareness creation strategies and policies be designed, adopted and transmitted to the rural female farmers to guide them on farming operations thereby guaranteeing continuous and sustainable agricultural production.

These could be used to communicate new ideas to farmers, especially the rural female farmers who need this information most on environmentally friendly systems of Agriculture like using organic manure or fertilizer on farming activities instead of synthetic manure which has a debilitating influence on the environment and humans. To practice rotational crop production instead of opening up new forest land exposes the soil and forests to species extinction and carbon accumulation. It could also be to advise and discourage obnoxious Agricultural practices like deforestation, opening up of new forest land for Agriculture with species destroyed and facing extinction, the use of Agrochemicals without making reference to the environmental standards set and the manufacturer's instruction on the use and application of Agrochemical.

Statement of the problem

Farming is the economic mainstay of most rural communities. Crop farming accounts for more than 89% of most rural economies, where food crops and animals are produced for family consumption and left overs for markets. Even in the cities, most residents engage in one form of farming or the other to augment their meager earnings. In most rural

communities, urban residents provide the market where rural communities sell their farm produce. With the increase in human population year in year out, there are more mouths to be fed daily and as such there is pressure on fragile arable lands for farming by rural farmers to increase their production capacities and also to increase their income from agricultural produces.

In the course of attempting to improve their yields to boost their income and have enough food for their family consumption, farmers have gone the extra mile in using all unfriendly methods of farming activities that are harmful to the environment. Farmers have resorted to the use of obnoxious agrochemicals like herbicides, insecticides, pesticides, inorganic fertilizers and preservatives. These have negative impacts on the environment (in terms of point and non-point pollution of the environment) including biotic species found within such an ecosystem. Where these chemicals fail to produce the desired yields, these farmers open new farmlands destroying the soil microorganisms that regulate soil fertility. Watersheds are destroyed during these crop farming activities operations accompanied by deforestation and bush burning, leading to shrinking of water bodies, exposure of marginal arable farmlands to drought and desertification, erosion and habitat destruction. The result is the migration of wildlife species.

In some cases, in animal husbandry, farmlands are grazed and crops destroyed, hunger sets in. This may also lead to communal clashes between farmers and herdsmen as is the case in most parts of Nigeria and most Sub- Saharan African regions. In all of these, environmental conditions are altered and there is an urgent need to halt these crop farming activities that are not environmentally sustainable. Knowing full well that these female farmers must meet their daily livelihood challenges, the only way to encourage farmers to imbibe environmentally friendly agricultural practices is not putting total ban or restriction on crop farming activities, but to either provide feasible and safe alternatives and to create the needed awareness on the effects of sustainable crop farming. This issue has over the years attracted attention of both scholars and other stakeholders in the agricultural sector.

Concerned with the lack of meaningful development and the attendant consequences, the government at various levels has done a lot to improve the awareness on proper and sustainable agricultural practices in order to ameliorate the effect of unfriendly crop farming on the environment. Regrettably, in spite of the government's efforts in curbing this malaise, observation shows that most rural farmers in Cross River State still lack this awareness and consciousness for sustainable crop farming. Proper environmental awareness creative strategies seem to be the only solution out of these situations.

The study therefore seeks to find out whether awareness creation through extension officers and mass media influence

sustainable crop farming in Cross River State, Nigeria.

Awareness creation through extension officers and sustainable crop farming

During the past fifty years, Agricultural Development Policies have been remarkably successful at emphasizing external inputs as the means to increase food production. This has led to growth in global consumption of pesticides, inorganic fertilizer, animal feed-stuffs, tractors and other machinery. These external inputs have, however, substituted for natural processes and resources, rendering them less powerful. Pesticides have replaced biological, cultural, and mechanical methods for controlling pests, weeds, and diseases; inorganic fertilizers have substituted for livestock manures, composts, and nitrogen-fixing crops; Information for Management decisions comes from Input suppliers, Researchers, and Extensionists rather than from local sources; and fossil fuels have substituted for locally generated energy sources. The basic challenge for sustainable crop farming is to make better use of these internal resources. This can be done by minimizing the external inputs used, by regenerating internal resources more effectively, or by combinations of both (Rogers 2020).

Evidence is now emerging that regenerative and resource-conserving technologies and practices can bring both environmental and economic benefits to farmers, communities, and nations. The best evidence comes from countries of Africa, Asia, and Latin America, where the concern is to increase food production in areas where farming has been largely untouched by modem packages of externally supplied technologies. In these complex and remote lands, some farmers and communities adopting regenerative technologies have substantially improved Agricultural yields, often using only few or no external inputs (Pretty, 2015). Ubana et al (2025) opined that harnessing security approach and artificial intelligence (AI) as tools to combat corrupt/unethical practices.

Extension Officers as professionals are supposed to have a more objective view of Agricultural programmes since they are to disseminate information concerning Agriculture to farmers. Extension Officers are also aware that their credibility is at stake if they pass on worthless information to farmers. This study would therefore focus mainly on Female farmers and extension officers this is in order to obtain a balanced view of issues arising from Government's Agricultural policies and programmes.

Agricultural extension officers train farmers on the use of resource-conserving technologies such as Integrated Pest Management, Soil and Water Conservation, Nutrient recycling, Multiple cropping, Water harvesting, Waste recycling and others In all, there has been action by groups and communities at the local level, with farmers becoming experts at managing farms as ecosystems and at collectively managing the watersheds or other resource units of which their farms form a part. And there have also been supportive and enabling Government and Non-governmental bodies and

Institutions, which have reoriented their activities to focus on local needs and capabilities.

A necessary condition for sustainable crop farming is that large numbers of farming households particularly the female must be motivated to use coordinated resource management and technologies. This could be for Pest and Predator management, Nutrient management, controlling the contamination of aquifers and surface water courses, coordinated livestock management, conserving soil and water resources, and seed stock management. The problem is that, in most places, platforms for collective decision making have not been established to manage such resources. Ubana et al (2025) asserts that provision of rural water services promotes community development. For some communities such resources are managed by the various village groups (Röling, 2014). The success of sustainable crop farming therefore depends not just on the motivations, skills, and knowledge of individual female farmers, but on action taken by groups or communities as a whole.

Clinton and David (2016) supported that extension workers play an active role in the lives of rural communities in virtually every part of the country. Traditional cropping system based on local informal knowledge by Extension workers have been practiced to ensure food security. However, this is yet to be achieved in some rural areas where Extension workers are not sent to. They also added that the Extension workers activities transfer knowledge in a valuable, adaptable and necessary in coping with risk and uncertainties in a changing world while cautioning against a misguided notion or traditional knowledge as a panacea to all the ills of local Agriculture.

Organization for International cooperation in high education (OICHE) (2023) upholds that knowledge from Extension officers has been shaped and modified to help control the farming activities. It is associated with skills that have been developed outside the formal educational system and is embedded in culture and steeped in tradition. Its basis is for decision making in rural communities with respect to food security, human and animal health, Education and natural resource management.

Oiche (2023) mentioned that characteristics of Extension workers' knowledge is localized in nature and more often than not, traditional in context, it is unique to specific environmental and cultural conditions, its knowledge is constructed in informal setting, orally transmitted and rarely documented, the knowledge is dynamic adaptive and holistic in nature and is a significant part of the way of life and subsistence of rural peoples in that locality. In Ulayi, Arikpo, Anthony & Tawo (2022) therefore stress that education is an indispensable tool for socio-economic and technological transformation of any society however; provision of quality education at any level needs experts so also is for sustainable crop farming to strive there must adequate communication through extension officers to female farmers. Emmanuel et al (2025) opined that valued education

curriculum in secondary schools promotes sustainable development in Nigeria.

Adeyeye (2017) sees extension officers as people who continuously strive to bring about changes in the behavior of farmers and their families. They want farmers to discard the old method of farming and follow the new techniques. They try to show farmers merit of better and improved seed/seedlings of chemicals, fertilizers of effective insecticides and with the profit that will follow their uses to provide more and better food for their families, better clothing and housing and happier living. Agnes et al (2025) asserts that behavioral and contextual predictors of sustainable crop farming among rural farmers plays a significant role to the mediation of eco-friendly practices.

Ifedha and Julius (2015) investigated the role of Agricultural Extension officers in promoting sustainable crop farming in Esan Central and Esan West Local Government Areas of Edo State. The researchers adopted descriptive research design. A sample of 285 female farmers is selected using convenience sampling technique. The hypothesis was analyzed using independent t-test and tested at .5 level of significance and 283 degrees of freedom. The research revealed that Agricultural extension workers play a significant role in promoting sustainable crop farming among the people.

Richardson (2019) carried out a study to examine the relationship between Extension officers' contribution to awareness creation and sustainable crop farming among farmers in Irepodun Local Government Area of Kwara State. The study was carried out with all 230 Extension workers in different directorates all over the state. The questionnaire was constructed with the help of experts in the Department of Agricultural Extension and Economics, College of Agriculture, University of Ibadan. The reliability of the summated values from section two (attitudes of extension workers towards the use of crop farming) from the data was verified by calculating the Cronbach's alpha. The Cronbach's alpha coefficient calculated for the scale was 0.80. Spearman rank correlation was used to analyze the relationship between the extension workers role in awareness creation and sustainable crop farming. The result shows a significant relationship between Extension workers' contribution to awareness creation and sustainable crop farming among female farmers

Extension methods are devices implemented to set up situations in which new information and knowledge can pass freely between Extension workers and female farmers' Mass extension methods such as television, radio, circular letters, newspapers, banners, magazines, and brochures were successfully used in several countries to carry out Extension Educational Programmes. Modern communication tools play a key role in improving the availability of market information and farmer assistance in developing countries. There is a dire need to utilize information technology to access the most recent information at a reduced cost relative to the existing system, which is

plentiful with human imperfections and affectations.

Omotayo (2015) examined the relevance of Agricultural extension services on crop farming in Kogi West, Kogi state. Nigeria. Data were collected by using structured interview schedule administered on 112 farmers which was the sample for the study. Descriptive statistics such as frequency counts, percentages were used for the analysis and t-test were used to test the stated hypothesis. Results shows that (77.7%) of the respondents were between the age category of 31-50years, while 74.1% were male, 58.9% had no formal Education while 40.2% had low level of Education. Respondents indicated relevance of crop introduced by extension officers. Findings also show that there was significant difference between Agricultural extension services and crop farming.

According to Omotayo (2015) observed that there is need for motivation of Extension Offices through adequate provision of field operation facilities in order to encourage their commitment and dedication to duty. Extension agents should read ahead of time from the outcome of last planting season to know the information needed for the farmers, Omotayo (2015) corroborated this statement that a number of developments in many developing countries were shaping the future of Extension services and setting the stage for better performance to channel farm produce for surplus and storage for food security. In addition the need of improved services from Extension officers, the use of Mass media is of essence to enhance farmers' information literacy through the use of television, projectors, advertisements that will help the Farmers and Agricultural Investors to know where a particular produce is available in large quantities.

According to (Oladeji 2011) and Meitei, 2009.), use of different methods to disseminate information to farmers because limited manpower of Agricultural Extension Officers will positively affect the level of farmers information literacy in rural remote areas. Therefore, advertisements in different format is proposed as a good way of promoting awareness among farmers and investors, Oladeji (2011) opine that Agricultural advertisements in newspaper are vanguard for awareness creation to boost Agricultural enterprise and dissemination of Agricultural information to wider reach in and outside farming population. This channel will give first-hand information to whoever could buy farm produce in large quantity for industrial use and storage. It is of note that storage facilities for Agricultural produce are highly insufficient among the rural farmers; this brings much spoilage at the peak of harvesting. Agricultural cooperative is another channel for farmers' awareness and information literacy for improved farm produce towards food security. Creation of Agricultural farm centers for town meeting, where generated information by librarians can be processed and made available to farmers at need would be of importance to boost farmers' information literacy.

Lack of awareness of the importance of the Librarian's roles compound problems of

limited manpower in all these, Librarian could be empowered to disseminate information to farmers through the use of film slides and more. Fadama III project in Osun State is an organization that plays a frontal role of coordinating farmers' information needs and disseminating same through awareness program among local farmers in different communities (Fadama III website). The dearth of Agricultural information flow and awareness among local farmers has considerably reduced farming and storage of farm produce to enhance foods security. It is against this background that this study cares to find out how Fadama III project is solving these problems in Osun State, Nigeria

According to Oladeji (2011) and Meitei (2009), the use of different means of environmental awareness creation to disseminate information to farmers through Agricultural Extension Officers positively affects the level of Female farmers' information literacy in rural remote areas as well as enhancing their crop yield. Oladeji (2011) opined that sustainable crop farming is possible with the help of effective and efficient awareness creation strategies embarked upon by the various Agencies. Extension officers play a frontal role in Agricultural awareness creation among rural farmers.

Yusuf, Yinusa and Bamgbose (2015) investigated perception of farmers on factors responsible for high Agricultural yield among Female farmers in Bauchi State. The study used a descriptive design. A sample of two hundred (200) female formed the participants for the study. A questionnaire titled: Perception of Farmers on Factors Responsible for High Agricultural Yield (PFFRHAYQ) was used for data collection. Data collected were analyzed using frequency counts, mean scores and ANOVA statistical analysis. The findings of the study revealed a high perception of farmers on factors responsible for high Agricultural yield. A significant difference was found between perception of farmers and factors responsible for high Agricultural yield among female farmers.

Obarisiagbon (2015) examined the role of Extension officers on female farmers' crop output in Edo State. A sample of 420 female farmers was drawn from the Population using stratified sampling technique. Qualitative and quantitative methods were used to gather data and with the aid of simple percentage and content analysis. Descriptive statistics were used in data presentation and analysis. The study revealed that extension officers play a significant role on female farmers' crop output in Edo State. Their roles include teaching the rural female farmers on the new and improved ways of doing farm work.

Olutola, Olatoye and Olatoye (2016) investigated the impact of extension services on sustainable Agricultural practices among female farmers in Ogun State. The descriptive survey design was adopted for these study 381 female farmers were drawn from the Population using stratified and simple random techniques. Researchers'-designed questionnaire titled Extension

Services on Sustainable crop farming Questionnaire (ESSCFQ) were used to collect data for the study. Analysis of data was carried out using frequency, percentage, mean and Pearson correlation statistics at 0.05 alpha level. Findings revealed that there is significant impact of extension services on sustainable crop farming.

Methodology

The study adopted the survey research design. Isangedighi, Joshua, Asim and Ekuri (2004) described survey research design as a design that samples a representation of a population for an in-depth study, where findings can be generalized to the entire population. The population of the study was 102,882 female farmers across the 18 Local Government Areas of Cross River State Ministry of Agriculture, 2017.

The stratified sampling technique was adopted for this study. The stratification was based on three senatorial districts in the state. In each of the senatorial districts, 40 percent of the local government areas were selected given seven local government areas. To select the sample of the female farmers from senatorial districts three local government areas were selected from southern senatorial district and two communities from each local government making six communities and two local government each from North and Central senatorial districts and two communities were selected making total of eight communities using random sampling technique making a total of fourteen communities, all female farmers of age 20 and above, there were adequately represented in the study. The sample for this study would comprise 804 female farmers drawn from 14 communities via convenience sampling technique.

A structured questionnaire entitled: Environmental Awareness Creation through Extension Officers and Sustainable Crop Farming Questionnaire and Focus Group Discussion (EACTEOASCFQAFGD) were used to obtain information from the respondents. It was divided into two parts, the first part of the questionnaire focused of gathering information about the demographic characteristics of respondents. The second part of the questionnaire was a four-point linker scale; respondents were expected to indicate their choice by ticking one of these options. The validity of this instrument was faced validated by statistians who vetted the items developed and objectives of the study and the hypothesis stated and comprehensibility of each item in relation to the cognitive level of the respondents. The cronbach alpha reliability method was used to determine the reliability method of the instrument. The reliability was found to be 0.87. The questionnaires and focused group discussions were the major instrument used for data collection. Copies of the questionnaire were administered in each of the sample area in Cross River State. The respondents were informed of the exercise and the essence of giving objective response to the items, the items of the information will be treated with confidentiality and be used as data for the research only. At the end of the exercise 791 copies of the questionnaire were successfully completed and retrieved of the sample area.

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Result of the hypothesis one:

Extension Officers do not significantly predict sustainable crop farming in cross river state.

The independent variable in this hypothesis was Extension Officers while the dependent variable is sustainable crop farming. Simple regression analysis was employed to test this hypothesis. The simple regression analysis of the prediction of Extension officers on sustainable crop farming produced an adjusted R^2 of .864. This indicated that the Extension Officers accounted for 86.4% of the determinant sustainable crop farming in the study area. This finding is a critical indication that Extension Officers is relatively high in the area of the study. The F-value of the Analysis of Variance (ANOVA) obtained from the regression table was F = 5009.939 and the sig. value of .000 (or p<.05) at the degree of freedom (df) 1 and 789. The implication of this result is that Communitarian setting is significant predictor of sustainable crop farming.

Simple regression result of the prediction of Extension Officers on sustainable crop farming (N=791)

	Sum of Squares	df	Mean Square	F-ratio	p-value
Regression	4224.953	1	4224.953	966.404*	.000(a)
Residual	3449.373	789	4.372		
Total	7674.326	790			

R= .742; R^2 = .551; AdjR^2 = .550

a. Dependent Variable: sustainable crop farming
b. Predictors: (Constant), Extension Officers

Discussion of Finding:

Organization for international cooperation in high education (OICHE) (2023) also upheld that knowledge from extension workers has been shaped and modified to help control the farming activities. It is associated with skills that has been developed outside the formal educational system and is embedded in culture and steeped in tradition. Its basis is for decision making in rural communities with respect to food security, human and animal health, education and natural resource management, (OICHE) (2023) mentioned that characteristics of extension workers knowledge is localized in nature and more often than not, traditional in context, it is unique to specific environmental and cultural condition, it knowledge is dynamic adaptive and holistic in nature and is a significant part of the way of life and subsistence of rural peoples in that locality.

Adeyeye (2017) also sees extension workers as people who continuously strive to bring about changes in the behavior of farmers and their families. They want farmers to discard the old method of farming and follow the new techniques. They try to show farmers merit of better and improved seed/seedlings of

chemicals, fertilizers of effective insecticides and with the profit that will follow their uses to provide more and better food for their families, better clothing and housing and happier living. This is teaching in its truest sense. Extension methods are devices implemented to set up situations in which new information and knowledge can pass freely between extension workers and the female farmers' mass extension methods such as television, radio, circular letters, newspapers, banners, magazines, and brochures were successfully used in several countries to carry out Extension Educational Programmes. Modern communication tools play a key role in improving the availability of market information and farmer assistance in developing countries. There is a dire need to utilize information technology to access the most recent information at a reduced cost relative to the existing system, which is plentiful with human imperfections and affectations.

Omotayo (2015) also observed that there is need for motivation of extension agent through adequate provision of field operation facilities in order to encourage their commitment and dedication to duty. Extension agents should read ahead of time from the outcome of last planting season to know the information needed for farmers, Omotayo (2015) corroborated this statement that a number of developments in many developing countries were shaping the future of extension services and setting the stage for better performance to channel farm produce for surplus and storage for food security. In addition the need of improved services from extension agents, the use of mass media is of essence to enhance farmers' information literacy through the use of television, projectors, advertisements that will help the farmers and agricultural investors to know where a particular produce is available in large quantities.

Conclusion

Based on the findings of the study it is evident that environmental awareness creation though extension Officers significantly predict sustainable crop farming among female farmers in Cross River State. Above all is it an indispensible tool in creating that needed awareness, is to inform and educate the people. The result also shown that environmental awareness creation through extension officers and mass media play a vital role in educating and enlightening female farmers and government to protect and preserve nature and its resources in the interest of future generations and with the enough food to eat.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Awareness creation through extension officers should be intensified most especially in rural areas where farmers should have instructions on sustainable crop farming and the danger of using obnoxious and poisonous Agro chemicals.

2. Through awareness creation proper information and advices on the danger of over grazing, indiscriminate bush burning, deforestation and many others should be discouraged.

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