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Assessment of Agroclimatological Information Needs of Selected Arable Crop Farmers (Maize and Cassava Farmers) in Akinyele and Egbeda Local Government, Oyo State, Nigeria

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Abstract
The study assessed the agroclimatological information needs of selected arable crop farmers in Akinyele and Egbeda Local Governments areas of Oyo State. Using a multi- stage sampling techniques, a total of 90 respondents was sampled. Findings showed that 82% of the farmers were male and 44.4% were within the age range of 40-59 years. Respondents indicates that fluctuation in rainfall has high effects on their farming activities (mean = 3.51) and increase in disease and pest infestation (mean = 3.36). The respondents indicates that they need information on agroclimatology. They perceived agroclimatology information as creating awareness for better practices (mean = 4.54), improved crop yield (mean= 4.29) and determine the type of crop to grow at a particular time (mean = 4.29). They indicate that majority of their sources of information are from extension agent 60% and also that extension agent disseminate information on climatic variables (96.2%). There was no significant relationship between all their socio-economic characteristics(sex, age, marital status, religion, education level, primary and secondary occupation, farm size, family size and farming experience) and the effect of climate change on their farming activities. Also, there is no significant relationship between the agroclimatological information needs of the respondents and the effects of climate change on their farming activities. It is recommended that adequate information on agroclimatology should be provided to improve the farmer's productivityand also government should make funds available to the farmers.

Key word: Agroclimatology, Information needs, Arable crop farmers.

INTRODUCTION

Agriculture constitutes the back bone of most African economics and is a major contributor to the gross domestic product (GDP) of the region. it account for about a third of Africa's GDP, employs in many countries about 60-90% of the total labour force and is the main source of livelihood for poor people (European Union, 2007). In addition most of the Africa food lives in rural area when they depend directly or indirectly on agriculture for their livelihood.Crop production is a sub-sector in Nigeria agriculture, which contributes largely to the development of the Nigerian's agricultural sector and arable crop play also a major role in all issues concerning

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agriculture and environment, both in terms of adaptation of agriculture to different economic systems and in term of impacts on the environment and the large scale of agriculture. (Etienne*et al.,* 2009).

'Arable" is the term used to describe the system of farming which uses plough fields to grow crop. Arable farming has made Nigeria sustainable ever before the discovery of petroleum. Therefore commercial arable farming is the cultivation of land to grow crops on a large scale farming. (Adewumi*et al.,* 2005) commercial arable farming involves the use of farm acreage of land and usually goes with mechanization. The arable crop that will be selected for the purpose of this research will be maize, cassava and rice.

Agricultural climatology is the study of climate as it relates to the agricultural sector. The agricultural climate is the characterization or description of the climate in a manner that portrays the climate resources and risks with respect to producing crops and livestock in a specific location. (Griffiths, 1994).The basic lines of agroclimatology consist in further development of the theory of combine evaluation of agroclimatological resources of a territory, is the development of combine yield indices for the leading crops, in the justification of ameliorative practice for eliminating the consequence of unfavorable climatic phenomena (with allowance for the micro climatic features of crop rotation lands) , and in the diversity of methods for the use of agroclimatological data in the long term agroclimatological forecast of crop growth and development .(Wikipedia).

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Information is regarded as one of the most valuableresource in agricultural and rural development programmes (Morrow *et al.,* 2002). It is also regarded as an important input in agriculture (Oguya, 2007). Nigerian farmers are reported not to feel the impact of agricultural innovation mainly because they have no access to such vital information or due to poor dissemination (Oguya, 2007). The information usually provided is reported to be focused mainly on policy makers, researchers, students and those who manage policy decisions with little or no attention paid to the information needs of farmers who are the targeted beneficiariesof the policy decisions (Omenesa, 2007). If provided with the right inputs, feasible technology and relevant information which they actually need, small scale farmers are capable of transforming traditional agriculture (Tologbonse*et al.,* 2008).

Objectives of the study

The main objective of the study is to assess the agroclimatological information needs of selected arable crop farmers in Akinyele and Egbeda Local Government areas of Oyo state, Nigeria.The specific objectives are to:

1. ascertain the socio economic characteristics of selected arable crop farmers in Oyo state
2. determine the effect of climate change on farming activities,
3. identify the agroclimatological information need of arable crop farmers,
4. determine the perceived effect of agroclimatological information

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5. determine the extension activities with respect to agroclimatological information

Test of hypotheses

Two hypotheses were tested in this study:

1. H_{O1}: There is no significant relationship between the farmers socioeconomic characteristics and the effects of climate change on the farming activities of the respondents.
2. H_{O2}: There is no significant relationship between the effects of climate change on the farming activities of the respondents andrespondents agro climatological information needs.

METHODOLOGY

This study was carried out in Akinyele and Egbeda Local Government Area of Oyo State of Nigeria, due to its well-known agricultural activities. Oyo state which is the capital of Ibadan, the second largest indigenous city in black Africa is located in the Southwest region in Nigeria Latitude 7^{O}North and Latitude 4^{o}East and has 33 Local Government Areas. Oyo state covers a total of 22,249 square kilometers of land.The landscape consists of old hard rocks and dome shaped hills, which rise gently from about 500 meters in the Southern part and reaching a height of about 1,219 meters above sea level in the Northern part. Oyo state has an equatorial climate with dry and wet season and relatively high humidity. The dry season last from November to March while the wet season start from April and end in October. Average daily temperature raises from between 25^{O}C (77^{O}F) and 35^{O}C (95^{O}F). The climate in the state favors the cultivation of crops like: maize, yam, cassava, millet, rice, plantain, cocoa tree, palm tree and cashew.

Multi stage sampling method was employed in this study. In the first stage, two (2) Local Government Areas were randomly selected from the thirty three (33) Local Government Area in Oyo state. In the second stage, three (3) villages were randomly selected from each of the Local Governments making a total of six (6) villages. Lastly, fifteen (15) respondents were interviewed making a total number of ninety (90) respondents for the whole study. Primary data in form of a well-structured pre- test and validated questionnaire was used to collect information from the respondents. The data collected were analysed using descriptive statistics (percentages, means), chi- square and PPMC.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

The Table 1 showed that majority (82.2%) of the respondents were males while 17.8% of them were females. The findings showed that male farmers were more involved in farming than females in the study area. The result supported the findings of Edeoghon*et al*., (2008) which says that males were more involved in arable cropping in the study area.The Table showed that the age distribution of the respondents between the ages 40 to 59 years were the majority with (44.4%) followed by those between the ages 20 to 39 years (28.9%), then those between the ages of 60years and above 26.7%. The finding showed that 44.4% of the respondents fall within the 40-59 years of age. This implied that most of the people were active people who can still practice arable crop production. The Table showed that majority (77.8%) were married, followed by single which is 15.6%,then followed by widow and separated having a percentage of 4.4% and 2.2% respectively. The result agreed with the findings

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of Onasanya (2007) that most crop farmers are married and Soyebo*et. aI*. (2005) that agriculture is very much practiced by married people to make ends meet and cater for their children. These results showed that majority of the respondents were married. The Table also showed that all of the respondents (100%) were planting maize and cassava. This implied that selected arable crop farmers in the study area are planting both maize and cassava.

Table 1: Socio-Economic Characteristics of the Respondents

Variables	Frequency	Percentage (%)
SEX		
Male	74	82.2
Female	16	17.8
Total	90	100.0
AGE		
20-39	26	28.9
40-59	40	44.4
60 and above	24	26.7
Total	90	100.0
MARITAL STATUS		
Single	14	15.6
Married	70	77.8
Separated	2	2.2
Widow	4	4.4
Total	90	100.0
RELIGION		
Muslim	52	57.8
Christian	38	42.2
Total	90	100.0
FAMILY SIZE		
1-10	82	91.1
11-20	8	8.9
Total	90	100.0
FARM SIZE		
Less than 2	52	57.8
2-5	27	30.0
Above 5	11	12.2
Total	90	100.0
EDUCATIONAL LEVEL		
No formal education	12	13.3
Attempted primary school	9	10.0
Completed primary school	31	34.4

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Attempted secondary school	5	5.6
Completed secondary school	24	26.7
Attempted tertiary school	3	3.3
Completed tertiary school	6	6.7
Total	90	100.0
PRIMARYOCCUPATION		
Farming	60	66.7
Trading	14	15.6
civil servant	15	16.7
Others	1	1.1
Total	90	100.0
SECONDARYOCCUPATION		
None	22	24.4
Farming	34	37.8
Trading	29	32.2
Civil servant	2	2.2
Others	3	3.3
Total	90	100.0
FARMING EXPERIENCE		
1-20	60	66.7
21-40	25	27.8
above 40	5	5.6
Total	90	100.0
ARABLE CROP CULTIVATED		
Maize	90	100.0
Cassava	90	100.0

Effects of Climate Change on Farming Activities

The Table 2 showed that the major effects of climate change among the respondents ranges from fluctuation in rainfall (100%), high sun intensity , loss of water from the soil and disease and pest infestation (98.9%), reduction in crop yield (96.7%), increase in weed, (95.6%) prolonged drought, (92.2%) heavy wind and flood (89.9%).Findings also revealed that the impacts of the effects of climate change on the respondents farming activities ranges from very high to very low. The result of this study indicated that fluctuation in rainfall ($\widetilde{X} = 3.51$), increase in disease and pest infestation ($\widetilde{X} = 3.36$), reduction in crop yield ($\widetilde{X} = 3.18$), loss of water from the soil ($\widetilde{X} = 2.83$), high sun intensity ($\widetilde{X} = 2.80$), increase in weed ($\widetilde{X} = 2.73$), heavy wind ($\widetilde{X} = 2.56$), prolonged drought ($\widetilde{X} = 2.56$) and flood ($\widetilde{X} = 2.34$). This support the findings of Owolabi *et al* (2015) which says climate change is real and it is affecting the major source of livelihood of farmers as agricultural production is naturally tied to climatic conditions.

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Table 2: Effects of Climate Change on Farming Activities of the Respondents

Effects of Climate Change	Yes	No	Very High	High	Low	Very low	Mean Score ($\widetilde{X}$)	Remarks
Fluctuation in Rainfall	90 (100%)		49(54.4%)	38(42.2%)	3 (3.3%)		3.51	High
Increase diseases and pests infestation	89 (98.9%)	1(1.1%)	45 (50.0%)	34 (37.8%)	10 (11.1%)		3.36	High
Reduction in crop yield	87(96.7%)	3(3.3%)	38 (42.2%)	36 (40.0%)	13 (14.4%)		3.18	High
Loss of water from the soil	89 (98.9%)	1(1.1%)	15 (16.7%)	51 (56.7%)	19 (21.1%)	4 (4.4%)	2.83	Low
High sun intensity	89 (98.9%)	(1.11%)	20(22.2%)	36 (40%)	31(34.4%)	2(2.2%)	2.80	Low
Increase in weeds	86(95.6%)	4(4.4%)	15 (16.7%)	46 (51.1%)	23 (25.6%)	2 (2.2%)	2.73	Low
Heavy wind	80 (89.9%)	10 (11.1%)	21 (23.3%)	33 (36.7%)	21 (23.3%)	5 (5.6%)	2.56	Low
Prolonged drought	83(92.2%)	7(7.8%)	28 (31.1%)	18 (30.0%)	27 (20.0%)	10 (11.1%)	2.56	Low
Flood	80 (89.9%)	10 (11.1%)	10 (11.1%)	40 (44.4%)	21 (23.3%)	9 (10.0%)	2.34	Low

Source: Field survey, 2017

Agroclimatological Information Need of Arable Crop Farmers

The findings showed in Table 3 that majority (80%) of the respondents need information on water management especially during dry season, (81.1%) of the respondents need information on new varieties of seed, (71.1%) of the respondent need information on appropriate time for spraying herbicides, pesticides and fungicides, (72.2%) of the respondents need information on soil nutrients management strategies, (67.8%) of this respondents need information on choice of alternative crop during delay of rain, (27.8%) of the respondents need information on planting time, (86.7%) of the respondents need information on new pest expected in each season and suitable pesticides, (26.7%) of the respondents need information on harvesting period (56.7%) need information on organic farming, (84.4%) need information on cold storage facilities, (25.6%) of the respondents need information on field preparation, (75.6%) of the respondents need information on soil water, (64.4%) of the respondents do not need information on how to apply agricultural chemicals on their farm, (42.2%) of the respondents need information on

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how to transport their agricultural products, (18.9%) of the respondents need information on weeding, (88.9%) of the respondents need information on how to cope with risk and uncertainty and (67.8%) of the respondents need information on how to reduce the contribution of agricultural production to global warming. This implied that majority of the respondents need information on agroclimatology.

Table 3: Agroclimatology Information Needs of Arable Crop Farmers

Agroclimatological information needs	Yes	No
Information on water management especially during dry season	72 (80%)	18(20%)
Information on new varieties of seed	73 (81.1%)	17 (18.9%)
Information on appropriate time for spraying herbicides, pesticides and fungicides	64 (71.1%)	26 (28.9%)
Information on soil nutrients management strategies	65 (72.2%)	25 (27.8%)
Information on choice of alternative crops during delay of rain	61 (67.8%)	29 (32.2%)
Information on planting time	25 (27.8%)	66(72.2%)
Information on new pest expected in each season and suitable pesticides	78(86.7%)	12 (13.3%)
Information on harvesting period	24 (26.7%)	66 (73.3%)
Information on organic farming	51 (56.7%)	39 (43.3%)
Information on cold storage facilities	76 (84.4%)	14 (15.6%)
Information on field preparation	23 (25.6%)	67 (74.4%)
Information on soil water	68 (75.6%)	22 (24.4%)
Information on the application of agricultural chemicals(folia and soil application)	58 (64.4%)	32 (35.6%)
Information on transport of agricultural products	38 (42.2%)	52 (57.8%)
Information on weeding	17 (18.9%)	73 (81.1%)
Information on how to cope with risk and uncertainty	80 (88.9%)	10 (11.1%)
Information on how to reduce the contribution of agricultural production to global warming	61 (67.8%)	29 (32.2%)

Source: Field survey, 2017.

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Perceived Effects of Agroclimatological Information

The findings from the study revealed as presented in Table 4 that respondents agreed that the effects of agroclimatological information will create awareness for better farming practices($\tilde{X}$=4.54), it has improved their crop yield and it determine the type of crop they will grow ($\tilde{X}$=4.29), it has increased their income level ($\tilde{X}$=4.24) , that it aids their decision making with respect to their farming activities ($\tilde{X}$=4.03) and they also disagreed that the effects of agroclimatological information will reduce the loss of production ($\tilde{X}$=3.68), that it will reduce the impacts of disease and pest ($\tilde{X}$=3.63) and that it will help to reduce the risk of environmental degradation ($\tilde{X}$=3.52). This implied that the access of farmers to agroclimatological information will have positive effects on their farming activities.

Table 4: Perceived Effects of Agroclimatological Information

Effects of agroclimatological information	SA	A	U	D	S D	Mean score ($\widetilde{X}$)	Remarks
It create awareness for better farming practices	53 (58.9%)	34 (37.8%)	2 (2.2%)	1 (1.1%)		4.54	Strongly Agree
It has improved my crop yield	35 (38.9%)	46 (53.3%)	5 (5.6%)	2 (2.2%)		4.29	Strongly Agree
It determine the type of crop to grow at a particular time	48 (53.3%	26 (28.9%)	10 (11.1%)	6 (6.7%)		4.29	Strongly Agree
Agroclimatological information has increased my income level	34 (37.8%)	46 (51.1%)	8 (8.9%)	2 (2.2%)		4.24	Strongly Agree
It aids decision making with respect to farming activities	27 (30%)	42 (46.7%)	19 (21.1%)	1 (1.1%)	1 (1.1%)	4.03	Strongly Agree
It reduces the loss of production	9 (10%)	47 (52.2%)	30 (33.3%)	4 (4.4%)		3.68	Agree
It reduces the impact of disease and pest	27 (30%)	42 (46.7%)	19 (21.1%)	1 (1.1%)	1 (1.1%)	3.63	Agree
It has helped to reduce the risk of environmental degradation. E.g soil erosion	8 (8.9%)	39 (43.3%)	36 (40%)	6 (6.7%)	1 (1.1%)	3.52	Agree

Source: Field survey, 2017.

Respondents Sources of Information

The study revealed that the respondent'ssource of information ranges from extension agent (60%), radio (30%) and friends and family (10%). This implied that majority of the respondents got their information through extension agent. This support the findings of Owolabi (2015) which says that among the respondents major sources of information is extension agent.

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Table 5: Respondents Sources of Information

Respondents Sources of information	Frequency	Valid Percent
Extension agent	54	60.0
Radio	27	30.0
Friends and family	9	10.0
Total	90	100.0

Source: Field survey, 2017.

Extension Method of Information Dissemination with Respect to Agroclimatological Information

Findings showed that the service used by extension agent to disseminate agroclimatological information ranges from disseminating information on the climatic variables (96.2%), demonstration (54.7%), farm/home visit (69.8%), telephone call (22.6%), field meeting (28.3%), group meeting (81.3%) and radio program (67.9%).

Table 6: Extension Method of Information Dissemination with Respect to Agroclimatological Information

Extension activities	**Yes**	**No**
Disseminating information on the climatic variables	51 (96.2%)	2 (3.8%)
Demonstration	29 (54.7%)	24 (45.3%)
Farm/home visit	37 (69.8%)	16 (30.2%)
Telephone call	12 (22.6%)	41 (77.4%)
Field meeting	15 (28.3%)	38 (71.7%)
Group meeting	43 (81.1%)	10 (18.9%)
Radio program	36 (67.9%)	17 (32.1%)

Sources: Field survey, 2017

Relationship between Socio-Economic Characteristics of Respondents and the Effect of Climate Change on Farming Activities

The findings from the study showed that there was no significant relationship between the sex ($p = 0.104 > 0.05$), age ($p = 0.147 > 0.05$), marital status ($p = 0.357 > 0.05$), religion ($p = 0.305 > 0.05$), educational level ($p = 0.976 > 0.05$), farm size ($p = 0.866 > 0.05$), farming experience ($p = 0.370 > 0.05$), family size ($p = 0.917 > 0.05$), primary occupation ($p = 0.914 > 0.05$), secondary occupation ($p = 0.218 > 0.05$) and the effects of climate change on their farming activities. Therefore the null hypothesis is accepted. This implied that the socio economic characteristics (sex, age, marital status, religion, educational level, farm size, farming experience,family size, primary occupation and secondary occupation) of the respondents will not determine the effects of climate change on their farming activities.

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Table 7: Relationship between Socio-Economic Characteristics of Respondents and the Effect of Climate Change on Farming Activities

Socioeconomic characteristic vs effect of climate change on farming activities	Chi-square value (X^2)	Degree of freedom (DF)	P- value	Decision
Sex	23.388	16	0.104	Not significant
Age	40.378	32	0.147	Not significant
Marital status	50.993	48	0.357	Not significant
Religion	18.335	16	0.305	Not significant
Educational level	70.579	96	0.976	Not significant
Farm size	23.391	32	0.866	Not significant
Farming experience	34.030	32	0.370	Not significant
Family size	8.918	16	0.917	Not significant
Primary occupation	35.251	48	0.914	Not significant
Secondary occupation	72.502	64	0.218	Not significant

Source: Field survey, 2017

From Table 8, there is no significant relationship between effects of climate change on respondent's farming activities and their agroclimatological information needs because (P= 0.538 > 0.05). Therefore the null hypothesis is accepted and the alternate hypothesis is rejected. The implication of this is that effects of climate change does not have significant effects on respondents agroclimatological information needs.

Table 8: Correlation Coefficient between Effects of Climate Change on Farming Activities and Agroclimatological Information Needs of the Respondents

statement	r- value	p- value	Decision
Effects of climate changeVs agroclimatological information	0.066	0.538	Not significant

CONCLUSION AND RECOMMENDATION

The study concluded that the arable crop farmers in the study area were aware of climate change and they need information on agroclimatology. The result has also shown that the effects of climate change affects their farming activities. The study therefore recommends that:

1. Adequate information on agroclimatology should be provided to improve the farmer's productivity.
2. Government should employ more extension agent so that the famers can have access to information, training and practices which will enhance their farming activities.

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3. Government should make funds available to the farmers in order to increase their productivity.

REFERENCES

1. Adewumi, M.O., Omotesh O.A. and Tsoho, B.C (2005): Economics of Irrigation Farming in Nigeria : a Case Study of Tomato Based Farming in Sokoto State, Nigeria. International Journal of Agricultural and Rural Development. Vol.6 Pp.103-110.
2. Edeoghon, C.O., *Ajayi, M. T. and Ugboya, T.O (2008): Awareness and Use of Sustainable Agricultural Practices by Arable Crop Farmers in IkpobaOkha Local Government Area of Edo State, Nigeria. Journal of Sustainable Development in Agriculture & Environment Vol. 3(2):55-63 April. 2008 ISSN 0794-8867 ©Paraclete Publishers
3. Etienne P, Davide V, David C, (2009): Identifying Research Priorities for the Competitiveness of Arable Crop. P2
4. European Union (2007): Advancing African Agriculture: Proposal for Continental and Regional Level Cooperation on Agricultural Development in Africa. DG Development Unit B2- Policies for Sustainable Management for Natural Resources.
5. Griffiths, J.F. (1994): Handbook of Agricultural Meteorology. Oxford University Press.New York, NY. pp. 320.
6. Morrow, K; Nielsen, F. and Wettasinha C. (2002): Changing Information Flows. LEISA 18 (12): 4-5.
7. Oguya, V. (2007): CTA Vision for the Question and Answer Service (QAS). Paper Presented at NAQAS Stakeholders Meeting on Strategies to Involve Farmers in NAQAS Service in Nigeria Held at NAERLS/ ABU Zaria. Pp8.
8. Omenesa, Z.E. (2007): Assessment of Farmer Information Needs and other Beneficiaries through the NAQAS -ICT. Paper Presented at NAQAS Stakeholders meeting on Strategies to Involve Farmers in NAQAS Service in Nigeria held at NAERLS/A.B.U. Zaria. Pp8.
9. Onasanya, A.S. (2007): Crop farmers' use of environmentally sustainable agricultural practices in Ogun State. Journal of Environmental Extension: (6): 75-78.
10. Owolabi K.E., Jonathan K.U., Ayodele O.V. and Wole- alo F.I (2015): The Perception and the Adaptation Strategies to Climate Change by Rice Farmers in Ekiti State, Nigeria. British Journal of Applied Science and Technology 8(4): 400-408.
11. Soyebo, K.O., Farinde, AI.andDionco-Adetayo, E. (2005): Constraints of oil palm production in Ife Central Local Government Areas of Osun State. Journal of Social Sciences, 10(1): 55- 59.
12. Tologbonse, D., Fashola O. and Obadiah, M. (2008): Policy Issues in Meeting Rice Farmers Agricultural Information Needs in Niger State. Journal of Agricultural Extension Vol. 12 (2) p 84-85.