

Full Length Research Paper

Knowledge level of youth farmers on climate change in Benue State of Nigeria

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This study examines the knowledge of youth farmers in Benue State of Nigeria on climate change. Multi-stage sampling technique was used to select 120 respondents from two agricultural zones in the study area. Data was collected using interview schedule. Descriptive and inferential statistics were used in data analysis. Results show that majority (92.4%) of the respondents had moderate knowledge of climate change, major sources of climate change information include: radio (85.0%), friends and neighbours (60.8%), personal observation (55.8%), and family members (46.7%). The socio-economic factors affecting knowledge of climate change by youth farmers include: sex ($t = 2.353$; $p \leq 0.022$) and household size ($t = 3.888$; $p = 0.000$). It was recommended that the knowledge level of youth farmers on climate change should be improved by providing them relevant information through the mass media, movies; and by providing climate change educational platforms in schools and through outreaches.

Key words: Climate change, knowledge level, youth farmers, rural farming, socio-economic, Benue State.

INTRODUCTION

Natural resource-dependent societies in developing countries are facing increased pressures linked to global climate change (Osbahe et al., 2008), because they lack the social, technological and financial resources required for climate change adaptation and mitigation (UNFCCC, 2007). Their heavy reliance on agriculture further heightens their vulnerability to threats posed by climate instability. Due to climate change and other meteorological conditions, 46% of the areas in the world are not suitable for rain-fed agriculture (Valipoura et al., 2015) which characterize developing countries agriculture.

It is generally recognized that it is those who are already poor and marginalized that experience the

impacts of climate change most acutely and are in the greatest need of adaptation strategies in the face of shifts in weather patterns and resulting environmental phenomena (Demetriades and Esplen, 2009). At the same time, it is the poor and marginalized who have the least capacity or opportunity to prepare for the impacts of changing climate or to participate in tackling climate change issues (Demetriades and Esplen, 2009).

Sustainable agricultural production which considers both natural and human resources can be optimally utilized to mitigate the negative impacts of climate change. Sustainability in agricultural production is a process of ensuring agriculture that produces enough to feed the growing population while protecting land and

other natural resources for future generations (UCDAVIS College of Agriculture and Environmental Sciences, 2013).

According to the source, sustainability rests on the principle that the needs of present generation should be met without compromising the ability of future generations to meet their own needs. Hence, stewardship of both natural and human resources is of prime importance. In other words, while making sure that natural resources are judiciously exploited, efforts should be made to ensure that future human resources are retained in the agricultural sector. The youth is an important segment of human resources, which not only today, but in the future will have to shoulder the responsibility for development in many spheres including agriculture and rural sectors.

The knowledge of climate change and conservation agriculture skills has been key resources affecting adaptive capacity to climate change (Care Climate Change, 2010). Success in adapting to possible future climate change will depend, according to Oruonye (2011), on a better knowledge and awareness of what changes will occur, where, and on prudent investments made in timely fashion in adaptation strategies; especially among youths who are both present and future stakeholders in those processes. It has been noted that youths could be instrumental in strengthening partnerships and in improving platforms for better sharing and exchange of information and knowledge (E-agriculture, 2013).

With the increasing efforts of both government and non-governmental organizations to retain youth in agriculture and the strong inter-dependency of agriculture and climate change, an utmost important issue is to be sure that youths have the right knowledge of climate change. This is paramount in the area of climate change adaptation as knowledge, according to Hunt (2003), is a belief that is true and justified. Therefore, some relevant questions one needs to ask are? What is the climate change knowledge level of youth farmers in Benue State? What factors affect the climate change knowledge level of youth farmers? What are the sources of information on climate change among youth farmers? What are the possible strategies for improving the climate change knowledge level of youth farmers in the area?

Purpose of the study

The overall purpose of the study was to assess the climate change knowledge level of youth farmers in Benue State, Nigeria. Specifically, the study sought to:

1. Determine the socio-economic characteristics of youth farmers in the area;
2. Identify the sources of information on climate change among youth farmers;
3. Determine the climate change knowledge level of

youth farmers;

4. Determine socio-economic factors affecting climate change knowledge level of youth farmers; and
5. Ascertain possible strategies for improving climate change knowledge level of youth farmers in the area.

METHODOLOGY

The study was carried out in Benue State, Nigeria. Multistage sampling technique was used to select one hundred and twenty (120) respondents (farmers who were 15 to 39 years of age) from two out of the three agricultural zones in the state. Semi-structured interview schedule was used in data collection. Socio-economic characteristic of respondents were collected at nominal and interval level. Respondents were asked to indicate their sex (male or female), age (years), household size (number of persons in their household), monthly income (in naira) and major occupation. Knowledge level of respondents were collected by asking them to tick 'yes' or 'no' to indicate their response to a set of thirty (30) positive and negative statements on the causes (10 statements), effects (10 statements) and adaptation and mitigation measures (10 statements) to the effects of climate change. Each correct answer was scored one (1) while an incorrect answer was scored zero (0). Each respondent's score was calculated. Respondents were later group based on their score as low knowledge (1-10), moderate knowledge (11-20), and high knowledge (21-30). The strategies for mitigating the effects of climate change were collected by asking respondents to tick on a five-point Lykert-type scale to indicate their responses. The mean/cut-off point was 2.5. Data was analyzed using descriptive and inferential statistics.

RESULTS AND DISCUSSION

Socio-economic characteristics of respondents

Data in Table 1 show that majority (63.3%) of the respondents were male while 36.7% were female. 40.8% of the respondents were aged between 15 and 20 years. The mean age was 24.14 years. 40.7 of the respondents completed secondary education; the mean household size was 7 persons. Majority (78.6) of the respondents had farming as major occupation, which implies that respondents may have experienced some of the impacts of climate change on agricultural production since agriculture is said to be a major victim of climate change. Table 1 further show that majority (87.4%) of the respondents were members of social organizations; the average monthly income was about ₦27, 955. All (100%) of the respondents were aware of climate change. This finding is in consonant with that of Nnaji (2012), who reported that all respondents in Benue State were aware of climate change. This shows that climate change is really happening as it is being noticed by almost every group of the society including the youth.

Major sources of climate change information among respondents

Table 2 shows the major sources of climate change

Table 1. Socio-economic characteristics of respondents.

Socio-economic characteristics	Frequency	Percentage	Mean
Sex			
Male	76	63.3	
Female	44	36.7	
Age			
15-20	49	40.8	
21-25	33	27.5	
26-30	18	15.0	24.14
31-35	13	10.6	
36-39	7	5.8	
Marital status			
Single	73	60.8	
Married	47	39.1	
Educational level			
No formal education	2	1.7	
Primary school attempted	5	4.2	
Primary school completed	9	7.6	
Secondary school attempted	39	33.1	
Secondary school completed	48	40.7	
NCE/OND	12	10.2	
HND/First degree	3	2.5	
Household size			
1-5 persons	35	33.7	
6-10 persons	61	58.6	
11-15 persons	5	4.9	7.0
16-20 persons	1	1.0	
21 persons and above	2	2.0	
Major occupation			
Farming	92	78.6	
Trading	9	7.7	
Civil/Public service	1	0.9	
Artisanship	5	4.3	
Studentship	10	8.5	
Estimated monthly income (N)			
≤ 1000	11	9.8	
1001-10000	60	52.7	
10001-20000	10	8.7	
20001-30000	14	9.7	27,955.35
30001-40000	4	3.5	
40001-50000	2	1.8	
50001 and above	13	12.7	
Membership of social organization			
Yes	97	87.4	
No	14	12.6	
Awareness of climate change			
Yes	120	100	

Table 2. Major sources of climate change information among respondents.

Major source of information	Frequency	%
Radio	102	85.0
Television	51	42.5
Newspapers	38	31.7
Posters	29	24.2
Pamphlets	17	14.2
Magazine	23	19.2
Family members	56	46.7
Friends and neighbours	73	60.8
Relevant websites	15	12.5
Social media (facebook, twitter etc)	16	13.3
Email	7	5.6
Extension agents	15	12.5
Public lectures	9	7.5
Social organizations	16	13.3
Village outreaches	21	17.5
Personal observation	67	55.8

Table 3. Climate change knowledge level of youth farmers.

Knowledge level of youth farmers	Frequency	Percentage
Low Knowledge (1-10)	1	0.8
Moderate Knowledge (11-20)	111	92.4
High Knowledge (21-30)	8	6.5

information among youth farmers. From the Table, majority (85.0%) sourced climate change information from the radio, 60.8% sourced from friend and neighbors, 55.8% sourced through personal observation, 46.7% sourced from family members, while 42.5% had television as major source of climate change information.

The finding is in consonant with that of Silvio (2006) which showed that youth prefer to use information sources such as trusted friends, relatives and co-workers rather than visiting the local public library, however it contradicts his findings in the same work that radio is not a major source of information among the youth. The implication is that climate change awareness campaigners should target both the mass media as well as inter-personal channels of communication.

Knowledge level of respondents

Table 3 shows the climate change knowledge level of youth farmers in the area. From the Table, majority (92.4%) of the respondents had moderate knowledge of climate change, 6.5% had high knowledge while 0.8% had low knowledge of climate change. This finding shows that youth farmers in the area have moderate knowledge of climate

change. Osberghaus et al. (2010) stated that although societies are aware and uneasy about climate change, they may not fully understand the fundamental science, possible effects, or the responses needed in order to ameliorate its impacts.

The implication is that the climate change knowledge level of youth farmers needed to be improved in order to foster effective adaptation and mitigation. This is because according to Grothmann and Patt (2005), continuous neglect of cognitive adaptive capacity of individual actors on climate change will undermine efforts of attaining the goals of current and future adaptation strategies. They stressed that improving human cognitive adaptive capacity will contribute in addressing the shortcomings of limiting the determinants of adaptive capacity to only economic, social, institutional and technological situation.

Socio-economic factors influencing climate change knowledge level of respondents

Table 4 shows the influence of socio-economic characteristics of respondents on their climate change knowledge level. The regression result show that among the factors studied, sex ($t = 2.353$; $p \leq 0.022$) and

Table 4. Socio-economic factors influencing climate change knowledge level of youth farmers.

Model	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta	T	Sig.
Constant	13.093	1.605	0.275	8.156	0.000
Sex	1.367	0.581	-0.56	2.353	0.022*
Age	-0.020	0.047	0.035	-0.418	0.678
Marital Status:	0.168	0.577	0.016	0.290	0.773
No of years spent in school	0.015	0.112	0.436	0.134	0.894
Household size	0.207	0.053	-0.023	3.888	0.000*
Major occupation	-0.136	0.758	0.103	-0.180	0.858
Estimated monthly income	4.385-6	0.000	0.065	0.938	0.352
No of years of farming experience	0.027	0.058	0.08	0.461	0.646
No of social organization belonged to	0.213	0.272		0.781	0.438

Dependent variable: knowledge level of youth farmers; P = 0.05; R = 0.588; R² = 0.345; Adjusted R² = 0.242.

household size (t = 3.888; p = 0.000) were the factors that significantly influence the climate change knowledge level of youth farmers. The findings indicate that male youth farmers were more knowledgeable in issues of climate change than their female counterparts. The result of the significant influence of household size is in line with that of Okoro (2011) who found in her study that household size influences the climate change knowledge level of farmers. Therefore, it can be deduced from the findings that larger household size encourages greater interaction among relatives which increases their knowledge of climate change. The null hypothesis is therefore rejected for sex and household size.

On the other hand, there was no significant relationship between the knowledge level of youth farmers and the other socio-economic factors including: age (t = -0.418; p = 0.678), marital status (t = 0.290; p = 0.773), no of years spent in school (t = 0.134; p = 0.894), major occupation (t = -0.180; p = 0.858), monthly income (t = 0.938; p = 0.352), number of years of farming experience (t = 0.461; p = 0.646) and number of social organization belonged to (t = 0.781; p = 0.438). Therefore, the null hypothesis is accepted for these factors.

The R square value is the proportion of the variability in the climate change knowledge level which was explained by the multiple regression models. The adjusted R square is the estimate of r² for the population. Therefore sex and household size are able to explain 24% of the variance in the climate change knowledge level of youth farmers.

Strategies for improving the climate change knowledge level of youth farmers

Table 5 shows the perceived strategies for improving the climate change knowledge level of youth farmers. From Table 5, the identified strategies include: use of radio and

television to create awareness on climate change (M = 3.91), agricultural extension agents should be holding meetings and lecture on climate change (M = 3.87), climate change should be made part of the curriculum for primary and secondary schools (M = 3.87), local people should always be provided with timely information on the impending impacts of climate change (M = 3.81), government should provide rural radio to serve people at the grassroots with their local languages and dialects (M = 3.81), climate forecasting should be made available to local people (M = 3.71), government should include the local people in part of climate change policy makers (M = 3.70) among others.

The findings show that respondents indicated the need for climate change information to be provided through every possible means including the interpersonal and mass media channels of communication. It shows their eagerness to learn more about the causes, effects, adaptation and mitigation measures to climate change. Also, they indicated the need for involvement of local people in climate change issues and policies. These findings are in line with the International Federation of Red Cross and Red Crescent Societies' (IFRC) (2009) argument that the proof of effective climate change adaptation strategies will be in improved resilience of the hundreds of millions of people living in communities most vulnerable to the impacts of climate change. They argued that involvement of local authorities and community based organizations in the development of adaptation strategies is crucial.

Conclusion

Based on the findings of the study, it can be concluded that youth farmers in the area did not have good knowledge of climate change issues. A more insight into the study showed that they had more knowledge on

Table 5. Strategies for improving climate change knowledge level of youth farmers.

Strategies for improving the climate change knowledge level of youth farmers	Mean	SD
Use of radio and television to create awareness on climate change	3.91*	0.489
Agricultural extension agents should be holding meetings and lecture on climate change	3.87*	0.335
Climate change should be made part of the curriculum for primary and secondary schools	3.87*	0.404
Use of social media in creating awareness on climate change	3.64*	0.757
Climate forecasting should be made available to local people	3.71*	0.698
Government should provide rural radio serve people at the grassroots with their local languages and dialects	3.81*	0.554
Government should target local organizations, churches and mosques in climate change awareness creation	3.60*	0.818
Non-governmental organizations should encourage rural youths to form climate change clubs	3.57*	0.800
Posters and billboards should be provided at strategic location to increase the consciousness of climate change to the rural people	3.29*	1.095
Government should include the local people in part of climate change policy makers	3.70*	0.686
Seasonal weather forecasting should be made available to the local people	3.54*	0.854
Local people should always be provided with timely information on the impending impacts of climate change	3.81*	0.507
Farmer-to-farmer extension should be encouraged in the area of climate change adaptation	3.60*	0.721
Farmer field schools should also be used to encourage faster learning of adaptation measures	3.61*	0.728

effects and adaptation measures and less on the causes of climate change. Also, male youth farmers were more knowledgeable in climate change issues than their female counterparts. Respondents with larger household size had more knowledge on climate change than those with smaller household size.

RECOMMENDATIONS

It is recommended that the knowledge level of youth farmers on climate change should be improved by providing them relevant information through mass media and movies; and by providing climate change educational platforms in schools and through outreaches. Youth farmers should be encouraged to share climate change information among themselves since they identified friends and neighbours as a major source of climate change information.

Also, local people should be made part of climate change adaptation and mitigation initiatives by both government and non-governmental organizations. Efforts to improve climate change knowledge should be gender

inclusive in order to avoid the inherent problems in excluding women in development programmes.

Conflict of Interest

The authors have not declared any conflict of interest.

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