COCOA FARMERS CLIMATE CHANGE AWARENESS AND THEIR SOURCES OF AWARENESS IN CROSS RIVER STATE.

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Abstract
This study was conducted in Cross River State, Nigeria to assessed Cocoa Farmers Climate Change awareness and their sources of awareness. Data for the study were collected using a structured questionnaire. A multistage sampling technique was used in the study to select 578 respondents. The data generated was analyzed using descriptive statistics such as percentages means and frequency. The result showed that majority (89.%) of farmers were aware of climate change while only (11%) were not aware. The result further showed that majority (39.2%) of farmers got their information through personal observation, (27.45%) through neighbours, (6.86%) through extension agents (5.88%) through farmers cooperative, (3.92%) from the ministry of agriculture and (1.96%) from input suppliers, internet and newspapers. The study therefore recommends that awareness campaigns on climate change should be intensified by extension agents, newspapers, the internet, ministry of agriculture and non-governmental organizations.
Keywords: Cocoa farmers, climate change, awareness, sources.

Introduction

The United Nations framework convention on climate change (UNFCCC) defines climate change as a change in climate occurring due to alteration of the global atmospheric composition attributed directly to human activity as well as the natural variability observed over comparable time periods. The intergovernmental panel on climate change defines climate change as a change in the condition of the climate identified by changes in the mean and/or variability of its attributes using statistical test and which persist for a considerable period of time usually decades or more (IPCC, 2007a). Emeka (2008) reported that climate change no doubt is one of the greatest threat to agriculture, and a major global environmental problem threatening the safety of the entire human race. He added that climate change is affecting the livelihood of majority of the people living on earth and summed by saying that climate change is one of the worst social, environmental and economic threat faced by man with serious devastating impacts.

Etta (2014) reveals that climate change exerts a serious challenge to agriculture and the impacts mostly felt by poor farmers who depend solely on rain fed agriculture thus resulting to low yield of crops and high level of poverty. Ibrahim, Ayinde and Arowolo (2014) in consonance with Etta (2014) assertion noted that African agriculture is characterized with a low adaptive capacity due to its high dependence on rain-fed agriculture, low levels of human and physical capital, as well as poor infrastructure. Thus climate change is rewarding Africa's struggle with flooding in coastal areas, drought, high temperature, plants disease and biodiversity loss.

The production of cocoa (Theobrama Cacao) in Nigeria has declined since the drought of 1972/1973 which was the first evidence of climate change (Nwachukwu, Ezeh and Emerole, 2012). In addition Edet, Udoe and Ekong (2018) noted that cocoa production in Nigeria has witnessed a downward production trend since 1971 season, when its export declined considerably to 216,000 metric tones in 1976 and 150,000 metric tones in 1986 thus, reducing the countries market share to about 6% and fifth world largest producer. They gave reasons for the reduction to include less emphasis on agriculture inadequate government programme on agricultural input subsidy, small farm sizes, inadequate capital and most importantly the global climate change. Given cocoa's inherent link to natural resources, cocoa production is at the mercy of uncirtainties driven by climate variations, including extreme events such as flooding and drought and over the last 15years, climate change has gradually been recognized as an additional factor which with other conventional pressure will have a significant weight on agricultural productivity (Edet, Udoe and Ekong, 2018).

Awareness to climate change is the first step and key to climate change mitigation and adaptation however, Cyprien, Margaret, Asuquo and Bisong (2014) maintains that there is a deficiency in the awareness of climate change especially in areas where dissemination of information is a problem even though the issue of climate change has been on front burner of society's environment discourse in the world over recently due to the eminent unpredictable weather condition from climate change similarly, Ishaya and Abaje (2008) in their study on the indigenous peoples perception on climate change and adaptation strategies in Jemia local government of Kaduna State recorded low level of awareness to

climate change. On a contrary view, Idoma and Mamman (2016) recorded 92% of their respondents awareness to climate change and variability. Similarly, Adeleke and Omoboyeye (2016) reported a 100% awareness level of climate change by fish farmers who participated in their study.

On sources of awareness of climate change information by cocoa farmers, various sources of informalis exist such as the mass media (print and non-print media) radio, television, newspapers, the internet amongst others. In a study carried out by Annor-Frempong and NanaAcquah (2012) in Charles, Aliyu, Sule, Zainals and Jar'afar (2019) reported that (85.3%) of their respondents utilized mostly the radio and television to get information on climate change thus regarded as the most effective sources of climate change information. A similar study conducted by Akpan, Aporue and Ukonu (2002) revealed that interpersonal communication, internet and the television still had an edge over other sources of information.

Climate change awareness by farmers and the sources of information is very critical in understanding climate change, it is against this backdrop that this study is designed to:

1. ascertain cocoa farmers' awareness to climate change and
2. ascertain the sources of awareness so that useful recommendation can be made.

Methodology

This study was carried out in Cross River State (CRS), which is a coastal state situated in the south-south geopolitical zone of Nigeria. It is located between latitude $4^{0}28^{1}$ and $6^{0}.55^{1}$ North of the equator and longitude $7^{0}.50^{1}$ and $9^{0}.28^{1}$ East of the Greenwich meridian. It shares boundaries with Benue State to the North, Enugu and Abia State to the West, to the East by Cameroon Republic and to the South by Akwa Ibom State and the Atlantic Ocean. It covers an area of about 23,000 square kilometres with a population of about 3,353,766. (Bureau of Statistics, 2011). The climate is typically tropical, hot and humid with two clear identifiable seasons i.e the rainy or wet season that lasts from mid-March to November and the dry season that occupies the rest of the year (FMARD, 2009). The soils of the region are dominated by clay-loam. The major occupation of the people is farming and major crops cultivated include: maize, cocoa, cassava, cocoyam, oranges, oil palm, plantain, banana, rubber. While major livestock's reared include poultry, pigs, goats, sheep, cattle and rabbit (FMARD, 2009). The state has eighteen local government areas, which include, Ogoja, Yala, Bekwara, Obanliku, Obudu, Ikom, Abi, Yakurr, Etung, Obubra, Boki, Calabar municipality, Calabar South, Bkassi, Akamkpa, Akpabuyo and Biase L.G.A.

A multistage sampling technique was used in selecting respondents for this study. The first stage involved a purposive selection of six local government areas in Cross River State where cocoa is produced in commercial quantities and they include Etung, Ikom, Obubra, Akamkpa, Ikom, Boki, and Obudu. The second stage involved a simple random selection of four cells each from each of the selected local government areas. In Etung, the selected cells include Etomi, Ajassor, Abidjang and Mkpot. The cells selected in Ikom include; Nkonfam, Nkarasi, Agborkim Mgbabor and Adijinkpor. In Boki, Bashua, okundi, Boje and Bansan Osokom were selected, Ofumbongha, Iyamoyong, Ogurude and Abebere were selected from Obubra local government area.

In Obudu, the selected cells include Bebuabong, Abonkib, Okambi and Kakum while the cells selected from Akamkpa include Ojok, Mfamiyen, Akor and Mbeban. The third stage involve a simple random sampling to select five hundred and sixty eight cocoa farmers using a sampling frame and selecting 30% of the registered cocoa farmers from each of the cells giving a sample of 568 farmers. Data for the study was generated through the use of a structured questionnaire and same was analyzed using descriptive statistics such as frequency, percentages and means.

Results and discussions

Awareness of the existence of climate change

Figure 1 shows farmers' response of the awareness of climate change and shows that majority (89%) of cocoa farmers' were aware of the existence of climate change while only (11%) were not aware of climate change. This result is contrary to that of Cyprien, Margaret, Asuquo and Bisong (2014) who discovered that there is a deficiency of awareness of climate change by farmers similarly, this result is contrary to that of Ishaya and Abaje (2008) who maintained that indigenous people in Jemia LGA of Kaduna State recorded a low level of climate change awareness. This result conforms to that of Idoma and Mamman (2016) who recorded a high level of awareness of climate change of over 92% by their respondents. Similarly, the result conforms to the one recorded by Adeleke and Omoboyeye (2016) who reported a 100% awareness level of climate change by fish farmers who participated in their study. This result is also confirms the findings of a regional survey conducted by Urama and Ozor (2011), which showed that there is increased awareness and knowledge of climate change phenomenon following consistent campaigns and discussions in local, national, regional and global arena. This view is also supported by Ozor (2012) who documented the awareness of climate change in southern Nigeria in a paper titled "A framework for Agricultural Adaptation to climate change in southern Nigeria". These researchers attributed the high level of awareness of climate change in the area through the print and electronic media and other social and religious networks.

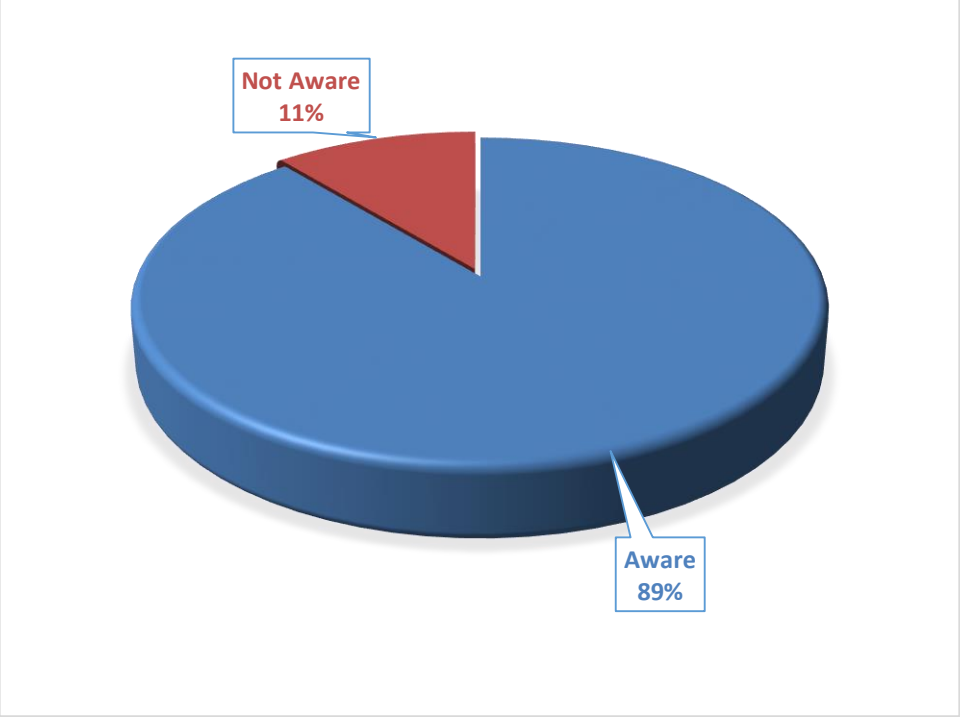

Fig.: A pie chart showing climate change awareness of respondents
Source: field survey, 2021

Sources of awareness of climate change information

Figure 2 above shows respondents sources of information on climate change of the 510 cocoa farmers who indicated that they were aware of the existence of climate change, (200) reported that they got the information through personal observation, one hundred and fourty (140) got the information through the radio and television, (41) got their information through friends and neighbours, while (35) got their information through extension workers. Similarly, (30) farmers got their information through farmers' cooperative groups, (20) got their information through the staff of the ministry of agriculture while (14) got information from non-governmental organizations. Ten (10) farmers got their information from newspapers, another (10) from input suppliers and the last (10) from the internet. The fact that most of the farmers' were aware of climate change through their personal observation points to the fact that they have been experiencing changes in climate elements such as temperature, precipitation amongst others as well as the experiences they get through their farming activities over the years. A significant number of farmers were aware of climate change through the radio/television and through their friends and neighbours which further supports the assertion of Urama and Ozor (2011) that radios and television in Africa are becoming very useful for information dissemination. The findings also confirms that of Ozor et al (2012) who noted that farmers in southern Nigeria were aware of climate change through personal observations, friends and neigbours, television, radio, newspapers, conferences, extension agents, workshops as well as input slippers.

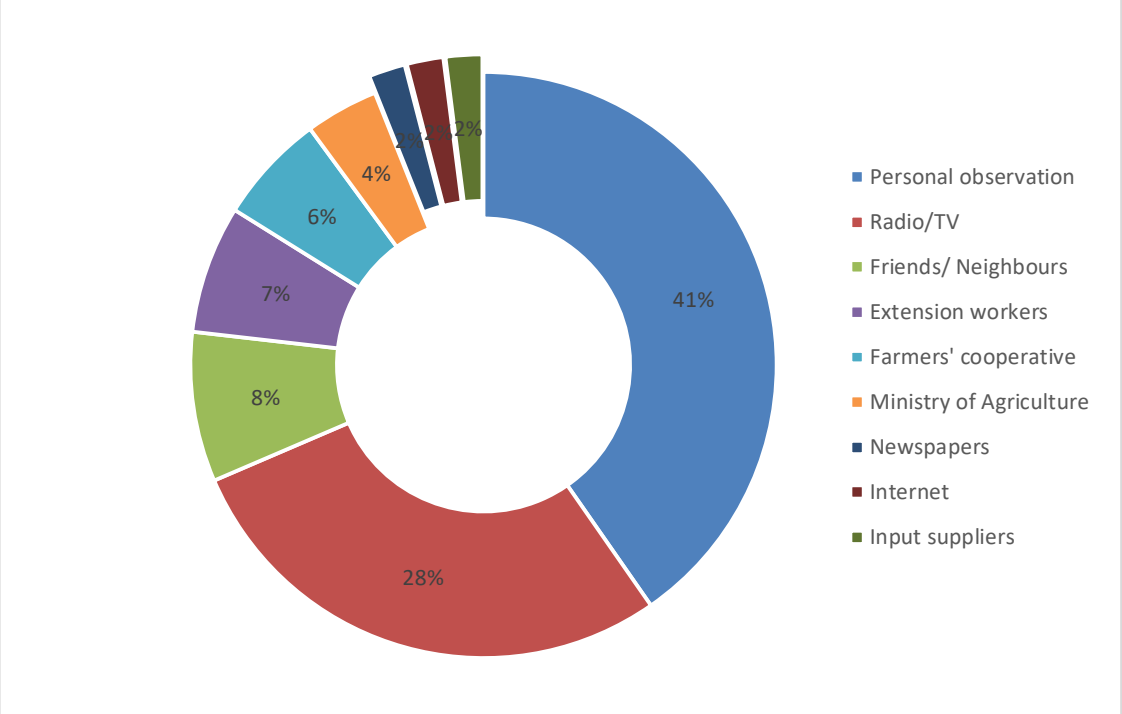

Fig. 2: A doughnut chart showing farmers sources of information on climate change
Source: field survey, 2021

Conclusion

This study considered cocoa farmers' awareness to climate change and the sources of their awareness. The study established that most of the cocoa farmers' (89.1%) are aware about climate change while (10.1%) of the farmers' are not aware of climate change. Those who are aware of climate change, personally experience the phenomenon through its variables such as dryness of streams, excessive heat, drought, flooding and delayed onset of rains during the cocoa planting season thus causing changes in planting dates. Personal experience was followed by radio/television as a source of climate change information, amongst other sources. The use of newspapers, internet and input suppliers came the least (1.96%) pointing to the fact that documented information about climate change hardly gets to the farmers also inputs suppliers are not a good source of information on climate change to the farmers.

From the findings of the study, the following recommendations have been suggested.

1. Since farmers' got aware of climate change through personal observations and the use of radio/television, aggressive use of mass media, public awareness campaigns, should be organized using local dialect to teach farmers about climate change.
2. More extension agents should be employed, trained and provided with the needed logistics so that they can reach out to the farmers with adequate climate change information.
3. Climate change information should be included in bulletins, posters, hand bills and handed to the farmers.

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