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CASSAVA FARMERS GENDER PERCEPTIONS ON THE CAUSES OF CLIMATE CHANGE IN BENDE LOCAL GOVERNMENT AREA, ABIA STATE

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ABSTRACT

This study aimed to investigate the perceptions of cassava farmers in Bende Local Government Area of Abia State, Nigeria, on the causes and effects of climate change on cassava yield. Both primary and secondary data were collected for the study. Primary data were gathered through a structured questionnaire administered online and offline, as well as focus group discussions with male and female farmers. Microsoft Excel 2016 was used to analyze the data, and statistical tools such as frequencies, percentages, means, and proportions were used to produce sample statistics. The results showed that the majority of male farmers were in the 51-60 year age bracket (40%), while those in the 30-40 year age bracket (12.5%) were the lowest in number, with an average age of 42 years. Similarly, the majority of female farmers were in the 51-60 year age bracket (50%), while those in the 61-70 year age bracket (10%) were the lowest in number, with an average age of 49 years. This suggests that younger people are engaging in farming. Many farmers with primary education or less believed that climate change is a punishment from God, with 65% of males and 70% of females holding this belief. The results also showed that 60% of male respondents reported a reduction in rainy seasons, while 55% of female respondents also reported a reduction in rainy seasons. The majority of respondents believed that cassava yield had decreased, regardless of their educational level. The respondents acknowledged changes in weather patterns, including declining precipitation and increasing temperatures, that are presenting serious challenges for cassava farmers who rely on rainfall for production and other rural livelihoods. The uncertainty about planting dates and the longer farming period due to climate change were also mentioned as challenges by the farmers. Given these findings, it is important for cassava farmers in Bende Local Government Area to be aware of the impacts of climate change on their crops and to adopt adaptation strategies to help mitigate.

Key words: Climate Change, Farmers. Gender, cassava, perceived

1. INTRODUCTION

Africa has 62% of world cassava production, making her the largest producer of cassava in the world. Nigeria currently holds the record of the largest producer of cassava in the world. Leading Africa cassava production with approximately 66.6% of total cassava in Africa, making her the largest producer of cassava in the world (Edamisan et al, 2020).

Cassava is a vital crop in Nigeria, both as a subsistence food for households and as a commodity for commercial purposes. It has been referred to as a "famine fighter" because it is a reliable source of food in times of hardship, and its low cost of production makes it effective at reducing food insecurity (Henri-Ukoha et al., 2011; Asante-Pok, 2013). This crop is highly valued for its ability to grow in a range of soil and climate conditions, which makes it an essential part of the diet for a large portion of the population.

Climate change is believed to have affected crop cultivation and yield in a number of ways, such as through changes in average temperatures, rainfall and climate extremes with an important impact on soil erosion (that is, floods, drought), changes in pests and diseases, proliferation of weeds and changes in

growing season (World Bank, 2008). Nigeria is still highly dependent on rainfall, making the production of crops rely entirely on the uncontrolled environment. Abubakari and Abubakari (2015) confirm that climate change is a threat to agriculture and food security, because of the loss of crops through variation in rainfall and temperatures.

However, climate change is a threat to cassava production, and farmers must be aware of this risk and take steps to adapt to these changes. These steps may include using drought-tolerant varieties, practicing conservation agriculture to improve soil health, and implementing better pest and disease management strategies. Additionally, addressing the root causes of climate change, such as reducing greenhouse gas emissions and promoting sustainable land use practices, is important for ensuring the long-term viability of cassava production and the well-being of the communities that rely on it.

Climate change refers to the long-term shifts in temperature, precipitation, and other aspects of the Earth's climate that are caused by a range of factors, including natural factors such as volcanic eruptions and changes in the sun's intensity, as well as human

activities like burning fossil fuels and deforestation (Godde et al., 2021). These shifts in meteorological conditions are likely to have significant impacts on the agriculture industry worldwide, including cassava farming (Raj et al., 2022; Nelson et al., 2009; G.C. Nelson et al., 2010). The negative effects of climate change on agriculture could lead to increased poverty and food insecurity for cassava farmers.

However, the impact of climate change on agriculture is not gender-neutral. The effects of climate change on men and women may vary due to their different roles and responsibilities in relation to agriculture and food production (Dankelman, 2010). Therefore, it is important to consider the impacts of climate change on cassava farmers from a gender perspective in order to understand and address the specific challenges and needs of both men and women in this sector.

There are many research and scientific report into agricultural and farming systems in Nigeria based on cassava production directed to soil, water and land management strategies, and technologies adaptation and mitigation strategies but little or no effort has been made to explore gender perceptions on the causes of climate change and its effects on cassava production among farmers in Nigeria, which inform the adaptation strategies they adopt order to mitigate the effect of climate change (FAO, 2011).

It is important to understand the gender perceptions of cassava farmers in Nigeria regarding the causes of climate change in order to improve research and efforts to mitigate its impact on cassava production. Previous research has shown that incorrect perceptions can hinder effective adaptation to climate change (Samuel et al., 2021; Brody et al., 2008). Additionally, the fact that the impact of climate change is not gender-neutral means it is particularly important to investigate how males and females perceive and interpret climatic events in order to formulate effective adaptation and mitigation measures (Samuel et al., 2021). This knowledge can help to inform the design of effective strategies for addressing the impacts of climate change on cassava farming in Nigeria.

Acknowledging that perceptions of the causes of climate change is important and is not gender neutral, gender perceived causes of climate change studies have been conducted in many developed countries mainly to explore mitigation options (Hansen et al., 2012; Mertz et al., 2009).

In developing countries like Nigeria, studies on perceived causes of climate change have been investigated in relation to adaptation and mitigation measures (Dhaka et al., 2010; Gbetibouo, 2009; Nzeadibe et al., 2011). Goh (2012), observed that the differences in cognitive abilities and normative factors may also mean that men and women are likely construe and respond to climate change impacts

differently. Sequel to the above, each gender may likely have different perceptions of the causes of climate change. Therefore, this research investigates the gender perceptions on the causes of climate Change by cassava farmers in Bende L.G.A of Abia State Nigeria. Hence, the aid of this study is to investigate gender perceived causes of climate change by cassava farmers.

2. MATERIAL AND METHODS

2.1 Study Area

The study was conducted in the Bende L.G.A of Abia State, Nigeria. The community is a rural community and predominantly occupied by cassava farmers. Farming is the major occupation of the majority living in the community. In addition, both men and women farmers are actively involved in agriculture. Therefore, the community is ideal for this type of study.

2.2 Data Collection and Sampling

Both primary and secondary data were utilized in the study. Primary data were generated through a well-structured questionnaire, which was administered both online (through the ODK Enketo web form) and offline using the ODK Collect app installed on an android phone. The choice of ODK is based on the fact that it is an open source and has an offline solution. And the functioning of ODK is based on XLSForm. A total of 80 (40 male and 40 Female) responses were received from the targeted community.

2.3 Data Analysis

Microsoft Excel 2016 was used to analyze collected data. Statistical tools were used to produce sample statistics such as frequencies, percentages, means, and proportions of the various samples.

3. RESULTS AND DISCUSSIONS

3.1 Socio-economic Characteristics of the Respondents

Table 1 shows the socio-economic characteristics of the respondents in this study. It was found that the majority of male farmers were in the 51–60 year age bracket (40%), while those in the 30–40 year age bracket (12.5%) were the lowest in number, with an average age of 42 years. Similarly, the majority of female farmers were in the 51–60 year age bracket (50%), while those in the 61–70 year age bracket (10%) were the lowest in number, with an average age of 49 years. This suggests that younger people are engaging in farming.

In terms of educational status, 40% of male farmers had primary education and 12.5% had tertiary education, while 32.5% of female farmers had primary education and 10% had tertiary education. This indicates that a large number of farmers had some level of formal education, with the majority having only primary education. It also reveals that male farmers were more educated than female farmers.

Table 1: Socio-economic Characteristics of the Respondents (n=80)

Variables	Male		Female	
	Frequency	Percentage	Frequency	Percentage
Age (years)				
30-40	5	12.5	3	7.5
41-50	12	30	13	32.5
51-60	16	40	20	50
61 -70	7	17.5	4	10
Mean	42		49	
Education Status				
Non-formal	7	17.5	12	30
Primary	16	40	13	32.5
Secondary	12	30	11	27.5
Tertiary	5	12.5	4	10
Family Size				
4-Jan	15	37.5	12	30
8-Apr	18	45	20	50
9>	7	17.5	8	20
Mean	6		7	
Farm Size				
< 2	7	17.5	19	47.5
4-Feb	12	30	11	27.5
7-May	17	42.5	8	20
10-Aug	4	10	3	7.5
Marital Status				
Single	8	20	5	12.5
Married	23	57.5	19	47.5
Divorced	5	12.5	3	7.5
Widowed	4	10	13	32.5
Members of Cooperatives				
No	27	67.5	29	72.5
Yes	13	32.5	11	27.5
Farming Experience				
10-Jan	7	17.5	3	7.5
20-Nov	12	30	13	32.5
21-30	16	40	19	47.5
31-40	5	12.5	5	12.5
Mean	15		13	
Access to Extension Services				
No	28	70	32	80
Yes	12	30	8	20
Average Income Level				
50000-100000	3	7.5	13	32.5
101000-150000	16	40	11	27.5

151000-200000	13	32.5	12	30
>201000	8	20	4	10

The results of this study also showed that the mean family size for male cassava farmers was 6 persons, with 45% of male respondents having family sizes of 4-8 persons and 17.5% having family sizes of 9 or more. For female farmers, the mean family size was 8 persons, with 50% having family sizes of 4-8 persons and 20% having family sizes of 9 or more. This indicates that female respondents had larger family sizes than male respondents in the study area.

In terms of farm size, the results showed that male farmers had a mean farm size of 5.9 plots, while female farmers had a mean farm size of 3.8 plots. This may be due to cultural and land tenure practices in the area, which often allocate more land to males than females (Emenyeonu et al., 2018). The small farm sizes of the cassava farmers in this study area may impact their ability to adopt new technologies, their scale of production, and their output levels, as well as

their willingness to adopt information for adaptation and mitigation measures against climate change.

Perceived Causes of Climate Change by Educational Level

From the figure 1 below, the results of this study showed that the gender perceptions of cassava farmers in Nigeria about the causes of climate change varied by educational level. Many farmers with primary education or less believed that climate change is a punishment from God, with 65% of males and 70% of females holding this belief. In contrast, those with higher education (secondary school certificate or higher) believed that climate change is caused by natural phenomena and human activities, while a small number were indifferent about the causes. These findings suggest that education level may influence how individuals perceive and understand the causes of climate change.

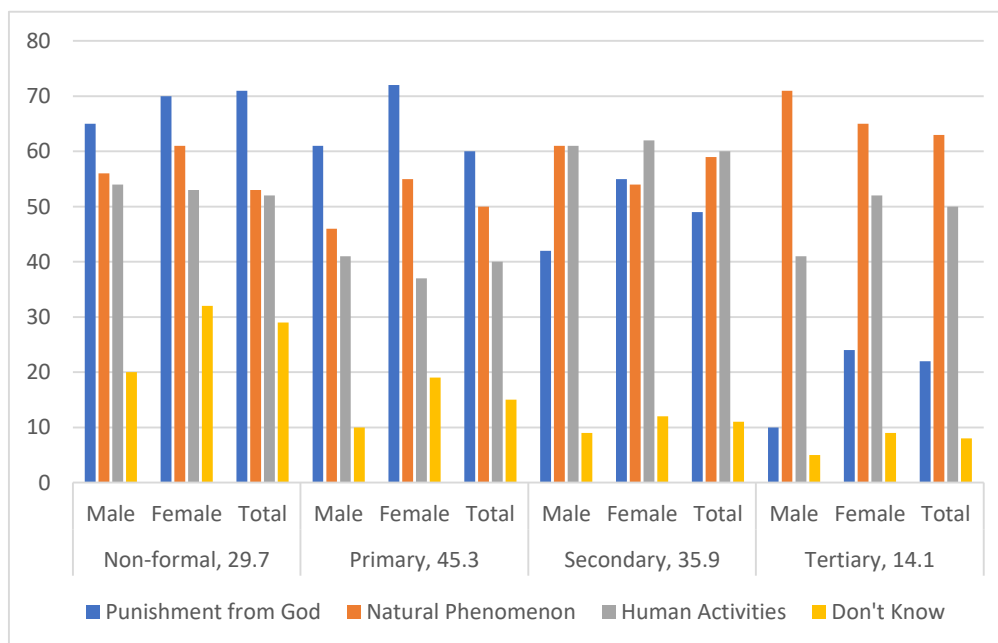


Fig. 1: Gender perceived of the causes of climate Change by Educational level

3.3 Farmers' observations of seasonal variations

According to the results presented in Figure 2, the respondents believed that climate change had caused serious variations in weather patterns and had resulted in extreme environmental effects like flooding. These variations included decreases in rainfall, delays in the timing of rain, shortened rainy seasons, longer dry seasons, and higher temperatures. Other observations included increased drought severity, increased flooding, and lower temperatures. Both male (73%)

and female (82%) respondents believed that dry seasons had decreased.

When analyzing the results by gender, 60% of male respondents said they had noticed a reduction in rainy seasons, while 55% of female respondents also reported a reduction in rainy seasons. A majority of respondents (70%) believed that the amount of rainfall had increased, causing flooding. Many male (82%) and female (72%) respondents noticed irregular patterns of rainfall, and both male (73%) and female

(69%) respondents believed that temperatures had increased. For those who noticed a reduction in dry seasons, 73% were males and 82% were females.

These results suggest that climate change is having a significant impact on the weather patterns experienced by cassava farmers in Nigeria, leading to extreme

environmental effects like flooding and drought. This can have serious consequences for their ability to grow and harvest crops, as well as their overall livelihoods. It is important for farmers to be aware of these changes and to adopt adaptation strategies to help mitigate their impacts.

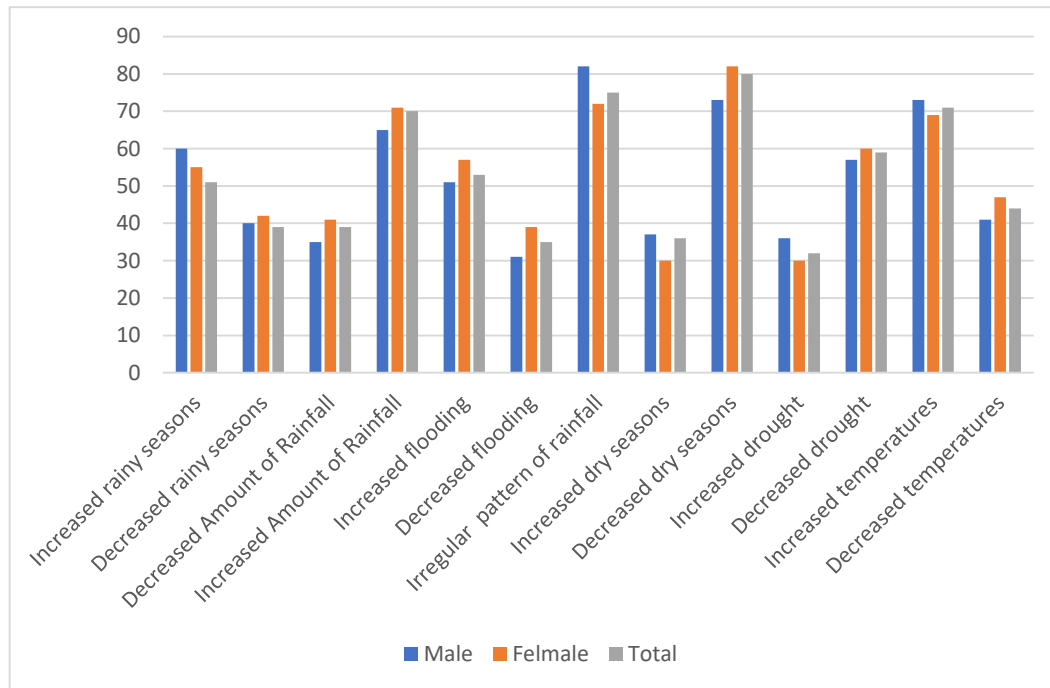


Fig. 2: Farmers’ observations of seasonal variations

3.3 Farmer perceived effect of climate change on cassava yield

Figure 3 presents the results of how cassava farmers in Nigeria perceive the effect of climate change on cassava yield. The majority of respondents believed that cassava yield has decreased, regardless of their educational level. They also reported that the irregular patterns of rainfall and uncertainty about the timing of rain made it difficult to determine the optimal planting and harvesting dates for their cassava crops.

These findings suggest that climate change is having a negative impact on cassava production in Nigeria, leading to reduced yields. This can have serious

consequences for the livelihoods of cassava farmers and the food security of the communities that depend on this crop. It is important for farmers to be aware of these challenges and to adopt adaptation strategies to help mitigate their impacts. This may involve using drought-tolerant varieties, implementing conservation agriculture practices, and improving the management of pests and diseases. Additionally, addressing the root causes of climate change, such as reducing greenhouse gas emissions and promoting sustainable land use practices, can help to ensure the long-term viability of cassava production.

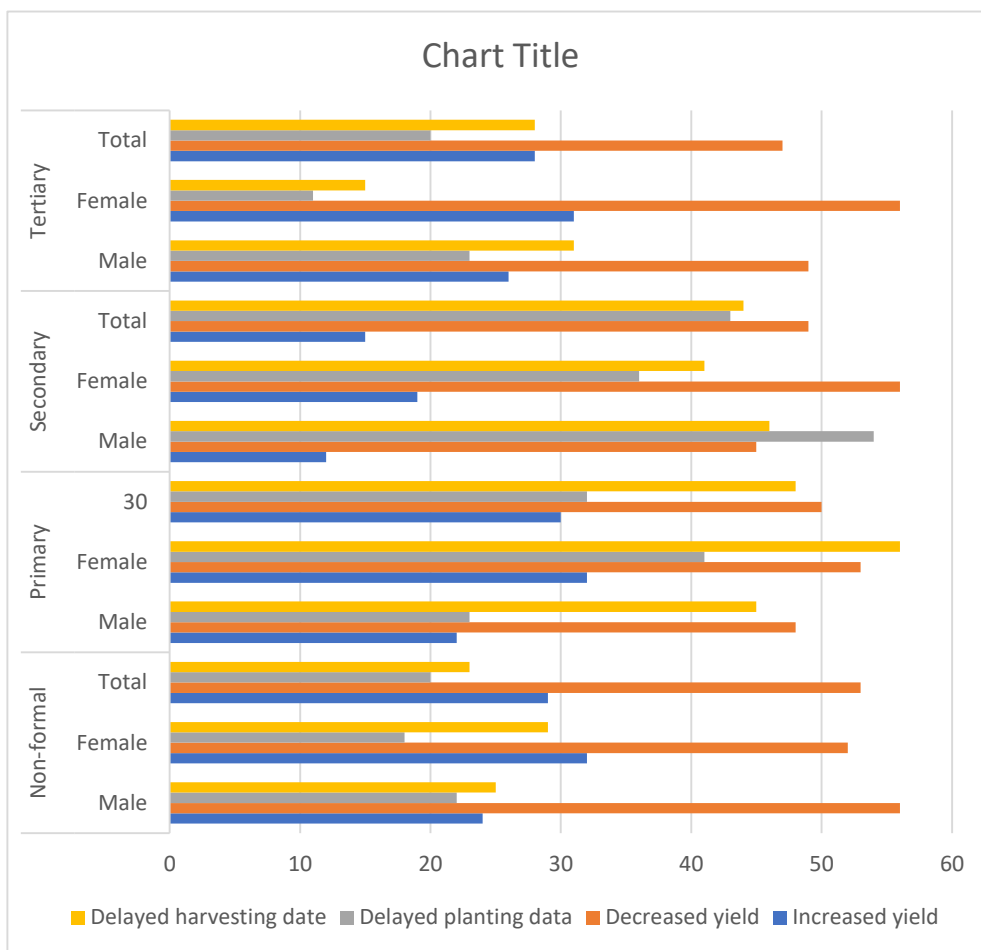


Fig. 3: Farmer perceived effect of climate change on cassava yield

Conclusions

Based on the findings of this study, which was conducted in Bende Local Government Area of Abia State, Nigeria, it is clear that climate change is having a negative impact on cassava production. Over 90% of respondents acknowledged that climate change is real, and more than half of them (50% males, 43% females) reported that it has caused a reduction in cassava yield. The respondents also reported changes in weather patterns, including declining precipitation and increasing temperatures, that are presenting serious challenges for cassava farmers who rely on rainfall for production and other rural livelihoods. The uncertainty about planting dates and the longer farming period due to climate change were also mentioned as challenges by the farmers.

Given these findings, it is important for cassava farmers in Bende Local Government Area to be aware of the impacts of climate change on their crops and to adopt adaptation strategies to help mitigate these impacts. This may involve using drought-tolerant varieties, implementing conservation agriculture practices, and improving the management of pests and diseases. Additionally, addressing the root causes of climate change, such as reducing greenhouse gas

emissions and promoting sustainable land use practices, can help to ensure the long-term viability of cassava production in the region. It is also important for policymakers and other stakeholders to consider the challenges faced by cassava farmers in Bende Local Government Area and to provide support and resources to help through extension agents.

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