

Fluted pumpkin farmers perception of climate change in Rivers State

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Received: Oct. 2012

Accepted: Apr. 2013

ABSTRACT

The importance of fluted pumpkin crop in rural household economy cannot be over emphasized. Farmers in South-South Nigeria depend greatly on fluted pumpkin for its many uses. The production however is beset with a myriad of constraints of which climate change is one of the most outstanding. The study assessed the fluted pumpkin farmers' perception of climate change in Ikwerre Local Government Area of Rivers State, Nigeria. Multi-stage sampling technique was used to select respondents for the study; - out of the twelve communities that make up Ikwerre local government area, six communities were randomly chosen from which one hundred and eighty fluted pumpkin farmers were proportionally selected. Interview schedule and Focused group discussion were used to elicit in-depth information from the respondents. Data obtained were analyzed using percentages, frequency counts and mean. The result of the study showed that 51% of the respondents were female, majority were married (77%) and are full time farmers (79%). Relatively large proportion had no formal education (42%) and indicated both consumption and sale (79%) as the major aim of production. The results also show that climate change was mainly perceived by the fluted pumpkin farmers to be unpredictable climate condition with a mean of 3.54. It was recommended that intensive education on climate change matters be given to the fluted pumpkin farmers by the extension agents to help them understand better as well adapt to climate change.

Key words: Climate change, fluted pumpkin production, adaptation measures

INTRODUCTION

Some traditional crops are central to the culture and survival of a community of people. And any improvement in the production of such crops will enhance the standard of living of such people. Fluted pumpkin (*Telfairia occidentalis*) belongs to the family Cucurbitaceae and it is a crop of commercial importance grown across the low land humid tropics of West Africa with Nigeria, Ghana and Sierra Leone being the major producers

(Nkang *et al.*, 2003). The fluted pumpkin is used as a leafy green vegetable and grows in several African countries. Its name, fluted, refers to the shape of the female flower. It is a tropical vine grown mainly for the leaves which constitute an important component of the diet of many people in West African countries and for its edible seed, (Fagbemi *et al.*, 2005). The young shoots and leaves of the plant are the main parts used in soup especially in southern and eastern Nigeria.

Common names for the plant include fluted gourd, fluted pumpkin, iroko and *ugu*. The plant is dioecious, perennial and tolerates drought to a reasonable extent. It is usually grown trellised. It needs a well drained soil, some water and some sun. Fluted pumpkin (*Telfairia Licanthalis Hoof*) is a crop of commercial and nutritional importance to the people of Rivers State. Nutritionally, it is grown mainly for the leaves and its edible seed. The leaves are rich source of oil, vitamins and minerals which enhance, nourish, protect and heal the body. The green leaves are low in crude fibre, rich source of folic acid, calcium, zinc, potassium, cobalt, copper, iron, vitamins A, C and K and also have medicinal value (Ladeji, 1995; Ajibade, 2006). Relative to most common vegetables, its protein content is high (Okoli and Mgbeogu, 1983; Ladeji, 1995). Commercially, production of fluted pumpkin serves as a major source of income to households in Rivers state.

Over the past 100 years, the earth's average surface temperature has risen by about 0.74°C. Most researchers agree that global temperatures will rise further (by how much depends on future emissions of green house gases) and if the temperature rise is high, changes are likely to be so extreme that it will be difficult to cope with them (Ozor, 2009 and NEST, 2011). Eboh (2009) noted that countries in Sub-Saharan Africa are likely to suffer the most because of their geographical location, low incomes, and low institutional capacity, as well as their greater reliance on climate-sensitive renewable natural resources sectors like agriculture. In Nigeria, agricultural production is largely non-mechanized; therefore weather/climate assumes significance in every stage of production. Farmers depend on climate signals as a major determinant of their farming activities. This makes climate very significant in the production of crops, fluted pumpkin inclusive. Farmers have encountered a series of losses as

a result of change in climate (Apata *et al.*, 2009; Ozor, 2009 and IPCC, 2007). Fluted pumpkin though is known to tolerate drought to a reasonable extent is adversely affected by the variations in climate. All stages of production of fluted pumpkin are affected by the variation in climate. Astrologists have it that variation in climate may not be avoided entirely because of inability of countries to stop the emission of green house gases. Unfortunately, farmers have not yet come to terms with the phenomenon of climate change. They still perceive it as well as attribute climate change to situations or processes which have little or nothing to do with climate change. Ifeanyi-obi, *et al.*, (2011) found that the inhabitants of Umuebule Rivers state still attribute the change in climate solely to activities of SPDC in their area. They are yet to understand that though the activities of SPDC contribute to climate change, there are other activities they engage in which also contribute to climate change.

There is therefore an urgent need for the Agricultural extension system to rise up to this challenge by educating farmers on climate change issues. The first step towards this education should be to study the farmers and their level of knowledge about climate change. It is only when the extension agents understand the farmer's perception of climate change that they can know where and how to educate the farmers effectively. Adereti and Ajayi (2011) indicated that one of the basic principles of Extension is that it should start from where the people are. He explained that Extension should work at the level where the people are, that is, at their level of knowledge, understanding, interest and degree of readiness. In order to be able to assist the people to move to higher levels of aspiration, it is important that extension worker should know what the conditions are. This includes among other things their level of understanding of their environment and environmental processes. It is against this

background that this study to assess the fluted pumpkin farmers' perception of climate change so that useful and relevant mitigation and adaptative measures could be prescribed to them in the future.

METHODOLOGY

The study was conducted in Ikwerre Local Government Area (LGA) of Rivers State in the South South zone of Nigeria. Ikwerre LGA comprises of twelve communities namely: Isiokpo, Aluu, Apani, Elele, Igwuruta, Ipo, Omademe, Omagwa, Omarelu, Omuanwa, Ozuaha, and Ubima. The area has tropical climate, with relatively high density of rainfall making it suitable for fluted pumpkin production. The area has a large expanse of thick rain forest, adequate availability of arable land for cultivation purposes, innumerable good virgin forest which accounts for their excellence in agricultural produce and returns.

Multi-stage sampling procedure was used for this study. First, six communities were randomly selected from the twelve communities that make up Ikwerre L.G.A. Secondly, one hundred and eighty fluted pumpkin farmers were proportionately selected from the six communities. Interview schedule and focused group discussion were used to elicit information from the respondents. Data obtained were analyzed using descriptive statistical tools such as percentages, frequency counts and mean.

RESULT

Socio-economic characteristics of fluted pumpkin farmers

Table 1 show that 51% of the Fluted Pumpkin farmers were females, 77% married and 44% maintained a household size of 1-5 persons. Majority (79%) were found to be full time farmers. The percentage distribution of Fluted Pumpkin farmers by other occupation engaged in shows that out of a total number of 180 farmers interviewed, 62% indicated trading to

be other occupation engaged in, 32% indicated public servant, 1% indicated artisan while the remaining 4% indicated others like trap setting and fishing. It was also shown that farmer's major aim of fluted pumpkin production is for both consumption and sale (79%) with only 11% producing for sales alone and 10% for consumption alone. The mean years of the total years spent in farming (farming experience) by the Fluted Pumpkin farmers was found to be 11 years while the farm size was found to be within an average size of 8 plots. Table 1 further shows the distribution of respondents by level of education attained. It was revealed that 42% of the respondents had no formal education while the remaining 58% of the respondents were educated at different levels.

The result shows that relatively more females were involved in fluted pumpkin production than males; this is not a surprise as vegetable production in most part of Nigeria is done mostly by women. The result also revealed that majority of the fluted pumpkin farmers were married, maintained a small household size and were full time farmers. This agrees with the findings of Ifeanyi-obi *et al.*, (2011); Ekong (2010); Ozor, (2010); Mgbada, (2010); Akpabio, (2006), which noted that majority of rural dwellers has farming as a major livelihood activity. More than half of the fluted pumpkin farmer's interviewed had formal education implying that farmers in the study area are literate enough to adopt new technologies easily since they can read and write.

Fluted pumpkin farmer's perception of climate change

It was shown in Table 2 that respondents strongly perceived climate change to be unpredicted climate condition (3.54), changes in rainfall pattern (3.38), undefined climate (3.01) and changes in rainfall distribution throughout the raining season (3.08). They also perceived climate change to be

Table 1: Socio-economic characteristics of Fluted pumpkin Farmers

Item	Frequency	Percentage
Sex		
Male	88	48.9%
Female	92	51.1%
Marital status		
Single	18	10.0%
Married	138	76.7%
Separated	16	8.9%
Others (widow	6	3.3%
Widower	2	1.1%
Household Size		
1 – 5	80	44.4%
6-10	76	42.2%
11- 15	20	11.1%
16-20	4	2.2%
Are you a full time farmer		
Yes	142	78.9%
No	38	21.1%
Occupations		
Artisan	2	1.1%
Trading	112	62.2%
Public Servant	58	32.2%
Others	8	4.4%
Aim of Production		
Consumption and sale	142	79%
Sales	20	11%
Consumption	18	10%
Level of education attained		
No formal education	76	42.22%
Primary education	40	22.22%
Secondary education	29	15.56%
OND and equivalent	23	13.33%
Tertiary education(HND,BA,BSc and above)	12	6.67%

Source: Field Survey, 2011

unpredictable planting time for fluted pumpkin (2.07), increased earth temperature (2.87), delayed onset of rainfall (2.69), unusual heavy rainfall (2.97) and occurrence of erosion (2.77) while prolonged drought (2.33) was not favoured by the respondents.

Table 2: Fluted pumpkin farmer's perception of climate change.

Perception of climate change		Strongly agree	Agree	Disagree	Strongly disagree	Mean	Remark
Unpredictable climate condition		116 (43)	50 (28)	10 (6)	4 (2)	3.54	Agreed
Changes in rainfall pattern		78 (43)	94 (52)	6 (3)	2 (1)	3.38	Agreed
Unpredictable planting time of fluted pumpkin		28 (16)	80 (44)	56 (31)	16 (9)	2.67	Agreed
Increased earth temperature		56 (31)	58 (32)	52 (29)	14 (8)	2.87	Agreed
Delayed onset of rain		28 (16)	82 (46)	56 (31)	14 (8)	2.69	Agreed
Prolonged drought		30 (18)	52 (30)	66 (38)	28 (16)	2.33	Disagreed
Unusual heavy rainfall		66 (38)	52 (29)	46 (26)	14 (8)	2.97	Agreed
Occurrence of erosion		42 (23)	68 (38)	56 (31)	14 (8)	2.77	Agreed
Undefined climate condition		60 (33)	74 (41)	34 (19)	12 (7)	3.01	Agreed
Changes in rainfall distribution throughout the rainy season		62 (34)	76 (42)	36 (20)	6 (3)	3.08	Agreed

Mean Score ≥ 2.50 is significant. Note: Figures in parenthesis are percentages

Source: Field work, 2011

DISCUSSION

Socio-economic characteristics of Fluted Pumpkin Farmers

The result of the socio-economic characteristics of the fluted pumpkin farmers shows that relatively more females were involved in fluted pumpkin production than males; this is not a surprise as vegetable production in most part of Nigeria is done mostly by women. The result further revealed that majority of the fluted pumpkin farmers were full time farmers. This agrees with the findings of Ifeanyi-obi *et. al.*, (2011); Ekong (2010); Ozor, (2010); Mgbada, (2010); Akpabio, (2006), which noted that majority of rural dwellers has farming as a major livelihood activity. Though majority of the

farmers had farming as a full time job, it was shown that majority of them had access to less than one hectare of land for farming. This could be as a result of the increasing pressure on land as more people depend on fewer hectares of land for farming. The farmers on further questioning revealed that land in the study area was being used for other activities like building of commercial and residential houses, markets, etc. The pressure on land use could add to deforestation which is one of the likely causes and drivers of climate change.

More than half of the fluted pumpkin farmer's interviewed had formal education implying that farmers in the study area are literate enough to adopt new technologies easily since they can read and write. Agwu

and Anyanwu (1996) also noted that increase in educational status of farmers positively influences adoption of improved technologies and practices. The results also shows that majority of the respondents have both sales and consumption as their major aim of production. A possible explanation of this is that the fluted pumpkin farmers feed their families from their farm produce while the excess is taken to the market.

The result revealed that fluted pumpkin farmers in the study area strongly perceived climate change to be unpredicted climate condition. According to them the climate events have so much changed that it is no longer predictable. The major seasons of the year no longer follow what it used to be. Heavy rain falls could be experienced even at the peak of dry season. From the result it could be seen that the fluted pumpkin farmers in the study area have relatively good knowledge of what climate change is all about. This is in contrast with Ifeanyi-obi (2011) which found out that the inhabitants of Umuebule community in Rivers State perceived climate change to be the by-product of the SPDC gas flaring in their area.

This study concludes that fluted pumpkin farmers in Ikwerre Local Government Area perceive climate change mainly as unpredictable climate condition specifically rainfall pattern. It is worthy to note that the perception of fluted pumpkin farmers of climate change is a reflection of the effects of climate change being experienced by these farmers. Therefore it was recommended that intensive and proper education on climate change should be given to fluted pumpkin farmers in the study area possibly by the extension agents working in the area. Also, information concerning adaptation measures on the possible effects of climate change on fluted pumpkin production should be brought to the knowledge of the fluted pumpkin farmers in order to alleviate

the negative adverse effects the change in climate.

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