

Improving Household Food Security in Ayamelum Local Government Area of Anambra State

Nomeh B. C.

Department of Home Economics
Nwafor Orizu College of Education, Nsugbe
Anambra State

Abstract

The study focused on food security among households in rural communities of Anambra State, Nigeria. Specifically, it determined food items that are available to the rural households throughout the year; extent to which the food items are accessible throughout the year; factors that hinder availability and accessibility throughout the year; and ways of improving food availability and accessibility to households throughout the year. The study was survey. Area of study was Ayamelum Local Government Area (LGA) of Anambra State. Population comprised of 158, 152 households in LGA. Data were collected through focus group discussion (FGD) guide. Data collected were summarized and organized based on specific purposes. Findings reveal, among others, that only two food items (cassava and maize) were available to households throughout the year. These can be processed into a variety of dishes; access to food is limited; eleven factors hinder household food security including flooding, activities of herdsmen and their animals eating up their crops. Further findings reveal 10 ways of improving food security among households which include; food borrowing and young children depending on school lunch. Study concluded that households are not food secured. Based on the findings, six recommendations were made for improving household food security including; improved agricultural practices, and Home Economics bodies should organize trainings and workshops regularly on ways of improving food management practices.

Key words: Availability, Accessibility, Food, Security, Households, Rural Communities.

Introduction

Household food insecurity is the bane of existence for many households in Nigeria, especially those in rural areas. The right to an adequate standard of living including food security is

recognized in the Universal Declaration of Human Right (United Nations, 2021). Food security should be a fundamental objective of developmental policy as well as a measure of its success. Household food

security affects a wide cross-section of the population in both rural and urban areas. The food insecure social-economic groups include: farmers of which main population are women with limited access to natural resources and input: landless labourers; rural artisan temporary workers; the elderly; refugees and displaced unemployed and female head of household etc. According to Food and Agricultural Organisation (2010) 925 million people were approximately undernourished in 2010 with about 900 million of them living in developing countries, while FAO (2015) with respect to the World Food Summit (WFS) target (halving the number of undernourished people by 2015). Despite the overall progress made in reducing the prevalence of hunger; there is room for improvement. Since 1990 - 92, approximately 42 million people were added to the total number of undernourished people in sub-Saharan Africa, with an estimated 217.8 million in 2014 - 16 compared to 176 million in 1990 - 92.

World Food Summit gave a holistic definition of food security which incorporates four domains of food security namely; availability, access, utilization and stability (United Nations, 1996). Food security was also defined as the ability of all people to have physical and economic access at all times to safe nutritious food to maintain a healthy and active life (Akukwe & Ogunniyi, Omotoso, Salman, Omotayo, Olagunju and Aremu, 2020). Food availability has to

do with "sufficient food" and is associated with physical quantities of food while food accessibility is a measure of ability to obtain/secure food (Akukwe, 2020). Food availability also connotes that food must be readily available for consumption through improved agricultural production, market access, uniform distribution to all (Ogunniyi *et al.*, 2021). Access to quality nutritious food is equally fundamental to human existence. Secure access to food can produce wide range of positive impact which includes: economic growth and job creation, poverty reduction, trade opportunities, increase global security and improved health. Irohibe and Agwu (2014) also noted that food availability does not ensure food accessibility. For food to be accessible individual or families must have sufficient purchasing power or ability to acquire quality food at all times.

Household food insecurity thus occurs when food is not available or cannot be accessed with certainty in terms of quality, quantity, safety and in culturally acceptable ways at the level of household (Gupta, Singh, Soth, Agaraval and Mathur, 2015). Household food insecurity may affect dietary diversity by limiting access to and procurement of food of higher quality and food insecure households (Ezeama, Ibeh, Adimma, Echendu, Emelumadu and Adogu, 2015). Food insecure households often adopt ways of coping with food shortage in their household. Such ways include, among others, as reduction of the number of meals in a day, reducing the amount of

food cooked for meals, material buffering (a mother limiting her own food intake to ensure her child has enough to eat), borrowing from relatives, borrowing outside one's kinship network and sale of land to procure food items for households (Ezeama *et al.*, 2015). A study carried out in India found significant associations of food insecure households with borrowing money/food and selling of valuable materials (Gupta *et al.*, 2015). Ezeama *et al.*, (2015) reported in their study in Anambra state that the households major staple were cassava and rice while Anuawa and Agwu (2019) reported maize and rice as major staple food consumed in their study area in Kano State. They also commented that households understanding of having enough food mean having enough of maize and rice. An indication of diet that is largely starch based (Anuawa and Agwu, 2019). This runs contrary with goal two of the sustainable development goal which strives for "zero hunger" by 2030. Food insecurity, under nutrition and malnutrition is a barrier to the development of many regions including Africa (African Hunger and Poverty Facts, 2018).

Anambra State is one of the states in Nigeria with the ability to attain self-sufficiency in basic food production, with a land mass of 4,844km² (National Population Commission, 2006). Prior to the 70s, agriculture occupied a prime position in the economy of the state which is blessed with arable soil. However,

over the past decades; rural urban migration has been the trend as 60% of the state live in urban areas in search of better stand and of living, making the state one of the most urbanized states in Nigeria (National Population Commission, 2006) thereby decreasing food productions. It is also important to note that despite the numerous resources available for agricultural development; the state is still limited by low level agricultural technology.

Ayamelum local government is one of the LGA in Anambra State with agriculture as the major economy of the people. Substance agriculture is the predominant occupation of the area (Udemezue, Ede and Udesi, 2018). Rainfall occurs seasonally with average dry season, and this brings about the dynamics in the ecosystem between killer herdsmen and farmers. The implications of this land use by herdsmen have brought about an incessant loss of soil fertility (Udemezue *et al.*, 2018). Apart from grazing in their farm lands, issue of kidnapping of farmers in their farm lands, conflict and extreme weather condition such as intense rainfall caused by climate change which is beyond what the farmers are familiar with and can handle in order to remain productive (Nnamdi, Ligwnga, Lying and Madukwe, 2019). These have left the agricultural communities less food secured.

Purpose of the Study

The main purpose of the study was to evolve ways of improving food

security within households in rural communities of Anambra State. Specifically, the study determined:

1. food items that are available to the rural households in Ayamelum LGA throughout the year.
2. extent to which the available food items are accessible to households throughout the year.
3. factors that hinder availability and accessibility of food to households throughout the year.
4. ways of improving food availability and accessibility to the household throughout the year.

Research Questions

The following research questions were raised to guide the study:

1. What food items are available to the rural households in Ayamelum LGA throughout the year?
2. To what extent are foods accessible to household throughout the year?
3. What are the factors that hinder availability and accessibility of food to households throughout the year?
4. What are ways of improving food availability and accessibility to the household?

Methodology

Area of the Study: The study was carried out in Ayamelum LGA of Anambra State. Ayamelum has its headquarters at Anaku. The LGA is located in south-central zone of Anambra State. It has eight communities. It is located at the left bank of Anambra River. The communities have their local markets where they sell and purchase their

farm produce, but have no access roads.

Design for the Study: The design used for the study was qualitative survey.

Population for the Study: The estimated population of the households in the LGA based on the last population census is 158,152 (National Population Commission, 2006). There are literate and both illiterate households. They were predominantly farmers and few civil servants.

Sample for the Study: The sample size for the study was made up of 48 persons. This sample size was chosen because focus group discussion was used to collect qualitative data. The study adopted multi-stage and purposive sample techniques. At first stage, the four communities were selected out of the eight communities that made up the LGA. Four households were purposively selected from each of the four communities to give a total of 16 households. Only households with at least four members and had at least a child of not less than 10 years of age were selected. From each household the father, mother and grown up were selected. These gave a total of 48 members of households who made up the sample of the study.

Instrument for Data Collection: The instrument for data collection was a focus group discussion (FGD) guide. It was developed based on the specific purposes of the study. It was validated by three experts in Food and Nutrition in a University.

Data Collection Method: Four sessions of FGD each made up of 12 discussants

were conducted in the Primary Health Care facilities in the study area. All these sessions were conducted in Igbo language. The researcher facilitated each of the four FGD sessions with the help of two assistants. Each session of FGD lasted for an average of one hour. Discussions were duly recorded and necessary notes were taken by research assistants.

Data Analysis Techniques: The video recording was in Igbo and was later translated verbatim into English language. It was read several times and compared with the notes obtained during the discussion. The FGD data were then organized and summarized based on the specific purposes.

Findings of the Study

Table 1: Summary of FGD Information on Food Items Available to Rural Households throughout the Year

S/No	Food Items	Availability Ranking
Food Availability throughout the year		
1.	Cassava (<i>Manihot esculenta</i>)	1 st
2.	Maize (<i>Zea mays</i>)	1 st
3.	Garri (cassava product)	2 nd
4.	Cassava <i>fufu</i> (cassava product)	3 rd
5.	Cassava flour (cassava product)	3 rd
6.	Abacha (cassava flakes) (cassava product)	4 th
7.	Akamu (corn Porridge) (Maize product)	5 th
8.	Igbagwu (corn dish)	6 th
Food that have Seasonal variation in availability		
9.	Yam (<i>Manihot esculenta</i>)	1 st
10.	Cocoyam (<i>Colocasia esculenta</i>)	2 nd
11.	Fio fio (pigeon pea) (<i>Cajanus cajan</i>)	3 rd
12.	Akidi (green runner beans) (<i>Vigna unguiculata</i>)	4 th
13.	Rice (<i>Oryza sativa</i>)	5 th
14.	Ukwa (Bread fruit) (<i>Treculia africana</i>)	6 th
15.	Plantain (<i>Musa paradisiacal</i>)	7 th
16.	Fruits/vegetables (assorted)	8 th
17.	Fish/meat	9 th

Table1 reveals that cassava and maize were available to the households throughout the year with an availability ranking of first (1st), followed by garri with the availability ranking of second (2nd), cassava flour third (3rd), Abacha fourth (4th), Akamu (corn

porridge) fifth (5th) and Igbagwu (corn dish) sixth (6th).

Table 1 also shows that there is seasonal variations in food availability with yam ranking number first (1st), followed by cocoyam second (2nd), fio fio (pigeon pea), third (3rd), Akidi (green runner beans) fourth (4th). The

table also reveals that rice ranked fifth (5th), ukwa (bread fruit) sixth (6th), plantain seventh (7th) and fruits/vegetables ranked eight (8th) while fish/meat had the lowest ranking of ninth (9th).

Table 2: Summary of FGD Information on Extent to Which the Food is Accessible to Household throughout the Year

S/No	Extent of accessibility	Very High	High	Average	Low	Very Low
1.	Cassava (<i>Manihot esculenta</i>)	x				
2.	Maize (<i>Zea mays</i>)	x				
3.	Cassava <i>Fufu</i> (cassava product)		x			
4.	<i>Garri</i> (cassava product)		x			
5.	Cassava flour (cassava product)		x			
6.	<i>Abacha</i> (cassava flakes) (cassava product)		x			
7.	<i>Akamu</i> (corn porridge) (Maize product)		x			
8.	<i>Igbagwu</i> (corn dish)		x			
Seasonal Variation in Accessibility						
9.	Yam (<i>Manihot esculenta</i>)			x		
10.	Cocoyam (<i>Colocasia esculenta</i>)			x		
11.	<i>Fio fio</i> (pigeon pea) (<i>Cajanus cajan</i>)			x		
12.	<i>Akidi</i> (green runner beans) (<i>Vigna unguicalata</i>)			x		
13.	Rice (<i>Oryza sativa</i>)				x	
14.	<i>Ukwa</i> (bread fruit) (<i>Teculia africana</i>)				x	
15.	Plantain (<i>Musa paradisiaca</i>)				x	
16.	Fruit/vegetable (Assorted)				x	
17.	Fish/meat					x

Table 2 reveals that cassava and maize were very high on extent of accessibility to households. It also shows that items 3,4,5,6,7 and 8 which are products of cassava and maize are high in excessibiity. These really show that cassava and mazie are key food items in the area of the study.

Table 2 also shows the extent of accessibility of food items characterized by seasonal variation. It shows that yam, cocoyam, *fio fio* and *akidi* rank average accessibility while rice, *ukwa*, plantain and fruit/vegetable rank low in level of accessibility, fish and meat were very low.

Table 3: Summary of FGD Information on Factors that Hinder Availability and Accessibility of Food Items to Households throughout the Year

S/No	Factors that Hinder Availability and Accessibility of Food	Ranking
1.	Lack of fund/high food price (poverty)	1 st
2.	Climate change (flooding)	2 nd
3.	Insecurity (kidnapping/killer herdsmen activities)	3 rd
4.	Poor access to farm land	4 th
5.	Conflict/terrorism	5 th
6.	Government policies	6 th
7.	Poor access road to farmland/market	7 th
8.	Food storage/processing problems	8 th
9.	Poor access to credit facilities	9 th
10.	Mechanization/high cost of farm implements/hiring of tractors	10 th
11.	High cost of improved yielding varieties of seedling	11 th

Table 3 shows 11 factors that hinder availability and accessibility of food items to households throughout the year. The Table shows that lack of funding /high food price/poverty ranked highest, followed by climate change/flooding, insecurity (kidnapping/killer herdsmen activities), access to farmland. Other

factors are conflict, terrorism, government policy, access road to farmland/market, storage/processing problem, access to credit facilities, mechanized mechanization/high cost of farm implements/hiring of tractors and high cost of improved yielding varieties of seedling respectively.

Table 4: Summary of FGD Information on Ways of Improving Food Availability and Accessibility of the Households throughout the Year

S/No	Ways of Improving Food Availability and Accessibility for the Household	Ranking
1.	Food borrowing from neighbours	1 st
2.	Mothers forfeit their own meals/going without food, so as to feed their children	2 nd
3.	Reduction of portion size of food consumed by members of household	3 rd
4.	Buying food on credit	4 th
5.	Young children depending on school lunch	5 th
6.	Reducing quantity of food cooked by household	6 th
7.	Skipping meals by members of household	7 th
8.	Increased reliance on wild food that is, food items growing in forests.	8 th
9.	Borrowing money from cooperative society/money lenders	9 th
10.	Mothers sell valuables to purchase food	10 th

Table 4 reveals ways households improve their food availability and accessibility throughout the year. The result shows that food borrowing from neighbours have highest ranking, followed by Mothers forfeit their own meals/going without food, so as to feed their children, reduction of portion size, buying food on credit and young children depending on school lunch programme where and when it is available. The Table also reveals reducing quantity of food, followed by skipping meals, increased reliance on wild food and borrowing money from cooperative society/money lenders as other ways household suggested as ways improving households' food availability and accessibility. Selling valuables to purchase food was the least in rank.

Discussion

The result of the study revealed that cassava and maize were the food items available to the households throughout the year. From these food items households produce varieties of food items such as abacha (cassava flask), garri, cassava flour, cassava fufu, akamu (corn porridge) and igbagwu (corn food). This shows that household understanding of food availability means having enough of these carbohydrate based foods. Consumption of carbohydrate based food will supply the households with energy but will rob them of adequate nutrition which will encourage malnutrition. This is in line with other studies done in other part of the country where carbohydrate giving

food were the major food items available and consumed in their area of study (Ezeama et al., 2015 & Anugwa et al., 2019). Households equally reported seasonal variation in some food items such as yam, fiofio (pigeon pea), akidi (green runner bean), rice and cocoyam which is usually scarce and expensive during the planting season to even buy from the market.

This is in line with the finding of Ezeama et al., (2015) who reported season variation in household food availability for some food items and noted that supply was less during the planting season. This goes to show that households in the study area were food insecure as food items were available in limited quantity and quality that is not socially acceptable as food security pattern.

The study revealed that only two food items were accessible to the household throughout the year. This runs contrary to the 1996 World Food Summit definition of food security, which said that food security is the ability of all people to have physical and economic access, at all times, to safe nutritious food to maintain a healthy and active life (Akukwe, 2020, Ogunniyi et al, 2021). The households also reported that foods like pigeon pea (fiofio), green runner beans (Akidi) cocoyam, fish and vegetables, that they have average access to these foods as they are affected by seasonal variations. This agrees with the finding of Ezeama et al., (2015) who reported limited access to some food items due to seasonal variations in food supply

and relatively expensive nature of some food items at certain periods of the year, majorly during the planting season. This situation will have a negative effect on dietary diversification of household, food choices and consumption pattern which is hindered by both physical and economic access to food items especially the protein and vitamin giving foods.

This will also have a negative effect on the nutritional status of household and may lead to malnutrition especially among the most vulnerable groups which are mainly women and their children as dietary diversity is positively related to nutrient adequacy and proper diet which is required for proper growth and development.

The respondents reported that their social-economic status was the major factor hindering their availability and accessibility to food items. This shows that most origin of food insecurity have an element of economic availability and accessibility to food directly or indirectly. Access and availability is not limited to monetary access and availability, it includes access and availability of land, credit facility and education on ways of improving food security in term of storage and processing of food items. This is in line with the Malpass (2021) report of World Bank which reported social-economic conditions as one of the factors hindering availability and accessibility to food items. This has a high impact which leads to global food insecurity and in most cases affects the most vulnerable

households in most rural communities. According to Malpass (2021) report the primary risk of food security are at the country level. Higher retail price, combined with reduced income, mean that more and more households have to cut down on the quantity and quality of food consumed (Malpass, 2021).

The households also reported climate change/flooding, conflict/terrorism, insecurity as some of the factors that hinder availability and accessibility throughout the year. Flooding is the major factor that hinders availability and accessibility of food items throughout the year among households in Ayamelum local government area, especially in June, July even in September and October. Majority of foods will be harvested before maturity and can not be stored as they will spoil easily. This leads to the households selling the food items off with minimal profits which make it impossible for them to have money to buy during scarcity. This report is in line with Malpass (2021) World Bank Report which identified climates change/flooding as one of the factors hindering availability and accessibility of food items. This is in term with the report of Irohibe et al., (2014) who reported that for food to be available and accessible, individuals and families must have sufficient purchasing power or ability to process and store already produced food that will make food available and accessible round the year. Other factors hindering food security in this area is the insecurity level in the area

which includes kidnapping and killer herdsmen, animals eating up their crops and conflict/terrorism. This is in line with the finding of Ojelade (2019) who reported that unfriendly and conflictual relationship between the two parties in the conflict has greatly affected food security especially food for immediate consumption. They suggested that government should come to their aid by providing security and making a law that will prohibit these herders from grazing around their farming areas.

Apart from grazing in their farm, they reported of insecurity around the farming areas which includes rape, killing of farmers in their farm land. This is in line with the report of Idris, Otekunrin, Akinbode & Ofekunrim (2020) who reported that corruption and poverty have made the incidence of conflicts/terrorism and kidnapping a major hinderance to food security.

Some of the participants reported of high cost of farm implements, hiring of tractors and high cost of improved yielding varieties of seedling. This agree with the observation of Anuagwu et al., (2019) who observed that access to various inputs needed for agricultural production was limited in their study area. This shows that there is need for the government to adopt a twin-track approach, both encouraging agric-business and supporting the large population of smallholder farmers. This is critical to rural food security, social cohesion and poverty alleviation. There is equally need for technological development than the sectors rely on labour for farm power

which stagnate domestic agricultural innovation, especially in mechanization that is appropriate to the economy. Rural farmers cannot afford the available equipment and in turn there is lack of local maintenance capacity (Nwagiube, 2020). Also access to farmland was also observed as one of the factors hindering food security in Ayamelum local government area. This is in line with the observation of Dirorimwe in Anuagwu et al., (2019) who also observed that fragmentation of agricultural land resulting from population growth as well as limited access to labour-saving farm and food processing implements are some of the underlying causes of food insecurity. The fragmentation of agricultural land, the results of increase in population and issue of land acquisition via inheritance causes inadequate food production (Anuagwu et al., 2019). Food production in fragmented portions of land results in inadequate food availability and accessibility to meet the needs of the population in the area.

The respondents also suggested ways of improving food security among households; this includes food borrowing from neighbours or relatives, maternal buffering, reduction of portion size and buying food on credit. This is in line with the findings of Ezeama *et al.*, (2015) who equally reported borrowing, purchasing food on credit as ways of improving their food security. This also agrees with the report of the study carried out in India which found significant association of food insecure households with

borrowing money/food and selling of valuable materials (Gupta *et al.*, 2015). The household also reported of young children depending on school lunch as a way of improving availability and accessibility of food. This is not in line with the finding of Gupta *et al.*, (2015) who in their study area children withdraw school to save money on school fees. Instead send them to work as domestic help or as helpers at shops and offices. Other ways households suggested as ways of improving availability and accessibility to food items were reducing quantity of food cooked, selling of valuables to purchase food, borrowing money from cooperative/money lender, skipping meals and increased reliance on wild food. This is inline with the findings of Otilia *et al.*, (2018) that household, in their study area were skipping meal (56.10%), restricting consumption of adults to secure small children's intake (52.85%) and limiting portion size at meal time as a short term measures for food availability. This also agrees with Ezeama *et al.*, (2015).

Some households suggested borrow money from cooperative society while some borrow from money lenders but complained of high interest charges of the lenders. This is inline with the findings of Otilia *et al.*, (2018). Skipping of meals and increased reliance on wild food was a measure taking in extreme cases and this is common among the most vulnerable groups in the area of study.

Conclusion

The study concludes that households in Ayamelum local government area are not food secured. Basically, the area is one of the agrarian communities in Anambra State but due to the issue of seasonal variations in crop production, insecurity and natural disasters households were not food secured as they do not have both physical and economic access and availability of food supply throughout the year.

Recommendations

Based on the findings, the following recommendation were made for improving household food security:

1. Improved agricultural practices by encouraging the use of modern technologies and mechanization of agricultural practices.
2. Ensuring institution credit sources and reduction of high interest rates on agricultural loan.
3. Encourage households to join grocery cooperative society.
4. Improved post-harvest handling including storage, preservation, transportation and distribution of food to reduce losses at all stages.
5. Government should provide high yielding varieties of seedlings to farmers at a subsidized rate.
6. Home economics bodies should organize training and workshops on ways of improving food management practices.

References

- Africa Hunger and Poverty Facts (2018). African Poverty Facts-world Hunger News. <https://www.wpr;dhunger.org/africa-hunger-poverty-facts-2018>
- Akukwe, T.I. (2020). Household Food Sy and Its Determinants in Agrarian Communities of South-eastern Nigeria. *Journal of Tropical Agriculture, Food, Environment and Extension*. Vol.19, Number 1, pp.54 - 60.
- Anugwa, I.O. &agwu, E.A (2019). Perceived Causes of Household Food Insecurity and Policy Implications for food Production in Kano State, Nigeria. *Journal of Applied Sciences*, 19(6): 513 - 519.
- Ezeama, N.N., Ibeh, C., Echendu, A., Emelumadu, O. &Adogu, P. (2015). "Coping with household food insecurity: Perspective of mother's in Anambra State, Nigeria". *Journal of Food Security*, Vol. 3, No. 6:145 - 154.doi=10.12691/IFS-3-6-2.
- FAO (2010). *The State of Food Insecurity in the World: Addressing Food Insecurity in Protracted Crises*. Rome: Food and Agricultural organization of the United Nations.
- FAO (2015). *Regional Overview of Food Insecurity: African Food Security Prospects Brighter than Ever*. Accra: FAO.
- Gupta, P. Singh, K., Seth, V., Agarwelu, S. & Mathur, P. (2015). Coping strategies adopted by households to prevent food insecurity in urban Shum of Delhi, India. *Journal of food security*. 3(1) pp. 6 - 10.
- Idiris, A., Otekunrin, O.A., Akinbode, S.O. & Otekunrin, O.A. (2020). Food insecurity in Nigeria: Impetus for growth and development. *Journal of Agriculture Economics and Rural Development* 6(2): 808 - 820.
- IFAD (2001). The rural poverty report, 2001. International fund for agricultural development: Rome, Italy. Retrieved from <http://www.ifad.org/poverty/index.htm>(Accessed November, 2020)
- Irohibe, I.J. &Agwu, E.A. (2014). Assessment of food security situation among farming households in rural areas of Kano State, Nigeria. *Journal of Central European Agriculture*. 13(1), 94 - 107. DOI:10.5513/JCEAO1/15/.1418
- Kuku-Shittu .O., Mathiassen, A., Wadhwa, A., Myles, L. &Ajibola, A. (2015). Comprehensive food security and vulnerability Analysis, Nigeria. IFPRI Discussion Paper 01275 (E-book) Available: [hppt://ebary.ifpri.org/wt./s/getfile/collection/P1573c0112/id/127747/filename/12958.pdf](http://ebary.ifpri.org/wt./s/getfile/collection/P1573c0112/id/127747/filename/12958.pdf) (Accessed, 2015).
- Malpass, D. (2021). COVID Crises is Fueling Food Price Rises for World's Poorest. [Blog.worldbank.org](http://www.blog.worldbank.org)
- National Population Commission (2006). *Population Figure Federal Republic of Nigeria*, Abuja, Nigeria.
- Nnadi, O.I., Liwenga, E.T., Lyimo, J.G. &Madukwe, M,C. (2019). Impact of variability and change in rainfall on gender of farmers in Anambra Southeast Nigeria. www.researchgate.net.Heliyon5(f):e02085. DOI:1016/j.heliyon.2019.e02085
- Nwajiuba, C. (2020). Nigeria's Agriculture and Food Security Challenges. chinedumnwajiuba@imsuni.edu-ng
- Ogunniyi, A.I. Omotoso, S.O, Salman, K.K., Omotayo, A.O., Olagunju, K.O. & Aremus, A.O. (2021). Social-economic drivers of Food Security amonf Rural Households in Nigeria: Evidence from Smallholder Maize Farmers. *Social Indicators Research*

- (2021) 155:583-599.
<https://doi.org/10.1007/511205-020-02590-7>.
- Ojelade, S.E. (2019). Effect of herdsmen and farmers crises on food security in Nigeria. *International Journal of Law and Politics Studies*. 1(1) 15 - 26. Retrieved from <https://al-lcindipublisha.com/inder.php/ijips/article/view/44>
- Otilia, V.C., Educerdo, S. & Alberto, G. (2018). Food Access and Coping Strategies Adopted by Households to Fight Hunger among Indigenous Communities of Sierra Tarahamara in Mexico. *Sustainability* 2018, 10, 473; doi:10-3390ISuU1002473.www.mdpi.com/journal/sustainability.
- Shetty, P.S. (2015). *Food and nutrition in Detel R, (ed), Oxford Textbook of Global Public Health (sixth edition)*, Oxford University Press, Great Clarendon, United Kingdom.
- Udemezue, J.C., Eche, O.N. & Udefi, I.O. (2018). *Farmers perceptions of dangers of grazing on farmland and coping strategies: Evidence from Ayamelum local government area of Anambra State*. *Current trends Bonomedical engineering & Biosciences*, 15(3):55594, DOI:10.19080/CTBEB.
- United Nations (1996). *Roma declaration on world food security and world food summit plan of action: world food summit, 13-17 Nov. 1996, Roma Italy* United Nations Digital Library.
- United Nations (2021). *Peace, dignity and equality on a healthy planet universal declaration human rights*. www.un.org Retrieved Oct., 2021.