



AN ANALYSIS OF FOOD SECURITY AMONG RICE FARMING HOUSEHOLDS IN GOMBE STATE, NIGERIA

¹Ahmad, M. E., ²Onu, J. I., ²Lawal, H., ¹Saleh, A. and ¹Hassan, A.

¹Department of Agricultural Economics and Extension Federal University Kashere, Gombe state

²Department of Agricultural Economics, Modibbo Adama University Yola

*Corresponding Author's Email: Elhafeezgoni@yahoo.com, GSM: +2348032792581

ABSTRACT

The study analysed the food security status of rice farming households in Gombe state, Nigeria. The specific objectives were to describe socio-economic characteristics of the rice farming households and determine the food security status of the rice farmers. Multistage sampling was employed in selecting 355 rice farmers. Data were collected through the administration of structured questionnaires and analysed using descriptive statistics and Household Food Insecurity Access Scale (HFIAS). Results showed that the mean age, farm size, household size and farming experience of the respondents were 43.44 years, 2.14 hectares, 9 persons and 17.62 years, respectively. The results also revealed that rice farming was dominated by literate men in their youthful ages whose participation is cooperative membership is low and exhibit poor access to credit facilities. The respondents were basically rice farmers. The average hectarage of the rice farming households was 2.1 hectares, with about 53% relying on rainfed rice production. The proportion of rice farming households that were food insecure was alarming high as the HFIAP analysis indicated that only 11.55% were food secure, 37.46% were in mild food insecurity, 20% were moderately food insecure, and 30.99% were faced with severe food insecurity. Rice farmers in the study area experienced food insecurity that was capable of affecting their productivity. The study recommended that the respondents key into relevant government programmes that are aimed at boosting rice production.

Keywords: Food, Security, Hunger, Mild, Insecurity.

INTRODUCTION

Agriculture is a key economic sector in Nigeria which plays significant role in economic growth and development (Abbas *et al.*, 2020). It contributes about 24 percent to the country's nominal GDP (National Bureau of Statistics NBS, 2022). Its share in employment is considerably higher at 51 percent and this ratio is estimated to have risen subsequently associated with the weakness in industry and services output in 2019/20 and an absence of notable structural transformation of the economy (International Monetary Fund IMF, 2023). Food security at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs for active and healthy life. Food insecurity exists when people do not have adequate physical and economic access to food (FAO, 2015). According to Edeh and Gyimah-brempong (2015) explained the definition to mean that an individual or household is food secure if only such entity is able to acquire and consume in a sustainable manner nutritionally adequate, safe and preferred food through socially acceptable means to guarantee wellbeing.

Food availability at household level is achieved when sufficient quantities of food are consistently available to all individuals within the household. Further, the availability of such food can be achieved through household production, market purchases, or food assistance. Consequently, absence of food security is food insecurity; food insecurity on the other hand represents lack of access to enough food or exists when people do not have adequate physicals, social or economic access to food which can either be chronic or on temporary basis (Amaka *et al.*, 2016). According to Cruz (2014) more than 80 percent of the small holder farmers in the world are food insecure and depend on land as their primary source of livelihoods. Thus, the insecurity and vulnerability in food availability and access are basically as a result of the primary and secondary activities of the farmers in deriving their livelihood (Edeh and Gyimah-brempong, 2015).



Food insecurity is an increasing policy concern in Nigeria. The country is endowed with immense agricultural resources and over 81 million arable and largely fertile hectares, with maize, cassava, guinea corn, yam beans, millet, and rice being the major crops (Odukoya, 2020). Agricultural production provides the means of livelihood and economic sustenance for the majority of Nigeria's population. Farmers and herders make significant contributions in meeting the nutritional needs of the country and thus contributing to food security of households (Onuoha and Ezirim, 2015). In Nigeria there is significant inequality between households in rural and in urban areas, in terms of food access (NBS, 2022; Oyinbo and Olaleye, 2016). Most rural households produce their own food for household consumption and sell the surplus (Simphiwee *et al.*, 2023). In spells of shocks like droughts they are aided by government interventions and food aid from non-governmental organisations.

Acute food insecurity has risen in Nigeria given the adverse impact of the COVID-19 pandemic and the surge in food inflation in 2022 (Alun and Rima, 2023). In Nigeria, food inflation rose to 30.64 percent in September 2023 (National Bureau of Statistics NBS, 2023). The report attributes the rise in food prices to increase in the prices of oil and fat, bread and cereals, potatoes, yam and other tubers, fish, fruit, meat, vegetables, milk, cheese, and eggs. Unlike better-off households who can afford a wider range of foods, the poor have very few substitutes for staples, which constitute nearly two-thirds of their daily diet (Alun and Rima, 2023).

Food insecurity varies across regions in Nigeria and rural-urban settings (Nkechi, 2018). According to the 2019 household survey, the North-East and North-West regions have the most acute levels of food insecurity, and this is confirmed by data from the recent Cadre Harmonise surveys (Alun and Rima, 2023).

Food insecurity is one of Sub-Saharan Africa's (SSA) most pressing social and economic issues in the twenty-first century (Food and Agricultural Organization (FAO), 2019). Food instability and malnutrition are on the rise and attributed to harsh weather conditions, conflicts, and a challenging global economic environment that wreak havoc on agricultural production. Despite significant increases in global grain yields over the last half-century, almost 800 million people continue to be hungry (World Food Programme WFP, 2015). In Nigeria for example, regardless of abundant human resources, natural capital, agricultural programmes, and interventions, food insecurity keeps rising. The country ranks 107th of the 113 countries with a food security index score of 42.0 (The Economist Impact, 2022). The country's Global Hunger Index (GHI) score rose from 15.5 in 2011 to 25.5 in 2015 then to 27.9 in 2019 and 28.3 in 2023 reflecting a serious hunger situation (The Global Hunger Index, 2023). The Sustainable Development Goals (SDGs) have stressed the critical importance of addressing food insecurity to achieve human rights by 2030 (Perez-Escamilla, 2017).

The broad objective of the study was to analyse food security among rice farming households in Gombe State while the specific objectives were to:

- i. describe the socio-economic characteristics of farming households in the study area
- ii. determine the food security status of farming households in the study area.

The Millennium Development Goals (MDGs) developed in September 2000, has as one of its goals eliminations of hunger and to eradicate poverty in both developed and developing countries of the world, including Nigeria. However, Nigeria is still far from realizing the goal of food sufficiency (Ugwu, 2007). Odebode and Etuk (2016) confirm that rural households were mostly affected, as almost half of them were food insecure. The findings from the study would be crucial in providing insight to global institutions as to how far some areas in Nigeria have gone in achieving some of these SDGs, and what remains to be done in that respect. Students and other corporate entities might find the findings of this study relevant in providing basis for further research and deepening investigations relating to food security of people, and of rice farming households in particular.



MATERIALS AND METHOD

The Study Area

The study area was Gombe state which is one of six states in the North-east geo-political zone of Nigeria. It covers an area of 20,265km² with a 2024 projected human population of 3,818,619 million; using population growth rate of 3.2% per annum according to NPC (2006). Gombe state shares common boundaries with Borno state to the east, Yobe state to the north-east, Bauchi state to the west, Taraba state to the south, and Adamawa state to the South-east (Gombe State Government [GSG] (2015). The climate is characterized with a warm condition, having a mean diurnal temperature of 35°C – 40°C during the hottest months of (March – May) and to about less than 30°C during harmattan (GSG, 2015). Gombe state is a multi-ethnic state comprising of Fulani, Tangale, Waja, Tera, Bolewa, Tula, Cham, Dadiya and Hausa (GSG, 2015). The location of Gombe state in the centre of major trade routes which made it important commercial hub in the north-east region that linked to other parts of the country by road, air and rail networks. Crops produced and marketed in the study area include; maize, millet, sorghum, cowpea, groundnuts, bambara nuts, rice, vegetables and fruits; as well as livestock and fisheries are also raised. Industrial and other agro-business activities in the study area are in the form of large, medium, small and cottage scales which include; ginnery, oil seeds milling, rice milling, table water production, leather works, fish and meat processing, etc. (GSG, 2015).

Sampling Techniques

Multistage sampling was employed for this study. In the first stage, two local governments were purposively selected from the three agricultural zones in the state based on concentration of rice farmers. They were; Nafada and Kwami LGAs from Gombe north, Akko and Yamaltu-Deba LGAs from Gombe central and, Balanga and Kaltungo LGAs from Gombe south.

In stage II, two districts were purposively selected from each local government area based on their prominence in rice farming. These were: Kalshingi and Kumo; Yemaltu and Gwani; Cham and Telesse; Kamo and Tungo; Malleri and Jurara; Barwo-wimde and Nafada. In stage III, one village where rice farming was most practiced was purposively selected from each district. The villages were; Gujuba, Kembo, Dadin-kowa, Shinga, Kulani, Galagun, Ture-okra, Dogon-ruwa, Daba, Malam-bura, Papa and Maruwa. In stage IV, a total of 355 rice farmers were randomly selected proportionate to sample population of the villages.

The sampling frame of 1,834 rice farmers for the study was drawn from the registered list of rice farmers and which spanned across the six (6) local government areas earmarked for the study. Since the target households were basically all rice farming households, a simple random sampling technique was employed to select a total of three hundred and fifty-five (355) rice farmers.

In determining the sample size appropriate for this study, the Taro-Yamane’s model was used. According to Yamane (1967), the model in its implicit form as was employed by (Garbaet *al.*, 2014; Mubigiri, 2016; Saleh, 2023) is expressed as;

$$ni = \frac{N}{1+N(e)^2} \dots\dots\dots \text{Eq.1}$$

Method of Data Collection

Data were collected through the administration of structured questionnaires with the household being the unit of analysis. The questionnaire was designed in such a way as to accommodate open and close ended questions. Information on rice farmers’ demographics, food security parameters were the data collected.

Method of Data Analysis

Descriptive statistics such as frequency, percentage, mean was used to analyse socioeconomic characteristics of the respondents.

Food security measurement

Food security of the rice farming households was analyzed using the household food insecurity access scale (HFIAS).

- i. *Household Food Insecurity Access Scale (HFIAS)*



Household Food Insecurity Access Scale (HFIAS) was used to determine the food insecurity. Household Food Insecurity Access Scale (HFIAS) was developed by the Food and Nutrition Technical Assistance Program of the US Agency for International Development (Coates *et al.* 2007). The HFIAS applies to different settings and has been used in various contexts. An algorithm based on the questions that are answered affirmatively is summed up, and higher values indicate severe food insecurity. The HFIAS consists of nine "occurrence" questions about food access experience over a recall period of 4 weeks. Each question has four response options namely 'never', 'rarely', 'sometimes' and 'often' and are scored 0, 1, 2, and 3, respectively. The household food insecurity score is the sum of the responses to the nine questions with a minimum of 0 (least food access insecure) to a maximum of 27 (most food access insecure). The HFIAS was used as a continuous variable, and higher values indicate vulnerability to food insecurity (Coates *et al.* 2007).

Household Food Insecurity Access Prevalence (HFIAP) is one of the four indicators of the HFIAS module that can be computed to assist in understanding the nature and changes in HFI among the population sampled. Other HFIAS indicators are the Household Food Insecurity Access-related Conditions, Household Food Insecurity Access-related Domain and HFIAS Score. However, HFIAP was employed in this study owing to the fact that it is the only indicator that reports the household food insecurity status distinctively. It provides the opportunity to categorize households into four levels of food insecurity: (i) food secure, (ii) mildly food insecure, (iii) moderately food insecure, and (iv) severely food insecure. It is worth noting that households were grouped as progressively food insecure as they reply emphatically to more severe situations and/or encounter those situations more often over a period of 30 days.

Table 1: Household Food Insecurity Access Prevalence (HFIAP)

Food Security Status	HFIAS Score	
Food Secure	0, 1	
Food Insecure	Mildly Food Insecure	2, 3, 4, 5, 7, 10
	Moderately Food Insecure	8, 9, 11, 12, 13, 14, 16, 17
	Severely Food Insecure	15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27

Source: Coates *et al.* (2007)

Table 1 shows the Household Food Insecurity Access Prevalence which is the final indicator and a categorical indicator of Food Insecurity Status. The Household Food Insecurity Access Prevalence (HFIAP) Status indicator was used to report household food insecurity (access) prevalence.

The headcount ratio (HCR) was given as:

$$HCR = \frac{M}{N} \times 100 \%, \quad \dots\dots\dots \text{Eq.3}$$

Where:

M = number of food insecure households

N = the total number of households

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

The sex, marital status, education, farm ownership, all season farming, cooperative membership and Anchors Borrower Programme participation of the respondents are highlighted on Table 2. It was revealed that rice production in the study area was a male dominated venture with 91.55% being male and 8.45% were females. This might not be unrelated with the existing socio-cultural norms in the area where males were still being viewed as the major breadwinners of the family. This finding agrees with that of Abba *et al.* (2022) were they revealed an 89.4% male population in their study in Gombe state, Nigeria.

The results also revealed that majority (87.04%) of the respondents were married while 5.07%, 4.51% and 3.38% were divorced, single and widowed, respectively. On the average, those who have been married were about 95.49% while only 4.51% have never been married before. This shows the



significance of marriage in the socio-cultural setting of the study area and its possible ties to the economic status of the people. This conforms with the findings of Hassan *et al.* (2023) who in their study on household food insecurity in Gombe metropolis reported that 86.88% of the respondents were married. Table 2 further revealed that 34.93% had secondary education while 22.25%, 18.87%, 17.75% and 6.20% attended primary, non-formal, tertiary and adult level of education, respectively. This shows that most of the rice farmers were literate and can understand basic technology which is capable of improving their farming activities. Cumulatively, 82.25% had undergone a form of formal education. This is in tandem with the result of Hosea and Ojo (2018) who in an analysis of food access in southern Gombe Nigeria, reported that 90.8% were formally educated. Also, education can be an important facilitator towards enhanced food access and thus improved food security.

In addition, the results showed that 74.93% owned the farms on which they cultivate rice while 25.07% were rented farms. Diallo and Maxwell (2019) in a study on determinants of food insecurity among maize farming households in southern Mali found that farm (plot) ownership was a significant variable that influenced food security. Also, most of the respondents (52.96%) relied on rainfall for production and 47.04% cultivate rice all year round. The results also revealed that 58.59% of the rice farmers were not members of cooperative association, and hence, 78.03% were not part of the federal governments' Anchors Borrowers Programme. Cooperative membership can serve as support base for the farmers to enhance their productivity and can cushion them in times of shocks. Chinalurum *et al.* (2024) in a study on determinants of livelihood diversification among farming households in Nigeria reported that 90.68% of the respondents were not members of a cooperative association. Equally, Ajao *et al.* (2023) in a study of food insecurity in Ekiti state Nigeria reported that 64.3% of the farming households were not members of any cooperative association. Furthermore, 85.07% did not have access to formal credits while only 14.93% of the respondents had access to credits. This conforms with the findings of Tafida *et al.* (2022) on analysis of livelihood of rural irrigated crop farmers in Kano state Nigeria, where they reported that 82.9% of the farmers had no access to formal credits.



Table 2: Socioeconomic Characteristics of the Respondents

Variable	Frequency	Percentage
Sex		
Male	325	91.55
Female	30	8.45
Total	355	100
Marital status		
Single	17	4.49
Married	308	86.76
Divorced	18	5.07
Widowed	12	3.38
Total	355	100
Education level		
Non-formal education	75	21.13
Adult education	22	6.20
Primary education	90	25.35
Secondary education	111	31.27
Tertiary education	57	16.06
Total	355	100
Farm ownership		
Yes	266	74.93
No	89	25.07
Total	355	100
All season farming		
Yes	167	47.04
No	188	52.96
Total	355	100
Cooperative membership		
Yes	147	41.41
No	208	58.59
Total	355	100
Anchors Borrowers Participation		
Yes	78	21.97
No	277	78.03
Total	355	100
Access to credits		
Yes	302	85.07%
No	53	14.93%
Total	355	100

Source: Field survey, 2025

The age of the respondents, their household size, farm size and farming experience are presented on Table 3. The results showed that mean age of the rice farmers was 43.44 years with a standard deviation of 10.38, a minimum age of 14 years and a maximum age of 72 years. This shows that majority of the respondents were in their active years and can diversify their livelihood in order to ensure food security. This is consistent with the mean age of 40 years reported by Hosea and Ojo (2018) in a food access analysis among farming households in southern Gombe state Nigeria. The results also revealed a mean household size of 9 persons, a minimum and maximum household size of between 1 to 41 persons respectively with a standard deviation of 5.98. This is in agreement with the finding of Ajao *et al.* (2023) who reported a mean household size of 6 persons. Farming households with this size could leverage on family labor to carry out farm operations. The average farm size under the holding of the rice farmers was 2.14 hectares. The largest farm was 10 hectares while the smallest was half a hectare and the standard deviation was 1.27. This revealed that most of the respondents were small scale farmers and may have to engage in other livelihood activities to cater for their household



responsibilities. This finding is consistent with that of Tata *et al.* (2024) who reported an average farm size of 1.62 hectares.

The results further showed that on the average each respondent had 17.62 years of experience. The highest farming experience was 45 years while the lowest was 1 year and standard deviation was 8.84. It shows that the farmers had a considerable experience in farming. This is similar to the findings of Adekola *et al.* (2023) in an effect of livelihood activities of smallholder crop farmers in Oyo state Nigeria where they found that the mean farming experience was 17.3 years. Also, Adewumi *et al.* (2022) in a similar study on livelihood activities in Niger state Nigeria reported a mean farming experience of 11 years. Farming experience can impact greatly on the productivity of the farmers and can hone their abilities to devise means by which they can broaden their revenue base.

Table 3: Respondents’ age, size of household, farm size, farming experience

Variable	Mean	Standard Dev.	Min	Max
Age	43.44	10.38	14	72
Household size	9	5.98	1	41
Farm size	2.14	1.27	0.5	10
Farming experience	17.62	8.84	1	45

Source: Field survey, 2025

Food Security of the Respondents

Analysis of the food security of the respondents is discussed under the Household Food Insecurity Access Scale.

Household food insecurity access scale (HFIAS)

The Household Food Insecurity Access Prevalence is presented in Table 5 showing the levels of food insecurity based on the household’s reply to the set of nine questions which place each household in only one distinctive category.

Table 4: Household Food Insecurity Access Prevalence

HFIAP	Frequency	Percentage
Food secure	41	11.55
Mildly food insecure	133	37.46
Moderately food insecure	71	20.00
Severe food insecure	110	30.99
Total	355	100
Food Secure	11.55%	
Food Insecure	88.45%	

Source: Field Survey, 2025

From table 5 about 11.55% of the respondents were food secure. This meant that 11.55% of the households rarely experienced worry about not having the resources to access enough food. The result is similar to the one obtained by Chinweoke (2015) who used HFIAS to measure household food security status in Taraba state, Nigeria and found that only 23 percent of households in his study were food secure. It can be observed from the result that less than an eighth of the surveyed households can access food and remain food secure because they have the financial capability. Table 5 further showed that 37.46% of the respondents were mildly food insecure. The mildly food insecure household were characterized by worrying about not having enough food in their household because they lacked resources sometimes or often. Such households could eat their preferred food but when their resources become scarce/insufficient (which happens in rare occasions), they resorted to eating a monotonous diet and/or eating some foods considered undesirable.

The study also revealed that 20% of the households were moderately food insecure. A moderately food insecure household ate smaller meals sometimes or often, and/or rarely or sometimes had to cut back on quantity of food or go a whole day and night without food. Reduction in the quantity of food consumed by household is an indicator that the household is becoming food insecure (Amaza



et al., 2008). This is similar to a study carried out by Otekunrin *et al.* (2021) whose results showed that households in Oyo state who experienced mild food insecurity was 35%, and those with moderate food insecurity was 18.3%. Furthermore, the study revealed that 39.99% of the rice farmers were severely food insecure i.e. they had very poor access to food. Severely food insecure households were characterized by high HFIAS score (15 – 27) Such households often ran out of food, went to bed hungry, and may infrequently go a whole day and night without food because they lack the resources to access food. From the results, the proportion of food secure households was 11.55% while the pooled proportion of those who experienced food insecurity was 88.45%.

CONCLUSION AND RECOMMENDATIONS

The study concluded that majority of the rice farming households in the area were food insecure. Also rice farming was dominated by men who had attained at least primary education and have accumulated a substantial amount of farming experience. Most of the rice farmers do not have access to formal credits and were not members of cooperative societies. They were basically middle-aged small-scale farmers with large household size. This coupled with other factors may be responsible for the food insecurity intensity of the respondents.

The following recommendations were offered based on the research findings:

- i. The rice farmers should be encouraged to participate in cooperative as this is capable of ensuring they have adequate resources to enhance and expand their farming operations
- ii. They should key into the federal government of Nigeria's programmes that are targeted towards revamping food production especially the Anchors Borrowers Programme (ABP) whose emphasis was rice value chain.
- iii. Females are encouraged to participate in rice farming as it has the potential to ensure food security on a subsistence scope, and serves as a means of generating revenue when commercialized.

REFERENCE

- Abba, A., Halliru, M., Ubale, S., Mustapha, A., Lawan, A.M., Rano, N.B., Idris, A., Ladi, H, Bello, M.M (2022): Analysis of Household Food and Nutrition Security Status in Sudano Sahelian Region of Northern Nigeria. *International Journal of Environment, Agriculture and Biotechnology*,7(2): 1-12. ISSN 2456-1878
- Abbas, A. M., Hashidu, B. R. and Ananya, B. J. (2020): Constraints to increased Food Production and Distribution in Dukku L.G.A. Gombe State, Nigeria. *International Journal of Agriculture Research and Life Science*.1(1): 1-22
- Adekola, O.A., Adesiji, G.B., Adetarami, O., Oose, M.O. and Komolafe, S.E. (2023): Effects of Flood on Livelihood Activities of Smallholder Crop Farmers in Saki West Local Government Area, Oyo State, Nigeria. *Ife Journal of Agriculture, 2023, SPECIAL EDITION*.: 001-008
- Adewumi, A., Ahmed, Y., Lawal, S. and Shiyaki, U.A. (2022): Livelihood activities and food security status of farming households in Niger state Nigeria. *Journal of Agripreneurship and Sustainable Development*. 5(2): 129-140. ISSN 2651-6144
- Adoyi, J., Nnabuko, J. O., Uduji, J. I., Okoro, D. P., and Iloka, C. B. (2022): The Influence of Social Media on Market Performance of SMEs in Nigeria. *Neuro Quantology*. 20(20): 157-176.
- Ajao, O.A., Ayeni, F.H., Bello, M.A., Ahmed, I.A. and Fanifosi, G.E. (2023): Analysis of Food Insecurity among Rural Farming Households: Evidence from Ikere Local Government Area of Ekiti State, Nigeria. *Asian Journal of Agricultural Extension, Economics & Sociology*. 41(1): 26-38. ISSN: 2320-7027
- Alun,H. T. and Rima, A. T. (2023): Food security in Nigeria: Food supply mattes: Nigeria. *International Monetary Fund*. 2023(018). ISBN: 9798400236921
- Amaka, G. M., Kenechukwu, O. O., and Olisa, D. M. (2016): Achieving Sustainable Food Security in Nigeria: Challenges and Way Forward. Department of Economics, Nnamdi Azikwe University, Awka, Nigeria.3rd International Conference on African Development Issues.182-186.



- Amaza, P.S., Olayemi, J.K. and Adejobi, A. O., Bila, Y. and Iheanacho, I. (2008): Baseline Socioeconomic Survey report: Agriculture in Borno state, Nigeria. International Institute of Tropical Agriculture, Ibadan, Nigeria, 2007:84
- Chinalurum, C.A., Ojoko, E.A. and Junaidu, M. (2024): Determinants of Livelihood diversification among farming households in Nigeria. *Journal of Agripreneurship and Sustainable Development*. **7**(2): 78-85. ISSN 2651-6144
- Chinweoke, U.I. (2015): Measuring Household Food Security in Taraba State, Nigeria. Comparing Key Indicators. Mphil Dissertation Faculty of Economics and Management Sciences. University of Stellenbosch, UK.
- Coates, J., Swindale, A., Bilinsky, P. (2007): Household Food insecurity access scale (HFIAS) for measurement of household food access: Indicator guide version.3. In Food and Nutrition Technical Assistance Project; Academy for Educational Development: Washington, DC, USA, 2007.
- Cruz, I. F. (2014): Fonio: A Small grain with potential. In: Magazine on LEISA. *Low external Input and sustainable Agriculture*, **6**(1): 16-17
- Diallo, A. and Toah, A. M. (2019): Determinants of food insecurity among maize Farming Households in the Southern Region of Mali. *Journal of Food Security*. **7**(5): 151-158. DOI: 10.12691/jfs-7-5-1
- Edeh, H.O., and Gyimah-brempong, K. (2015): Determinants of change and household responses to food insecurity: empirical evidence from Nigeria. *African Journal of Agricultural Research*, **10**(5): 423-433.
- FAO (2015): *Agriculture and Development Economics Division, Food Security*. FAO Policy Brief Issue, 202 pp.
- Fite, M.B., Tura, A.K., Yadeta, T.A., Oljira, L. and Roba, K.T. (2022): Factors associated with Food Consumption Score among Pregnant women in Eastern Ethiopia: a community-based study. *Journal of Health Population and Nutrition*. **41**(6): 1-9.
- Hassan, A.A., Adamu, J. and Musa, A. (2023): Household Food Insecurity and Its Predictors: Evidence from Gombe Metropolis, Nigeria. *Journal of Aksaray University Faculty of Economics and Administrative Sciences*. **15**(2): 149-156. Doi:10.52791/aksarayibd.1056033
- Hosea, D. and Catherine, O.O. (2018): Analysis of Food Access Status of Farming Households in Southern Part of Gombe State, Nigeria. *Greener Journal of Agricultural Sciences*, **8**(3): 059-064. ISSN: 2276-7770.
- International Monetary Fund-IMF (2023): Food Insecurity in Nigeria: food supply matters. International Monetary Fund selected issues paper no. SIP/2023/018.
- Murendo, C. (2020): Dietary diversity and food coping strategies in Zimbabwe: Do resilience and food insecurity status matter. *Ecology Food Nutrition*, **10**: 1-21.
- National Bureau of Statistics-NBS (2019): Statistical Bulletin, Abuja, Nigeria.
- National Bureau of Statistics-NBS (2022): Nigerian gross Domestic Product Report Q4 2021. National Bureau of Statistics February 2022 Report. Retrieved from <https://nigerianstat.gov.ng/download/1241137>
- National Bureau of Statistics-NBS (2023): Consumer Price Index. Report date October 2023. Retrieved from <https://nigerianstat.gov.ng/download/1241397>
- Ngene, A. H., Oyeduntan, A. E., Adewunmi, E. and Mgboji, O. A. (2017): Audience Perception of EFCC Media Trial: A case study of Buhari's anti-corruption war. *Global Journal of Human-social Science*. **17**(5): 20-30. ISSN: 2249-460x
- Nkechi, S. O. (2018): Food Insecurity and Family Structure in Nigeria. *SSM Population Health*. **4**(1):117-125. ISSN: 2352-8273. DOI: 10.1016/j.ssmph.2018.12.004
- Nurudeen, A. M. and Shaufique, F.A.S. (2019): Determinants of Food Security among Households in Nigeria. *Pakistan Journal of Nutrition*, **18**: 1042-1052
- Odebode, S. O. and Etuk, E. E. (2016): Comparative analysis of rural households' wellbeing in selected states of the Niger Delta zone of Nigeria. *Nigerian Journal of Rural Sociology*. **16**(4): 59-65.



- Odukoya, A. (2020): Political Economy of Agricultural Commercialization in Nigeria, Agricultural Policy Research in Africa (APRA) working paper 29, Future Agricultures Consortium, 2020.
- Olajide, B. R. and Ogundele, E. O. (2022): Contributions of Livelihood Diversification to Household Food Security among Rural Dwellers in Osun State, Nigeria. *Nigerian Journal of Rural Sociology*, **22**(1): 22-27.
- Onuoha, F. C. and Ezirim, G. E. (2015): Climate Change and National Security. *Journal of Agricultural Policy and Research*, **1**(5): 233-242.
- Otegunrin, O.A., Sawicka, B. and Pszczółkowski, P. (2021): Assessing Food Insecurity and Its Drivers among Smallholder Farming Households in Rural Oyo State, Nigeria: The HFIAS Approach. *Agriculture*, **11**(11). <https://doi.org/10.3390/agriculture11121189>
- Oyinbo, O. and Olaleye, K. T. (2016): Farm Households Livelihood Diversification and Poverty Alleviation in Giwa Local Government Area of Kaduna State, Nigeria. *The Journal of Sustainable Development*, **15**(1): 219-232.
- Perez-Escamilla, R. (2017): Food Security and the 2015-2030 Sustainable Development Goals: From Human to Planetary Health. *CurrDevNutr*, **1**(7): e000513.
- Simphiwe, I. H., Rob, S., and Simon, M.C.N. (2023): The Role of Smallholder Farming on Rural Household Dietary Diversity. *Agriculture*, **13**(3): 595. DOI: 10.3390/agriculture13030595
- Tafida, A. A., Michael, A. and Nandagoyang, M.C. (2022): Analysis of livelihood of rural irrigated crop farmers in Kano state Nigeria. *Problems of World Agriculture*, **22**(2): 57-64
- Tata, L.A., Abu, I.A., Garba, A., and Abdullahi, S. (2024): Assessment of Livelihood Diversification activities among Women Crop farmers in Gombe state, Nigeria. *Journal of Agripreneurship and Sustainable Development*, **7**(2): 104-110. ISSN 2651-6144
- The Economist Impact (2022): Global Food Security Index. Retrieved from www.impact.economist.com/sustainability/project/food-security-index/explore-countries/Nigeria
- The Global Hunger Index (2023): The Global Hunger Index. Published October 2023. Retrieved from www.globalhungerindex.org
- Ugwu, D.S. (2007): Contributions of Agricultural Development Programmes (ADPs) to Rural Livelihood and Food security in Nigeria. *Agricultural Journal*, **2**: 503-510.