

## **Food Security and Coping Strategy among Farming Households in Zuru Agricultural Zone of Kebbi State, Nigeria**

Danmaigoro. A\*, Yahaya K. and Maikasuwa. M. A

*Department of Agricultural Economics and Extension, Faculty of Agriculture  
Kebbi State University of Science and Technology Aliero, Nigeria*

---

**Abstract:** The study was conducted to examine the food security and coping strategies among farming households in Zuru Agricultural zone, Kebbi state, Nigeria. A multi-stage sampling technique was used in selecting a sample of 120 farming households across four local government areas of Zuru zone. Descriptive statistics and Food security index were used to analyze the data. The result indicated that 85.8% of the respondents were males, and was within the active work-age bracket of 40-49 years, 30.0% had farming experience of 12 years. 45.8% had primary education and 41.6% had an average monthly income of ₦8,695.125. The average farm size was 4.6 ha and average number of 8 persons within the household. The result on food security index indicates that 80.8% of the households were food insecure that were unable to meet 2/3 mean per capita food expenditure (₦) 33,619.94. The effective food coping strategy that are highly employed coping strategies during food crisis among others includes buying from market (M = 2.42) was ranked first followed by eating less preferred foods (M = 2.20) was ranked second, reduction in quality and quantity of food consumed and Increased reliance on wild food like hunting (M = 2.16) was ranked third, Sale of livestock/household assets (M = 2.08) was ranked fifth, and borrowing money or food from friends/relatives (M = 2.06) was ranked sixth and were regarded as effective food coping strategy in the study area. It is therefore important to encourage households to intensify combination of their enterprises with off-farm activities that could generate more income for the households and also help to improve their asset base.

**Keywords:** Food Security, Coping Strategies, Farming Household, Agricultural Zone.

---

Date of Submission: 28-03-2020

Date of Acceptance: 16-04-2020

---

### **I. INTRODUCTION**

In Sub-Saharan Africa, agriculture plays a very important role in providing food and income for the majority of the population. Likewise, agriculture is the mainstay of Nigeria economy. The sector provides income and employment to over 80% of the population. The agricultural sector also contributes substantively to the country's economy in terms of food production, employment generation, production of raw materials for industries and generation of foreign exchange (NBS, 2013). However despite the economic importance of agriculture, a large population of Nigerians depend on subsistence agriculture which is almost entirely rain fed. This situation calls for the need of understanding the nature and extent of food insecurity problem as they have severe impact on economic performance and livelihood of communities in the rural areas that depend on rain-fed agriculture. Despite the efforts made by the government and other international and local agencies in achieving food security in the country, there is no doubt that food insecurity continues to be a major and recurrent phenomenon in different part of Kebbi State. Food security is an important dimension of household well-being. Therefore, food demand has been actively researched for over a century both in developed and developing countries as the focus has usually been on how income and prices influence household food expenditure and coping strategy. Policy makers dealing with food security issues are often interested in studies that examine the response of households to food security status, price, coping strategy and income changes.

A farming household is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. Food is one of the most basic human needs. Along with oxygen, water, and regulated body temperature, it is a basic necessity for human survival. However, food is much more than just nutrients, it is at the core of humans' cultural and social beliefs about what it means to nurture and be nurtured Oke, (2015). According to Omonona and Agoi (2007), the committee on world food security defined food security as physical and economic access to adequate food by all household members without undue risk of losing the access. Food security has been identified as having food availability, food accessibility, utilization and stability of food access as its elements (Okuneye, 2002; Obamiro, *et al.*, 2003; Amaza *et al.*, 2006). Food insecurity remains a fundamental challenge in Nigeria. Despite the Food and Agriculture Organization (2004) enlisting Nigeria among countries faced with serious

food insecurity problems, the vision of the country to have physical and economic access to food on a continuous basis still remains a unattainable (Adebayo, 2010). The population of food insecure households in Nigeria had increased to 40% in 2005 and higher in the subsequent years (Babatunde *et. al*; 2007).

The problem of food security entails various elements in different countries such as lack of available food product, lack of technical ability to distribute the food, problem of food availability, affordability and accessibility through convectional food channels hence, on the national level, the per capital growth of production of major food in Nigeria has not been sufficient to satisfy the demand of an increasing population (Kormawa, 1999). These result in a big gap between national supply and national demand for food. Malnutrition is widespread in the entire country, rural areas and communities are especially vulnerable to chronic food shortages, malnutrition, unbalanced nutrition, erratic food supply, poor quality foods, high food costs, and even total lack of food. This phenomenon cuts across all age groups and categories of individuals in the rural areas. There is a high level of malnutrition among children in rural area of Nigeria; the figures differ with geopolitical zones of Nigeria (Akinyele, 2009 in Oluwasun 2015).

Despite the fact that the situation of food security is improving in the developed countries, the overall food insecurity is increasing in Sub-Saharan Africa (SSA) (FAO, 2002). Food insecurity continues to be a major problem in Nigeria including Zuru Agricultural zone. FAO, 2002 reported that smallholder farmers depend on agriculture for their livelihood. Agricultural production has remained low especially among smallholder farmers who constitute the majority of agricultural producers in Nigeria; hence they are vulnerable to food insecurity due to the fact that they depend on subsistence farming as their primary source of food as well as Income. The broad objective of the study is to examine effective food coping strategy among farming household in Zuru Agricultural zone of Kebbi state. The specific objectives of the study were to:

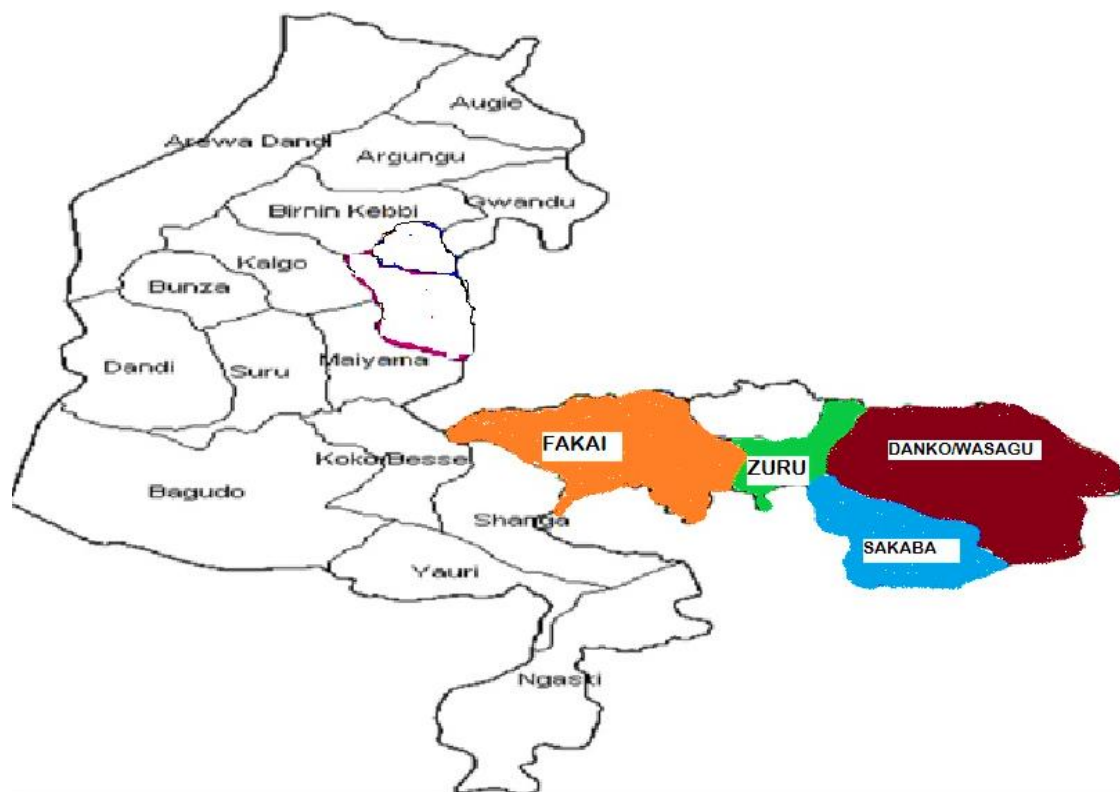
- (i) describe the socio-economic characteristics of the farming households,
- (ii) determine the food security status of the farming households and
- (iii) identify effective coping strategies employed by the farming households, in mitigating the effects of food insecurity.

The study hopes to contribute to the on-going debate in development literatures on household food security status to help policy makers in designing policies and programs implemented to improve food security billed to address diverse range of issues, including participation in and access to Federal food/agricultural assistance programmes, economic opportunity and job security, community development and social cohesion, ecologically sustainable agricultural production, farmland preservation, economic viability of rural communities, direct food marketing, and diet related health problems.

## **II. METHODOLOGY**

### **2.1 Study Area**

The study was conducted in Zuru Agricultural zone in Kebbi State, Nigeria. The zone comprises of four local government areas, namely: Danko-Wasagu, Fakai, Sakaba and Zuru. Zuru Agricultural zone is located in the southern part of Kebbi State in North-western part of Nigeria. It's located on longitude 11° 25' 49" North and latitude 5° 14' 15" East and it's occupying an area of about 8176sq km with a population of 875,500 peoples (NPC, 2018).



**Fig 1** Map of Kebbi State

**Source:** Google Maps, <https://goo.gl/maps/×TtaccgNw4P2>

## 2.2 Data Collection, Sampling Procedure and Sample Size

Primary data for this study were collected from the farming households through the use of structured questionnaire, comprising closed and open-ended questions. A multi-stage sampling technique was employed in selecting a sample of 120 farming households from 12 villages across four rural local government areas of Zuru Agricultural zone. The first stage involves selection of four (4) local government Areas that constitute Zuru Agricultural zone. Second stage involves random selection of two (2) wards from each of the local government area selected given a total number of 8 wards. The third stage involve a random selection of three (3) villages from each of the selected wards to give a total number of 12 villages and at the finally stage 10 farming household were randomly selected to arrive at 120 respondents to serve as sample size for the research.

## 2.3 Analytical Technique

Descriptive statistics such as frequency counts and percentages; mean scores, food security index and Likert scale type employed to fulfil the objectives of the study.

The food security index formula is given by:

$$F_i = \frac{\text{Per capita food expenditure for the } i\text{th household}}{2/3 \text{ mean per capita food expenditure of all households}}$$

Where  $F_i$  = Food security index

When  $F_i \geq 1$  = Food secure ith household

$F_i < 1$  = Food insecure ith household.

A food secure household is therefore that whose per capita monthly food expenditure fall above or is equal to two third of the mean per capita food expenditure. On the other hand, a food insecure household is that whose per capita food expenditure falls below two-third of the mean monthly per capita food expenditure (Omononaet *al.*, 2007).

To ascertain the perceived coping strategies employed by households in mitigating the effects of household food insecurity, a three point Likert-type scale was used. The response options and values assigned were as follows: “Always = 3”; “Occasionally = 2”; and “Never = 1”. These values will be added and divided by 3 to obtain 2.0, which was regarded as the mean. Strategies with mean scores greater than or equal to 2.0 was regarded as “effective” while strategies with mean responses lower than 2.0 was regarded as not effective.

### III. RESULTS AND DISCUSSION

#### 3.1 Socio-Economic Characteristic of Farming Household

The socio-economic characteristic of farming households includes age, sex, marital status, level of education years of farming experience, household size, extension contacts, farm size, access to credit and income.

Table 1: Socio-Economic Characteristic of Farming Household

Variable	FREQUENCY	PERCENTAGE %	MEAN
<b>Age</b>			
20-29	12	10.0	
30-39	23	19.2	
40-49	48	40.0	44
50 and Above	37	30.8	
<b>Sex</b>			
Male	103	85.8	
Female	17	14.2	
<b>Marital Status</b>			
Married	107	89.2	
Divorced	1	.8	
Widowed	7	5.8	
Single	5	4.2	
<b>Education Status</b>			
No formal Education	13	10.8	
Quranic Education	28	23.3	
Primary Education	55	45.8	
Secondary Education	10	8.3	
Adult Education	9	7.5	
Tertiary Education	5	4.3	
<b>Years of Farming Experience</b>			
Less than 6 years	22	18.3	
6-10 years	34	28.3	
11-15 years	36	30.0	12
Above 15	28	23.3	
<b>Household Size</b>			
1-5	27	22.5	
6-10	61	50.8	8
11-15	23	19.2	
16-20	9	7.5	
<b>Extension Contacts</b>			
Yes	84	70.0	
No	36	30.0	
<b>Farm Size (Ha)</b>			
Less than 3 Ha	32	26.7	
3-5 Ha	61	50.8	
6-8 Ha	12	10.0	4.6
Above 8	15	12.5	
<b>Access To Credit</b>			
Yes	47	39.2	
No	73	60.8	
<b>Monthly Income</b>			
₦1000 - ₦ 10,000	50	41.6	
₦ 10,001- ₦ 20,000	33	27.5	
₦ 20,001- ₦ 30,000	20	16.7	₦8,695.
₦ 30,001- ₦ 40,000	2	1.7	125
₦ 40,001- ₦ 50,000	6	5.0	
₦ 50,001 and above	9	7.5	

Source: Field Survey 2019

The result in Table 1 showed that 40.0% of household heads are within the age bracket 40-49 which determine the quality and quantity of work he/ she can perform on the farm. This result conform with Victoria, and Benjamin, (2012) that majority of the household heads were within the agriculturally active age bracket and age of household head determine the ability of the respondent to avert risk due to accumulated experience over time. Also, about 85.8 % of the household head were male. This was in accordance to Ifeoma, and Agwu, (2014) men have easier access to farmland through parental inheritance than women in Nigeria, and about 89.2% of household head are married.

The level of education of household heads revealed that 45.8% of the sampled population had primary education. Educational level of household heads has an additional factor which is thought to influence the food security status of households and in the long run influenced nutritional decisions that enhanced quality of food intake. The result on farming experience showed that about 30.0% of the household has an average 12 years farming experience. This implies that increase in farming experience influences household heads to acquire more skills and better farming practices which will increase food Production. The research show that majority 50.8% of household size has an average of 8 persons. This indicates that most of the farming household had large household sizes, which could serve as a protection against shortfalls in the supply of farm labour. According to Ifeoma, and Agwu, (2014) household size has a great role to play in family labour provision in the agricultural sector.

Table 1 further show that majority (70.0%) of the farming household had no contact with extension agents. The lack of contact with extension agents could be as a result of the inadequate funding of extension agents in Nigeria by the government Ifeoma, and Agwu, (2014). Table 1 also revealed that (50.8%) of the farming household have an average farm size of 4.6 ha of land which is in conformity with (Jayne *et al.*, 2005). The larger the farm size of the household, the higher the projected level of food production. It is, therefore, anticipated that a household with a larger farm size to be more food secure than a household with a smaller farm size.

### 3.2 Food Security Index for the Households

The household's food security status were classified into food secure and food insecure group's base on their monthly per capita food expenditure. The food insecurity line is define as two-third of the mean per capita food expenditure of the total households in the studies. The food insecurity line for the study was calculated as (₦)33,619.94 per month.

**Table 2: Food Security Index for the Households**

<b>Deciles</b>	<b>Mean per capita food expenditure MPCFE (₦)</b>
First	3982.65
Second	4867.55
Third	4254.35
Fourth	4763.833
Fifth	4340.183
Sixth	4497.85
Seventh	4128.683
Eighth	3846.083
Ninth	4066.75
Tenth	3836.25
Eleventh	3992.183
Twelfth	3853.55
<b>Total MPCFE</b>	<b>₦ 50,429.92</b>
<b>2/3MPCFE</b>	<b>₦ 33,619.94</b>

**Source:** Field Survey 2019

Table 2 showed that (19.2%) of the farming household whose per capita food expenditure falls equals or greater than (₦) 33,619.94 were food secure while (80.8%) of the farming household whose per capita food expenditure falls less than (₦) 33,619.94 were regarded as food insecure. According to Ambaliet *al.*, (2013) The monthly mean per capita food expenditure for the total household is N 19,000.98 and the 2/3 mean per capital food expenditure for all the household is N1,267.32. The food security incidence for the insecure household is 0.59 while that of the food secure household is 0.41. This implies that 40.8% of the farming households in the study area were food secure while 59.2% were food insecure. These was also in conformity with Arene and Anyaeji, (2010) that more than half of the respondents (60%) are food insecure since their monthly per capita food expenditure falls below two-third (2/3) of the mean monthly per capita food expenditure.

### 3.3 Summary Statistic of Food Security Status in the Study Area

In order to examine the food security status of farming households, food security index was computed whereby if the computed index is greater than or equal to 1, the household was classified as food secure, otherwise it was food insecure.

**Table 3: Summary Statistic of Food Security Status in the Study Area**

Variable of Food Security Status	Number of Households	Percentage of Households	Head count Ratio (H)
2/3 Mean per capita food expenditure (₦) 33,619.94			
Food secure	23	19.2	0.19
Food insecure	97	80.8	0.81
<b>Total</b>	<b>120</b>	<b>100</b>	

Source: Field Survey 2019

### 3.4 Food Coping Strategies

To combat food shortages, the households engage in food-acquiring activities or change their eating behavior; these responses are known as food-coping strategies. Food-coping strategies are defined as the mechanisms employed by households when the means of meeting needs are interrupted by one or a combination of factors, including drought, low income, or high food prices (Ninnoet al., 2003).

**Table 4: Food Coping Strategy**

Food coping strategies	Mean	Rank	Decision
Buying from market.	2.42	1 <sup>st</sup>	Effective
Eating less preferred foods.	2.20	2 <sup>nd</sup>	Effective
Reduction in quality and quantity of food consumed.	2.16	3 <sup>rd</sup>	Effective
Increased reliance on wild food like hunting	2.16	3 <sup>rd</sup>	Effective
Sale of livestock/household assets.	2.08	5 <sup>th</sup>	Effective
Borrowing money or food from friends/relatives.	2.06	6 <sup>th</sup>	Effective
Mother limiting their own food intake in order to ensure that their children get enough to eat.	1.47	7 <sup>th</sup>	Not Effective
Skipping one or two meals per day.	1.31	8 <sup>th</sup>	Not Effective

Source: Field Survey 2019

The food coping strategies employed by the farming household to mitigate against food insecurity were ranked based on their weighted mean score. Buying from market have a mean score of (M = 2.42) was ranked first, Eating less preferred foods (M = 2.20) was ranked second, Reduction in quality and quantity of food consumed and Increased reliance on wild food like hunting (M = 2.16) was ranked third, Sale of livestock/household assets (M = 2.08) was ranked fifth, and Borrowing money or food from friends/relatives (M = 2.06) was ranked sixth and were regarded as effective food coping strategy for the study area. These strategies are almost similar to those identified in other empirical studies (Maxwell *et al.*, 2003). According to Oluwaseun, (2015) the simplest form of Food Coping Strategy employed by household to combat food shortage is buying from the market which fall under the first category of the four generic categories of Food Coping Strategy.

## IV. CONCLUSION

Based on the empirical evidence emanating from this study. The findings further revealed that food security status was influenced by household size, educational status, age, marital status, farming experience, farm size, Access to credit facilities income of the household heads. The households with large size and larger farm size were expected to be more food secure. The very few that had fairly small household sizes were food secure. The food secure households were more among households whose heads had average monthly income of ₦ 8,695.125. Also, the study observed that the majority (80.8%) of the households were food insecure with ₦33,619.94 as the 2/3 mean per capita food expenditure of the ith households. The most effectively used food coping strategy to combat food insecurity at the time of food shortage were Buying from market, Eating less preferred foods, Reduction in quality and quantity of food consumed, Increased reliance on wild food like hunting, Sale of livestock/household assets and Borrowing money or food from friends/relatives among farming households in the study area.

## V. RECOMMENDATIONS

The following recommendations are made in order to ensure food security among rural households in the study area. This study suggests that efforts should be made to sensitize and encourage household heads to

have children they can really cater for through family planning programmes. The household heads should be given informal education through extension service with a view to enhance their understanding of modern agricultural production techniques and easy access to agricultural production targeting food security. Poverty alleviation programs geared at enlightening household heads on how to boost their income by harnessing all economic and livelihood opportunities in the rural area.

#### REFERENCES

- [1]. Adebayo A. A. (2010). Food security status in Nigeria: Pre and post economic deregulation review. *Int. J. Econ. Dev. Res. Invest.* 1(1):135-150.
- [2]. Akinyele, I.O. (2009). Ensuring Food and Nutrition Security in Rural Nigeria: An Assessment of the Challenges, Information Needs, and Analytical Capacity. International Food Policy Research Institute (IFPRI) Serial No 7
- [3]. Amaza, P., Umeh, J., Helsen, J. & Adejobi O (2006). Determinants and measurement of food insecurity in Nigeria: some empirical policy guide. International association of agricultural economists' annual meeting, August: 12-18.
- [4]. Babatunde, R.O., Omotesho, O.A. and Sholotan, O.S. (2007). Socio-Economic Characteristics of Food Security Status of Farming Household in Kwara State, North Central Nigeria. *Pakistan Journal of Nutrition* 6(1), 49-58
- [5]. FAO (2002). *The State of Food Insecurity in the World, 2002*, Rome. Pp4-10
- [6]. Ifeoma, J. I and Agwu, E. A. (2014) Assessment of Food Security Situation among Farming Households in Rural Areas of Kano State Nigeria *Journal of Central European Agriculture*, 15(1), p.94-107
- [7]. Jayne, T. S., Tschirley, D. L., Staatz, J. M., Shaffer, J. D., Weber, M. T., Chisvo, M. and Mukumbu, M. (2005). Market Oriented Strategies to Improve Households to Food Experience from Sub-Saharan Africa, MSU International Development Working Paper No 15, Department of Agricultural Economics, Michigan State University. 61pp.
- [8]. Kormawa, P. M. (1999) Food Demand and Market Studies in the Drier Savanna of Nigeria. Proceedings of A Methodology and Stakeholders' Workshop, 7-8, September, 1999, Kaduna, Nigeria.
- [9]. Maxwell. D., Watkins, B., Wheeler, R. and Collins, G. (2003). The Coping Strategies Index. Field Methods Manual. Nairobi, Kenya: CARE and World Food Programme.
- [10]. National Bureau of Statistics (NBS) (2013). Agricultural Survey Report 1994/95–2005/06. Abuja: National Bureau of Statistics.
- [11]. NPC (2018). National Provisional Population Census Figures 2018
- [12]. Obamiro, E., W. Doppler and M. Kormawa, (2003). Pillars of Food Security in Rural Areas in Nigeria. *Food Africa, Internet Forum.* 31 March-11 April.
- [13]. Oke, M.A (2015) Determinants of National Food Security in Nigeria *Journal of Economics and Sustainable Development* [www.iiste.org](http://www.iiste.org) ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.6, No.9, pp100
- [14]. Okuneye R. A. (2002). Rising cost of food prices and food insecurity in Nigeria and its implication for poverty reduction. *CBN Economic and Financial Review.*
- [15]. Oluwaseun, A.O. (2015) Analysis of Farm Household and Community Food Security In Kaduna State, Unpublished Department Of Agricultural Economics And Rural Sociology, Faculty of Agriculture Ahmadu Bello University, Zaria
- [16]. Omonona, B., Agoi, T. and Adetokunbo, G., (2007). An analysis of food security situation among Nigerian urban households: Evidence from Lagos State, Nigeria. *Journal of Central of European Agriculture.* 8 (3), 399-406.
- [17]. Victoria A. O., and Benjamin C. A. (2012) Analysis of Food Security Situation among Nigerian Rural Farmers World Academy of Science, Engineering and Technology *International Journal of Nutrition and Food Engineering* Vol: 6, No: 12

Danmaigoro. A. "Food Security and Coping Strategy among Farming Households in Zuru Agricultural Zone of Kebbi State, Nigeria." *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 25(4), 2020, pp. 54-60.