

Assessment of food security situation among smallholder farmers in Aliero, Kebbi State

Abdussalam Adamu Jega^{1*}, Adewole Rhodiyah Aderayo¹ and Muhammad Bala²

¹Department of Agricultural Economics and Extension, Kebbi State University of Science and Technology,
Aliero, PMB 1144, Kebbi State, Nigeria

²Department of Agricultural Economics and Extension, Faculty of Agriculture, Taraba State University, Jalingo

Corresponding Author: smartaa214@gmail.com

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Abstract

Agricultural sector serves as the major source of livelihood among the smallholder farmers in Nigeria, but it suffers a serious neglect in the past during the era of oil boom, but with the recent attention given to agricultural sector by various tiers of governments in the country, the assessment of livelihood outcomes like food security becomes necessary. This study therefore assessed the food security status of smallholder farmers living in Aliero local government of Kebbi state. A number of 100 smallholder farmers were selected and issued with well-structured questionnaire, and data collected were analysed using descriptive statistics. The result of food security status using USDA food security levels of food secured or unsecured revealed that 68% of the population being food secured. It further shows that the average mean for food availability (3.29); food accessibility (3.32); food utilization (3.14) and food stability (3.33) indicates majority of the respondents' have moderate food security level. This study recommends facilitation of increased food production policies and strategies that will enhance more sustainable food production and security in the research area.

Introduction

Nigeria is a country endowed with vast agricultural land and human resource which if adequately harnessed can produce the needed food requirements and for export. Agriculture is regarded as an important economic sector that contribute immensely to the country's gross domestic product, employing its 70% of the labour force, and constitute for over 70% of the non-oil export (Moses, Ongbele, & Rhoda, 2019). However, majority of the smallholder farmers who majorly practiced agriculture hardly meet their daily food requirements (Wudil, Ali, Aderinoye-abdulwahab, & Raza, 2019). Hence, assessing the food security situation among the smallholder farmers would assist policy makers (Arshad, 2010; FAO, 2015; Sietz, Choque, & Lüdeke, 2012) thereby by making decision on tackling food insecurity.

Over many years, the growth of agricultural production in Nigeria have stagnated and failed to provide the need of the rapidly growing population, which in turn results in food insecurity incidence (Idiku, Angba, & Ushie, 2019). Food insecurity is one of the major issue bedeviling small scale households in developing countries, because of their subsistence level of production (Chappell & LaValle, 2011; Sietz et al., 2012). Food insecurity therefore represents lack of access to enough food arising from inadequate resources (FAO, 2008; Ivers, 2015)

Numerous studies have been conducted on assessing farmer's production activities in Aliero, but links between their production activities and food security is lacking. And it is in this context that, this research attempted to assess the food security status among smallholder farmers in Aliero.

FAO (2006), described food security as a situation "when people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Food security is further classified on the basis of core determinants that includes food availability, accessibility, utilization and stability (Muhammad, 2015; Siwar, Ahmed, & Begum, 2014).

Food availability is described as the "supply side" of food security obtained from smallholder farmers food

production activities (FAO, 2006). It is vital in ensuring adequate supply of food.

Food Accessibility: - this is the situation where a household can adequately have access to food requirement at any particular time he wanted at reasonable cost, with no social barriers.

Food Utilization: - describe how a household utilize safe and healthy food that gives him/her best nutritional value.

Food Stability: - refers to a situation in which a household can have consistent and regular access to overtime regardless of any shock or disturbance.

Kebbi State is predominantly agrarian state producing virtually all agricultural food crops and serving as the leading rice producer in the country but requires a carefully targeted agricultural policies and programmes towards poverty reduction (Baraya, Handoyo, Ibrahim, Badayi, & Muhammad, 2023). However, food insecurity continue to be one of major issue in developing countries such as Nigeria, as majority of the population depends on agriculture and lives in rural areas where majority of them suffered many years of neglect due to failure of successive government efforts through various programmes and schemes to reduce the scourge of poverty in Nigeria (Isa & Steve, 2014)

The aim of this study therefore is to assess the food security status of smallholder farmers in Aliero, and in turn outcomes of this study are expected to assist and help policy makers to come up with policies and programs that will reduce food security problems/situation among the respondents. The study will also be helpful to the academia or researchers who wish to conduct research related to the study

Objective of the Study

The broad objective is to assess the food security situation of smallholder farmers in. While the specific objective are:

- I. To describe the food security status of the respondent.
- II. To identify the perceived effects of food insecurity

Literature Review

From the literature it was revealed that farmers who live in rural areas are mostly characterized as poor and hunger driven (Wudil et al., 2019). Food insecurity therefore serves as one of the major challenge in Nigeria (Babatunde, Omotesho, & Sholotan, 2007; Ogundari, 2017; Sidi, 2012) and this is due to dwindling agricultural productivity, climate change and social unrest, economic hardship and poor policies towards development of agriculture (Idiku et al., 2019). The linkage between agriculture and food supply has largely been explored in previous literature. Nwanolue and Iwuoha (2012) and (Danhassan et al., (2023) describe other obstacles affecting agricultural production activities and food security to include drought, flood, and human activities such as deforestation, environmental pollution and poor government environmental policies.

Although the major backbone of developing countries economy is agriculture, they are said to have largest population of food insecure people and food security has become an issue of top priority for both developing and developed countries (Wudil et al., 2019). Smallholder farmers had play a very significant role and contribute considerably to global agricultural output through production of different varieties of crops. They produce the bulk of food and other raw materials consumed in developing and developed countries, but their production capacity is still at subsistence level which require strategic efforts (Isaac & Adeleke, 2021; Ubisi, Mafongoya, Kolanisi, Jiri, & Access, 2017)

Therefore, smallholding farming systems is crucially impacting human nutrition by providing a variety of foods for communities that can easily access nutritional food and achieved more-sustained y food supply (Chiaka, Zhen, Yunfeng, Xiao, & Muhirwa, 2022).

Methodology

This section consists an explanation of the research methodology starting with the study area, population and sample of the study, sampling procedure, data collection and analysis.

Study Area

The study was carried out in Aliero local government area of Kebbi state with the latitude of 11°03'S, 12°47'N and longitudes 3°6'W and 4°27'E. It is located in the north western part of the Nigeria, with a total area of 412 square kilometre neighboured in the east by Tambuwal local government area of Sokoto state; and west by Birnin Kebbi and south by Jega local government area of Kebbi state. Aliero local government area has about 16 villages of which five were selected. It is characterized with vast area of fertile land, and thus, majority of the population are famers. Major crops produced includes mainly grains (rice, millet, sorghum and beans); others produced in large quantities include onions, pepper, and tomatoes, animal rearing and fishing are also common.



Figure 1: Showing study location

A Sampling procedure entails a selection of a sample size from a target population that will represent and give desired characteristics about the population. Multistage sampling technique was used in this research. First of all five villages were randomly selected, and this include; Sabiyal, Aliero, Danwarai, Jiga, Marmaro. In each village twenty farmers were also randomly selected to give a total of 100 farmers. In this study, a structured questionnaire was the instrument used for primary data collection in order to obtain relevant information regarding the objectives of the study, as the aim of data collection process is to ensure that, it was efficient and taken from the right target population at the right time so that the data collected if analysed can answer the research

questions and achieve the objectives of the study at hand..

Information on food security situation was obtained among the smallholder farmers based on USDA food security classification, as also used by (Md. Mahmudul, Siwar, Wahid, & Talib, 2016; Pinstруп-Andersen, 2009) of very low, low, marginal and high food security level with very low and low as food unsecured and marginal and high being food secured. As classified below: -

- 1) Very low food security: this describes a situation during the year, when eating patterns of a farmer is disrupted and food reduced due to lack of money and other resources for food.
- 2) Low food security level: a situation where a farmer reduced the quality and variety of his food but the quantity is quite not disrupted
- 3) Marginal food security: a situation where a farmer had problems/or anxiety with regards to food access, but the quality, quantity and variety are not affected.
- 4) High food security level: a farmers had no problems, or anxiety about adequate access to food.

Data collected was examined using the Statistical Package for Social Science (SPSS) version 22 to deal with the issues of missing data and outliers. And later analysed using descriptive statistics to describe and explain the results in form of frequency, percentage, mean and standard deviation by the use of tables. It was used to summarize the food security level distribution of respondents based on USDA classification, perception based on the components of food security and perceived effect of food insecurity.

Results and Discussion

Food security level based on USDA classification
Table 1: Food security level distribution of respondents based on USDA classification

Variable	Frequency	Percentage
Very low	7	7
Low	25	25
Marginal	61	61
High	7	7

Result in table 1 above revealed that a significant number of the respondents are on the marginal level of food security with about 61%, low with 25% and 7% for very low and high respectively. This indicate that majority of the farmers questioned are moderately food secured as stated by the USDA criteria as computed in the table 2 below.

Table 2: Two category USDA classification

Variable	Frequency	Percentage
Food secured	68	68
Food insecure	32	32

The result in table 2 above also shows that majority of the population in study area are food secured with about 68%, with 32% being food insecure. This also indicates that respondent's agricultural production outputs had immensely contributed in tackling the issue of food insecurity, this results is supported by the findings of Yeyo (2014) whose findings indicated that household food security was achieved using food access, food stored and food harvested at 75.8%, 78.1% and 82.1%, respectively.

Respondents Perception Based on the Components of Food Security

Table 3: Components of Food Security Results

Component	Statements	1*	2*	3*	4*	5*	M	S.D
Food availability	1. Have sufficient quantities of food	14	25	33	17	11	2.86	1.18
	2. Have a significant quantity of food stocks	4	12	45	25	14	3.33	0.99
	3. There is sufficient supply of fresh food in the market	5	9	32	33	21	3.56	1.076
	4. there is adequate food aid during disasters	6	16	22	40	16	3.44	1.122
Food Accessibility	1. Have adequate income to purchase food	6	18	37	29	10	3.39	2.238
	2. can buy food at any price	4	18	42	24	12	3.22	1.011
	3. make budget arrangement for food	10	26	24	25	15	3.09	1.232

Food Utilization	1. have adequate dietary food intake	19	18	35	24	4	2.76	1.138
	2. have clean water	7	9	39	28	17	3.39	1.091
	3. consume safe nutritious food	7	18	32	25	18	3.29	1.166
Food Stability	1. food supply is stable at all times	8	22	29	24	17	3.20	1.198
	2. no variations in food prices at all times	5	20	26	27	22	3.41	1.181
	3. have stable income to purchase food at all times	9	6	39	29	17	3.39	1.118

*NB Low = 1 to 2.33; Moderate = 2.34 to 3.66 and High= 3.67 to 5.00

The result of the table 3 shows that the average mean for food availability (3.29); food accessibility (3.32); food utilization (3.14) and food stability (3.33) indicated that majority of the respondents falls within the range of moderate food security level which is also confirming the result of table 1 and 2 of USDA classification that the smallholder farmers are not very food insecure. This study is supported by the work of Abiodun (2012) who state most of the respondent has a moderate hunger North Central Nigeria (NCN).

Perceived Effect of Food Insecurity

Table 4. Effect of food insecurity

S/N	Perceived effects	Percentage						S.D
		1*	2*	3*	4*	5*	M	
1	Low productivity	21	22	27	21	9	2.75	1.258
2	Malnutrition	4	23	21	35	17	3.38	1.135
3	Hunger	9	10	24	34	23	3.52	1.21
4	Poor Health	6	8	31	31	24	3.59	1.12
5	Societal insecurity	6	15	32	23	24	3.44	1.183
6	Increase in social vices	3	13	35	28	21	3.51	1.059
7	Migration	2	9	32	23	34	3.78	1.079
8	Political instability	5	11	29	31	24	3.58	1.121
9	Poor physical and cognitive development	9	9	39	25	18	3.34	1.148

*NB Low = 1 to 2.33; Moderate = 2.34 to 3.66 and High= 3.67 to 5.00

The effect of food insecurity were also reported as indicated in table 4 above migration with mean of (3.78) was ranked high as the major consequence of food insecurity, whenever there is food insecurity people tend to migrate to place where food can be

sourced to meet their nutritional requirements. This is also in conformity with the work of Omorose (2025) whose findings indicated that rural-to-urban migration has strained food supply systems, further exacerbating the food security crisis. Other perceive effect of food insecurity to the society includes poor health (3.59) political instability (3.58), hunger (3.52) etc.

Conclusion

This study assessed the food security status of smallholder farmers in Aliero local government area of Kebbi state, Nigeria. The food security status of the respondents was computed using the USDA food security classification of very low, low, marginal and high food security level with majority of the farmers being marginally food secured.

Based on the study findings most of the respondents 68% were found to be moderately food secured. In addition, the average mean for food availability (3.29); food accessibility (3.32); food utilization (3.14) and food stability (3.33) reflects moderate food security level of the respondents. Hence, governments and other policy makers are recommended to further facilitate more consistent and comprehensive food production policies that will enhance sustainable food availability and access.

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