

Implication of agricultural land-use and management practices on food insecurity among rural households in south-west states, Nigeria.

Ganiyu, Muibat Omolara¹, Ajala, Adedolapo kemi², Ogunwole-Olapade, Folayimi³, Ayinla, Rasheed Ayodele⁴ and Raufu Mufutau Oyedapo⁵

^{1, 2 & 3}Department of Agricultural Economics, Faculty of Agric Sciences, Ladoke Akintola University of Technology, Ogbomosho, Nigeria

⁴Department of Agricultural Extension and Rural Development, Ejigbo Campus, Osun State University, Nigeria. Email:moganiyu@lautech.edu.ng

Abstract

The challenge of food insecurity can be addressed through effective transformation of agricultural practices, as many literatures recognize agricultural food system as one of important measures in promoting food security. This study analyzed the effect of agricultural land-use and its management practices on food insecurity among rural households in southwest states, Nigeria. The study designed a multistage sampling for the selection of 340 rural household heads and cross-section data were collected during 2022 crop production season through structured questionnaire. Descriptive statistics, food security line and probit regression model were employed as analytical techniques. The major findings revealed that 67% of farm household heads were male and the average age of 47.11 years signified that most of them are still youths. Exactly 81% of the household heads were married, the mean household size was about 6 persons, most of them acquired secondary education and experienced in farming. The farm size cultivated was 2.63ha on the average. Total monthly expenditure for all farm households was ₦322424.9 while their food security index was 0.479412. The result also showed that more than average (53%) of household heads are food insecure while the rest (47%) are food secure. The study further identified that the prevalent land management practices were crop rotation, organic manure, minimum tillage and fertilizer application while arable cropping system dominated among food insecure land users, and the majority of food secure land users specialized on the cash cropping practice. The analysis of probit model found that on-farm income, arable cropping, cash cropping system, mixed farming, fertilizer application and land management measure were significantly influenced food insecurity. The study therefore suggests arable cropping, cash cropping and mixed farming as essential agricultural land-use that driven food insecurity. Also, fertilizer application and other land management measures like crop rotation, organic manure, and minimum tillage are recommended for improving agricultural food production. Policy intervention therefore should enlighten the agricultural stakeholders on the huge contributions of agricultural land-use patterns and its sustainable management towards food insecurity reduction.

Keywords: agricultural land-use, land management practices, food insecurity, household heads, southwest states, Nigeria

Introduction: Food insecurity is prevalent in different regions across the country and its prevalence can be traced to the poor agricultural food system besides poverty, insecurity/conflict and current market prices of food items. Food crisis/insecurity and malnutrition are among the global welfare challenges facing most developing countries, especially in the tropics (Schipanski Hawes, MacDonald and Barbosa, 2016; International Institute for Sustainable Development

IISD, 2022; Dolapo Adeyanju, John Mburu, Wainaina Gituro, Chepchumba Chumo, Djana Mignouna, Adebayo Ogunniyi, John Kehinde Akomolafe and Joseph Ejima, 2023). In addition, Herrera *et al.*, (2021) observed that food security issue is mostly becoming a battle for the agrarian communities and over 70% of people reported experiencing household food insecurity during a three-year time period in Madagascar.

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According to United Nation Development Programme (UNDP, 2020) more than 800 million people were undernourished as observed in 2017 out of which one-third was from Sub-Saharan Africa (SSA). In the case of Nigeria, evidence showed that nearly 25 million populations are food insecure, this current threshold of food insecurity deserved immediate attention by the agricultural stakeholders and government' enhancement food policy. Food security is a state of wellbeing in terms of food and drink while insecurity sets in when most people do not have ability to obtain adequate food and drink for good hygiene. Food insecurity is a concept that refers to the social and economic problem of lack of food due to economic deprivation; not voluntary fasting or dieting or for other reasons. The standard definition used in the United States for food insecurity is that food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain (Tilman, Balzer, Hill and Befort, 2011; High Level Panel of Experts on Food Security and Nutrition (HLPE 2013).

Pawlak and Kołodziejczak (2020) argued that food security has become an issue of key importance to countries with diverse degrees of economic development, while the agricultural sector plays a strategic role in improving food availability. Nonetheless, food supply is dependent on increasing the agricultural productivity and expanding the range of agricultural land-use. Agricultural land-use diversification is a transformation process in ensuring high performance of agriculture. Also, the dominance of rural livelihood activities on agriculture (Samkelisiwe, Hlophe-Ginindza and Mpandeli, 2020) further suggests the rationale for conducting studies like this, which also help to understand the current food security status in the agrarian community where food production is normally taken place.

The major argument raised by the study is that agricultural food system formed the bedrock for promoting food security worldwide Samkelisiwe et al., (2020), while agricultural land-use and its management practices play dominant roles in achieving the sustainability of agriculture. In other words, ensuring quality farmland and sustainable farms as well as providing adequate quantity of

foodstuffs have led to measures to protect farmland and farm activities in many countries (Bousbaine, Akkari and Bryant, 2017). Agricultural land-use is being referred to the different functions to which human apply to the cropland available to them. For example, agricultural land-use has been diversely divided to include arable cropland, cash cropland, tree plantations, horticulture, irrigation land, grazing or range land and mixed farming. Land management practices are good agronomic practices such as minimum tillage, irrigation, fertilizer, manure to conserve soil fertility. According to Tsue, Nweze and Okoye, (2014) land use coupled with management practices is the key instrument for achieving increased crop yield and productivity as well as agricultural produce sustainability. It is being assured from literature that a lot of land conservation techniques including the obsolete and modern measures are necessary to boost soil quality which in turn enhance food availability.

Land as an important component of the farming activity requires a proper and sustainable management system. Land is beneficial in its characteristic state, delivering stands of timber and indigenous grasses of many kinds. However, the conservation endeavours of the agriculturists and farmers have enhanced the efficiency of numerous farmlands. Land clearing, sewage or erosion control, adequate soil nutrient replenishment, water system, use of excrement/compost, cultivation of new and improved plant species and the utilization of chemical fertilizers (USDA, 2009) are significant to improve farmland properties.

Considering the potential roles of agriculture and previous efforts devoted by government policies as well as programs towards achieving food security, food insecurity persists and leaves growing population in extreme hunger. Research must identify the nexus among agricultural land-use, management practices and food insecurity and also share its discovery with the concerned people in Nigeria. This study generally analyzed the effect of agricultural land use and its management practices on food insecurity among farm households in south-west Nigeria and it specifically described the socioeconomic characteristics, measured the food insecurity status of rural household

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heads, profile agricultural land-use and its management practices based on food security status, examined the effect of agricultural land-use and its management practices on food insecurity among farm households and identified the coping strategies adopted by farm households to combat food insecurity.

The research further hypothesized that food insecurity among farm households has no relationship with agricultural land-use including management practices adopted.

Materials and Methods : Study Area : This study was conducted in southwest states, Nigeria from January 2022 to June 2023. The region has a total land area of 114,271km² representing 12% of the country's land mass and comprises six states which include Oyo, Osun, Ogun, Lagos, Ondo and Ekiti states (Balogun and Akinyemi, 2017). Also, the southwest Nigeria is bounded in the east by Edo and Delta states, in the west by the Republic of Benin, in the north by Kwara and Kogi states, and in the south by the Gulf of Guinea. The climatic conditions in the south-western regions are predominantly tropical and are characterized by distinct wet and dry seasons. During the wet season, the region experiences the influence of the south-west monsoon wind originating from the Atlantic Ocean. This period is characterized by increased rainfall, higher humidity, and generally cooler temperatures.

The average rainfall is 1480mm with a mean monthly temperature range of 18°-24°C during the rainy season and 30°-35°C during the dry season. The vegetation types in the south-western region of Nigeria encompass a variety of ecosystems. Along the coastal belt, there are freshwater swamps and mangrove forests characterized by brackish water and salt-tolerant vegetation. These areas are influenced by tidal movements and are vital habitats for diverse flora and fauna. Moving inland, the lowland rainforest dominates the landscape, extending towards Ogun state and parts of Ondo state (Faleyimu, Akinyemi, and Agbeja, 2010). The atmosphere here allows farmers to grow varieties of arable crops cassava, maize, yam, guinea corn, rice, sweet potato, and vegetables (such as okro, garden-egg, cucumber, tomatoes, and pepper) among others. Tree/cash crops

like oil palm, mango, orange, cashew, cocoa, and kola-nut among others. Its agro-ecological condition also supports grazing land and raising livestock such as sheep, goats, cattle and poultry. In addition, the region of south-west is highly populous, dominated by adults, youths, and children with many of these people being farmers. The farm households, though smallholders substantially feed the millions of inhabitants in Nigeria at large. Small-scale farmers make up to 80% of farmers in Nigeria and produce a substantial percentage of the food consumed by Nigerians (Mgbenka, Mbah and Ezeano, 2016).

Sampling Procedure and Source of Data : The study employed a two-step random sampling to select 340 respondents among farm households located in southwest states, Nigeria pertaining to 2022/2023 cropping season. Initially, from the six southwest states, Oyo and Osun states were selected purposively due to proliferation of food crisis which accompanied by the rapid growing population and unpredicted agricultural performance. Also, a sampling frame was obtained from the list of farm households as contained in the record of the Agricultural Development Programme of each state. Over 50000 farm households residing in (Oyo and Osun) southwest states, Nigeria out these about 397 households were drawn using a population proportionate scale introduced by Yamane (1967) sampling approach which also cited by Otabor and Obahiagbon, (2014). According to Yamane sample size $n = N/(1+N(e)^2)$

$$n = N/(1+N(e)^2) \dots\dots\dots(1)$$

N = population size = 50000, and e = degree of desired precision.

$$n = 50000 / (1+50000(0.05)^2) = 396.83 \text{ farm households.}$$

This sample size (396.83 farm households) was approximated to be 397 respondents. Equally, questionnaires were administered to the respondents to solicit for the required information (data) for this study. Data were sought on socio-economic factors, on-farm income, farm size, different agricultural land-use patterns, land conservation measures, monthly expenditure on food items, and some adopted coping measures of food insecurity among others. Finally, three-hundred and forty (340) respondents out the chosen numbers were considered

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for the study based on the deficiencies of respondents in providing adequate information.

Data Analysis and Model Specification: The data collected were analyzed using descriptive statistics, food security index and probit regression model. Descriptive statistics such as frequency, percentage, standard deviation and mean were used to analyze the socio-economic factors, different agricultural land-use options, land conservation measures, and some food insecurity coping measures while food insecurity status was captured by food security line. The food insecurity impact of agricultural land-use options and land conservation measures was estimated by probit regression model.

Food security index: The households' expenditure on food, which has found wider application in several empirical studies (Omonona and Agoi, 2007; Bamou and Mkouonga, 2008; Bamire (2010); Ganiyu and Omotayo 2016), was used to estimate the food security line (status) for rural households in Nigeria.

The food security index (Fi) = $\frac{\text{per capita food expenditure of each individual household}}{2/3 \text{ (mean per capita food expenditure of all households)}}$

$$P(Y_1 = \frac{1}{X_i}) = \frac{\exp(X_1\beta)}{1 + \exp(X_1\beta)} \dots \dots \dots (4)$$

An equivalent formula can be specified thus

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + \pi_1 \dots \dots \dots (5)$$

Y = Food insecurity status (secure =0, insecure=1)

X₁ = On-farm income, X₂= Arable crop farming (dummy), X₃ = Cash crop farming (dummy) X₄ =Mixed farming (dummy), X₅ = Fertilizer (dummy), X₆ = Organic manure (dummy)

X₇ = Land conservation (dummy), X₈ = Tree/forest plantation (dummy)

X₉ = Full time farming (dummy)

π = disturbance term

Results and Discussion : Farm households' socioeconomic characteristics and some selected variables included in the model: The summary statistics of socio-economic factors among farm **Implication of agricultural land-use and management practices on food insecurity among rural households in south-west states, Nigeria.**

Where per capita food expenditure of all households is total monthly food expenditure of each household divided by the household size.

Fi = food security index

When $Fi \geq 1$ = food secure each household.

$Fi < 1$ = food insecure each household.

A household whose per-capita monthly food expenditure falls below food security line (two-third of the mean per capita food expenditure) is food insecure while a household whose per-capita monthly food expenditure is above or equal to the food security line is food secure.

Probit regression model: Probit regression model was used to examine the effect of agricultural land-use and its management practices on the food insecurity status of rural households in the study area. The food security status which is a dichotomous variable represents the dependent variable in this analysis, whereas various agricultural land use patterns and management practices are the independent variables included in the model in order to estimate the coefficients and marginal effects of independent variables.

Hence, the probit model in exponential and linear forms is as follows;

households showed that the least and maximum ages were 20 and 74 years respectively with estimated average age of 47.11years. It indicated that the farm households are relatively young and can still cope with

the farming practices if given more access to croplands to expand their levels of production. This result is differed from the report gotten by Adeyanju *et al.*, (2023) wherein the average age of young farmers was 29.59 years. In addition, the least and highest years spent in school were 0 and 18 years respectively with an estimated average year of 10.217 years, this finding showed that in amidst of the farm households, there are literate people or most of them have post-primary education. The level of education is substantial to improve farm production and management techniques which further play a great role in adoption of farm innovation and enhance the economic sustainability of farm operations and food security and it corroborates Adeyanju *et al.*, (2023). In terms of household size, the maximum household size is 12 persons and the minimum of 1 person with an estimated mean of approximately 6 persons per household. This result implied a moderate family size which by extension contributes their labour to farm activities, this finding is similar to the result of Haddabi, Ndehfru, and Aliyu, (2019); Adeyanju *et al.*, (2023) in their research work on assessing food security among young farmers in Africa: evidence from Kenya, Nigeria, and Uganda. It was noticed that larger household size tends to reduce per capita food expenditure of the household, thus increasing their likelihood of being food insecure. The

finding further revealed that the farm households have the highest farming experience of 45 years with an estimated mean of 16.99 years. It disagrees with the result found by Adeyanju *et al.*, (2023). Also, it was found that the maximum total expenditure was ₦7350034 and the least was ₦140000 with an estimated average of ₦322424.9 expenditure on food per month for all households while the least and maximum food security index was 0 and 1.0 respectively with an estimated average of 0.479. Also, farm size was about 2.635ha and the least as well as highest farm size cultivated was 1 and 10 ha. It is indicated that most farm households who are small holder farmers dominated the agricultural industry. It corroborates Adeyanju *et al.*, (2023) and Haddabi *et al.*, (2019) where the mean farm size of the respondents is about 2.95 hectare. The mean farm distance covered was 4.387083km as shown in Table 2. The least and maximum distance covered to farm was 1 and 12km respectively, it suggests that distance travelled to farm could determine the use of agricultural land as well as land conservation measures. Lastly, the cost of land conservation on the average was ₦177.044 and this is determined by the cropland quality which in turn influence agricultural land-use productivity and also food security.

Table 1: Summary statistics of farm households’ socioeconomic characteristics

Selected variables	Observation	Mean	Std dev.	Minimum	Maximum
Age of farmers	340	47.11176	10.66322	20	74 years
Educatio	340	10.21765	5.051328	0	18 years
Household size	340	5.573529	1.919594	1	12 persons
Farming experience	340	16.99412	9.070681	2	45years
Total expenditure	340	322424.9	587677.6	14000	7350034 ₦
Farm size	340	2.635588	1.723154	1	10 ha
Food security index	340	0.479412	0.500312	0	1.0
Farm distance	340	4.387083	1.496677	1	12km
Cost of land conservation	340	177.0441	3253.926	0	₦ 60000

Source: Field survey, 2022.

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Farm households’ food security status: The distribution of household heads in Table 2 revealed that more than half (53%) of household heads are food insecure while the rest (47%) are food secure. It suggests that food insecurity among household heads persist in the study area, even with the abundant farmland hectares. This result evident that many of rural households are living below poverty line in Nigeria. Relatively, despite being food producers, about 52% of the respondents across the three countries included Nigeria were found to be food insecure this is according to Adeyanju *et al.*, (2023). This corroborates Masa *et al.*, (2020) who found that more than half of African youths experience moderate

to severe food insecurity and Acheampong *et al.*, (2022) who found that despite being food producers and marketers, farmers still experience food insecurity in Africa. Similarly, food security is a major challenge for the agrarian communities and over 70% of respondents reported experiencing household food insecurity during a three-year time period in Madagascar (Herrera *et al.*, 2021). Conjunctively, this study also observed that irrespective of the farm households’ efforts to raise the level of arable crop farming over average of the population studied are food insecure.

Table 2: Distribution of farm households based on food security status

Food security status	Frequency	Percentage
Food secure	163	47
Food insecure	177	53
Total	340	100

Source: Field survey, 2022.

Farm households’ food security status and agricultural land use profile: Generally, most rural households (97.6%) are involved in crop farming which essentially contributes to household food security and income supply. The result in Table 3 represents the distribution of farm households’ food security status and various agricultural land-use. It was found that majority (95.09%) of food insecure employed farmland for arable cropping yet they remained as the same while 84.74% of food secure among the household heads cultivate arable crops. The result buttressed the fact that the poor is becoming core poor whereas the rich is getting better, most especially in Nigeria. The proportion of farm households’ account to (85.88%) under cash cropping are food secure while the percentage of food insecure comprising (75.46%) produce cash crops. It signified that cash crops production can better improve their food security status. This is fairly comparable to the

study done by Herrera *et al.*, (2021) who viewed that food crops are keys to nutrient-dense diets, but cash crops can also alleviate food insecurity via revenue that can be used to purchase food.

Additionally, the farm household heads that are food secure were more involved in mixed farming, horticultural farming as well as pastoral practices as compare to others who are food insecure. This study further showed the importance of these agricultural land productions to food availability as the accelerator of food security. In term of land conservation, increased number of the food insecure farm households were engaged in farmland conservation as compared to food secure counterparts in the study area, this is necessitated as a sustainable strategy to achieve food security through a fertile cropland and an increase food production.

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Table 3: Cross tabulation of farm households' food security status by agricultural land

Agricultural land use (n = 340)	Food secure	Food insecure
Arable cropping	150(84.74)	155(95.09)
Cash cropping	152(85.88)	123(75.46)
Horticultural farming practices	42 (23.73)	29 (17.79)
Pastoral system	47(26.55)	42(25.77)
Tree forestation	60 (33.90)	62(38.04)
Mixed farming	117(66.10)	68(41.72)
Land conservation measures	134(75.71)	140(85.89)

Source: Field survey, 2022. Figures in parenthesis are percentages

Adoption of land management practices; The application of farmland improvement measures is a significant practice in agriculture to produce sustainably. Considering the distribution of farmers based on land management measures, it has been asserted that crop rotation, organic manure, minimum tillage and fertilizer application are potentially practiced among farm households to improve land nutrients. Other land conservations that are also used in the study area include agro-forestry, cover crop and mulching as shown in Table 4. For instance, crop rotation accounts for 90.59% of the identified land

management practices, thus it is the most adopted land management practice. Coupled with other practices such as organic manure (80.45%), minimum tillage (79.12%), inorganic fertilizers (66.47%), agro-forestry (33.53%), cover crop (29.71) and mulching (26.76%), in that order. However, the essence of this finding is for more smallholder farmers to consider significant land conservation practices among others in a bidding to achieve food security. This study is fairly corroborated to the finding Kapari, Hlophe-Ginindza, Nhamo and Mpandeli, (2023).

Table 4: Distribution of farm households based on land management practices

Land management practices	Frequency	Percentage (n = 340)
Mulching	91	26.76
Crop rotation	308	90.59
Organic manure	274	80.45
Cover crop	101	29.71
Agroforestry	114	33.53
Inorganic fertilizer	226	66.47
Minimum tillage	269	79.12

*Multiple choices Source: Field survey, 2022

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Marginal Effect after Probit Regression for Determining Impact of Agricultural Land use and Management Practices on Food Insecurity

The estimate of marginal effect analysis shown in Table 5 has identified variables like on-farm income, arable cropping, cash cropping system, mixed farming, fertilizer application and other land management measures as influencers of farm households' food insecurity in southwest, Nigeria. Specifically, it was found that on-farm income is negatively significant at 5% level in relation to food insecurity status, it signifies that an increased on-farm income would probably lead to a reduction in food insecurity of household heads. This finding is line with the a priori expectation or expected because people with more income suppose to be food secure at all times. It has been reported that the income is expected to increase households' production and access to more quantity and quality food. This agrees with Okwoche *et al.*, (2012); Haddabi *et al.*, (2019) who reported that an increase in income increases the likelihood of households being food secured. Arable cropping is also significantly influenced food insecurity status at 5% but the interaction effect is a direct nexus, this result shows that household heads are more likely to remain food insecure irrespective of whether they grow arable crop or not. This unexpected relationship might be due to poor arable crop productivity

associated with climate change as well as land degradation in the study area. In addition, propagation of cash cropping system has a significant effect in reducing food insecurity at 5% level, because of negative coefficient which implies that with more cash crop production there is likelihood of household heads being food secure. This is in agreement with the work of Herrera *et al.*, (2021).

Mixed farming is negatively related to food insecurity and significant at 1% level indicating that the cultivation of more mixed farming is likely to reduce food insecurity. This result is possible because mixed farming is a way of agricultural diversification which tailored towards the prevention of farm produce loss and improvement of farm income. Fertilizer application is significant at 10% with negative coefficient and it indicates that farm household heads are more likely to be food secure with an increase application of fertilizer to crop farms. Lastly, adoption of land conservation has a positive coefficient and significant at 10% level indicating that food insecurity persist even with more adoption of land conservation measures. The finding of this study serves as evidence to recent poor performance of agriculture in Nigeria despite the innovation and government intervention on achievement of food security. This result is not expected and disagreed with the finding of Olarinre and Oladeebo (2019).

Table 5: Result of Marginal Effect after Probit Regression for Determining Impact of Agricultural Land-Use and Management Practices on Food Insecurity

Independent variables	dy/dx	Std. errors	z-values	P> z values
On -farm income	-0.0492421**	0.02278	-2.16	0.031
Arable Crop Farming	0 .2090307**	0.09612	2.17	0.030
Cash Crop Farming	-0.1787099**	0.07211	-2.48	0.013
Mixed Farming	-0.2251667***	0.05577	-4.04	0.000
Fertilizer use	-0.1073747*	.06275	-1.71	0.087
Organic manure	-0.0423741	0.07512	-0.56	0.573
Land conservation	0.1314779*	0 .078	1.69	0.092
Tree forestation	0.043030	0.06112	0.70	0.481

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Full time farming -0. 02907 0. 03863 -0.75 0.452

Marginal effects after

probit $y = \text{Pr}(\text{Foodinsec})$
 (predict) = 0 .4779151

Source: Computed Data, 2022

Denote significance level at $P > 0.01$ (***), $P > 0.05$ (**), $P > 0.1$ (*)

Coping strategies adopted by farm households in the study area; The coping strategies to household food insecurity were measured on a four-point scale; frequently, occasionally, rarely and never used (Table 6). Based on the study, most (70.59%) of the household heads occasionally make withdrawal from their personal savings, (52.06%) of them rarely sold their assets to feed their family members and 39.12% received donation from friends and family to cope with food insecurity. (43.24%) of them as well frequently borrow money or food, (41.47%) of the respondents frequently buy food on credit. This

finding is similar to that of Akerele *et al.*, (2013), who found that some rural households in South west Nigeria rely on purchase of food on credit. Reducing number of daily meals (37.65%) of the respondents frequently adopted this as coping strategies. This coping strategy is in consonance with the findings of Orewa and Iyangbe (2010), who reported that rural households in Edo state Nigeria start to limit or ration their food intake (consumption soothing) when faced with food shortage. Overall, the findings demonstrate the various coping strategies employed by respondents to mitigate the impact of food insecurity on their lives.

Table 6: Distribution of respondents coping strategies adopted

Coping strategies	Frequently 4	Occasionally 3	Rarely 2	Never 1
Withdrawal from personal savings	48(14.12)	240(70.59)	42(12.35)	10(2.94)
Sale of assets	6(1.76)	93(27.35)	64(18.82)	177(52.06)
Donations from friends and family	28(8.24)	124(36.47)	133(39.12)	77(22.65)
Borrowing of money/food	147(43.24)	78(22.98)	77(22.65)	38(11.18)
Buying food on credit	141(41.47)	118(34.71)	42(12.35)	39(11.47)
Reducing number of daily meals	128(37.65)	116(34.12)	44(12.94)	52(15.30)
Reduce adults' food consumption to secure food for children	122(35.88)	110(32.35)	57(16.76)	51(15.0)
Casual jobs	127(37.35)	65 (19.21)	90(26.47)	58(17.06)
Shift to less preferred foods	133(39.12)	80(23.53)	54 (15.88)	73(21.47)

*Multiple choices Source: Field survey, 2022

Conclusion and Recommendations; This study sought to examine the implication of agricultural land-use and its management practices on food insecurity

among rural households in southwest states, Nigeria. It showcased the current threshold of food insecurity status which pointed out that a lot of people suffer for

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food as a basic need. Basically, it has espoused the linkage between arable cropping, cash cropping and mixed farming as the most common agricultural land-use patterns, land management measures and food insecurity among farm households. Majority of farm households particularly food insecure land users are highly engaged in arable crop cultivation as well as land management practices, but they are not being able to produce enough food and food insecurity kept on persist. Also, the study further revealed that on-farm income, arable cropping, cash cropping practice, mixed farming, fertilizer application and land management measure were significantly impacted on food insecurity among farm household heads. Overall, fertilizer usage and other land management measures like crop rotation, organic manure, and minimum tillage are identified as farmland amendments and recommended for farm households to adopt for improving agricultural food production. The policy measures supporting food security in Nigeria must consider the relevance of agricultural land-use policy. Finally, empirical analysis of effect of agricultural land-use and its management practices on food insecurity has some practical applications in addressing agricultural land-use diversification, good agronomic practices, land-use policy and the overall economic sector.

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