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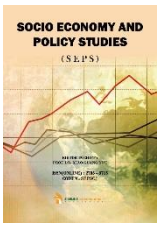

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RESEARCH ARTICLE

ASSESSMENT OF FARMING HOUSEHOLDS' ADAPTATION STRATEGIES TO INSECURITY IN EKITI STATE NIGERIA

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ABSTRACT

The study investigated adaptation strategies employed by farming households to insecurity in Southwest Nigeria. Fifty farming households were selected through a multi-staged sampling technique. Data were gathered through interview schedules, described with frequencies, percentages and mean; and presented in tables and figures. Chi-square test of independence was used to check for statistical significance between dependent and independent variables. Results revealed that the mean age of the respondents was 41 years, while 58% were females. Seventy six percent of sampled farming households often witnessed attacks by Fulani herdsmen. These incessant attacks majorly affected the health and economic assets of the respondents. There were less extension visits in communities affected by insecurity. Of the adaptation strategies, majority of them erect high gates and fences to prevent further attacks. Based on the result from the Chi-square test, selected socio-economic characteristics of farmers had a positive influence on adaptation strategies used. It is therefore recommended that extension agents need to intensify the use of social media since physical contact seems challenging in the face of insecurity. Government and private organizations should set up and equip local security outfits in rural areas to stop frequent attacks by herdsmen.

KEYWORDS

Adaptation Strategies, Extension Agents, Herdsmen, Farming, Agriculture, Insecurity

1. INTRODUCTION

There are immense potentials in Nigeria's agricultural sector, which if properly managed would propel income growth for farmers, food and nutritional security, and employment opportunities as well as elevate the country to the ranks of leading players in global food markets (FMARD, 2011). Downie, mentioned insecurity as one of the various hurdles shifting the nation's agricultural sector (Downie, 2017). Farming activities can neither be carried out under an insecure environment, where farming communities are displaced, nor in the face of blockage and lack of access to regional markets (Eigege and Cooke, 2016). Adaptation refers to ways or measures set up by individuals and affected group of persons to adjust to changes caused by sudden events. Adaptation strategies seek to reduce vulnerability and thereby advance human security **(**Adger et al., 2014).

Humans will generally adapt to insecurity either by relocating to other places or by setting up security measures. In modern farming households, there are several security preventive mechanisms to choose from such as lighting, erecting high fences and gates, installing security cables across field lanes, no trespassing signs and systems, watchdogs, setting up emergency response plans, planting poisonous plants, etc. Rural farmers on the other hand who often lack modern security facilities resort to deploying local measures as a form of defence. A study on 'National Insecurity and the Challenges of Food Security in Nigeria' pointed that national insecurity crowds out agricultural productivity (Nwozor et al., 2019).

In other words, the disruptions from the activities of the Boko Haram group and Fulani herdsmen undermine the capacity of farming communities to produce optimally thereby creating food shortages and impeding their livelihood. The impact of displacement on these farming communities stalls their contributions to food production in the country as they are not in any position to continue with their occupation of farming. The devastation, which the activities of Boko Haram and Fulani herdsmen have caused, is not only obvious but also far-reaching in its impact on agriculture. The state of insecurity in many of these farming communities have made it practically difficult for farmers to continue to engage in agricultural production optimally, thus affecting productivity and causing market disruptions with attendant food price shocks (Fadare et al., 2019).

2. BACKGROUND

Apart from the Boko Haram sect and other banditry group, there are other sources of violent deaths, which include intra-community conflicts, herders-farmers' conflicts, clashes between security agencies and socio-cultural and religious groups and other criminal activities, especially ransom kidnappings (Nwuzor et al., 2019). The Fulani herdsmen have become a major threat to farming communities with incessant attacks in Ekiti State, thereby causing a negative impact on agricultural activities. Oluwole, reported an attack on a seven-year-old boy and a couple during an invasion of farmlands by some Fulani herdsmen in Iyemero Ekiti community a town in Ikole Local Government Area of Ekiti (Oluwole, 2021). Reports also confirmed that gunmen killed two farmers in Isaba Ekiti, Ikole local government area of Ekiti State (Ayodele, 2021). With all indications, the lives and livelihood of these farmers and other residents in the communities are threatened with each passing day with some of them fleeing their homes while others are forced to farm in fear with no place to run to.

According to a group researcher, there is no way a country can promote productivity or achieve competitiveness where symbolically, physically,

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and psychologically people feel unsafe (Nwuzor et al., 2019). The authors further stated that some farmers have been uprooted and displaced from their ancestral farming communities; others are perpetually afraid for their lives and as such cannot optimally engage in farming activities. The major propellant for this research is to fill in the knowledge gaps which exist in the subject area. Further, insecurity affects farmers' livelihood, thereby reducing physical and agricultural output. The study assessed adaptation strategies of farming households to insecurity in Southwest Nigeria. Specific objectives of the study were to:

a. describe socio-economic characteristics of farming households,
b. determine agricultural specializations of farming households.
c. ascertain frequency of insecurity from herders experienced by farming households.
d. identify adaptation strategies used by farming households.
e. ascertain frequency of extension visits in the past two years (during the period of insecurity), and.
f. determine the effects of insecurity on farmers' livelihood.

2.1 Hypothesis

H_0: Selected socio-economic variables do not significantly influence use of adaptation strategies by farming households

3. Materials and Methods

3.1 Study Area

The study was carried out in Ikole local government area. Ikole local government area is in Ekiti State (7.40–8.00 N and 5.20 to 5.40 E). Ikole is situated in the deciduous forest area of the State, rainfall is about 1,778 mm per annum and rain falls between March and November annually. The good drainage of the land makes it very suitable for agriculture. It is a common feature that trees shed their leaves every year during the dry season which begins in November and ends in February. The dry Season (December – February) and rainy Season (March – October) are quite distinct and they are very important to the agricultural pursuits of the people.

3.2 Sampling Technique

A multi-stage sampling method was employed to select respondents for the study. At the first stage, Ikole Local Government was purposively selected due to attack by herders in the year 2021 (Oluwole, 2021). The second stage involved a purposive selection of Isaba and Iyemero towns affected by herdsmen attacks and clashes. This was followed by a simple random selection of 25 farming households, resulting in a total of 50 respondents.

3.3 Data Collection and Analysis

A questionnaire schedule was employed to collect primary data from farming households. Data on Frequency of insecurity from herders experienced by farming household was time-framed for two years due to a report from International Crisis Group, ICG, (2018) that compared Boko Haram's insurgency to conflict between herders and farmers in Nigeria, found out the latter was deadlier than the former in 2018. Data collected were described using frequency counts, percentages and mean, while Chi-square test of independence was used to test the null hypotheses. Data were presented in tables, figures, and charts.

4. Results and Discussion

4.1 Socio-Economic Characteristics of Respondents

The socio-economic characteristics of farming households presented in Table 1 shows that of the total sampled farmers, 58.0% were predominantly female and 42.0% were male. This implies that more women are actively involved in farming activities in the study area. In recent times, rural women have developed an increased sense of responsibility to cater and provide for the family, thus engaging in agrarian activities. The finding conforms with that, women are known to be more involved in agricultural activities than men in sub-saharan Africa countries (Olayemi et al., 2012). The mean age of farmers was 41.1 years where 46% of them were between ages 41-50. This suggests that a substantial proportion of the respondents who are women are economically productive. Also presented in the table is the educational qualification of the farmers which reveals that 34% of the respondents had gone through secondary school. This implies that majority of them can read which could assist them in getting access to information regarding insecurity through newspapers and other written channels of information. Married farmers represented 74% of the sample size; with mean household size of 6.37. The mean of farm size stood at 1.1hectares where 48% had farm size of 1.1-2 hectares. This result is in tandem with the marital status and household size of the farming households. Large farm size requires large number of labours which mostly comes from within the household. Farming experience of the sampled farmers stood at a mean of 10.4 where 52% had been farming between 10-11 years.

Table 1: Distribution of Socio-economic Characteristics of Respondents

Variables	Frequency	Percentage	Mean
Sex Distribution			
Male	21	42.0	
Female	29	58.0	
Age (Years)			41.1
21-30	08	16	
31-40	14	28	
41-50	23	46	
51-60	02	04	
>61	03	06	
Educational Qualification			
Primary	05	10.0	
Secondary	34	68.0	
Tertiary	11	22.0	
Marital Status			
Single	03	6.0	
Married	37	74.0	
Divorced	01	2.0	
Widowed	09	18.0	
Farming Experience (Years)			10.4
≤10	26	52.0	
11-20	20	40.0	
21-30	03	6.0	
≥31	01	2.0	
Household Size			6.3
≤5	19	38.0	
6-9	27	54.0	
≥10	4	8.0	
Farm Sze (ha)			1.1
≤1	16	32.0	
1.1-2	24	48.0	
>2	10	20.0	

Source: Field Survey 2021.

4.2 Agricultural Specialization of Farming Households

As presented in Figure 1, the result show that 78% cultivated crops while the remaining 22% were livestock farmers. This implies that most of the respondents are prone to attack by Fulani herdsmen men because they move around with their cattle in search of pasture to feed on; and more recently grazing on farmlands.

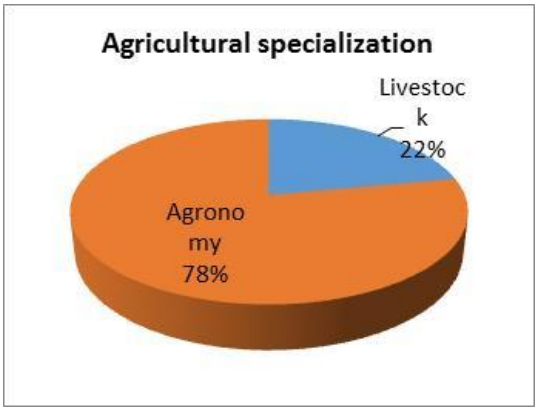

Figure 1: Agricultural Specialization of Farming Households (Source: Field survey, 2021).

4.3 Frequency of Insecurity from Herders Experienced by Farming Households

In Figure 2, 75.0% of farming households experienced insecurity from herders often in the past two years, while 25.0% of them had been rarely attacked by herdsmen. Mohammed and Baba in their study outlined frequent cases of insecurity from different parts of Nigeria which has undermined both the political and socio-economic structure of the country (Mohammed and Baba, 2019).

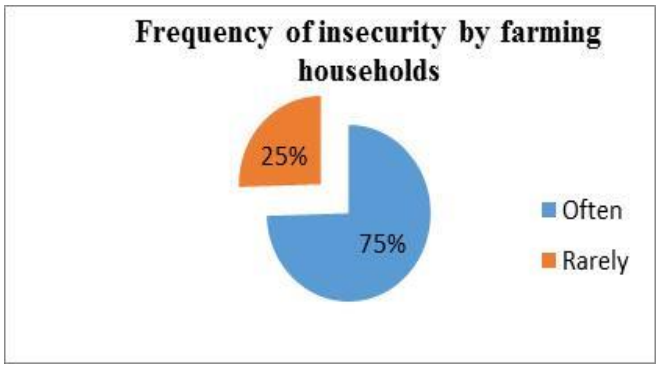

Figure 2: Frequency of Insecurity from Herders Experienced by Farming Households (Source: Field survey, 2021).

4.4 Frequency of Extension Visit During The Period of Insecurity

Sixty percent of farming household reported a reduction in extension visits during the period, especially after herdsmen attacks. Extension visits stayed the same for 26%, while 14% witnessed an increase in extension visit. This implies that insecurity reduced extension work, and extension agents reduced their frequency of visit as a result of insecurity in affected communities.

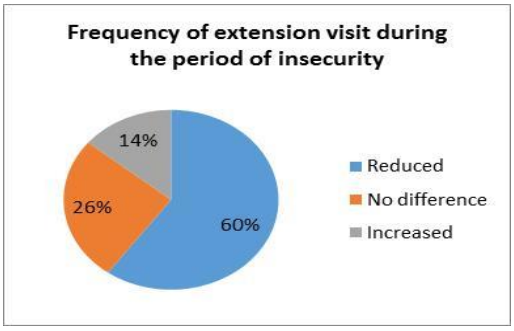

Figure 3: Frequency of Extension visits during the period of Insecurity (Source: Field survey 2021).

4.5 Effects of Insecurity on Farming Households

In Figure 4, it is established that insecurity cut across all assets of farming households. Health of farming households was mostly affected (76%), followed by economic assets (34%), agricultural assets (26%) and physical assets (3.6%). When source of livelihood is attacked, it affects health and economic aspects of life.

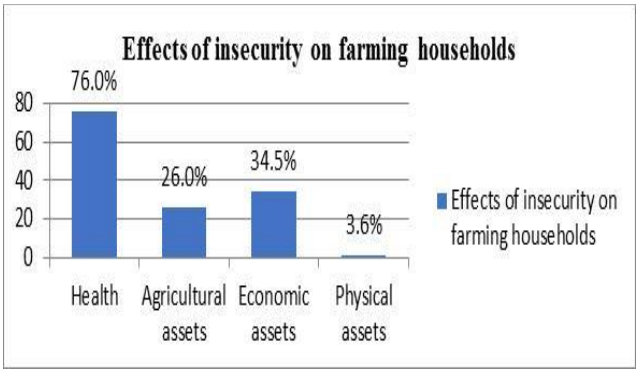

Figure 4: Effects of Insecurity on Farming Households (Source: Field survey, 2021).

4.6 Adaptation Strategies Used by Farming Households

Table 3 reveals that erecting high gates and fences (mean=0.06, rank=1st); spraying chemicals on farm boundaries (mean=0.58, rank=2nd); mobilizing local vigilantes to secure farms (mean=0.18, rank=3rd); putting up 'no trespassing' signs (mean=0.14, rank =4th); use of local guns (mean=0.10, rank =5th) were commonly used by farming households as a form of defence from attacks. The least used strategy was relocating to other communities (mean=0.00, rank=9th). The low response to relocating to other communities may be as a result of majority of the farmers being married and having a fairly large household size (Table 1) in their own community. More so, individuals, farm families could find it difficult leaving their homes for uncertainty, so they develop adaptation strategies to build resilience and address these threats to security.

Table 2: Adaptation Strategies used by Farming Households

Adaptation Strategies	Mean	Rank
Lighting	0.06	6th
Erecting High Gates and Fences	0.64	1st
'No Trespassing' Signs	0.14	4th
Planting Poisonous Plants	0.04	7th
Mobilizing Local Vigilantes	0.18	3rd
Use of Local Guns	0.10	5th
Use of Cutlass/Machetes	0.02	8th
Relocating to Other Communities	0.00	9th
Spraying Chemicals on Farm Boundaries	0.58	2nd

Source: Field survey, 2021.

4.7 Testing of Hypothesis

Table 3: Chi-Square Test of Relationship between Socio-Economic Characteristics of Farming Households and Insecurity Adaptation Strategies Used

Adaptation Strategies	Statistics	Age	Years of Farming Experience	Farm Size
Erecting High Gates and Fences	Chi-Square	18.035	1.333	2.004
	Df	4	3	2
	Sig.	0.001**	0.721	0.367
Planting Poisonous Herbs	Chi-Square	3.032	7.599	1.606
	Df	4	3	2
	Sig.	0.552	0.050**	0.448
Mobilizing Local Vigilantes	Chi-Square	15.851	10.277	2.603
	Df	4	3	2
	Sig.	0.003**	0.017**	0.272
Use of Local Guns	Chi-Square	5.876	3.375	6.296
	Df	4	3	2
	Sig.	0.208	0.311	0.043**
Spraying Chemicals	Chi-Square	16.270	4.002	1.663
	Df	4	3	2
	Sig.	0.003**	0.261	0.435*

** Significant at 0.05 level

Source: Field survey, 2021.

It was established that age of farmers had a significant influence on erecting high gates and fences (X2 =18.035, p<0.001); mobilizing local vigilantes (X2 =15.851, p<0.003); and spraying of chemicals on farm boundaries (X2 =16.270, p<0.003). This implies that as age increases, there will be a resulting increase in adaptation strategies involving erecting high gates and fences to secure farm lands, mobilizing local vigilantes and spraying of chemicals on farm boundaries to prevent attacks. When farming households increase in age, they would have witnessed more cases of insecurity; propelling an increased usage of adaptation strategies being discussed. Years of farming experience shows a statistical significance on planting poisonous herbs (X2 =7.599, p<0.05); and mobilizing local vigilantes (X2 =10.277 p<0.017).

This implies that as years of farming experience increase, there will be an increase in planting poisonous herbs and mobilizing local vigilantes to protect farm areas. Another socio-economic variable found to be statistically significant to adaptation strategies (use of local guns) was farm size (X2 =6.296, p<0.004). As farm size of households increase, there will be an increased use of local guns need to protect farmlands of household and individual farms. The result further tells us that based on existing and present support of vulnerable farming households to insecurity, adaptation to resulting hazards may vary from household to household.

5. Conclusion

Based on findings from this study, it can be concluded that compared to rearing of livestock, majority of farming households practiced agronomy and witnessed herdsmen attacks often in the last two years. It was also established that erecting high gates and fences, spraying chemicals on farm boundaries, mobilizing local vigilantes to secure farms, putting up 'no trespassing' signs, and use of local guns were predominantly used by farming households to adapt to the attacks in the study area with the least used strategy being relocating to other communities. Extension agents reduced their frequency of visit as a result of insecurity in affected communities. Further findings from the research established that insecurity caused by herdsmen attacks mostly affected the health and economic assets of farming households.

The study further revealed that an increase in age will mean that more farming households will erect high gates and fences, mobilize local vigilantes, and spray chemicals on farm boundaries to reduce and prevent further attacks. Also, an increase in farming experience of farming households will result in more planting of poisonous herbs, and mobilizing local vigilantes. More local guns will be used by farming households to secure all assets as farm size increases. Extension agents need to intensify the use of social media since physical contact seems challenging in the face of insecurity. Government and private organizations should set up and equip local security outfits to stop frequent herdsmen attacks. Farming households should also be encouraged and empowered to continue setting up adaptation strategies to limit and stop attacks.

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