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Effect of Livestock Agripreneurship on Rural Food Security in Irele Local Government Area, Ondo State, Nigeria

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Abstract
This study was on Livestock production and agripreneurship: A correlative assessment in rural food security in Irele LGA, Ondo State, Nigeria. The study adopted the descriptive design method. Random sampling was adopted to select one hundred and twenty (120) respondents, using a well structured questionnaire and personal interview. The data were analyzed using the SPSS version 22. The findings revealed that goat farming; Poultry; Piggery, fish farming and Sheep/Ram rearing were accepted as the major livestock agripreneurship activities in the study area. It is revealed that availability, stability, utilization, affordability and accessibility were at the borderline at 47.3%, 43.8%, 44.6%, 41.9% and 45.2% respectively adopting the Elliot (2014) food security scores, which implies that Irele LGA food security is slimly accepted through livestock agripreneurship. The analysis revealed that goat rearing, sheep rearing; poultry, fish farming, snail farming and piggery were slightly significant but positively related to food security. This implies that livestock agripreneurship is positively related to food security, though at minimal level. These activities should therefore, be encouraged so as to increase food production level. The study concluded that livestock agripreneurship slightly enhances food security in the study area, though this was hindered by several factors such as climate, personal interest, income, household size, etc. However, the study recommended that livestock agripreneurs should be encouraged through provision of incentives in the pursuit of large scale production for food security in the study area.
Keywords: Livestock production, Agripreneurship, Food Security

1.0 INTRODUCTION

The agricultural sector in Nigeria is the next important economic activity after oil, and the single largest employer of labour force, employing about 70% of the country's workforce (USDA, 2013; NBS, 2014). It contributed about 40.07% in 2010 and 22% in 2014 of Gross Domestic Product (GDP) (pre and post debasing respectively) (NBS, 2014). However, the insufficiency of food substances for sustenance is at an increasing rate and among the insecurities we face in our society today, that of food is alarming, especially in the study area. Ogundahunsi, Ifabiyi, and Olanrewaju, (2022) posited that, Food insecurity is one of the major challenges faced by developing nations of the world and attempts to solve the problem has been abortive. Livestock provide high quality

food, cash income and employment. The livestock industry in Nigeria has suffered a great deal of losses which has affected both farmers and consumers (Ogoke, 1990). In the poultry sector, for

instance, Birds in general are prone to disease attack. A single attack can wipe out thousands of birds or even the entire farm. A case in point was the attack on the poultry industry in Nigeria by avian influenza in 2006 which has forced many small and medium scale poultry farms to close down. In a situation like this, insurance remains the only option to assist the farmers to go back to business. In general, insurance is a form of risk management used to hedge against a contingent loss. Value chain is another important concept in the livestock sector. Livestock production constitutes an essential part of the agricultural economy of Nigeria. It provides meat, fuel, fertilizer and draught power to sustain the economy (Yusuf *et al.*, 2016; Olorunwa, 2018). It contributes to people's livelihood through numerous channels: income, food, employment, and transport, draft power, manure, savings and insurance and social status (ASL, 2018). Livestock farming also serves as additional income earning activities to small and marginal farm families. Livestock, such as cattle, fish, sheep, goat, pigs and poultry are major source of animal protein in Nigeria (Ekunwe and Soniregun, 2007). For decades, the livestock debate has focused on how to increase production in a sustainable manner. However, the UN 2030 Agenda for Sustainable Development has added a new and broader dimension to the debate. It has shifted the emphasis of the discussion from fostering sustainable production *per se*, to enhancing the contribution of the sector to the achievement of the Sustainable Development Goals (SDGs). The livestock sector can contribute directly or indirectly to each of the SDGs: strengthening the assets that rural households use to achieve their livelihood objectives; helping to generate income; supporting the creation of employment opportunities; providing the world with sufficient and reliable supplies of meat, milk, eggs and dairy products; improving children's cognitive and physical development as well as school attendance and performance; empowering rural women; improving natural resources use efficiency; broadening access to clean and renewable energy; supporting sustainable economic growth; generating fiscal revenue and earning foreign exchange; offering opportunities for value addition and industrialization; stimulating smallholder entrepreneurship and closing inequality gaps; promoting sustainable consumption and production patterns; increasing the resilience of households to cope with climate shocks; and bringing together multiple stakeholders to achieve all these goals. FAO, (2017) warns that without additional effort to the state of agricultural practices, the target of ending food insecurity and hunger by 2030 will not be met. Hence, the need for this study to critically look into the household food security status taking livestock agripreneurship the key in Irele LGA, Ondo State, Nigeria.

1.2 Statement of the Problem

Nigeria is a populous and sundry country with the high prevalence of nutritional deficiency varying widely across its borders owing to high cost and inadequate supply of animal protein (Adekunmi et al., 2017; SPRING, 2018). As at 2019, Nigeria's per capita daily protein intake (45.4g) was lower than both the Food and Agriculture Organization (FAO) recommended minimum per capita daily protein intake (53.8 g) and the global daily intake (64 g), indicating that the country is faced with protein deficiency (Metu et al., 2016; Akerele et al., 2017; Protein Challenge, 2020). This outcome is compounded and occasioned by scarcity and high cost of protein sources especially

animal protein, thus, putting it beyond the reach of most of the population. Another reason for low protein consumption level may be the rapid growth in population, low agricultural productivity, movement of large rural population from villages to urban areas and increased migration away

from villages due to increasing level of insecurity (Girei et al., 2018). To meet up with the increasing demand for proteins however, there is need to identify cheap sources of protein accepted by most cultures. The world population will need an increment of 50% food production to feed itself by 2050, and the FAO reported that the yield growth of some major crops since the 1990s has increased by just 1% per annum. Agriculture in Africa remains a huge potential that needs to be fully maximized .Despite the fact that the continents home more than half of the world 'sun used arable land, it still remains food unsecure with millions of people experiencing chronic hunger and famine. The increasing population growth demands improvement in crop yield in Africa and the world at large (Allis Gleaner Corporation, 2018)

1.3 Objective of the Study

The broad objective of this study is to assess Livestock production and agripreneurship: A correlative assessment in rural food security in Irele LGA, Ondo State, Nigeria. The specific objectives include determining:

1. the demographic factors of the selected livestock farmers in the study area.
2. the various livestock agripreneurship activities in the study area.
3. the effect of livestock agripreneurship in achieving food security in the study are

1.3 Research Hypotheses

$H_0$1: there is no significant relationship between livestock agripreneurship and food security

2.0 Review of Related Literature

2.1 Concept of Agripreneurship

The concept of agripreneurship is extracted from two words: Agriculture and Entrepreneurship. This aspect of entrepreneurship deals with the initiation of entrepreneurial competencies in the production and distribution of agricultural products (domestic and industrial products) for the benefit of mankind. Agriculture has become a significant area of entrepreneurship development in contemporary society (Onyebu and Oluwafemi, 2019). Agripreneurship is a strategy that involves the initiation of farmer's entrepreneurial potentials through creativity and innovativeness on and off the farmland, has not been used as a supporting policy (Nwajiuba 2021). In fact, it was the mainstay of the nation's economy before the discovery of crude oil (Omorogiuwa *et al.,* 2014; Kolawole *et al.,* 2016). Even with increased attention given to oil sector, agriculture is the base of Nigeria's economy and the main source of livelihood for most Nigerians (Omorogiuwa *et al*., 2014; Bernstein, 2017; Ikenwa *et al*., 2017; Diao *et al.,* 2018). In 2015, the agricultural sector contributed about 23% of the country's gross domestic product (GDP), having ca. 75% share of non-oil exports earnings (Federal Ministry of Agriculture and Rural Development, 2016). Recently, the agricultural sector contributed 24.6% of the GDP in the second quarter of 2020, according to National Bureau of Statistics (NBS, 2021). Agriculture remains a crucial sector in the economy of Nigeria, being a major source of raw materials, food and foreign exchange; employing over 70% of her labour force, and serving as a potential vehicle for diversifying her

economy (Liverpool-Tasie *et al.*, 2011; Ogbalubi and Wokocha, 2013). The sector faces many challenges, including an outdated land tenure system that limits access to land (1.8 ha per farming household), a very low level of irrigation development (< 1% of cropped land under irrigation), limited adoption of research findings and technologies, high cost of farm inputs, poor access to credit, economic and political challenges, inefficient fertilizer procurement and distribution, inadequate storage facilities and poor access to markets have all combined to keep agricultural productivity low (average of 1.2 metric tons of cereals per ha) with high post-harvest losses and waste (Mgbenka and Mbah, 2016; FAO, 2020). In addition, Nwaobiala and Ubor (2016) suggested that modern agricultural transformation and productivity in Nigeria depends, among other things, on the availability and adequacy of inputs. There has been a growing consensus over the last decade, that a fundamental and distinctive feature of entrepreneurship is the identification, evaluation, and pursuit of business opportunities (Shane and Venkataraman 2000), which can be initiated on and off the farmland. This process is referred to as Agripreneurship. Agripreneurship, which defines entrepreneurship in agriculture-related businesses, is one of the major catalysts of economic growth and development in every emerging economy. It defines the wealth creation activities among economies of both developing and developed countries; and it is also the best solution for reducing unemployment in developing countries (Umeh, Nwibo, Nwofoke, Igboji, Ezeh and Mbam 2020).

2.2.2 Concept of Livestock Production (Agripreneurship Activity)

Livestock production is concerned with the rearing of animals for domestic consumption, industrial purposes, and other economic purposes such as sports and transportation. It is an agripreneurship activity that deals with stocking, breeding of livestock, farm management, diversification of calculated risk in livestock, application of new methods, and proper farm records for economic purposes. Njoku (2012) asserted that the farm or production sector comprises the actual production of animals, fisheries, and forestry products in the interest of consumers. Livestock production simply refers to the process through which young animals are reared for domestic or industrial purposes, with the expectation of satisfying human wants. This is a total reflection of the assertions of Njoku and Asogwa and Okwuoche in (Eigbiremhon 2019). They all upheld that adequate investment in agricultural production contributed significantly in agribusiness and in economic growth of the country. However, livestock production to meet the expectations required to solve the problem of food insecurity has been impeded and aborted. It should be noted that animal protein consumption in Nigeria is less than 8 g per person per day, which is far from the FAO minimum recommendation (FAO, 2016). In view of this, Gona in Ogbe et al (2016) affirmed that the internal supply of livestock products is in such insufficient quantities that importations are made officially and unofficially annually. However, despite these importations, the total supply of livestock products does not meet the overall demand. In some cases, domestic production and imports are not sufficient to meet more than 60% of the actual domestic demand (Mbanasor and Nwosu, in Eigbiremhon 2019). Furthermore, certain factors, such as an unstable supply of agricultural inputs, non-optimal operation of markets, instability in prices and difficulty in market access funding, lack of autonomy, lack of innovativeness, pro-activeness, and the unwilling heart among farmers to take proper risk associated with production

in one way, and the other can frustrate the achievement of the objectives of the agricultural sector of Nigeria (Seko, 2009).

2.2.3 Concept of Food Security

Food security has been defined as access by all people to sufficient food at all times for an active and healthy life. It involves at a minimum, the ready availability of nutritionally adequate and safe foods in socially acceptable ways (Food and Agriculture Organization FAO, Sarah 2003). Food security entails access to food, which can be categorized as physical access to food, economic to food, and sustainable access to food (Chijioke 2012, Sarah, 2003). In Nigeria, many factors affect food security, especially in Ondo State; some of which include: activities of the herders on the farmland, poor agricultural policy enactment, etc. However, because of the lack of storage facilities and processing techniques that would aid value addition to the primary agricultural commodity and preserve its shelf life, producers end up selling excess farm produce during harvest. This scenario creates food insecurity for most rural farm producers and households. In this manner, the agricultural commodities value chain processes have become a needful intervention for the agricultural sector. Food security is currently both a fundamental objective and an expected outcome of development policies in Nigeria, as the country currently faces a challenge in meeting the basic food needs of its population as Vision 2020 failed. Most Nigerians, including the study area, depend largely on subsistence agriculture, which is insufficient to meet the food needs of the population. However, many policies, programs, and investments by governments, local and international donor agencies operating in the country, food security, and nutrition are worsening (Famine Early Warning System Network FEWSNET, 2007). Inconsistent food security has resulted in inadequate dietary intake, leading to malnutrition. Malnutrition is the most serious consequence of food insecurity. Adult malnutrition results in lower productivity on farms and in the labor market. In women, it also results in fetal malnutrition and low birth weight. Fetal and infant under nutrition leads to lower cognitive development and poor educational performance. In fact, the food security situation in Nigeria has been gory and requires urgent organizational and institutional arrangements to alleviate its current status. Nigeria, recently, is facing significant challenges in terms of food security, coupled with the recent hike in the prices of food substances. Over 50% of the population lives on less than ₦1,000 ($ 1.82) per day which discourages standard of living, leaving the populaces to suffer from hunger and poverty.

3.0 Methodology

This study was on Livestock production and agripreneurship: A correlative assessment in rural food security in Irele LGA, Ondo State, Nigeria. The study adopted the descriptive design method. Random sampling was adopted to select one hundred and twenty (120) respondents, using a well structured questionnaire and personal interview. The data were analyzed using the SPSS version 22, such that descriptive analysis for Objective one, 5-point likert scale for objective 2 and Food security index for objective 3 of the households in the study area, in such that;

$$FSS = \frac{HhE}{TE} X\ 100$$

Where,

FSS = Food security status (%)

HhE = Household expenditure per annum (in Naira)

TE = Total expenditure (in Naira)

100 = constant %

Decision rule: A % ≥ 50 is accepted to be secured, while % < 50 is insecure (global food security score) and Elliot (2014) food security score: poor (<28%), borderline (28.5 – 42%), and acceptable (>42%). While the hypothesis was tested using the Pearson moment correlation coefficient (r).

3.1 Results and Discussion

3.1.1 Socioeconomic Attributes of the Respondents in the Study Area

The result showed that majority of the selected respondents for the study were male, were between the age group 31 and 40, were married were educated, have their household size between 1 and 5, make a moderate income above ₦80,000

3.1.2 The Major Livestock agripreneurship Activities in the Study Area

Table 1. Major Livestock agripreneurship Activities in the Study Area

Effect Areas	SA	A	D	SD	U	X	Sd
Goat farming	14(10)	64(60)	18(14)	16(12)	8(4)	3.60	0.969
Poultry	12(8)	60(56)	16(12)	16(12)	16(12)	3.36	1.174
Piggery	20(16)	64(60)	16(12)	10(6)	10(6)	3.74	1.006
Fish farming	27(22)	56(52)	18(14)	14(10)	6(2)	3.82	0.962
Sheep/Ram	60(56)	12(8)	16(12)	16(12)	16(12)	3.36	1.174
Cattle	27(22)	56(52)	18(14)	14(10)	6(2)	3.82	0.962

Source: field survey, 2023

Table 1 above showed the major livestock agripreneurship activities in the study area. It is revealed that goat farming has a mean value 3.60 and was accepted at x>3.0; Poultry has a mean value of 3.36 and was accepted at x>3.0; Piggery has a mean value of 3.74 and was accepted at x>3.0, fish farming has a mean value of 3.82 and was accepted at x>3.0 and Sheep/Ram rearing has a mean value of 3.36 and accepted at x>3.0 and Cattle rearing has a mean value of 3.82 which was accepted at x>3.0. It is shown in this result that all the items in the table were accepted as the major livestock agripreneurship activities in the stud area.

3.2 Effect of Livestock Agripreneurship in Achieving Food Security in the Study Area Table 2 Effect of Livestock Agripreneurship in Achieving Food Security in the Study Area

Livestock Agrip/FSI	Irele	Ajagba	Omi	Akotogbo	Iyansan	Ijuosun	Total	% Average	Remark
Goat Farming									
Availability	43.2	50.4	51.3	47.5	53.1	40.2	285.7	47.6	Borderline
Affordability	51.3	45.7	45.2	56.1	30.4	44.2	272.9	45.5	Borderline
Utilization	40.8	39.6	38.7	29.8	41.7	39.5	230.1	38.6	Rejected
Accessibility	37.7	54.6	47.9	38.8	46.3	52.5	277.8	46.3	Borderline
Stability	49.4	40.3	51.0	37.9	43.1	50.7	272.4	45.4	Borderline
Poultry									
Availability	37.7	54.6	47.9	38.8	46.3	52.5	267.8	44.6	Borderline
Affordability	51.3	54.6	45.2	56.1	44.2	30.4	273.4	45.6	Borderline
Utilization	39.6	40.8	38.7	29.8	50.7	39.5	259.8	43.3	Borderline
Accessibility	43.2	50.4	51.3	47.5	53.1	40.2	246.5	41.1	Rejected
Stability	51.0	40.3	49.4	37.9	43.1	41.7	254.6	42.4	Borderline
Piggery									
Availability	43.2	50.4	51.3	47.5	53.1	40.2	249.0	41.5	Rejected
Affordability	45.7	51.3	45.2	56.1	30.4	44.2	248.4	41.3	Rejected
Utilization	42.7	39.6	38.7	29.8	40.8	39.5	199.9	33.3	Rejected
Accessibility	46.3	40.3	47.9	49.4	37.7	52.5	238.5	39.8	Rejected
Stability	50.7	54.6	51.0	37.9	43.1	38.8	219.8	36.6	Rejected
Fish farming									
Availability	43.2	50.4	51.3	47.5	53.1	40.2	243.8	40.6	Rejected
Affordability	51.3	40.3	45.2	56.1	30.4	44.2	253.1	42.2	Borderline
Utilization	40.8	39.6	38.7	29.8	41.7	39.5	281.4	46.9	Borderline
Accessibility	37.7	45.7	47.9	38.8	46.3	52.5	298.9	49.8	Borderline
Stability	49.4	54.6	51.0	37.9	43.1	50.7	301.8	50.3	Accepted
Sheep/Ram									

Availability	43.2	50.4	51.3	47.5	53.1	40.2	298.8	49.8	Borderline
Affordability	51.3	26.7	45.2	56.1	30.4	44.2	289.9	48.3	Borderline
Utilization	40.8	39.6	38.7	29.8	41.7	39.5	273.4	45.6	Borderline
Accessibility	37.7	40.3	47.9	38.8	46.3	52.5	257.9	43.0	Borderline
Stability	49.4	54.6	51.0	37.9	43.1	50.7	299.8	50.0	Accepted

Source: Field Survey, 2023. FSI ≥42% (borderline) and ≥50 (acceptable) Global Score

The findings in the above table showed the effect of livestock agripreneurship in food security status of the study area. The result showed using the global scoring standard for Food security and Elliot (2014) scores that goat production revealed all the food security indexes except utilization: availability, affordability, accessibility and stability to be at the borderline with 47.6%, 45.5%, 46.3% and 45.6% respectively, Also, Poultry revealed all the food security indexes fall on the borderline with availability 44.6%, affordability 45.6%, utilization 43.3%, accessibility 41.1% and stability 42.4%. Moreover, piggery revealed the only availability and affordability were at the borderline with 41.5% and 41.3% respectively while, all other indexes were rejected. The rejection could be as a result of religious belief of the study area, where majority of the inhabitants are white garment church worshippers which see pig as an unclean animal, while fish farming revealed all the food security indexes at the borderline at 40.6%, 42.2%, 46.9%, 49.8% and 45.8% respectively and sheep/ram rearing revealed all indexes of food security on the borderline at 49.8%, 48.3%, 45.6%, 43.0% and 48.4% respectively. This showed that all livestock agripreneurship variables revealed that all food security indexes fall on the borderline.

Table 3 Overall Assessment of Livestock Agripreneurship in Food Security Status

FSI	Availability	Accessibility	Affordability	Utilization	Stability	Total	Remark
Irele	8.5	8.1	10.0	8.2	10.0	44.8	Accepted
Omi	10.2	9.7	9.0	7.7	10.1	46.7	Accepted
Ajagba	10.1	9.3	8.7	8.0	9.8	45.9	Accepted
Iyansan	10.1	10.0	9.1	7.9	8.8	45.9	Accepted
Akotogbo	9.1	8.5	11.2	6.0	7.6	42.4	Borderline
Ijuosun	8.8	9.2	6.6	8.7	9.2	42.5	Borderline
Total	56.8	54.8	54.6	46.5	55.5	268	Accepted
Average	9.1	9.1	9.1	7.8	9.3	**44.4**	Accepted
Bench Mark	Borderline	Borderline	Borderline	Poor	Borderline		

Source: Field Survey, 2023. Elliot (2014) food security score: poor (<28%), borderline (28.5 – 42%), and acceptable (>42%).

The overall Food security measurements and indicators were derived from; International Federation of Red Cross and Red Crescent Societies (2006), Food and Agriculture Organization

(2008), Samaritan's Purse International Relief (2014) and Elliot (2014). Overall score was interpreted using Elliot (2014) food security scores, ranging from poor (<28%), borderline (28.5 – 42%), and acceptable (>42%). It was revealed in the result that though the food security indexes availability, stability, utilization, affordability and accessibility were very low in the study area, but, at the borderline at 47.3%, 43.8%, 44.6%, 41.9% and 45.2% respectively. The overall score of 44.4 indicates that the study area is slimly secured, giving the acceptability score as >42%. This implies that there is possibility of reduction in the food security status of the study area, if not properly looked into.

Table 4 Pearson Moment Correlation results showing the relationship between livestock agripreneurship and food security enhancement in the study area.

Correlations

Livestock Agriprenership		1	2	3	4	6	7	8	**Food Security**
Goat rearing	Pearson Correlation	.050*							
	Sig. (2-tailed)	.064							
	N	120							
Sheep rearing	Pearson Correlation	.054*	1						
	Sig. (2-tailed)	.645	.645						
	N	120	120						
Poultry	Pearson Correlation	.051*	.064	1					
	Sig. (2-tailed)	.878	.641						
	N	120	120	120					
Fish farming	Pearson Correlation	.052*	.080	.130	1				
	Sig. (2-tailed)	.602	.563	.345					
	N	120	120	120	120				
Cattle	Pearson Correlation	-.089	-.094	.138	-.102	1			
	Sig. (2-tailed)	.517	.496	.316	.458				
	N	120	120	120	120	120			
Snail farming	Pearson Correlation	.056*	.094	.077	.193	.172	1		
	Sig. (2-tailed)	.534	.493	.577	.158	.208			
	N	120	120	120	120	120	120		
Piggery	Pearson Correlation	.052*	.084	.300*	.125	.068	.077	1	
	Sig. (2-tailed)	.552	.543	.026	.365	.621	.577		
	N	120	120	120	120	120	120	120	
FOOD SECURITY	Pearson Correlation	.588**	.163	.184	.005	.073	-.045	.138	1
	Sig. (2-tailed)	.000	.234	.179	.970	.597	.743	.315	
	N	120	120	120	120	120	120	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field Survey, 2023

Table 4 showed the correlation results on livestock agripreneurship and food security. The analysis revealed that goat rearing, sheep rearing; poultry, fish farming, snail farming and piggery were

slightly significant but positively related to food security. This implies that livestock agripreneurship is positively related to food security, though at minimal level. These activities should therefore, be encouraged so as to increase food production level.

3.4 Conclusion and Recommendation

The livestock value chain includes the full range of activities required to bring a product (meat, milk, eggs, leather, honey, live animal, etc.) to final consumers. Traditionally, processing comes into picture when there is surplus production and/or there is demand for value added products. But in this approach, service providers, input suppliers and other actors in production, processing and marketing channels are identified/considered right from the beginning. However, the level of agripreneurship embracement in the livestock sector in the study area is low, which affected the food security status in the study area. These activities should therefore, be encouraged so as to increase food production level. The study concluded that livestock agripreneurship slightly enhances food security in the study area, though this was hindered by several factors such as climate, personal interest, income, household size, etc. However, the study recommended that livestock Agriprenuers should be encouraged through provision of incentives in the pursuit of aiming at large scale production for food security in the study area.

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