



Impact of NIRSAL's Agro-GEO-Cooperative Model: Case of Poultry Farmers in Oshimili South Local Government Area, Delta State, Nigeria

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Abstract

The study was carried out on enhancing agricultural production through NIRSAL's funding, the case of poultry farmers in Oshimili South Local Government Area, Delta State. This study specifically examined; the amount of NIRSAL's fund obtained by poultry farmers; profitability of poultry farmers as a result of NIRSAL's funding; and the constraints faced by poultry farmers in accessing NIRSAL's funding. A total of 90 poultry farmers (NIRSAL's fund beneficiaries) were randomly selected for the study. The result from the study revealed that cost of feeds (₦945,500) and day-old chick (₦279,000) had a huge impact on the total cost of poultry production as represented by 55.9% and 16.5% of the total cost respectively. The average net profit of the poultry farmers was ₦1,086,650. The gross profit ratio of 0.51 showed that poultry production is a profitable venture capable of providing a decent livelihood for the farmers in the study area. The study also revealed that the major constraint to access of NIRSAL's fund was lack of collateral. The study therefore recommends that poultry egg producers in the area should be encouraged to increase their scale of production for increased profitability, food security and job creation. This could be achieved if small scale farmers can come together and pool their resources as cooperatives following the model of NIRSAL's Agro-Geo Cooperative.

Keywords: *Gross Margin, Net Production Income, Constraints, Poultry*

Introduction

Agriculture is a dominant sector of the Nigerian economy despite oil exploration, serving as a major source of livelihood in Nigeria (Afolayan, 2017; Olomola, 2018; FAO, 2020). Nigeria is one of the low-middle income and populous countries of the world with a per capita income of \$2000 per year (Makun, 2018; SAHEL, 2015). Agriculture provides employment for about 70 million people who constitute about 65% of the working population, although it is a sector that is generally domiciled in rural areas with small enterprise holdings (Thornton, 2010; FAO, 2020). More specifically, World Bank (2014) as cited in Adebayo and Adeola (2017) highlighted that the sector contributes a large share (33%) of the Gross Domestic Product (GDP) and provides over 80% of the country's food resources. This sector in the country is dominated by crop farming, livestock rearing, fishing and forestry. The livestock industry in Nigeria is an active and viable component of the general sector which continues to grow an annual rate of 12.7% per annum (FAO, 2020). About 30% of the earth's unfrozen terrestrial surface is covered by the global livestock industry with respect to physical size and approximately 30.3 million hectares are used for

livestock needs, including pastures (Thornton, 2010). In financial terms, the sector has a large global asset that is estimated to be about \$1.4 trillion while Nigeria's livestock sector is valued at \$78 billion (FAO, 2020). This sector is an important component of the entire country's agricultural sector, being a key contributor to economic growth and development with 2.29% to GDP in 2020 (NBS, 2020; FAO, 2020). Among the livestock enterprises, poultry plays a pivotal role due its enormous potentials for caloric needs and supplemental income from crop which combines to boost economic growth (Herrero *et al.*, 2012).

The importance of poultry to Nigeria's economy, especially in the Southwestern part of the country, continues to grow with the increasing national number of 16 million smallholder households for protein needs and cash income (SAHEL, 2015; FAO, 2020). Among the various contributions of poultry and other livestock to livelihoods include social status, cash income, manure, insurance and savings (FAO, 2020). According to FAOSTAT (2020), the poultry industry in the country has about 180 million birds, which is second only to South Africa in Africa (Aladejebi *et al.*, 2019). This sub-

sector is largely experiencing good organization at the beckoning of a deliberate national drive to promote agriculture from vocation to business and upgrading subsistence to commercial agriculture. Poultry production system is one inundated with challenges that include availability and price of inputs, illegal importation of products and poor production techniques requiring capital for improvement (Kuye and Ogiri, 2019). Most livestock farmers cushion the effects of this production challenges using credit or loans because it provides cash reserves employed to invigorate the production process of their enterprises (ASL 2050, 2018). Agricultural loans can be sourced from both formal and informal bodies both of which however, consider giving loans to farmers a high-risk venture (Akinwunmi, 1988; Adebayo and Adeola, 2017).

The level of funding in the agricultural sector stands at about 2% of the total lending of banks as against 6% in a country like Kenya. Other the reasons for the low funding in agriculture are the lack of understanding of the agricultural sector, high associated transaction costs, multifarious credit assessment and processes/procedures. Tackling these issues requires proactive innovative as well as technical approaches. This led to the introduction of the Nigeria Incentive-Based Risk Management System for Agricultural Lending (NIRSAL) (NIRSAL, 2020). NIRSAL is both a dynamic and a holistic approach that handles both the agricultural value chain in one hand and the agricultural financing of value chain on the other hand. Thus NIRSAL does two things at once; fixes the agricultural value chain, thereby raising the confidence of banks to lend to the sector and at the same time, offering the banks strong incentives and technical assistance to encourage them to lend to the agricultural value chain. NIRSAL, unlike previous schemes which encouraged banks to lend without clear strategy to the entire spectrum of the agricultural value chain, emphasizes lending to the value chain and to all sizes of producers (NIRSAL, 2020).

In Nigeria, studies have been carried out to examine the effects of credit on enterprises (Osabohien *et al.*, 2020; Ayanrinde *et al.*, 2020; Ojo and Ayanwale, 2019) and the roles groups and social capital play towards enhancing farmers access to farm credits to boost their welfare (Oyedele and Akinola, 2012; Balogun and Yusuf, 2011). Also, researches have examined different problems associated with agricultural loans (Akintunde *et al.*, 2020) but no study has yet been carried out to examine the effect of NIRSAL's funding on poultry production through its Agro Geo-Cooperative model. Agro Geo-Cooperatives are the paradigm-shifting concept developed by the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) with the goal of transforming Nigerian agriculture for enhanced and sustainable productivity. They also constitute the centre piece of NIRSAL's Mapping-to-Market strategy (M2M), which is an end to end approach to agriculture such that all segments of agricultural value chain are linked to structured markets. Under this scheme,

NIRSAL invites all small farmers, farmer leaders and aggregators to apply for a loan- Agro Geo-Cooperative loan, specifically created for the purpose of providing sustainable farm structuring, and access to finance, quality input and structured markets. Farmers upon meeting certain requirements namely: must be a Nigerian citizen; must be a farmer or interested in farming; must possess Bank Verification Number (BVN); and must have a National Identification Number, can take advantage of the model as a means of employment and a source of income by supporting the productive activities of their self-organized Agro Geo-cooperatives, (NIRSAL, 2020). This study therefore, seeks to examine NIRSAL's funding in enhancing agricultural production, the case of poultry farmers in Oshimili South Local Government Area, Delta State.

Methodology

Oshimili South Local Government Area (LGA) of Delta State, Nigeria was the study area. It covers an area of 5,776 km with a population of 150,032 people (NPC, 2006). The area is located in Delta North Agricultural Zone of the State and lies between latitude 6°12'N of the equator and longitude 6°43'E. The average annual rainfall in the coastal area is about 206.5 cm and 190.5 cm with temperature ranging from between 28°C and 34°C with an average of 31°C. The main occupation of the people are farming, fishing and hunting. Oshimili South LGA is made up of three (3) communities namely; Asaba, Okwe and Oko. The population of the study is made up of 460 poultry farmers who are beneficiaries of the NIRSAL funding in Oshimili South LGA, Delta State (CBN, 2021). Multistage purposive sampling technique was used for the study. In the first stage, the three (3) main communities that make up Oshimili South LGA were purposively selected. In the second stage, 30 poultry farmers who are NIRSAL's loan beneficiaries were randomly selected from each of the 3 communities to give a total of 90 respondents for the study. Primary data were collected with the use of structured questionnaires. Data collected from the administered questionnaire were summarized using descriptive statistics, Gross Margin, and Net Production Income analyses.

Model Specification

The Gross Profit and Net Production Income analysis is stated as:

$$GP = TR - TVC \dots (1)$$

$$NPI = GR - TC (TVC + TFC) \dots (2)$$

Where;

GP = Gross Profit (₦)

TR = Total Revenue or Gross Revenue (GR) (₦)

TVC = Total Variable Cost (₦)

NPI = Net Production Income or Net Income (₦)

TC = Total Cost (₦)

Gross Profit Ratio =

$$\frac{\text{Total Revenue} - \text{Total Variable Cost}}{\text{Total Revenue}} \times \frac{100}{1} \dots (3)$$

Results and Discussion

Results on the socioeconomic characteristics of the poultry farmers are presented in Table 1. The results revealed that many of the respondents (33.3%) were within 41-50 years' age, 27.8%, 21.1% and 3.3% were between 31 and 40 years, 20 and 30 years, and more than 60 years respectively. The mean age of 40 years implies that the poultry farmers in the study area were within their economically productive age group. This result indicates that broiler farmers in Nigeria are physically strong and mentally alert to face challenges which poultry farming requires and thus agrees with the findings of Olorunwa (2018). Male poultry farmers accounts for 62.2% of the respondents, implying that poultry farming is male dominated in the study area. This result corroborates the findings of Yusuf *et al.*, (2016) that male dominance is consistent with gender role pattern of the society where male plays role of household head and also provides for the family. They therefore engage more in poultry production to supply household foods and other basic needs. The result on the distribution by educational qualification reveals that most of the sampled farmers had one form of education or the other, with only 15.6% without any form of formal educational background. The result revealed that 43.3% had secondary education, while 27.8% had tertiary education. This implies that, majority of the poultry farmers were literates. This is in line with Ebukiba and Anthony (2019) that high literacy enhances adoption of innovation and also a necessary tool for successful implementation of innovation for profitability. Majority (53.3%) of the respondents were married with an average of 5 persons in their household. This indicates that married respondents were more involved in poultry farming because they are responsible for the well-being of their households, some members of the family are also usually available as family labour. Majority (51.1%) of the respondents had poultry farming experience that spans between 6 and 10 years, with mean year of experience of 11 years. This implies that the poultry farmers were well groomed and experienced in their business. This is in tandem with the findings of Bamiro *et al.* (2013) that higher experience is expected to translate to high level of productivity as the farmers bring their experience to bear on the job.

Table 2 presents the amount of NIRSAL's fund obtained by poultry farmers. The result shows that majority (54.5%) of the respondents received a maximum of ₦1,000,000, while 33.3% received between ₦1,001,000 and ₦2,000,000, while only 12.2% of the respondents received above ₦2,000,000. The average fund received by respondents in the study area was ₦1,133,555.6. This average amount received implies that the respondents belong to the micro enterprise category based on the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Micro, Small and Medium Enterprises (MSME) Classification (SMEDAN National Policy on MSMEs, 2015). According to SMEDAN National Policy on MSMEs (2015), the importance of MSMEs to economic development of a nation has been recognized as they

play a pivotal role through several pathways that go beyond job creation. MSMEs support growth, contribute significantly to improve living standards, catalyze substantial local capital formation and are responsible for driving innovation and competition.

The result of the costs and returns to poultry production is presented in Table 3. The table shows that, an average total cost of ₦1,592,350 was spent by the farmers per production cycle in the study area. The variable cost was ₦1,353,500 and accounted for 85.9% of the total cost of production in the study area. This implies that variable costs constitute larger share of the cost of poultry production in the study area. This finding is in consonance with the reports of Emokaro and Erhabor (2014) that variable inputs account for most of the cost incurred in farming. The cost composition indicates that feed consumed the lion share of the total cost of production of the poultry enterprise with a total sum of ₦945,500 (59.4%). This clearly shows that large amount of money is spent on the purchase of feed in the study area. This is in congruence with the findings of Yusuf *et al.* (2016) and Olorunwa (2018) that feed cost is the major important single cost item associated with poultry production due to the increasing costs of poultry feed ingredients. The cost of purchasing chicks (₦279,000; 17.5%) was next after feed cost. This shows that on a scale of importance, the cost of flock is the second most important cost in poultry production, as was earlier reported by Yusuf *et al.* (2016). This indicates the need for efforts to be made to reduce the mortality rate and ensure high productivity of the birds by sourcing for chicks from disease free hatcheries or from reliable distributors. The mean gross revenue that accrued from the sale of matured birds in the study area was ₦630,000 for broiler and ₦324,000 for layers. The mean gross revenue that accrued from the sales of eggs was ₦1,814,400. The gross margin and net profit were ₦1,425,500 and ₦1,186,650 respectively. The result of the gross profit ratio which measures the overall success of the poultry enterprise was 51%. This result is impressive as it shows that the farmers' sales are sufficient to cover their costs. It is indicative of a healthy net profit. Thus poultry farming under this model is profitable considering the current tide of rising input prices which has adversely affected the livestock sector in general, as a consequence of the COVID-19 pandemic.

The result on the constraints faced by poultry farmers in accessing NIRSAL's funding is presented in Table 4. The results show that the major constraint to access of NIRSAL's funding was lack of collateral (68.9%), followed by no awareness (52.2%) and high interest rate (31.1%). This result is in line with that of Yusuf *et al.* (2018) whose study shows that collateral has an indirect relationship with access to formal credit. The more the collateral required for obtaining credit, the lower the probability of being able to access formal credit.

Conclusion

This study shows that credit is very crucial in attempting to boost the supply of poultry and products to meet the

nutrition requirement of a teeming population. Insufficient funding of small-scale poultry has limited the spate of development of the industry in the study area. This has often caused low level of production output in the industry. NIRSAL's Agro Geo-Cooperative being a credit intervention organization funded poultry production in the study area with average fund received by respondents in the study area amounting to ₦1,133,555.6. This average amount received implies that the respondents belong to the micro enterprise category based on the Small and Medium Enterprises Development. Poultry farmers in the area should be encouraged to increase their scale of production for increased profitability, food security and job creation. This could be achieved if small scale farmers can come together and pool their resources together into cooperatives, particularly the NIRSAL's Agro Geo-Cooperative. There is need for the government and/or corporate bodies to establish at least a modern feed mill in the State to provide feeds to the farms at cheaper rates. Extension agents should be made to work hand in hand with the State veterinary services in the area of ensuring that there is availability of disease-free hatcheries from which these farmers can be encouraged to source for chicks. This will reduce mortality rate and consequently ensure high productivity. As much as 52.2% of poultry farmers in the study area had no awareness about NIRSAL's funding. The government, through the ministry of Agriculture and Natural Resources, should embark on an outreach to players in the poultry sector to sensitize them about what is on the offer through this scheme.

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Table 1: Socioeconomic Characteristics of Respondents

Variable	Frequency	Percent (%)	Mean
Age (years)			
20-30	19	21.1	40 Years
31-40	25	27.8	
41-50	30	33.3	
51-60	13	14.4	
>60	3	3.3	
Sex			
Males	56	62.2	
Females	34	37.8	
Educational Qualification			
No Education	14	15.6	
Primary	12	13.3	
Secondary	39	43.3	
Tertiary	25	27.8	
Marital Status			
Single	29	32.2	
Married	48	53.3	
Divorced/Separated	5	5.6	
Widows	8	8.9	
Experience (Years)			
1-5	10	11.1	11 years
6-10	46	51.1	
11-15	29	32.2	
>15	5	5.6	
Household Size (persons)			
1-4	36	40.0	5 persons
5-9	51	56.7	
>9	3	3.3	
Membership of association			
Yes	35	38.9	
No	55	61.1	

Table 2: Amount of NIRSAL's fund obtained by poultry farmers

Amount (₦)	Frequency	Percentage (%)	Mean (₦)
<500,000	23	25.6	1,133,555.6
500,000-1,000,000	26	28.9	
1,001,000-1,500,000	20	22.2	
1,501,000-2,000,000	10	11.1	
2,001,000-2,500,000	4	4.4	
2,501,000-3,000,000	6	6.7	
>3,000,000	1	1.1	

Table 3: Profitability of poultry farmers as a result of NIRSAL's funding

Item	Quantity	Unit cost (₦)	Amount (₦)	Percent (%)	
Feeds	155 bags	6,100	945,500	59.4	
Drugs/Chemicals/Disinfectants		20,000	20,000	1.3	
Vaccines/Vaccination		23,000	23,000	1.4	
Wood Transportation shavings	21 bags	1,000	21,000	1.3	
		45,000	45,000	2.8	
Day old Chicks	620 birds	450	279,000	17.5	
Miscellaneous expenses		20,000	20,000	1.3	
Total Variable Cost			1,353,500	85.0	
Fixed Cost					
Depreciation on housing		25,000	25,000	1.6	
Egg crates	110 crates	750	82,500	5.2	
Feeders	43 bags	450	19,350	1.2	
Drinkers	40 pieces	800		2.0	
Labour	4	20,000		5.0	
Total Fixed Cost			238,850	15.0	
Total Cost			1,592,350	100	
Gross Revenue					
Sales of broilers	350	1,800	630,000	22.7	
Sales of eggs	60,480 eggs	30	1,814,400	65.3	
Sales of spent layers	270	1,200	324,000	11.7	
	32,000	53 bags	200	10,600	0.4
	80,000		2,779,000	100	
Gross Profit			1,425,500		
Net Profit			1,186,650		
Gross Profit Ratio			0.51		

Table 4: Constraints faced by poultry farmers in accessing NIRSAL's funding

Constraints	Frequency	Percentage (%)
No awareness	47	52.2
Not interested	19	21.1
No collateral	62	68.9
Application not granted	12	13.3
High interest rate	28	31.1

Note: Multiple responses