ASSESSMENT OF THE COPING STRATEGIES ADOPTED BY POULTRY FARMERS ON HIGH COST OF FEED IN EKITI, STATE, NIGERIA

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ABSTRACT

This study assessed the coping strategies of poultry farmers with high cost of feed ingredients in Ekiti State. The multistage sampling procedure was used to select 120 respondents. Primary data were collected on socio economic characteristics, causes of price increase, perceived effect of high cost of poultry feed, coping strategies adopted by poultry farmers on high cost of feed and perceived Effect of coping strategies adopted on poultry production in Ekiti State. Also, tests of significant relationship were tested between the causes of price increase of poultry feed and the coping strategies adopted by farmers. Data were collected with the aid of structured questionnaires and analysed using frequency, percentage, mean and Pearson product moment correlation. The result showed that the mean age of the respondents was 48 years, 58.3% were married with a mean monthly income of N61, 400. The causes of price increase of poultry feed ingredients were high demand for feed ingredients by humans and animals (89.4%), low production of feed ingredients (85.4%), and high cost of transporting feed (85.0%). The perceived effects of the high cost of poultry feed on poultry farms revealed that the most significant impact was the constant increase in the price of poultry products, driven by high feed costs (73.3%) while the least reported effect was the outright Discontinuation of poultry farming activities (37.5%). Coping strategies adopted by poultry farmers were feed formulation (86.7%), change in feed routine of broilers (78.3%) while the least coping strategies used was growing feed ingredients on-farm (8.3%). A significant relationship existed between the causes of price increase of poultry feed (r= 0.522) and the coping strategies adopted by farmers. The study concludes that Rising feed prices and driven by demand threaten profitability and farm sustainability. The study recommends policies to stabilize feed prices to help farmers sustain operations and enhance food security.

Keywords: Feed formulation, Coping Strategies, Poultry Feed Ingredients.

INTRODUCTION

Livestock production is a vital component of the agricultural sector, providing essential animal products such as meat, milk, eggs, and by-products, contributing to food security, nutrition, and economic development, particularly for smallholder farmers. According to Afodu *et al.* (2024), Livestock production is a key contributor to global food security and supports the livelihoods of about 1.3 billion people around the world. It contributes 34% of the global protein supply and significantly influences agricultural output accounting for 40% in industrialized countries and 20% in developing nations (FAO, 2022). Beyond food, livestock offers income, employment, and draught power for millions of rural households. Busch (2023), opined that livestock serves numerous functions globally, ranging from the provision of food, protein, and income for farmers to less visible roles such as cultural or religious significance, ecosystem services, and fulfilling the emotional needs of animal caretakers. Among livestock sectors, poultry production encompassing chickens, ducks, and turkeys has experienced the most rapid growth worldwide. It offers affordable, high-quality animal protein, investment opportunities, job creation, and a dependable income source for smallholder farmers (Attia *et al*., 2022). In Nigeria, which holds Africa's second-largest chicken population, approximately 180 million birds produce over 14 billion eggs and 454,000 tons of poultry meat annually, thereby strengthening food security, employment generation, and rural livelihoods (Bello *et al.*, 2022). Despite its economic importance, the Nigerian poultry industry faces sustainability challenges, particularly due to the rising cost of feed—which accounts for over 70% of production expenses. Feed prices are influenced by fluctuations in the costs of key ingredients like maize and soybeans (Berger, 2024). These raw materials are also in high demand for human consumption and export, further compounding their scarcity and cost.

In Ekiti State, where small- and medium-scale poultry farming plays a vital role in the agricultural economy, high feed costs have become a pressing issue. Traditionally, some farmers relied on scavenging or household waste to feed birds. However, modern poultry systems require nutritionally balanced feeds, which are becoming increasingly expensive due to factors such as climate change, hoarding, and global disruptions—including those triggered by the COVID-19 pandemic (Attia *et al*., 2020; Abdulrahaman *et al*., 2022).

The surge feed prices have created an arduous predicament for small-scale poultry farmers, requiring them to devise cost-saving strategies, reduce the scale of their operations, or even close their businesses. In a bid to stay afloat, farmers are resorting to coping strategies, including producing their own feed, diversifying their farming systems, and utilising alternative feed sources such as crop residues and agro-industrial waste (Ekot, 2022). However, maintaining production remains a challenge, emphasising the urgency for measures to stabilize feed prices, support local feed production, and encourage innovation in poultry farming practices. In Ekiti State, persistent high feed prices have driven some poultry farms out of business. Therefore, farmers must adopt sustainable and effective coping mechanisms to navigate these challenges without compromising productivity. This study, therefore, seeks to assess the coping strategies adopted by small-scale poultry farmers in Ekiti State. Specifically, the study aims to: Describe the socio-economic characteristics of poultry farmers in Ekiti State, identify the causes of price increase, identify the effect of high cost of poultry feed on poultry farmers, assess the coping strategies adopted by poultry farmers with high cost of feed and perceived effects of coping strategies adopted on poultry farms.

The hypothesis of the study stated that there is a significant relationship between the causes of price increase of poultry feed and the coping strategies adopted by farmers

METHODOLOGY

The Study Area is Ekiti state. The state is in the southwestern part of Nigeria between latitude 7.667^0N and longitude 5.20ºE. It has a total land area of 6,353km^2. The major economic activity of the study area is predominantly farming. They grow food (yam, rice, cassava, plantain, and cocoyam) and cash crops (cocoa, kolanut and palm oil) Alabi *et al.,* (2023). In addition, farmers in the state rear animals such as sheep, goat, poultry birds (Turkey, broilers, laying birds, duck, geese).

The population of the study consists of all the registered poultry farmers in Ekiti State. A multistage sampling procedure was employed in the selection of 120 small scale poultry farmers in the study area. The first stage involved selection of 25% of local government area in Ekiti State which are Ado, Ikole, Oye and Ido-Osi Local Government Areas, the second stage involved a random selection of six communities from each LGA that has high population of poultry farmers, at the third stage involve a random selection of fifteen (5) poultry farmers from each community to arrive at a sample size of 120 respondents for the study. Primary data were collected with the aid of questionnaires**.** Coping strategies adopted by poultry farmers on the high cost of feed ingredients was measured on a four point rating scale using frequently used, occasionally used, rarely used and not used. Perceived Effects of coping strategies adopted on poultry production was measured on a 5 points likert scale of strongly agree, agree, undecided, disagree and strongly disagree**.** Data collected was analysed descriptively using frequency count, percentage, and Pearson product moment correlation.

RESULTS AND DISCUSSION

The socio-economic characteristics of respondents, as shown in Table 1, provide insight into the dynamics of poultry farming in Ekiti State. Majority (57.5%) of the respondents were male, indicating male dominance in the sector. This could be linked to the physically intensive nature of poultry farming, which may deter female participation. Hence, male dominance underscores the need for gender-inclusive interventions aimed at enhancing women's participation and access to poultry farming opportunities. Oyedokun, *et.al*. (2023), opined that high level of men involvement in poultry production may also be due to high demand for labour in terms of feeding and medication which women may not be able to combine with household activities. The age distribution reveals that 51.7% of respondents were between 41 and 50 years old, with a mean age of 48 years. This age bracket represents economically active individuals who are more likely to adopt innovations and modern practices, contributing to enhanced productivity (John *et al*., 2022). Furthermore, 58.3% of the respondents were married, suggesting that family labor is a common support mechanism in poultry operations. In terms of religious affiliation, the majority of respondents identified as Christians (61.7%) or Muslims (32.5%), with a small proportion (6.8%) practicing other religions. While not directly affecting production, religious background may influence attitudes toward certain farming practices and technologies.

Educational attainment among respondents was relatively high, with 40.8% having tertiary education and an average of 11 years spent in school. This level of education is advantageous for understanding technical concepts and implementing best practices in poultry farming. As Alabi *et al.* (2024) pointed out, education significantly enhances income-generating potential, thereby reinforcing the value of investing in farmer education to improve productivity. The income profile shows that 61.8% of the respondents earned between ₦10,000 and ₦50,000 monthly, with a mean income of ₦61,400. This modest income level could limit investment in improved inputs and expansion, although it also reflects the economic potential of poultry farming as a source of livelihood. Farm size data indicate that 65% of respondents kept between 1–200 broilers, with only 3.3% managing over 1,000 birds. The mean farm size was 435 broilers, suggesting that poultry farming in the study area is largely small-scale. This presents challenges such as limited access to economies of scale, commercial markets, and external financing. Household sizes were generally small, with 74% of respondents having 1–5 members and a mean household size of 4. While this may reduce dependency pressure and improve manageability, larger households can also provide valuable labor support when needed. However, increased household size may strain limited resources (Adeoti, 2019). Experience in poultry farming was generally limited, with 86.7% having only 1–5 years of experience and an average of 3 years. Limited experience can be a significant hindrance for poultry farmers, as they may lack the skills and knowledge to effectively manage production challenges. This underscores the importance of training and mentorship programs to enhance capacity and address this gap in experience. Oyedokun *et al*. (2023) noted that poultry farmers in Ekiti State have limited experience in the field. In terms of funding, more than half of the respondents (56.7%) relied on personal savings, while 34.2% accessed loans. A small proportion received support from family or other sources. This pattern suggests a lack of access to institutional credit, which may hinder business expansion and the adoption of innovative practices. Only 48.3% of respondents belonged to cooperative societies. The low cooperative membership rate limits poultry farmers' access to collective benefits such as reduced input costs and pooled resources. This weakens their competitiveness and hinders efficiency and sustainability in the sector.

Non-membership may deprive farmers of collective benefits such as bulk input purchases, credit facilities, and shared knowledge. Encouraging cooperative participation could enhance resilience and resource sharing. Most respondents (71.1%) owned their farms solely, assuming full responsibility for profits and liabilities. While sole ownership grants autonomy, it can also limit access to external support, partnerships, or joint ventures that could improve productivity. Finally, a significant portion (64.2%) of poultry farmers had not received any extension services. The lack of technical support impedes access to critical information and technologies, which are essential for improving farm outcomes. Without adequate support, poultry farmers may struggle to adopt new and innovative techniques, leading to suboptimal performance and reduced profitability.

Table 3: Socioeconomic characteristics of Poultry Farmers in Ekiti State (n=120)

Variables	Responses	Percentage (%)	Mean
Gender	Male	57.5	
	Female	42.5	
Age	20-30 years	9.2	
	31-40 years	31.6	48
	41-50 years	51.7	
	>51	7.5	
Marital Status	Single	41.7	
	Married	58.3	
Education background	No Formal Education	18.3	
	Primary	12.5	
	Secondary	28.3	
	Tertiary	40.8	
Monthly Income	10,000-50,000	61.7	
	50,001-100,000	34.2	N61,400
	>100,000	4.2	
Number of Broilers	1-200	65.0	
	201-400	5.0	435
	401-600	10.0	
	>601	20.0	
Household Size	1-5	74.2	4
	6-10	25.8	
Poultry Experience	1-5 years	86.7	3 years
	6-10 years	13.3	
Membership of Cooperative Society	Yes	48.3	
	No	51.7	
Extension Services	Yes	35.8	
	No	64.2	

Causes of price increase of poultry feed ingredients

Table 2 highlights the primary causes of the rising costs of poultry feeding ingredients in the study area. The findings reveal that the leading cause is high demand for feed ingredients by both humans and animals (89.4%). This aligns with Dalha (2021), who identified the potential consequences of exporting large quantities of poultry feed ingredients, resulting in competition between human and animal consumption, scarcity of ingredients, and subsequent price increases. This, in turn, can lead to significant pressure on poultry farmers, potentially resulting in farm closures. This emphasises the necessity of maintaining a balance between the demand for poultry feed and human nutrition and serves as a reminder of the interconnectedness of different sectors in the food industry. The second major cause is low production of feed ingredients (85.4%), which significantly drives up costs. High transportation costs and Climate change (85.0%) were ranked third respectively, as highlighted by Abdulrahman (2022), who noted that the movement of feed from purchase points to farms substantially raises overall expenses. However, Climate change affects all the dimensions of food security which are: availability, accessibility, utilisation and sustainability Falade *et al.* (2024). The fifth cause is the buying and hoarding of feed ingredients by traders (84.6%). Lastly, farmers' loyalty to specific feed brands (81.8%) contributes to increased demand for those brands, thereby raising their costs.

Table 2: Causes of price increase of poultry feeds (n=120)

Cause	Percentage (%)
High demand for feed ingredients by humans and animals	89.4
Low production of feed ingredients	85.4
High transportation costs	85.0
Climate change	85.0
Buying and hoarding of feed ingredients by traders	84.6
Farmers' loyalty to specific feed brands	81.8

Perceived effect of high cost of poultry feed on poultry farm

Table 3 highlights the perceived effects of the high cost of poultry feed on poultry farms. The findings reveal that most (73.3%) of the respondents strongly agreed that the increase in the price of poultry products, driven by high feed costs was the most effect of the high cost of poultry feed on poultry farm. This shows how increased input costs are transferred to consumers. This was closely followed by the reduction in feed quality and efficiency (62.5%). Above average (55.0%) of the respondents strongly agreed to decrease in the number of broilers as effect of high cost of poultry feed on poultry farm, indicating that farmers scale down operations to manage costs. However, a few of the respondents agreed that Loss of weight in broilers (42.5%), reflects the direct result of feeding challenges. Lastly, the outright Discontinuation of poultry farming activities ranked seventh (37.5%), showing the severe impact of prolonged high feed costs, a finding also supported by Ekot (2022), who observed that persistent feed price hikes lead to reduced consumer demand and force some farms to shut down completely. This also corroborates with Afodu (2024), that high cost of feed had a negative impact on the poultry farmers.

Table 3: Perceived Effect of high cost of poultry feed on poultry farmers (n=120)

Effect	SA (%)	A (%)	U (%)	D (%)	SD (%)
Increase in poultry product price	73.3	26.7	10.0	0.0	0.0
Reduction in feed quality and efficiency	62.5	27.5	10.0	0.0	0.0
Decrease in number of broilers	55.0	45.0	0.0	0.0	0.0
Low-quality poultry products	38.3	35.0	22.5	5.0	0.0
Low profit margins for broiler farmers	35.8	36.7	5.0	22.5	0.0
Loss of weight in broilers	42.5	40.0	17.5	0.0	0.0
Discontinuation of poultry farming activities	37.5	40.0	5.0	16.7	0.0

Coping strategies adopted by poultry farmers on the high cost of feed

The result in Table 4 indicates that feed formulation was the most widely adopted coping strategy, with 86.7% of the respondents using it frequently, reflecting a strong preference for adjusting feed composition to reduce costs while still meeting the nutritional needs of broilers. The second most adopted strategy was changing the feeding routine of broilers, which was used frequently by 78.3% of respondents. This shows that a significant number of farmers adjusted feeding patterns to cut down on unnecessary feed use and minimise wastage. Sourcing funds through cooperative societies was also a common strategy, adopted frequently by 75.0% of farmers, reflecting the role of cooperatives in providing financial support to manage the rising cost of poultry feed. The use of crop waste as a feed alternative with 66.7% of respondents using it frequently, demonstrating farmers' creativity in utilising locally available by-products to reduce dependence on commercial feeds. However, the use of alternative feed sources based on availability and cost was adopted frequently by 45.8% of respondents. As Elahi *et al.* (2022) noted, such alternatives can be effective substitutes for conventional feed, helping to mitigate the impact of rising feed prices. The least adopted strategy was growing feed ingredients on-farm, with only 8.3% using it frequently and a large majority 61.7% not using it at all. Despite its low adoption, it represents a potentially sustainable and cost-effective long-term approach for reducing feed dependency if adequately supported with resources and training. According to Afodu (2024), Experienced farmers may have a greater understanding of the challenges associated with high feed costs and may be better equipped to identify and adopt innovative strategies to cope with these challenges.

Table 4 Coping strategies adopted by poultry farmers on the high cost of feed ingredients (n=120)

Coping strategies	Frequently (%)	Occasionally (%)	Rarely (%)	Not used (%)
Feed formulation	86.7	1.7	0.0	11.7
Purchasing poultry feed in large quantities	18.3	15.0	30.8	35.8
Growing of feed ingredients	8.3	21.7	8.3	61.7
Use of alternative feed sources based on its availability and cost	45.8	39.2	4.2	10.8
Change in feeding routine of broilers so as to cut cost	78.3	0.0	0.0	21.7
Downsizing of poultry farm because of the soaring expense of feed	58.3	14.2	0.0	27.5
Use of crop waste as feed source due to the cost of feed	66.7	13.3	2.5	17.5
Source for fund through cooperative societies	75.0	5.8	1.7	17.5
Government intervention to cushion the high cost of feed	24.2	41.7	4.2	30.0

Perceived effect of coping strategies adopted on poultry production

Table 6 highlights the perceived effects of the coping strategies adopted by poultry farmers in response to the rising cost of feed. A significant (57.7%) of respondents strongly agreed that coping strategies help poultry farmers stay in business. This finding supports the assertion of John *et al*. (2022), who emphasised that without appropriate coping strategies, farmers face an increased risk of bird mortality and may ultimately be forced out of business. In addition, (45.8%) of respondents strongly agreed that coping strategies help reduce the cost of poultry feed. This aligns with the observation of Ekot (2022), who reported that most poultry farmers respond to high feed costs by lowering the quality or quantity of feed used, a strategy that can ultimately affect both productivity and profitability. Coping strategies also promote collaborative efforts through cooperative societies, as noted by (10.8%) of farmers who strongly agreed with this statement. Although this is a relatively small proportion, it still indicates that some farmers see collective action as a viable means to cushion the impact of economic pressures, particularly those related to feed inputs. In terms of financial outcomes, (20.8%) of respondents strongly agreed that coping strategies help maintain profit margins despite economic challenges.

Table 5: Perceived effects of coping strategies adopted on poultry farms

Coping strategies	SA (%)	A (%)	U (%)	D (%)
Coping strategies reduce the cost of poultry feed	45.8	43.3	0.0	0.0
Coping strategies help poultry farmers maintain profit margin	73.3	20.8	0.0	5.8
Coping strategies help produce high quality poultry product	72.5	15.8	5.8	5.8
Coping strategies reduce bird mortality	15.8	37.5	10.8	35.8
Coping strategies help poultry farmers to stay in business	57.7	37.7	5.8	0.0
Coping strategies encourage the recycling and reuse of organic waste	26.7	50.0	00	23.3
Coping strategies lead to pooling collaborative efforts by forming cooperative societies	10.8	73.3	15.8	0.0
Coping strategies helps increase the food security status	67.5	6.7	00	5.8

Regarding sustainability, (26.7%) of farmers strongly agreed that coping strategies encourage the recycling and reuse of organic waste. This reflects a positive attitude toward integrating environmentally friendly practices into poultry farming, though it may also point to the need for increased support or education in sustainable farming techniques. Finally, the least strongly supported claim was that coping strategies reduce bird mortality, with only (15.8%) of farmers strongly agreeing, and a notable proportion expressing disagreement. This suggests that while coping strategies are broadly viewed as beneficial for business continuity and profitability, their direct impact on poultry health outcomes remains less convincing to many farmers. These findings underscore the significance of adaptive coping strategies in enhancing the resilience and sustainability of poultry farming under economically challenging conditions.

Relationship between the causes of price increase of poultry feed and the coping strategies adopted by farmers

The result in Table 6 shows a significant relationship between the causes of poultry feed price increases (r=0.522), This suggests positive correlation, meaning that as feed prices rise due to factors like supply chain disruptions or inflation, farmers are more likely to adopt strategies like feed formulation, bulk buying, and sourcing funds through cooperatives. Wanglin (2023), noted that Farmers' organisations such as cooperatives, associations, and producer organisations play a vital role in promoting sustainable agricultural development and improving rural livelihoods. The statistically significant p-value confirms that this relationship is not due to chance, highlighting that farmers actively respond to economic challenges by adjusting their strategies to manage feed costs.

Table 6: Relationship between the causes of price increase of poultry feed and the coping strategies adopted by farmers

Variables	N	Mean	Standard Deviation	r-value	p-value
Causes of increase	120	4.26	0.51	0.522*	0.000
Coping Strategies adopted	120	1.75	0.11		

$p<0.05$

CONCLUSION AND RECOMMENDATION

The study shows that poultry farming is male dominated, with most farmers in their productive years and were literate. Many rely on personal savings for funding, while limited access to extension services restricts their exposure to new techniques. Rising feed prices, driven by demand, low production, transport costs, and climate change, threaten profitability and farm sustainability. To enhance productivity and sustainability, the study recommends better extension services, policies to stabilize feed prices, and support for cooperatives to help farmers sustain operations and enhance food security.

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