Cost of Production and Financial Performance of Selected Poultry Rearing Farmers in Kiambu County, Kenya

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ABSTRACT

The study sought to investigate the effect of cost of production on financial performance of selected poultry rearing farmers in Kiambu County, Kenya. The study was guided by specific objectives in cluding; the effect of feed costs, the effect of poultry equipment, the effect of brooding costs and the effect of medication costs on financial performance of selected poultry rearing farmers in Kiambu County, Kenya. The study was anchored on cash conversion cycle theory, transaction cost of economics theory, resource based theory and operating cycle theory. The study adopted descriptive research design and a sample size of 350 respondents. Snow ball sampling method was used to reach the respondents since their location was not well defined. Primary data was collected using questionnaires that was pilot tested to ensure its valid and reliable. Descriptive statistics of mean, percentages and standard deviation and inferential statistics including multiple regression analysis were conducted. The study findings revealed that production cost including feeding cost, poultry equipment, brooding cost and medication cost all individually had a statistically significant effect on financial performance and therefore all the null hypotheses were rejected. Feeding cost and medication cost had negative statistically significant effect, hence concluding that when the cost for feeds and medication increases, they lead to a decrease in financial performance. Also increase in poultry equipment and brooding cost were found to positively affect performance concluding that when the farmers increase investment in relevant equipment and brooding, financial performance improves. On feeding cost and medication cost, the study recommends that the farmers through the regulators to lobby for subsidies from the government so as to lower the cost of production. The study further recommends the farmers to invest in heavy technology in terms of equipment and brooding costs since greatly increase their financial performance.

Keywords: Production Cost, Financial Performance, feeding cost, brooding cost, medication cost and poultry equipment.

INTRODUCTION

Poultry farming is an important subsidiary occupation that supplements the income of small poultry farms families in rural households in developing countries like Kenya. Poultry production has played an important role as a subsistence and commercial activity with many potential for rapid economic growth (Ekunwe et al, 2006). Poultry farming is an important cheap source of high quality proteins, minerals, amino acids and

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vitamins to balance the human diet. In 1950s poultry enterprise was found mostly in the yards of many homes both rural and small towns in Sri Lanka.

Cost of poultry farmers in Africa tends to start dealing with many challenges including disease control, high cost of feeding and equipment. On medication, they deal with symptoms instead of diseases and link specific therapeutic preparations to specific disease symptoms and according to Bonfoh, (1997), poultry are hardly vaccinated with standard Western-type vaccines. Very occasionally they are given antibiotics originally intended for human use.

In Gambia, one preventive measure ('vaccination') traditionally used by farmers against Newcastle disease consists of blending the excreta from any wild birds with goat's milk and giving the resulting mixture to village fowl to drink. A similar use of the entrails of fowl that have died of Newcastle disease has also been reported. The entrails of the fowl are soaked in goat's milk and the resulting infusion is given orally to the birds. These practices may have some protective effect but cannot be recommended because the entrails are very likely to contain the virulent Newcastle disease virus (Moreki, 1997).

In Uganda, marketing of local poultry is not well defined, chicken are sold to meet unforeseen expenses. The birds usually sold from the village flock are surplus males (cockerels and cocks); pullets and non-productive hens; large sized birds; old hens and sick birds. Growing chicken are sold just before the onset of the high risk Newcastle Disease (Byarugaba, 2007). There are no studies done to cover the various agro-ecological zones nor do they show consumer behaviour and market trends. The supply chain management consists of various players, right from production, wholesaling and retail. Local poultry farmers sell to the middlemen who exploit their ignorance of market prices to pay them less (Byarugaba ,2007).

Cost and profit in business undertakings form part of what determines the financial performance of a business concern. Since management is concerned with profitability, which is a measure of business performance, the need for higher sales will arise and this will facilitate the need to increase production capacity, which in turn brings about increase in cost (Benke & Tomkins, 2017). The costs incurred during the production must be low enough so as not to undercut the profit margins. In addition, the management in many firms has developed cost management aspects which refers to the cost cutting measures adopted so as to respond to the decreasing sustainable profitability. The most important managerial tools are cost management strategies and cost management strategies are considered as critical factors to increase revenue for the success of manufacturing companies (Shamsuddoha, et al., 2015)

Performance is a key consideration and concern for any poultry farmer or investor who places their money into poultry farming as a venture. According to Ndirangu, Munyaka and Ouma (2015) a well performing poultry farm, is one where the outputs can cover the cost of production or the margins are high enough for the investors to earn their living from it. However, for an effective and efficient poultry farm to be successful, there are some factors which should be put in place. Some of the notable factors that positively influence the performance of poultry farming include access to ready markets for the produce, use of modern technologies that ensure high quality produce like eggs and poultry meat, access to capital for finances, farm inputs availability and government support.

Furthermore, Omondi (2018) noted that the government of Kenya should train poultry farmers in a systematic and continuous process in order for farmers to maintain quality products which can enable them fetch high prices. Farmers should also be assisted by the government through subsidies so as to ensure that they buy poultry feeds at a lower price and this will make overall prices of their products to be low to compete favorably in the market.

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Statement of the problem

The poultry farming sector is seen as a source of good nutrition to the population which has increased in numbers in the last few years, and it has become an income generator for many of the jobless youths (Nduthu, 2018). Their financial performance however has continued to be hampered by various challenges (Ochieng *et al*, 2013). Commercial poultry farming in Kenya operate under various conditions and constrains, which stand on the way to the achievement of the enterprise. The challenges the sector faces include high operational costs, shortage of funds for investing in the sector and lack of sufficient knowledge among the farmers who desire to join into the sector as they lack field extension officers. For the poultry farmers to enjoy the benefits of the sector, they need to put in measures to improve their performance.

There are several studies that have covered the cost of production and performance including; Dube, Francis and Maliwichi (2016) investigated on poultry-based poverty alleviation projects and found that some of the constraints to the success of the project included lack of regulation of prices of poultry feed, lack of government start-up capital/subsidy, and inadequate extension services leading to many chicken dying from diseases. The study creates a gap as it was conducted in South Africa a different context from Kenyan and it does not link cost of production to performance.

Ogolla (2016) who considered the factors that influence poultry production among poultry farmers in Eldoret town, with findings sharing that some of the socio-economic factors include land area under poultry farming, quantity of feeds used, quantity of vaccines administered, quantity of labor used and quantity of energy used; while the age of the farmer, level of education, experience in poultry farming, engagement in other income generating activities other than poultry farming and access to credit also influenced the poultry production. Kirui (2014) investigated on the factors influencing performance of poultry farming projects in Bureti Sub County Kericho, Kenya. The study showed that for improved poultry farming performance, the farmers need to understand the relationship between cost of inputs, the market, education and knowledge on farming activities and growth and returns of the sector. The farmers who have sufficient training and information on farming are able to produce more.

Although poultry farming and production system has been studied (e.g. Njenga, 2005; Kimani, 2006; Kirui (2014); Ogolla (2016); Dube, Francis and Maliwichi (2016), more studies are needed to enrich existing information and to provide a comparative perspective on aspects of poultry production in Kenya.Therefore, this paper will fill the literature gap that exist in the area and investigate the effects of the effect of cost of production and financial performance of selected small scale poultry farmers in Kiambu County Kenya.

Objectives of the study

General Objective

The general objective of this study was to determine the effect of cost of production on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

Specific Objectives

This study was guided by the following objectives;

i. To establish the effect of feed costs on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

ii. To examine the effect of poultry equipment on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

iii. To establish the effect of brooding costs on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

iv. To determine effect of medication costs on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

Research Hypotheses

H_{01}: Feed costs have no significant effect on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

H_{02}: Poultry equipment has no significant effect on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

H_{03}: Brooding costs has no significant effect on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

H_{04}: Medication costs have no significant effect on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.

THEORETICAL REVIEW

The theoretical review identifies different schools of thought that support the study variables. The specific theories considered here included: cash conversion cycle and the transaction cost economics, resource-based theory and operating cash theory.

Cash Conversion Cycle Theory

The cash conversion cycle, which represents the interaction between the working capital components and the cash flow within a firm, can be used in determining the amount of cash needed for any level of sales. Gitman (1974) came up with the cash conversion cycle as part of the operating cycle, calculated by adding the inventory period to the period of the accounts receivable and subtracting from it the accounts payable. The emphasis is on the length of time between the purchase of raw materials and other inputs and the cash inflows from the selling of finished goods, which reflects the number of operating days for which funding is needed.

The CCC is a complex measure of ongoing management of the liquidity, as it incorporates data from both balance sheets and income statement to create a measure with time dimension. Although evaluating the CCC of an individual business is helpful, industry metrics are important for an organization to evaluate its CCC output and identify opportunities for improvement, as the duration of CCC can vary from industry to industry. The correct way is therefore to compare a particular firm with the industry in which it operates. The cash conversion cycle is used as a systematic indicator of working capital, as it indicates the time lag between raw material purchase expenditure and finished goods sales collection (Richards & Laughlin, 1980).

Day-to-day control of short-term assets and liabilities of a corporation plays an important part in the company's success. Despite strong liquidity management, businesses with rising long-term prospects and

healthy bottom lines won't remain solvent. This theory describes the interface between working capital constituents and the cash flow within a business, and it can be used to assess the amount of money needed for any degree of sales. The theory is used as an equitable measure of working capital because of its ability to demonstrate the time delay between the sums spent on buying the raw materials and when the finished products' cash was being collected.

Transaction cost Economics Theory

This theory views transaction as the fundamental unit of evaluation and it maintains that the comprehension of cutting back transactional cost will be pertinent to the examination of companies (Ketokivi & Mahoney, 2016). This theory can be applied both in determining an appropriate delimitation as it occurs between businesses and the market, and in organizing internal transactions. Determining a maximum degree of inventory should be done on the basis of an exchange between the costs and benefits related to the extent of the inventory. The costs of ordering and the costs of transporting are included in the inventory's holding costs (Christensen, Dukhovny, Siebert & Green, 2015). The costs of purchasing are related to the procurement of goods, which involves preparing a purchase form, obtaining, reviewing and recording the approved items.

The cost of carrying, on the contrary, requires inventory maintenance which comes about because of the expense of inventory storage and other costs of opportunity (Albán, Cardona, Argueta & Sarmiento, 2015). There are a number of reasons for the high and low inventory degrees and these reasons are highly dependent on the type of industry the company is in. One of the main explanations for inventory management is the expense which is based on the Transaction Cost Economics (TCE) theory (Ketokivi & Mahoney, 2016). In businesses to have a profitable vantage point, they have to reduce their costs, and they can do this by holding the inventory costs to a logically low degree. On the basis of a trade-off between costs and benefits associated with inventory levels, the optimal level of inventory should be calculated. Inventory holding costs include the ordering and carrying costs. The cost of ordering is associated with inventory acquisition that includes the cost of preparing a purchase order or the form of requisition, receiving, inspecting and recording the received goods.

The costs of carrying are however involved in inventory maintenance and will arise due to inventory storage and costs of opportunity (Hebein, Marks & Abouzeid, 2015). There are several reasons for lower or higher inventory levels and it highly depends on what a company's business is in. The cost motive, often based on the Transaction Cost Economics (TCE) theory, is the most widespread and simple motive for inventory management. Companies have to lower their costs to be competitive, and this can be accomplished by keeping stocking inventory costs to a reasonable minimum. Likewise, stock market analysts strongly regard this custom. In relevance to this study, the theory underpins the all the independent variables specifically, Feed, poultry equipment, brooding and vaccination costs.

Resource Based Theory

The Resource Based Theory emerged in the 1980s and 1990s through the contributions of Birger Wernerfelt, C.K Prahald, G.P Hamel and Jay Barney and argues that Business survival and profitability entity is based on resources that are considered to be either human or materialistic. When the company's stock resources are being taken, the need of differentiating the capabilities from the resources is put into consideration (Fields, Stamatakis, Duggan & Brownson, 2015). Resources are considered to play a key role when it comes to analyzing of a unit since they are a production process unit. Some of the resources that are possessed by a company include; the skills of the employees, capital equipment, names of the brands, patents, finance among

others. The productive resource of a firm is considered to be few when the firm operates independently. Productive resources facilitate team cooperation and coordination which is revealed by the capability of a team to act on several tasks. This therefore implies that the capability of a company is defined by the available resources. This model is inclusive of the individual manager's cognitive ability of making sure that the short-term working capital is effectively controlled and managed (Hitt, Xu & Carnes, 2016). In relevance to this study, any manager of a company should therefore have the resources that are individual specific majorly aiming at facilitating ensuring that new opportunities are being recognized and that the resources are assembled accordingly, payments being made are paid and receivable recovering as a way of ensuring that the working capital is managed effectively and hence the profitability of the enterprise.

Operating Cycle Theory

This theoretical approach was developed by Richards and Laughlin (1980) where their main focus was on looking at the working capital management together with its individual elements. The concept of liquidity flow development is through extending of the static balance sheet's analysis which is aimed at identifying the capability of liquidation coverage of the value which includes the income statement's measures of the firm's operating activity. When the measures of the inventory turnover and receivable accounts are incorporated into the concept of the operating cycle, they specifically deliver a more precise perception of managing the liquidity than the indicators of the solvency which include the current and acid taste ratios (Kesavan, Kushwaha & Gaur, 2016).

According to Erdogan, Bennett and Ozyildirim (2015), liquidity's extra measures possess a clear understanding that anticipates the life of some components of the working capital which is depends to the extent of producing, distributing and collecting which are either unsynchronized or considered to be non-instantaneous. The average of the distinguished receivable balance that annual firm's sales relatively maintain is impacted when policies in collection change together with the credit. There is also a creation of a large and less likely liquid, receivable current investment in customer except when there is a proportionate increase in the sales that contribute to the increase in the receivables incase more liberal terms are granted by a company.

Potential liquidity that deteriorates is reflected by the receivable turnover that is lower and an extended receivable collection period. A firm is considered to attain a high currency ratio and acid test though with the choices that are concerned with the maintenance of larger average receivables investments with time (Richards & Laughlin, 1980). The Company's operating cycle length is approximated by turnover cumulative days for the receivable accounts and investment inventory. When these turnover assets are incorporated into the concept of operating cycle of the conversion period of current assets they provide a liquidity indicator of the firm that is more realistic although incomplete.

EMPIRICAL LITERATURE REVIEW

Feeds costs and Financial Performance

Sayed, Iqbal, Ayenuddin, Al-Amin, Samsad, Moni and Sumaiya (2018) conducted a study on the developmnent of low cost formulated quality feed for growth performance and economics of Labeo rohita of cultured in cage. The study recommended that there be the use of semi-auto feed mill pellet as an alternative of the commercial feed for economically sound cage culture of Labeo rohita that was found to be somehow costly. Small scale poultry farming plays a key role in the improvement of peoples' livelihoods and it has continued to grow all around the world under very different circumstances with the main aim of getting the maximum production at a much fewer costs. The demand of poultry products has continued to rise, however

there exists a large gap between the demand and supply of these products hence creating an opportunity to tap into. It is however, believed that when the feeding costs are very high, the poultry farmers finds it very difficult to purchase the feeds and this will hinder them from practicing their farming activities as expected hence resulting to low level of performance.

Finneran, Crosson, O'kiely, Shalloo, Forristal and Wallace (2010) researched on the simulation modelling of the cost of producing and utilising feeds for ruminants on the Irish farms. Feeds are considered to be the largest single cost in production hence most producers review their feeding programs to see if they can be able to reduce the costs. It is suggested that the changes that have been made to these feeding programs should only take place after there is a thorough review which must consider the effect a change will have on the aspects of the overall operation. In small scale poultry farming rations are executed on the basis of the requirements of a certain animal together the quality of the available feeds. With regard to the requirements of an animal, those that produce more products are considered to have low feeding costs. The main reason behind this is that the maintance requirements are diluted by higher levels of production. This implies that the farmers will be able to generate a lot of profits due to the high levels of production, even if the feeding costs are very high the profits will help in balancing their costs hence performance will be at its best level.

Karangiya, Savsani, Patil, Garg, Murthy, Ribadiya and Vekariya (2016) researched on how dietary supplementation of garlic, ginger and their combination affects the feed intake, growth performance and economics in commercial broilers. The findings of the study revealed that feed intake of the experimental birds in ginger together with the mixture of garlic and ginger supplemented groups significantly affected higher intake of the feed in comparison to the control. The study concluded that garlic supplementation improves the broilers' performance. Feeds are considered to be a major component of the total costs of poultry venture. Forage quality is one of the most factors that affect the total feed cost. The higher the forage quality, the lesser the concentration required in providing the additional nutrients that are needed towards supporting the maintenance of production

Poultry Equipment Costs and Financial Performance

Yuantari, Van Gestel, Van Straalen, Widianarko, Sunoko and Shobib (2015) investigated on knowledge, attitude and the practice of the Indonesian farmers regarding the use of personal protective equipment against the pesticide exposure. The study recommended that the farmers be trained on the use of personal protective equipment on the use of pesticides. High costs of poultry equipment have been considered to be a major obstacle to increased poultry production. Lack of access to poultry equipment has left many famers in a challenging condition of not producing their poultry output according to the normal standards of agricultural produce. The high equipment costs are believed to adversely affect the cost of production which is an important factor to many farmers' net returns and profitability.

Foster and Rosenzweig (2017) conducted a study to find out if there are too many farms in the world in cases where there are transaction costs for labour market, machine capacities and optimal farm size. The findings of the study revealed that there are too many farms at insufficient scales so as to exploit the locally-available equipment capacity scale economies. Poultry farmers require sufficient equipment to help them manage their produce as expected. Effective poultry equipment are believed to play a key role in increasing the productivity level, profits and lowering the costs of production, it is therefore necessary to lower their costs so that most of the small scale farmer can also have the chance of having them as this will help increase the level of production.

Wudhikarn (2016) conducted a study on the implementation of the overall equipment cost loss methodology

for comparison with the effectiveness of the overall equipment. Poultry equipment constitutes an integral part of poultry farmers. The purchasing behaviour of poultry farmers involves when an individual or group of farmers satisfy their needs and desires by selecting the purchasing power of certain equipment. They are greatly affected by their personality, culture and also the environment in which they operate in. This implies that if the costs of equipment are very high, most of them will have some difficulties when it comes to purchasing them hence it will make them have challenges in managing their poultry activities. This will have an adverse effect to the level of production which will lower their level of performance and profit generation.

Brooding Costs and Financial Performance

Simpson, Ambrosio, Guéron, Mora and Owen (2015) explored on egg production costs in large brooding marine. It is believed that brooding of the day-old-chocks during the cold winter months can somehow be expensive and the farmers can incur a lot of brooding costs and this will affect their performance level when it comes to production. Sometimes the farmers get tempted in lowering the house temperature to a few degrees so as to help in reducing the coats of heating but it can be very costly at the same time. Poultry farmers are encouraged to engage in activities that can help them reduce the brooding costs so that their production level can be high and in the end generate desired profits that will help their industries grow to the competing world.

Segura, Pechenik, Montory, Navarro, Paschke, Cubillos and Chaparro (2016) conducted a study in the cost of brooding in an estuary with regard to the implications of declining salinity for gastropod females and their brooded embryos. According to the study, pallial cavity isolation in response to low salinity surroundings generated a significant cost of energy for females together with their embryos. The cost was believed to rise as the development of the embryo progressed. Brooding costs are believed to be very high in most parts of world and this has become a major problem to poultry farmers. Some of them are unable to afford the brooding requirements and this has immensely contributed to their low level of production output hence resulting to low level of performance.

Shaheen, Mehmood, Mahmud, Hussain, Jatoi, Yaqoob and Javid (2019) conducted a study on the effect of different brooding sources on growth, blood glucose, cholesterol and economic appraisal of three commercial broiler strains in Pakistan. The findings of the study revealed that several costs are incurred in the brooding stages including labor, medicine and electricity. Brooding has become one of the most critical segments of poultry farming where its foundation has been laid for a healthy flock. Brooding requires that there be provision of adequate environment, failure to which it will result to low level of production and hence low profitability rates, poorer feed conversion and increased disease. In most case the brooding costs are generally high and this has really affected most poultry farmers as they are unable to raise the required costs hence affecting their performance level.

Medication Costs and Financial Performance

Wekhe, Owen and Amadi (2012) investigated on the medication cost associated with commercial broiler production in the tropics. The study findings revealed that there existed significant differences in weight grain, feed intake and feed conversion efficiency. The study further concluded that prophylaxis cost did not have an adverse effect on the cost of production and it is very important to help in safeguarding against any sporadic or enzootic diseases that may attack the flock and in the end incur some losses which will automatically lower the performance level of the farmers. Poultry diseases are believed to adversely affect the level of production and hence the performance. Poultry diseases have become a threat to poultry farmers globally and the diseases are responsible for the liveability, production level, and growth rate and also feed efficiency.

Tao, Hoang, Hunter and de Roode (2016) conducted a study on the fitness costs of animal medication. According to the study, parasites are believed to have a significant effect in reducing the host fitness such that the hosts are under strong selection to evolve the anti-parasitic defences. Globally, any poultry farmer who desires to increase the performance level of his/her broilers must engage in useful activities that effectively controls the spread of the diseases. This requires the need of having a management programme that is carefully planned and controlled so as to help in detecting any arising diseases that might attack the broilers. This is a careful and important precaution as it will help the farmers reduce the costs of medication which might be a huge burden when it comes to treating of the animals. With regard to these precaution measures, the farmers will be able to enjoy their production and performance of the poultry farming will grow as expected.

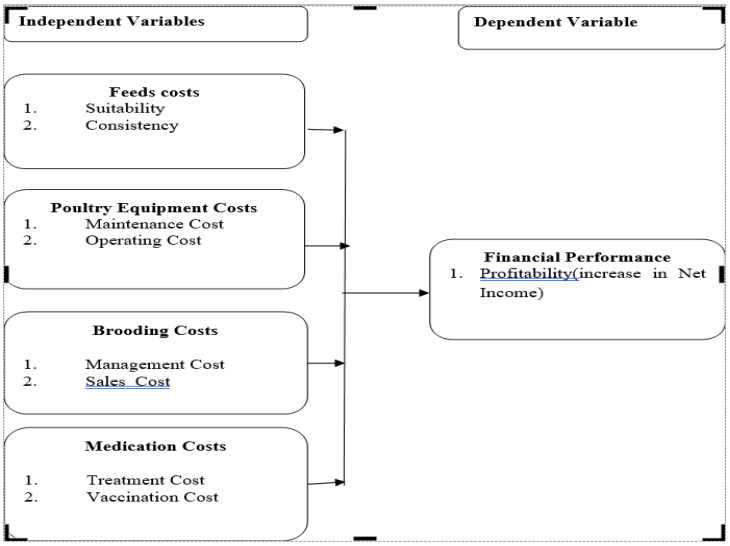
Samanta, Joardar, Ganguli, Das and Sarkar (2015) evaluated egg production after the adoption of biosecurity strategies by backyard poultry farmers in West Bengal. The findings of the study revealed that the implementation of biosecurity strategy in backyard poultry farming significantly benefits the farmers when it comes to increase egg production. Timely detection of the poultry disease has really played a key role in keeping the animals safe and secure. Poultry diseases are believed to result in high medication costs which makes the farmers spend a lot of their profits in treating their animals hence lowering their performance level in terms of production. Production intensification with eradication of the major primary poultry diseases has contributed to increase in the cost of production inputs.

Conceptual Framework

A conceptual framework is a network of interrelationships among variables deemed to be integral part of the dynamics of the situation being investigated (Kothari, 2004). The conceptual relationship of the variables of the current study is illustrated in Figure 2.1.

The dependent variable in this study is the financial performance, measured in terms of net income. The independent variables are the cost of production; Feed costs, which includes suitability and reliability of the feeds. Poultry Equipment costs, includes: maintenance and operating costs. Brooding costs, which includes: poultry management expenses and Medication costs, which includes: treatment and vaccination costs.

Figure 2-1: Conceptual Framework



Source: Author (2024)

RESEARCH METHODOLOGY

Descriptive research design was adopted by the study. Descriptive research design was chosen because it determines and reports how things are and is suitable because with definite goals it is concerned with obviously defined issues (Hall & Jurow, 2015). The target population was selected poultry rearing farmers in Kiambu county, Kenya.According to the country-integrated plan 2018–2020, Kiambu County had a poultry population of approximately 2.5 million birds. Kabete Sub County was selected because of the high chicken density and because it hosts the primary egg market in the County.

A sample size is defined as subgroup or subject of the population (Malterud, Siersma & Guassora, 2016). According to Mugenda and Mugenda (2003), when the population is more than 10,000 individuals, 384 of them are recommended as the desired sample size.

The sample size was determined using statistical population surveys

Where by:

N=Z2pq / d2

Where N = desired minimal sample size; Z = Standard normal deviation which is equal to 1 at 95% confidence level; P = Proportion of the target population estimated to have a particular characteristic being measured. In this case it was estimated to be 0.5; d = the level of statistical significance set which in this case is 0.05.

Thus, N = 1.962 X 0.5 X 0.5/0.052

= 384 Households

The study further utilized snow ball sampling technique to reach to the respondents since their geographical location was not well defined. This involved the use of referrals from one farmer to the next.

A questionnaire was used by the research to gather both primary and secondary data. The questionnaires were used to gather information from the participants chosen. Questionnaires are suitable for studies as they collect information that cannot be directly observed and achieved as well as individual experiences (Kandel, Khadka, Lundström, Goggin & Pesudovs, 2017). The questionnaire included questions that are both open and close. A questionnaire is helpful in acquiring objective information as the research does not manipulate respondents in any manner.

RESEARCH FINDINGS AND DISCUSSION

The study findings are presented per objective and in sections.

Response rate

There were 384 questionnaires issued to selected poultry rearing farmers as respondents. The findings indicated that a total of 350 questionnaires were effectively completed and submitted within a span of 7 business days, thereby implying a response rate of 91%. As per Werner (2004), an 80% or higher rate of response is deemed satisfactory for drawing precise inferences from samples. Based on this benchmark, the questionnaire return rate of 91% was above the minimum threshold for guaranteeing accuracy of results and

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conclusions

Descriptive Statistics

Descriptive statistics is a provision of the summary, presentation of findings, and analysis of the data resulting from a study sample. Descriptive statistics included; mean, range, sum, standard deviation, and variance.

Table 4.1: Descriptive Statistics

Descriptive Statistics					
	N	Range	Sum	Mean	Std. Deviation
Feeds cost	350	1.6542	0.3339	0.00355	0.0011
Poultry equipment cost	350	0.0068	0.02126	0.00225	0.0059
Brooding cost	350	0.8893	0.3307	0.0035	0.0098
Medication cost	350	90.87	17541.4	18.62	15.30
Net income	350	15.68	883.6	.9380	2.209

Source: Study data, (2023)

Descriptive statistics were conducted on net income, feeds cost, and brooding cost and medication cost measures as shown in table 4.2 above. From the collected data, the net income mean was 10.65 for the 350 respondents. The standard deviation for net income was 2.209, this showed a significant disparity in the performance of small scale poultry farmers. Feeding cost had a mean of 0.00355 and a standard deviation of 0.0011 showing a big difference in the amount of spend. Poultry equipment cost had a mean of 0.00225 and a standard deviation of 0.0059, brooding cost had a mean of 0.0035 and a standard deviation of 0.0098 while medication cost indicated a mean of 18.62 and a standard deviation of 15.30 showing a significant variation in the amount spend.

Correlation analysis

To test the relationship existing between two variables a correlation analyses was done. A negative and positive correlation coefficient indicates a negative and positive correlation respectively. Pearson correlation test was applied in evaluating the correlation between production cost and performance. Correlation was used to determine the strength of the association among the variables. Table 4.2 shows the correlations

Table 4.2: Correlation Matrix

	Financial performance	Feeding cost	Poultry equipment	Brooding cost	Medication cost
Financial performance	1				

Feeding cost	-0.773	1			
Poultry equipment	0.463	0.316	1		
Brooding cost	0.618	0.163	0.216	1	
Medication cost	-0.652	0.161	0.233	0.462	1

Source: Research Data (2023)

The study established the association between cost of production measured by feeding cost, poultry equipment, brooding cost and medication cost with financial performance using a Pearson Correlation analysis. The study findings presented in Table 4.2 established that there is a strong significant negative relationship between brooding cost and financial performance (rho=-0.773). Therefore, it can be implied that an increase in feeding cost leads to decreased financial performance.

The relationship between poultry equipment and financial performance was found to be positive and significant (rho=0.463). This is an indication that an increase in poultry equipment would lead to improved financial performance of poultry farmers. There was a moderate significant positive relationship between brooding cost and financial performance (rho=0.618) an indication that increase in brooding leads to increase in financial performance of poultry farmers. The study revealed that there was a moderate negative significance relationship between medication cost and financial performance of poultry farmers (rho=-0.652) an indication that increase in brooding cost leads to a decrease in financial performance of poultry farmers.

Regression Analysis

Regression analysis is a set of statistical techniques used to evaluate the connection between a dependent variable and one or more independent variables. Regression analysis is essential in determining the consistency of the connection between variables and how they affect specific changes. The present study used SPSS version 26 to compute and assess relationships between feeding cost, poultry equipment, brooding cost, and medication cost and profitability (net income). The study assumed the multiple regression model below:

$$Y = \beta 0 + \beta 1_{X1} + \beta 2_{X2} + \beta 3_{X3} + \beta 4_{X4} + \varepsilon$$

Regression analysis calculations show the dependent variable's behaviour (performance) is affected by changes in the independent variables (feeding cost, poultry equipment cost, brooding cost and medication cost).

Table 4.3: Model Summary

R	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
.894[a]	.799	.798	2.2437

Source: Study data, (2023)

Table 4.3 above indicates the poultry farmers performance is quite good affected by cost of production measures (feeding cost, poultry equipment cost, brooding cost and medication cost) represented by r=0.894,

which measures the strength of variance and the proportions statistically. There was a contribution of 79.9% by the independent factors to performance as indicated by the R squared value (0.799). The findings above indicate a positive and strong relationship between cost of production and the performance of poultry farmers in Kiambu county. The adjusted R square value indicates that 79.8 % of the performance is explained by the independent variables and therefore the variables used are fit for the study research.

ANOVA Findings

Table 4 4: ANOVA

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	64.181	4	16.03	3.319	.000[b]
	Residual	4529.5	937	4.834		
	Total	4593.7	941			
a. Dependent Variable: net income						
b. Predictors: (Constant), feeding cost, poultry equipment cost, brooding cost and medication cost						

Source: Study data, (2023)

Results shown in table 4.7 above indicate that the study's F statistic was 3.319 at a confidence level of 5% indicating that the research variables (feeding cost, poultry equipment cost, brooding cost and medication cost) adequately reveal variations in performance. The ANOVA table's p-value was 0.000, which is less than 0.05, indicating that at least one of the factors was significant used by the study significantly affected the net income of poultry farmers in Kiambu County.

Results for multiple regression

Table 4.4: Regression Coefficients

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.093	.115		9.508	.000
	Feeding cost	-0.674	.137	-.109	-4.920	.023
	Poultry equipment	0.746	.303	.015	2.462	.031
	Brooding cost	0.648	.201	.073	3.224	.009
	Medication cost	-0.758	.192	.057	3.947	.013

a. Dependent Variable: net income

Y= 1.093 -0.674FC+ 0.746PE+ 0.648BC-0.758MC+ ε

Y=Performance

FC=Feeding cost

PE=Poultry Equipment

BC=Brooding Cost

MC=Medication Cost

Results from the regression analysis above shows that all the measures used to determine performance; feeding cost, poultry equipment cost, brooding cost and medication cost measures have an effect on poultry farming' performance that is positively statistically significant. When production cost is constant at zero (0), the performance of poultry farming is at 1.093.

Hypothesis Testing

Objective 1: To establish the effect of feed costs on performance of selected small scale poultry farmers in Kiambu County, Kenya.

The study's first specific objective was to establish the effect of feed costs on performance of selected poultry rearing farmers in Kiambu County, Kenya. Findings from the study showed a negative and significant relationship between feeds cost and performance (β= -0.674 $p=0.023 < 0.05$), this means that reducing feeding cost leads to an increase in performance by 0.674. The research null hypothesis that feeding cost has no effect on performance of poultry farming in Kiambu county was therefore rejected and concluded that feeding cost indeed had an effect on financial performance.

The study findings were similar to, Sayed, Iqbal, Ayenuddin, Al-Amin, Samsad, Moni and Sumaiya (2018) who conducted a study on the developmnent of low cost formulated quality feed for growth performance and economics of Labeo rohita of cultured in cage. The study recommended that there be the use of semi-auto feed mill pellet as an alternative of the commercial feed for economically sound cage culture of Labeo rohita that was found to be cost effective. Similary, Karangiya, Savsani, Patil, Garg, Murthy, Ribadiya and Vekariya (2016) researched on how dietary supplementation of garlic, ginger and their combination affects the feed intake, growth performance and economics in commercial broilers. The findings of the study revealed that feed intake of the experimental birds in ginger together with the mixture of garlic and ginger supplemented groups significantly affected higher intake of the feed in comparison to the control. The study concluded that garlic supplementation which was a cheaper feed improves the financial performance of the farmers.

Objective 2: **To examine the effect of poultry equipment on financial performance of selected small scale poultry farmers in Kiambu County Kenya.**

The second objective of the study was to examine the effect of poultry equipment on financial performance of selected poultry rearing farmers in Kiambu County Kenya. Discoveries from the study revealed that there is a positive and significant relationship between poultry equipment cost and financial performance represented by (β=0.746 $p=0.031 <0.05$). These results indicated that an increase in poultry equipment cost led to a 0.746 increase in financial performance. The second null hypothesis that poultry equipment has no

significant effect on financial performance of selected poultry rearing farmers in Kiambu County Kenya was therefore rejected at a 5% confidence level.

The findings were in agreement with Wudhikarn (2016) who conducted a study on the implementation of the overall equipment cost loss methodology for comparison with the effectiveness of the overall equipment. The study established that Poultry equipment constitutes an integral part of poultry farming and hence proper management is key for improved results.

Objective 3: To establish the effect of brooding costs on financial performance of selected small scale poultry farmers in Kiambu County Kenya.

The third objective of the study was to establish the effect of brooding costs on financial performance of selected poultry rearing farmers in Kiambu County Kenya. Result from findings from the study revealed that brooding cost have a significant and positive effect on financial performance, showcased by (β=0.648, p=0.009 <0.05). The result from the findings, therefore, reveals that an increase in brooding cost led to an increase in financial performance by 0.648. The third hypothesis that stated brooding costs have no significant effect on financial performance of selected poultry rearing farmers in Kiambu County Kenya hence was rejected.

The results were in agreement with Segura, Pechenik, Montory, Navarro, Paschke, Cubillos and Chaparro (2016) who conducted a study in the cost of brooding in an estuary with regard to the implications of declining salinity for gastropod females and their brooded embryos. According to the study, pallial cavity isolation in response to low salinity surroundings generated a significant cost of energy for females together with their embryos. The cost was believed to rise as the development of the embryo progressed. Brooding costs are believed to be very high in most parts of world and this has become a major problem to poultry farmers. Hence farmers should properly manage brooding costs since it's a major component of production cost.

Objective 4: To determine effect of medication costs on financial performance of selected small scale poultry farmers in Kiambu County Kenya.

To fourth objective was to determine effect of medication costs on financial performance of selected poultry rearing farmers in Kiambu County Kenya.. Findings from the research revealed a negative and significant relationship between medication cost and financial performance (β=-0.578, p=0.013 <0.05). From the findings, an increase in medical cost led to a decrease in financial performance by 0.758. The study's fourth hypothesis that medication costs have no significant effect on financial performance of selected poultry rearing farmers in Kiambu County Kenya was rejected.

The findings are supported by Shaheen et al, (2019) who conducted a study on the effect of different brooding sources on growth, blood glucose, cholesterol and economic appraisal of three commercial broiler strains in Pakistan. Wekhe, Owen and Amadi (2012) investigated on the medication cost associated with commercial broiler production in the tropics. Tao et al, (2016) conducted a study on the fitness costs of animal medication. According to the study, parasites are believed to have a significant Samanta et al, (2015) evaluated egg production after the adoption of biosecurity strategies by backyard poultry farmers in West Bengal.

Summary of Findings

The general objective of this study is to determine the effect of cost of production on financial performance of poultry rearing farmers in Kiambu County, Kenya. The research utilized primary for all the variables.The

study collected data Kabete Sub-county of Kiambu County in Kenya covering Muguga, Nyathuna and Kabete wards includeing 350 respodents.

The first specific objective was to determine the effect of feeding cost on financial performance of selected poultry rearing farmers in Kiambu County, Kenya.The research's findings discovered a strong and negative effect of feeding cost financial performance of the poultry farming which was significant.

The second specific objective was determined the effect of cost of poultry equipment cost on financial performance of selected poultry rearing farmers in Kiambu County, Kenya. Results findings showed that poultry equipment had a positive and significant effect on the financial performance of poultry farming. An increase in poultry equipment led to an increase in the financial performance.

The study's third goal was determine the effect of brooding cost on financial performance of selected poultry rearing farmers in Kiambu County, Kenya. Findings from the research revealed a positive and significant effect of poultry brooding cost on financial performance. A increase in brooding cost would lead to n increase in financial performance in the same course.

The final objective of the study was to determine the effect of medication costs on financial performance of selected poultry rearing farmers in Kiambu County Kenya. Findings from the study revealed that medicatin cost had a negative and significant effect on the financial performance of small scale poultry farmers in Kiambu County Kenya This indicated that increase in medication cost led to a decrease in financial performance poultry farmers.

CONCLUSION

Discoveries from the findings revealed that cost of production is an important factor in defining financial performance of small scale poultry farming. Findings indicated that feeding cost, poultry equipment cost, brooding cost and medication cost were significant in performance. Notably, feeding cost and medication cost were found to negatively influence the level of performance, while increase in poultry equipment and brooding were found to positively influence performance.

The study also concluded that production cost had a significant effect on the financial performance of poultry farmers. The R-Squared value from the model summary revealed that the study’s independent variable (feeding cost, equipment cost, brooding cost and medication cost) described significant percentage of the financial performance variations in poultry farmers in Kiambu county, Kenya.

RECOMMENDATIONS FOR POLICY AND PRACTICE

Recommendations made for policies and practice were guided by the research findings, discoveries, and conclusions drawn in chapters four and five. Generally, all four research variables were discovered to materially impact the financial performance of small scale poultry farming. The study, therefore, recommends that the farmers seek ways to engage statutory bodies in reducing feeding cost and medication. Specifically the government through the ministry of Agriculture can consider giving subsidies.

The study also recommends that the farmers to consider improving their investments in poultry equipment by adopting new technologies. This is because equipment were found to increase their level of performance positively. Brooding costs especially sales and marketing and networking was also found to improve performance. The study therefore recommends to farmers to seek more networks through collaboration.

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