

POULTRY PRODUCTION PROBLEMS



ASHESI UNIVERSITY COLLEGE

ANALYZING PRODUCTION CHALLENGES PLAGUING GHANA'S AGRICULTURAL
SECTOR: A FOCUS ON POULTRY PRODUCTION IN GREATER ACCRA

By

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May, 2017

DECLARATION

I hereby declare that this undergraduate thesis is my original work and no part of it has been presented for another degree in this university or elsewhere.

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Date: 2nd May, 2017

I hereby declare that the preparation and presentation of this thesis was supervised in accordance with the guidelines on supervision of theses established by Ashesi University College.

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Date: _____

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ABSTRACT

Ghana has abundant viable land and a reasonably well educated population that can support different types of agriculture including crop production and animal husbandry. Unfortunately, in the last several years, the agricultural sector has been performing poorly and poultry production has suffered from liberal trade policies that have exposed it to competition from imported products, forcing an almost exclusive focus on egg instead of meat production. At the birth of the country, the agricultural sector was the main contributor to the nation's economy with cocoa as the dominant foreign exchange earner. However, the contribution of agriculture to GDP has reduced, falling behind the industrial and services sector.

The objective of this paper was to identify and discuss the challenges affecting agricultural production by focusing on the poultry sector. The challenges are then ranked in order of severity using a reliability test known as the Kendall's Coefficient of Concordance in order to make recommendations to help mitigate the problems. The research employed a mixed methodology (both quantitative and qualitative methods) and used primary data gathered from the Greater Accra region, specifically six poultry farms to attain accurate and reliable results. Current significant production challenges in Ghana's poultry sector include: high cost of feed; competition from imported birds; outbreak of diseases; pests; access to finance and power supply. In terms of rank, the top problem is high cost of feed. To enhance poultry production, the NPP government can subsidize feed and focus on building processing plants in its one-district-one factory initiative to provide a market for locally produced birds.

Key words: *Agricultural production, challenges, poultry sector, Ghana*

LIST OF ABBREVIATIONS

ECOWAS - Economic Community of West African States

EU - European Union

FAO - Food and Agriculture Organization of the United Nations

GDP - Gross Domestic Product

PEF - Private Enterprise Federation

USA - United States of America

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Ghana was the first Sub-Saharan African country to gain independence from its colonial masters, the British (Ghana Free Zones Board, 2012). This historic feat occurred on 6th March, 1957 under the leadership of Dr. Kwame Nkrumah, the country's first head of state (The Ministry of Foreign Affairs & Regional Integration of the Government of Ghana, 2013).

At its birth, Ghana was the world's largest producer of cocoa beans (the main ingredient in the manufacture of chocolate) and boasted of one of the highest GDP per capita incomes in the region (Diao, 2010). Ghana's cocoa—dubbed the golden pod—enjoyed a reputation as being the most quality in the world, earned a premium over market price, and was cultivated by small-holder farmers, thus, yielding several high paying jobs to numerous, mostly, rural dwelling Ghanaians and contributed foreign exchange earnings for the nation (Leiter & Harding, 2003).

The country is also involved in both animal production and crop production. The principal crop produce of the country can be divided into three subsectors, namely, the industrial crops (which include cocoa, oil palm, coconut, coffee, cotton, kola, rubber, cashew and shea), the starchy and cereal staples (which include cassava, cocoyam, yam, maize, rice, millet, sorghum and plantain) and fruits and vegetables (which include the likes of pineapple, citrus, banana, pawpaw, mango, onions, tomatoes, pepper and eggplant or garden eggs) (Ministry of Food & Agriculture, 2013).

The animal produce of Ghana can also be summed up as livestock (which includes cattle, sheep, goats, pigs) and poultry (referring to chickens, turkeys, geese and guinea fowls) (Ministry of Food & Agriculture, 2013).

Ghana has two distinct vegetation belts, namely, the Forest and the Savannah, both of which support different crop types. The Forest belt is mainly distinguished from the Savannah through great accumulation of organic matter on the surface horizon due to the slow oxidation of humus. The Savannah belt of Ghana, on the other hand, is less rich in organic matter and covered by grassland. The major soils of the Forest belt are divided into five subgroups all of which are suitable for growing crops (Obeng, 2000).

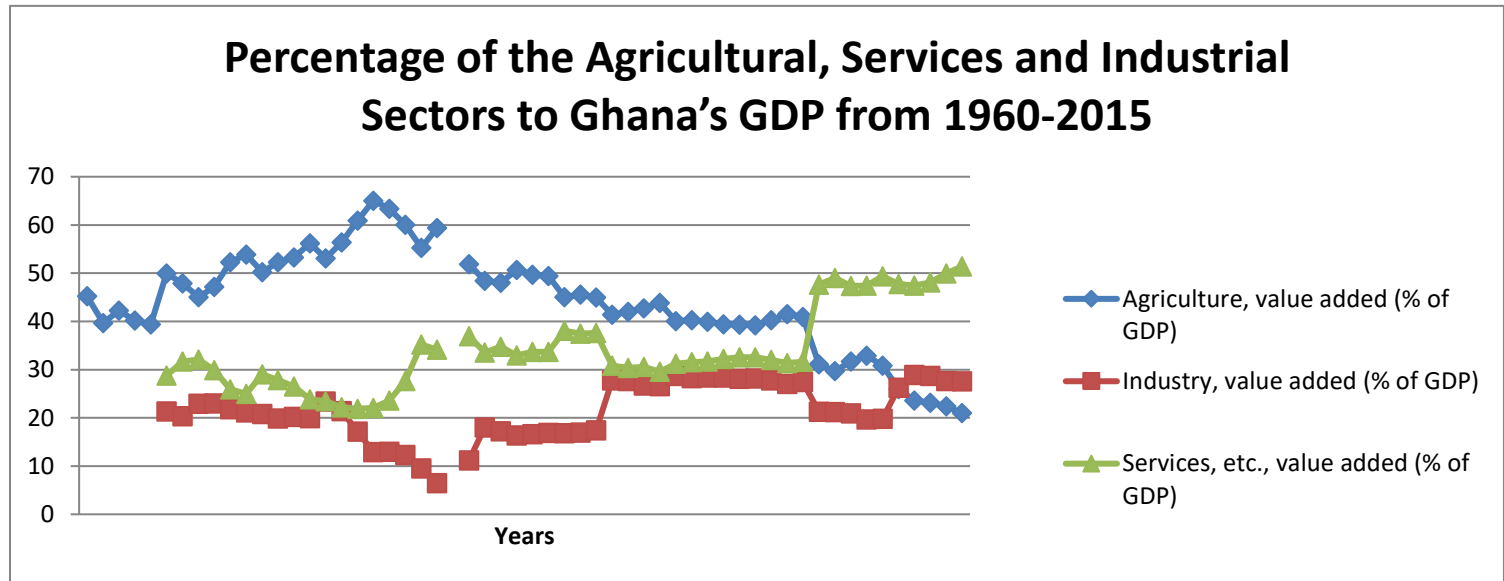
In the immediate post-independence period, the agricultural sector was a key element in building up the economy, contributing 46% to the country's Gross Domestic Product (World Bank, 2016). Within the time frame, of the post-independence period (post 1957) to the current time (2017), however, the sector experienced significant fluctuations rising to a peak in 1978 of which it contributed about 65% to the country's Gross Domestic Product but plummeted to a paltry 21.08% of total Gross Domestic Product in 2016 (World Bank, 2016).

In the 2016 State of the Nation Address, H. E. John Dramani Mahama (2016), the ex-president of the Republic of Ghana, drew attention to the fact that the services sector had surpassed the agricultural sector to become the largest contributing sector to the economy's Gross Domestic Product in the year 2015. He continued that, the industrial sector was now the second largest contributing sector to the economy's Gross Domestic Product with agriculture coming in last. He described this as a shift in the structure of the country's economy from the time it achieved its independence, when agriculture dominated with cocoa.

During the post-independence era of the Ghanaian economy, the agricultural sector was the major contributor to the country's GDP with the services sector contributing 28.8% to the nation's GDP and the industrial sector 21.4% to the nation's GDP in 1965. For the next four decades the ranks amongst the three sectors were maintained, however in 2006, the services sector overtook the agricultural sector, making up about 47.6% of the economy's GDP, to become the highest contributor. The agricultural sector made up about 31.1% of total GDP

with the industrial sector trailing behind, contributing only 21.3% to total GDP. In 2011, the industrial sector surpassed the agricultural sector, contributing about 26.2% to the economy's GDP while the agricultural sector contributed 26% (World Bank, 2016).

Fig. 1 Percentage of the Agricultural, Services and Industrial Sectors to Ghana's GDP from 1960-2015



(World Bank Development Indicators, 2016)

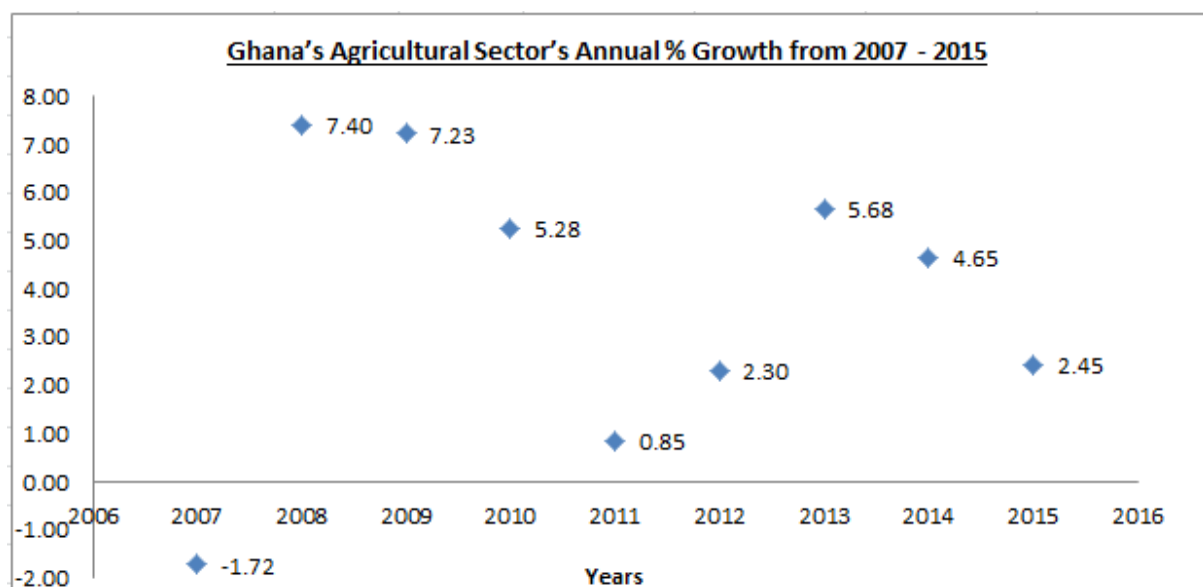
While most countries achieve transformation of their economies from an agrarian to an industrial and ultimately to a service dominated one, the story seems different for Ghana (Boah-Mensah, 2015). Ghana has gone straight from an agrarian economy to a service economy bypassing the all-important industrial sector and all the production skills, high employment jobs and positive linkages that industrial sector development entails.

It is not clear whether such a move from agriculture straight to service is sustainable but a declining agricultural sector is probably problematic for any country with average annual per capita income less than \$2000 (Diao, 2010). This is because the type of service sector jobs may be short lived, low skilled and low paying and often besieged with the problem of low demand leading to recurring unemployment problems. With majority of Ghana's rural

population dependent on long term agriculture, the importance of the agricultural sector cannot be over emphasized. From 2005 to 2006, 60 to 70% of savannah rural households were engaged in livestock stock production while 36% to 39% of coastal and forest households engaged in crop production (Diao, 2010).

Some African countries, including the likes of Ethiopia, have improved their economies using a strategy with the help of agriculture. Agriculture has helped cut poverty for Ethiopians by 7% between 2005 and 2011 (Manala, 2015). In comparison, Ghana's agricultural sector has been suffering from a decline in its annual growth for the last several years. In 2013, the agricultural sector recorded the lowest growth of 5.2% as compared to the remaining sectors in the country (Ghana Statistical Service, 2014). In 2014, the agricultural sector's annual growth rate was worse than the previous year's recording 4.6% (Ghana Statistical Service, 2015). In 2015, the growth rate did not rise but rather fell further to 2.4% despite an almost exact increase in population growth.

Fig. 2 Ghana's Agricultural Sector's Annual Percentage Growth from 2007 to 2015

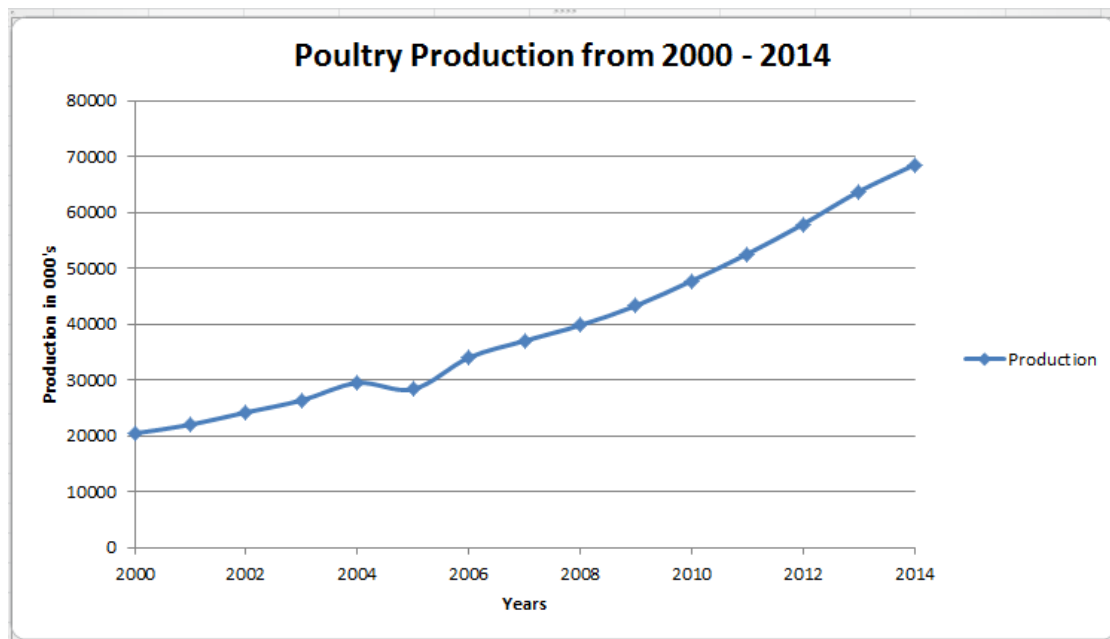


(World Bank Development Indicators, 2016)

1.2 Research Problem

In Ghana's poultry sector, anecdotal evidence seems to point to the fact that almost all birds consumed in Ghana are now imported with the sector focusing almost exclusively on egg production after Ghana's major poultry meat farmers and smaller scale farmers folded up. A related and persistent problem in the agricultural sector is that there is some disconnect between the agricultural research capacity and the actual practice of agriculture. Some poultry farmers are semi-literate and do not apply research results or make much use of limited extension services. Instead, they rely on the knowledge about farming passed down from their ancestors. Poultry farmers in Ghana suffer intensively from competition from heavily subsidized imported birds produced with more expensive modern methods.

There exist some modern commercial poultry farms but they are few and are either on the verge of closing down or have already closed down. The poultry sector, once a promising and a significant contributing sector to animal production and as such the economy of the country, performed well at the turn of the 21st century. From 2000 to 2007 the poultry sector enjoyed an exponential annual growth, especially in the southern regions of the country. Poultry production increased by 80% during the time period stretching from 2000 to 2007 (FAO, 2014), however the sector is plagued with several problems.

Fig. 3 Poultry Production from 2000 - 2014

(FAO, 2014)

The demand for poultry products exceeds the supply with local production falling short below 10% of total demand, however, as encouraging as it might seem for local poultry producers, they continue to struggle for survival (Adjei-Henaku, 2016).

Poultry production, which is mainly practiced in rural communities and in most cases serves as major source of income, continues to be crippled by competition from poultry producers from developed countries. In 2010, Ghana imported about 200,000 tonnes of chicken from Brazil, USA and the EU valued at \$200 million (Bruce, 2011). The imported poultry undercuts the price of locally produced poultry and farmers are unable to compete under such circumstances (Bruce, 2011). The state of Ghana's poultry is also crippled by the fact that about 95% of the industry's market has been overtaken by imported frozen chicken (Frimpong, 2017). Currently about \$300 million worth of poultry is imported into the country, showing an increase in the estimated amount from 2010 (Frimpong, 2017).

With the downward spiral of the agricultural growth rate of the country, it is possible that over the next few years, the challenges affecting the agricultural sector of Ghana can give rise to severe aggravated nationwide issues including poverty and hunger at worst and food inflation at a minimum. However, with the promise from a new government to develop the agricultural sector by initiating the One Village, One Dam Project with help pledged from the Private Enterprise Federation (PEF), a non-profit, non-political and autonomous institution, there is the need to know how to address the particular problems affecting the sector (The Chronicle, 2016).

The research problem this paper seeks to address is to identify and describe the various challenges that hinder poultry production in Ghana's agricultural sector development and undermine its contribution to the nation's economy as a whole. It would focus mainly on some of the challenges affecting poultry production. The study is limited to the Greater Accra region due to ease of access by the investigator and because of the concentration of both medium and small scale poultry farmers in the region.

1.3 Research Questions

For the purpose of this study, the research questions are

1. What are the principal challenges affecting poultry production in agriculture and what is their relative importance?
2. What strategies can be used to improve poultry production in the agricultural sector of Ghana?

1.4 Objectives of the Study

- 1) To identify and rank the main challenges affecting poultry production in agriculture.
- 2) To recommend strategies for improving poultry production in Ghana.

1.5 Research Relevance

The increasing percentage of imported poultry into Ghana is worrisome as it threatens employment and in effect contribution of the sector to the national Gross Domestic Product. This paper investigates the challenges confronting the different aspects and players of poultry production in Ghana's agricultural sector, as such the generated results should interest the relevant stakeholders. The stakeholders include the poultry farmers; small scale and commercial, the consumers for which the poultry products are made for and the governments that make the policies under which the sector is operated.

The result from this paper would create awareness on the subtle things about the poultry industry in the agricultural sector that people take for granted but in fact may be very important. The paper would allow the stakeholders to identify and comprehend the various challenges that plague the industry. The paper also seeks to discover certain opportunities in the industry as well that can be used to mitigate the constraints a potential farmer might face. Information generated from this project should inform sector players on what production or marketing method to employ with poultry products. The research paper would also contribute to the literature by outlining and documenting the challenges that affect the Ghanaian poultry industry and suggesting ways of mitigating these challenges which could be applied to other settings in different areas.

1.6 Organisation of the Study

The paper is divided into five chapters. The first chapter covers the introduction which consists of the background information, the research questions, the research relevance and the objectives of the study. The second chapter covers the literature review consisting of works that have contributed to the literature, which somewhat link to what this research paper proposes to do. The third chapter then covers the methodology, which entails the type of data

being collected and how it would be analysed to arrive at the results. The fourth chapter covers the interpretation of the results obtained from the data collected and the fifth chapter covers the conclusions and recommendations to be made based on the results collated.

CHAPTER TWO

LITERATURE REVIEW

2.1 Background Information on the Poultry Sector

2.1.1 Challenges Facing Poultry Production in Ghana

With the massive influx of imported slaughtered birds into the country, Ghana's domestic poultry industry is struggling to keep up (Banson et al, 2015). The domestic poultry industry is dominated by the backyard production system which accounts for about sixty to eighty percent of the national poultry population.

The big commercial poultry farms now seem to focus on egg production after initially focusing on broiler production, with the small to medium scale farmers, which account for about ninety five percent of poultry farmers, mostly into broiler production. Banson et al (2015) held that local poultry production had fallen significantly below imports forcing farmers to enter alternative businesses due to the uncompetitive nature of the market. Banson et al (2015) also argued that the main problems that affected poultry production were input related and included unannounced electric power outages and inconsistent pipe borne water supply.

Data used in the study was collected from primary sources, through standard interviews, and secondary sources, attributed to the Poultry Unit of the Ministry of Food and Agriculture, the University of Ghana Farms and Abundant Grace farms at Dodowa in the Eastern region of Ghana. The study was also based on the stakeholder theory of organizational management and business ethics which focuses on the values and morals involved in managing an organisation. Banson et al (2015) also conducted the study around peri-urban areas of the Greater Accra Region due to the concentration of both medium and small scale poultry farmers in the region.

In a study carried out in the Dormaa Ahenkro District of the Brong Ahafo Region of Ghana, Kusi et al (2015) argues that the poultry sector is saddled with challenges such as high cost of energy and erratic power supply, high transportation costs, high costs of materials, financial constraints, limited support from the central government, fierce competition from well advanced foreign firms and limited supporting industries in the poultry value chain. He found that the influx of import substituted poultry products in the country negatively affected the local farmers in the region, placing them at a competitively disadvantaged position due to the relatively lower price tags on them.

Kusi et al (2015) employed both qualitative and quantitative methods in the study, using a descriptive survey as the main research design, which was argued to capture the information during the moment in time. The study captured the responses of 87 respondents, gathered through questionnaires, from the Dormaa Ahenkro District in Ghana who were either owners or managers of identified commercial farms. Kusi et al (2010) also argued that the Dormaa Ahenkro district was used as the selected site for the study due to the presence of many poultry famers.

It is established that livestock farming in Ghana is an important occupation that supplements the incomes of smallholder farm families. Nonetheless, poultry farming, a livestock-based vocation, has assumed an important role as a commercial activity with enormous potential for rapid economic growth, however, the industry is beset with many problems.

Anang et al (2013), similar to most studies, identified that the poultry industry is beset with the inability to acquire financial assistance. Poultry producers were unable to cope with high cost of production. They suffered in securing loans and other forms of finance for investing in their businesses. The farmers were also unable to cope with the high cost of feed, as a result they sought other unscrupulous sources for feed, which resulted in low output for

the birds and even death in some cases. Unlike other studies, carried out in the same locality, Anang et al (2013) also argued that the birds were also stolen from the farms which in effect reduced total output. Data analysed, was done so using the Kendall's Coefficient of Concordance which helps in ranking the set factors presented and measuring the degree of agreement between the respondents. Data used in the study by Anang et al (2013) was also collected from primary sources which included six poultry farms from the locality through the use of questionnaires.

Comparatively, Adei et al (2012) also carried out similar research in the Dormaa District of the Western Region of Ghana to uncover the challenges facing poultry production. However, the research takes the form of a case study because Adei et al (2012) argued that the results are based on real life situations. It also employs the cross sectional approach because it examines the relationships between the variables identified. Adei et al (2012) findings revealed that the farmers in the region continued to lose revenue from the sale of the poultry birds because of the inadequacy of markets for live birds especially after festive seasons. This situation presides due to the competition faced from the importation of relatively cheaper (and most likely less healthy) frozen birds into the Ghanaian markets. The imported chicken is likely to be less healthy compared to chicken produced in Ghana because while most Ghanaian poultry ventures were smaller scaled with often low density similar to free-range production, imported chicken likely came from developed countries (USA, EU, Brazil and China) where chickens are often injected with chemicals and raised in tight places to maximize maturity in the shortest possible time.

Adei et al (2012) determined from the research that diseases affecting the birds were also a serious challenge that hindered the growth of the poultry industry in the area, which could be attributed mainly to the surroundings of the birds. The study also revealed other challenges including: persistent increases in prices of inputs; the absence of poultry

processing machines and inadequate access to credit. Further, the poor state of logistical and human capacities of key institutions that directly influenced the activities of farmers in the district inhibited the ability of the industry to meet growing demand for poultry products. Adei et al (2012) collected data from both primary sources, based on interviews using semi-structured questionnaires and secondary sources, such as Dormaa District Assembly, Ministry of Food and Agriculture (MOFA), Veterinary Services Division, Poultry Farmers' Associations and other relevant legislative framework and publications. The sample was collected using the purposive, proportional and stratification and the simple random sampling method.

Noteworthy, poultry meat, specifically, as argued by Atuahene et al (2010,) is also the fastest growing component of the global meat demand. Like most other studies have proven, it has and continues to be a very important contributing sector in agriculture with major impact on income generation in both the rural and urban economy of the country, nonetheless, the industry is plagued by many problems that stagnate its growth and development. Atuahene et al (2010) argued that the major challenge faced by the poultry industry is that of management and decision making. Most famers rely solely on knowledge obtained from the traditional system of rearing the birds, which is not the best. The birds are usually raised on a free range system of production, exposing them to diseases and pests. Some farmers also leave their businesses in the hands of relatives and in some situations in the hands of friends, who may neglect the certain important operations that are of high importance such as feed formulation and vaccination, leading to infertility and low grate of the birds.

Atuahene et al (2010), like many others, also argued that the Ghanaian market is flooded with cheap imported poultry products from the European Union, the United States of America and Brazil. These imported products have reduced the demand for local poultry,

threatening the lives of many poultry farmers in small, medium and large scale poultry farming in Ghana.

Inadequate capital to finance the business is another problem that farmers in the poultry industry. Atuahene et al (2010) established that the cost of financing a poultry business is high. Financial institutions, such as banks, that provide capital for farmers needed to finance their businesses are sometimes reluctant to do so and as such make it difficult to expand poultry production. The few ones that tend to provide capital for the farmers do so at high interest rates. The high costs of the inputs such as feed and medicine needed to cater for the birds, coupled with the inability to secure capital makes poultry farmers abandon the industry for other lucrative businesses. Other noteworthy problems raised in the paper include the transportation of the birds from long distances in order to be sold. The birds usually die from heat stress and weakness during the journey, as such farmers have to give consumers who purchase from them extra birds to compensate for the any losses during transportation. High transportation costs lead to reduced profits of the farmers.

2.1.2 Challenges Facing Poultry Production in Other African Countries: Nigeria

The poultry industry has witnessed a steady growth level in Africa recently (Oosthuysen, 2013). It continues to be a huge contributor to the economies of some African countries, providing income and employment for people in those regions. The largest poultry meat producers are South Africa, Egypt, Morocco, Nigeria and Algeria, producing steadily on a yearly basis, 1.5 million metric tonnes, 680,000 metric tonnes, 560,000 metric tonnes, 268,000 metric tonnes and 254,000 metric tonnes respectively (Oosthuysen, 2013). With Nigeria, about 10% of the abled population is engaged in poultry farming, either on a small or medium scaled basis (Adebayo & Adeola, 2005). Poultry farmers in Nigeria typically practice the traditional free range system which requires low input, with the few commercial farms practicing the intensive systems mostly in the southern states of the country (Adeyemo

& Onikoyi, 2012). Nonetheless, when comparing national poultry production figures with the amount of birds, processed and unprocessed, held in these countries, contrasting levels of efficiency become apparent (Oosthuysen, 2013).

The poultry sector in Nigeria is laden with many constraints that prevent small scale producers from migrating to commercial production (Adeyemo & Onikoyi, 2012).

Comparatively, Adeyemo & Onikoyi (2012) determined that the cost of feed for birds in Nigeria is high (much like the situation in Ghana). The study revealed that poultry farmers did not have the necessary funds to purchase quality feed for the birds. As a result, they relied on cheaper, less quality feed. The less-quality feed is produced using poorly processed raw materials and handled inappropriately. The consumption of such feed is detrimental to the health of the birds which in effect might increase mortality.

Adeyemo & Onikoyi (2012) also argued that the poultry farmers in Nigeria did not have easy access to veterinary services. Most farmers in the country, who are constricted in the rural areas, find it had to access veterinary services for the birds because they (veterinary services) may either be few in the locality or non-existent. As a result, adequate care cannot be given to birds of such farmers. However, in peri-urban and urban areas, the situation is quite different. Veterinary clinics and officers are readily available to the farmers, however, they hesitate to avail themselves to utilise these services because they cannot afford the financial implications that come with it.

The study also determined that the poultry sector in Nigeria suffered from fierce competition from imported birds. An attempt to cover the demand deficit for poultry meat has left local poultry farmers struggling to compete with imported cheap poultry products. The demand for poultry products far exceeded local supply, as such importation of poultry products was encouraged to meet the demand, however, the exercise was not supervised

properly, spiralling out of control to the point at which the locals find it hard to sell their produce because the imported products are cheaper.

In a study carried out by Adebayo & Adeola (2005), many large scale operators in the Nigerian poultry industry have been forced out of business. The industry is gradually becoming unattractive with farmers abandoning their businesses and entering into new lines of work. Adebayo & Adeola (2005) determined that the poultry industry was bombarded with problems including, but not limited to, the inability to acquire capital to finance the business, high cost of feed and inadequate access to extension and veterinary services. Running a Spearman correlation test on responses obtained from 80 poultry farmers in the Ejigbo Local Government of Osun State in Nigeria, the study revealed that finance and the ability to access inputs for farming significantly affected poultry production. Like Ghana, the farmers did not have access to credit facilities or were either not granted loans from financial institutions. On occasions where the farmers were granted loans the interests they were to pay were extremely high.

The study also highlighted that government policy as well as infrastructural facilities had a positive relationship with the average poultry production in the community. This meant that when government policy was favourable to farmers, poultry production increased. It also meant that production increased when farmers had access to better infrastructural facilities for housing the birds.

According to Oladdebo & Ambe-Lamidi, (2007) as cited in Adetayo et al (2013) the development of the poultry industry can be described as the fastest means of closing the protein deficiency gap in most developing countries. However for a country like Nigeria, in the Ibadan Oyo State, diseases and pest attack has set the poultry sector back. Adetayo et al (2013) held that small scale poultry farmers were not able to identify the symptoms of diseases early enough to prevent the outbreaks. This in effect leads to the death of birds on

farms, decreasing the total output of poultry production in developing countries. The farmers relied heavily on knowledge passed down from generation to generation and failed to utilise the services of limited extension officers.

Adetayo et al (2013) opined that poultry farmers were also faced with the inability to access loans and financial assistance. Poultry farmers, mostly constricted in rural areas, did not have the access to loans and as such struggled to run their businesses smoothly. The study also held that poultry farmers that had access to financial assistance failed to secure loans from the institutions on the basis that they (financial institutions) either did not want to do business with them (the farmers) or provided the loans at high interest rates.

The high cost of feed was also a major constraint that prevented the poultry industry from expanding. Poultry famers were unable to obtain quality feed for their birds because it was very expensive. As such, Adetayo et al (2013) held that they relied on cheaper feed which lacked quality ingredients for feed formulation. On the other hand, farmers that were able to purchase quality feed could not keep more birds. There was a trade-off between the number of birds held and the amount of quality feed held.

2.1.3 Challenges Affecting Agricultural Development in Ghana and other African countries

Binswager-Mkhize (2009) argues that there are challenges and opportunities for African agriculture and food security that account for the low economy wide and agriculture-specific growth rates of African countries. His argument encompasses areas specifically addressing the challenges such as climate change, HIV/AIDS and population growth. Binswager-Mkhize (2009) focuses on a sample of Sub Saharan African countries and compares similar challenges that affect their agricultural sectors. Binswager-Mkhize (2009)

employs quantitative methods in analysing the data acquired from the study which is a similar method employed by most papers. Binswager-Mkhize (2009) arrived at the conclusion that climate change, which was likely to affect most African regions negatively, would open up opportunities where rainfall and climate would improve. The paper also concluded on the fact that African agriculture was lacking behind in technology advancement, as well as on the note that although the continent had a large number of agricultural scientists, research institutions and agricultural education, the numbers represented were donor dependent and underfunded.

The works of Middleberg (2013) and Binswager-Mkhize (2009) are similar because the challenges identified are related. Middleberg (2013), however, uses a different approach in analysing the data to attain the results. Middleberg (2013) employs document analysis, which is a type of qualitative research, to evaluate and review academic research articles and reports and accordingly is best for conducting the type of research undertaken. Middleberg (2013) identifies the challenges affecting the South African agricultural sector to include climate change, food security at affordable pricing and poor agricultural practices.

Nchuchuwe & Adejuwon's (2012) research paper argues similarly but is different from the other papers because not only does it address the challenges affecting the agricultural sector, but also focuses on rural development. The paper considered Nigeria as its population and narrowed down the sample to the rural areas in the country. Nchuchuwe & Adejuwon (2012) paper shares similarity with others as it emphasises the challenges facing the agricultural sector of the country with the use of secondary data gathered. The paper presented by Nchuchuwe & Adejuwon (2012) is different in the sense that it reports just what has been found in the literature of other papers. This in turn acts as a limitation or weakness

to the research conducted because it does not go in depth to find gaps in those papers it reported on and try to solve them. Nchuchuwe & Adejuwon (2012) concluded that Nigeria's main agricultural problem stemmed from adopting agricultural mechanization strategies enacted by the government and international institutions who paid little attention to the interests of local farmers.

Asafo- Adjei (2013) also discusses the challenges that affect the agricultural sector of Ghana but does so from the perspective of peasant farmers in the country. Unlike most papers, Asafo-Adjei (2013) research paper is based on the theories of profit maximization, utility management and Risk Aversion. Asafo-Adjei (2013) uses Ghana as its population and inhabitants of Aowin Suaman District in the Western Region of Ghana as its sample. Asafo-Adjei's (2013) paper is similar to the others because it is concerned with finding the challenges that affect the agricultural sector. However, the challenges found are unlike the others in the sense that they are grouped into three sections; managerial, technological and marketing challenges, which are then ranked in terms of severity. Asafo-Adjei's (2013) paper also employs the use of factor analysis techniques in arriving at its results. Although the paper is accurate in the process of arriving at its results it is flawed in the sense that it uses one district, made up of 400 respondents as its sample, to make a conclusion for all the districts in the country.

Phiri et al (2012) adds to the literature but takes a different approach. The paper is aimed at finding the challenges incurred for raising agricultural productivity. The paper identified some of the challenges to include bad weather conditions, poor and unimproved crop varieties, poor crop management practices, insects, pests and diseases, technological barriers, environmental externalities, increasing population pressure on land and poor soil fertility. These challenges identified were specific to Malawi. Phiri et al (2012) base the research conducted on empirical evidence much like the research to be conducted in this

paper. The paper also analyses the data using qualitative information gathered through Expert Opinion interviews and quantitative information gathered from secondary data sources available in the country.

Abrha (2015) contributes to the argument that there are challenges affecting agricultural production, specifically the Tigray region of Northern Ethiopia. Ethiopia, a country whose economy has been improved through agriculture (Manala, 2015) still has problems affecting the sector. The paper was tasked with finding the outlying determinant factors for agricultural production and its impacts on income of farm households. It employed the mixed methods research. Primary data was gathered with a cross sectional survey design which employs the use of questionnaires and interviews while secondary data was gathered and analysed using the document analysis. The paper argued that the major factors affecting agricultural production in the region included technology, credit market, rural infrastructure facilities and soil and climate conditions.

2.2 Conclusions

The review shows that there are many challenges affecting poultry production in agriculture, both in Ghana and other African countries. Comparing Ghana and Nigeria, the poultry production problems are similar. The problems that also affect a country's agricultural sector might be similar to those of another country's agricultural sector. The research paper to be developed is based on the empirical literature developed in the review because all the papers share similarities in terms of the challenges affecting agriculture

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This section covers the methodology detailing all techniques to be used in analyzing the data to arrive at the results. It encompasses the research design which describes the type of research the paper aims to carry out. It also covers the research scope which includes the type of data to be collected, the study area for which the research would be conducted and sampling strategy implemented in the study. This section also details the various methods of data collection, processing and analysis implemented in the study.

3.2 RESEARCH DESIGN

The research paper intends to implore the mixed-methods design in its analysis. The mixed methods research design is one that employs both quantitative analysis, which uses descriptive and inferential statistics and qualitative analysis which produces expressive data that provides narrative details to examine the research objectives outlined (Hughes, 2016).

Most papers that relate to the topic tend to employ the use of either quantitative analysis or qualitative analysis, however the research being undertaken will resort to use qualitative data in collecting information regarding the challenges affecting poultry production while the quantitative data would be used to rank the challenges in terms of severity in order to make recommendations on which requires immediate attention.

3.3 RESEARCH SCOPE

3.3.1 Data Type

Data collected for the study was primary data gathered through surveys and questionnaires from poultry farms.

3.3.2 Study Population

The population for the research study engulfed all poultry farms in the Greater Accra Region of Ghana.

3.3.3 Study Area

Data gathered for the research was collected from the Livestock and Poultry Research Centre and five poultry farms. The poultry farms comprised of Susie Farms, Asron Farms, Sarbet farms, Ewusie Farms and Bensel Farms.

3.4 SAMPLING STRATEGY

3.4.1 Sampling Techniques

The research paper also implores a convenience sampling method. This method is employed because it would be easier to reach the correspondents and collect data for the research to be undertaken.

3.4.2 Sample Sizes

In collecting qualitative data, a sample of twenty farmers was interviewed from the Livestock and Poultry Research Centre. A sample of seventy three farmers from five farms was later gathered to collect the quantitative data for the research being conducted.

3.5 DATA COLLECTION

3.5.1. Data Collection Instrument

The tools used in the data collection process include questionnaires for collecting quantitative data and interviews for collecting qualitative data.

3.5.2. Data Collection Procedure and Processing

Primary data, covering poultry production, for the research was collected using interviews based on structured interviews guides designed to address the issues raised in the objectives of the paper.

Based on the information acquired from the interviews, questionnaires were structured to collect quantitative data on the challenges affecting poultry production. The questionnaires were designed using a Likert scale approach to enable the respondents rank the problems or challenges faced, from the most challenging to the least challenging. The data collected was processed by coding the data in Microsoft Excel to allow for further analysis of its content.

3.6. DATA ANALYSIS

Data used in the study was strictly primarily, obtained for both qualitative and quantitative analysis. Interviews were conducted with farmers and experts in poultry production from the Livestock and Poultry Institute regarding the problems farmers are likely to face in poultry production. The responses obtained were analyzed qualitatively using content analysis. Content analysis is a research technique used to make valid conclusions by interpreting and coding textual material or data (University of Georgia, 2012).

The problems obtained from content analysis were used to structure questionnaires which provided the farmers the ability to rank the problems in order of the most pressing to least pressing. The data gathered from the questionnaires were coded into a form that could be

understood by Microsoft Excel software. The Kendall's Coefficient of Concordance was then used to analyze the data. The Kendall's Coefficient of Concordance is a statistical tool that allows data gathered from a number of responses to be ordered or ranked. The statistic test used to bolster the analysis and address the null hypothesis was the P-Value test together with the chi-squared test.

3.7 LIMITATIONS OF THE STUDY

Progress regarding the study was hindered by the unavailability of abundant information. This problem arose due to the fact that prominent large scale commercial poultry farms in the Greater Accra Region had closed due to bankruptcy and the unavailability of markets for their produce. The information gathered was from small and medium scale poultry famers who suffered from different challenges due to one reason or another.

CHAPTER FOUR

DATA ANALYSIS

In the mixed methods research design due to the vast amount of data gathered, the study was divided into two stages; the first stage covering qualitative analysis and the second stage covering quantitative analysis, to allow for efficient analysis and reporting of the results acquired.

4.1 QUALITATIVE ANALYSIS

The first stage of the research was aimed at answering the research question “What are the principal challenges affecting poultry production in agriculture and what is their relative importance?” In depth interviews were held with famers and a Poultry Expert from the Livestock and Poultry Research Institute. The data analysed presented insight into the participants’ dealings with poultry production and as such the constraints a potential farmer is to face in the industry. The striking findings obtained from the interviews shows that the constraints raised by a farmer were similar to those raised by other farmers.

High Cost of Feed

Feed is an important factor in the poultry industry, covering about 60% of the total cost of production (Dateh, 2013). Quality is essential when it comes to feed, and as such can be the distinguishing component between developed and underdeveloped birds. Quality feed is an important factor in the growth and development of the birds, nonetheless, it is expensive, thus, making it difficult for farmers to acquire to ensure higher productivity in the industry. The high cost of feed is a major problem in the poultry industry. This leads farmers to purchase less quality feed (that may have gotten that way due to the extended periods of storage, and as such, are on the verge of going bad) which is cheaper than quality feed. This

might lead to poor development of the birds or mortality which in effect reduces productivity in the industry. A poultry expert from the interviews conducted reflected,

Farmers may go in to buy feed that has been kept for a long time and as such sold at a cheaper price. An example is fishmeal. Feed acquisition for the birds is also a major problem faced in the poultry industry. In some cases, a farmer may give the birds chick starter for two weeks, instead of a designated period of four weeks, and lay their feed with normal grains for the remaining period during their early years of development. The chick starter is very expensive and difficult to acquire for the birds. This may cause poor development and growth for the birds and in some cases lead to death.

Poultry feed includes but is not limited to fishmeal, soyabean meal, chick starter and finisher (containing concentrates), which is high in proteins and energy. However, poor quality feed purchased from local manufacturers is not laden with the right mix of concentrates which may be harmful to the birds. This is similar to the findings of Anang et al (2013) who argued that the farmers in the Dormaa District were faced with problems relating to high cost of feed, thus, leading them to purchase feed from cheaper and unscrupulous sources which in turn led to the poor development of the birds, or death in extreme situations. A study conducted by Adeyemo & Onikoyi (2012) in Nigeria also showed that poultry farmers could not purchase high quality feed because it was very expensive and as such resorted to cheaper substitutes which led to poor growth and development of the birds and in extreme cases mortality.

Outbreak of Diseases and Pests

Outbreak of pests and diseases is another problem that affects poultry production and slows down the growth of the industry. Since the birds live closely to each other, especially with most commercial poultry businesses that practice the intensive and semi- intensive

system of rearing poultry, the spread of diseases and pests on the farms is easy and quick. For example, if a bird is infested with pests or infected with a disease and is not isolated on time or better precautionary measures are not taken to ensure the safety of that bird or the rest of the birds on that farm, the effects might be detrimental to the farm. This observation or assertion run through most of the responses obtained from the interviews conducted with the farmers. The diseases and pests prevalent in most farms do not stray from the common diseases prevalent in other poultry farms in other parts of the country or the world at large. Some of the diseases include, but are not limited to, Newcastle Disease, Coccidiosis, Gumboro, Chronic Respiratory Diseases (CRD), Equalizer and Diarrhoea. Some prevalent pests also include fleas, ticks, chicken mites and the housefly. An example of a participant's response is illustrated below.

When the farm is free from diseases and pests, it is likely that you would retain about 95% of the total amount of birds on the farm, however when even a single bird is infected with a disease, say Gumboro or even New Castle, especially during the early stages of production, the farm may suffer devastating losses due to deaths of the birds if proper precautionary measures are not taken.

Comparatively, Adei et al (2012) noted from his research that pests and diseases were a serious problem that affected the birds, hindering the growth of the poultry industry at large. Adei et al (2012) argued that the presence of pests and the causality of diseases could be attributed to the dirty surroundings of the birds. The study also showed that a farm could suffer losses if better precautionary measures were not taken on time.

Inadequate Finance

Finance is also another serious problem hindering the growth of the poultry industry. The poultry business is capital intensive, therefore a farmer without the necessary funds to

fuel the business is doomed for failure. Most financial institutions feel reluctant to conduct business with farmers on the basis that the farmers are not able to provide enough collateral for the loans they take in cases where they default in payment. On the other hand, when financial institutions decide to do business with poultry farmers they tend to charge high interest rates on the capital they provide. This makes it difficult to expand production in the poultry sector. For example the poultry expert advised,

Finance is a very important factor in the business. For instance it takes between eight to nine weeks for broilers to fully mature to be able to be sold on the market. It is therefore important to always make sure that they always have good quality feed and receive the right medicines to improve upon their growth. Money is used to finance all these things and so it becomes a problem when the farmer does not have enough to run the business. The financial institutions such as the banks, sometimes feel reluctant to provide loans to small scale farmers.

The problem of finance has been raised by most papers in the literature review. Comparatively, Kusi et al (2015) argued that poultry farmers were beset with financial constraints that hindered production and expansion of the industry. Similarly, Anang et al (2013) argued that the poultry industry was faced with the inability to secure financial assistance from financial institutions to invest in the business, leaving farmers to cope with the high cost of production of the birds on their own.

Competition from Imported Birds

Intense competition from imported frozen birds continues to cripple the poultry industry in Ghana. Major poultry farms in the Greater Accra region have either closed down or are not producing at full capacity. The imported birds exported from the European Union, Brazil and the United States are sold at cheaper prices than the locally produced birds, as such, causing customers to prefer the imported ones. This threatens the livelihood of most

poultry farmers who depend on the proceeds from the sale of the birds to cater for themselves and their families. A respondent voiced out,

The imported frozen birds continue to destroy our business. Nowadays, it is difficult to sell your produce because people are not interested in buying local birds. The only times business is good is during the festive seasons like Christmas and Easter.

Another respondent in the person of the poultry expert also reflected,

In Ghana, about 95% of the poultry consumed in the country is not produced locally. This is destroying the local poultry industry causing prominent farms, like Afriwaa, to shut down.

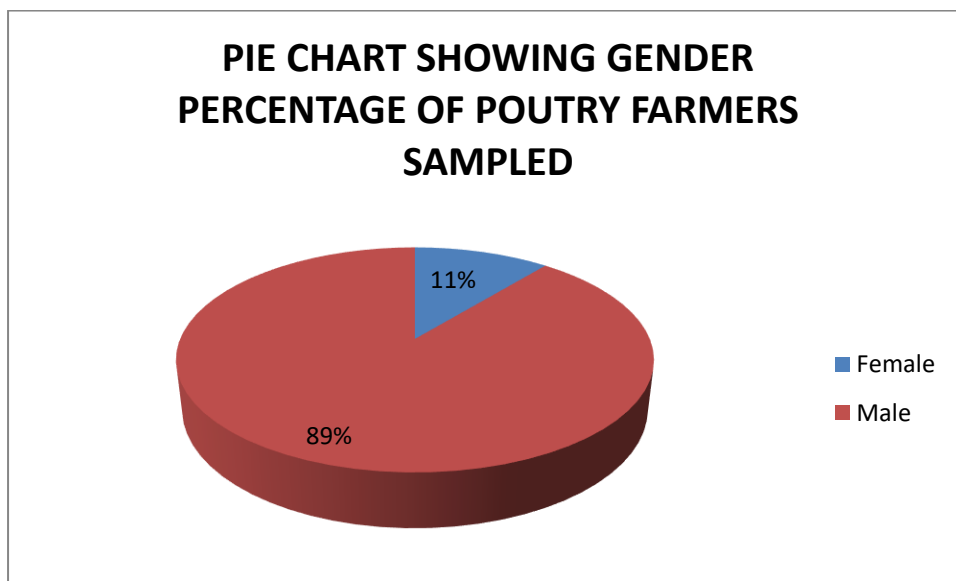
Comparatively, Atuahene et al (2010) noted that importation of frozen birds from the European Union, Brazil and the United States has reduced the demand for locally produced poultry products, thus, threatening the livelihood of farmers in the industry. Banson et al (2015) also held that the imports of frozen birds from foreign countries had significantly exceeded local production causing local farmers to enter alternative businesses. Kusi et al (2015) equally held that the local poultry industry was crumbling due to the fierce competition from well advanced countries that exported their products to Ghana.

4.2 QUANTITATIVE ANALYSIS

The quantitative data analysed was done so to answer also the research question “What are the principal challenges affecting poultry production in agriculture and what is their relative importance?” It specifically aimed to rank the constraints identified from the qualitative analysis and test the null hypothesis, H_0 , there is no agreement between the respondents against the alternative hypothesis, H_1 , the respondents agree with each other.

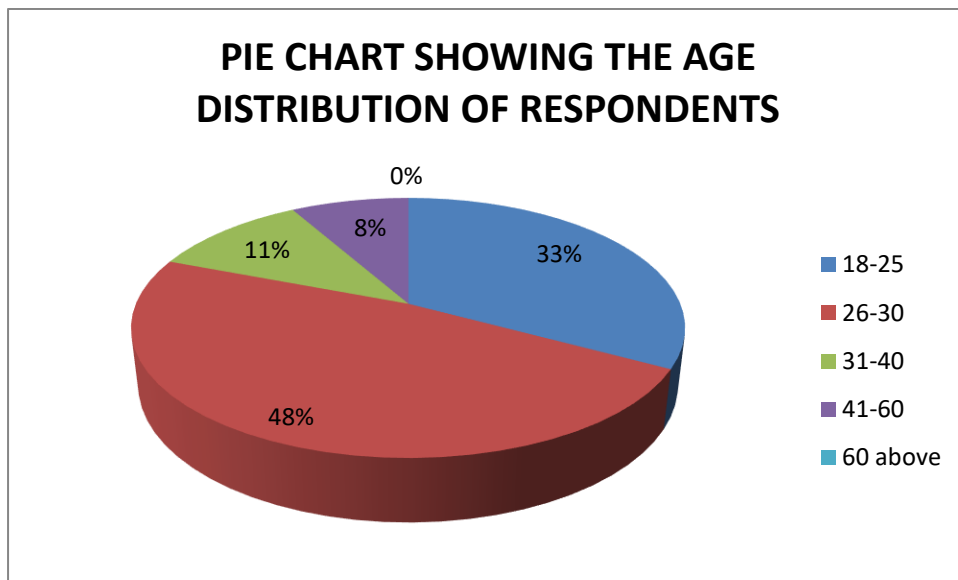
The data gathered was obtained from seventy three respondents from five poultry farms. Out of the respondents sampled, females represented 11% with males representing 89%. This showed that more males were involved in poultry production than females, summarised in the figure below.

Fig. 4 Gender Distribution of Poultry Farmers Sampled



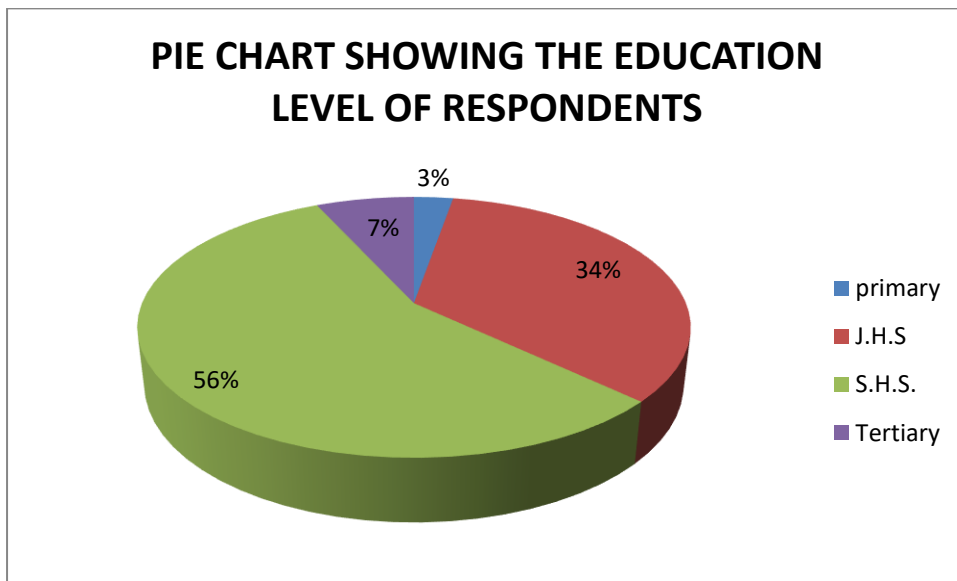
Data Source: Field Data

The data also gathered, regarding the age distribution of the farmers, indicated that 48% of the respondents were between the ages of 26 to 30 years, 33% were between the ages of 18 to 25 years, 11 % were between the ages of 31 to 40 years, 8% were between the ages of 41 to 60% and none was above 60 years. More young and abled-bodied people in the region based on the sampled collected were involved in poultry production with about 81% of the respondents between the ages of 18 to 30 years old. This is represented in the pie chart below.

Fig. 5 Age Distribution of Respondents

Data Source: Field Data

From analysis of the data obtained from the questionnaires distributed, 56% of the respondents had completed Senior High School, 34% of the respondents had their final educational level being Junior High School, 7% of the respondents were Tertiary Graduates and the remaining 3% having their final education level as primary school. Majority of the respondents were either Junior High School leavers who did not attend Senior High School or Senior High School leavers who could not obtain a Tertiary Education. This is represented in the pie chart below.

Fig. 6 Education Level OF Respondents

Data Source: Field Data

4.1.1. Ranking of the constraints

The constraints that affected poultry production were identified to include: the inability to obtain financial assistance or the inability to finance the business; difficulty in controlling pests; difficulty in controlling the outbreak of diseases; inadequate power supply to the farms; high cost of feed and the high competition from imported birds into the country. The constraints were ranked using the Kendall's Coefficient of Concordance with equation

$$W = \frac{12S}{m^2(n^3 - n)} \text{ where}$$

(W) = Kendall's Coefficient of Concordance,

(S) = $\sum_{i=1}^k (R_i - \bar{R})^2$, sum of squared ranks from the mean

(m) = number of judges or variables

(n) = number of constraints or items being ranked

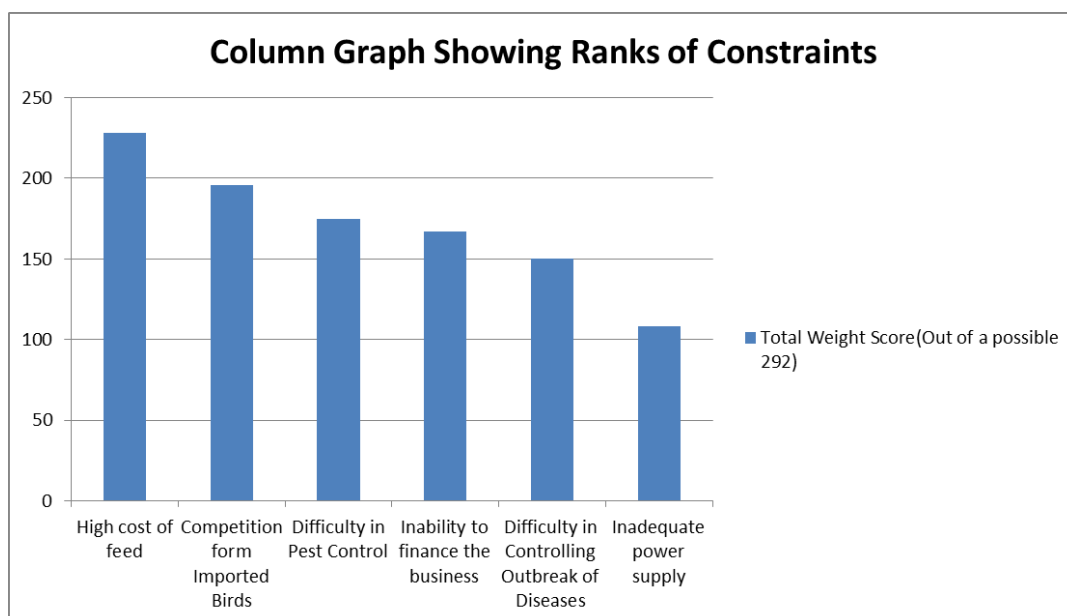
The constraints were ranked on a Likert scale from 1 to 4, with 1 being not a challenge, 2 being challenge, 3 being a severe challenge and 4 being a very severe challenge. The results of the data are shown in the table below.

Table 1 Rank of Challenges Affecting Poultry Production in terms of Severity

Challenge	Rank	Total Weight Score(Out of a possible 292)
High cost of feed	1 st	228
Competition form Imported Birds	2 nd	196
Difficulty in Pest Control	3 rd	175
Inability to finance the business	4 th	167
Difficulty in Controlling Outbreak of Diseases	5 th	150
Inadequate power supply	6 th	108

Data Source: Field Data

Fig. 7 Ranks of Constraints



Data Source: Field Data

The most pressing constraint of the respondents was identified to be that of high cost feed. The feed used in catering for the birds, which was important to their growth and development, was expensive to acquire and as such the farmers, in most cases sought to purchase cheaper feed without the right mix of ingredients and concentrates from local suppliers, which was poor in quality and in most cases could lead to mortality of the birds.

The second most severe constraint that the farmers faced was high competition from imported frozen birds. This challenge has run in previous studies carried out in the field as one that has severely hindered the poultry industry. With 95% of Ghana's poultry market dominated by imported frozen birds, local manufacturers suffer and as such appealed to the government to ban the imports of frozen birds (Aryee, 2016).

However, although the government has placed a 35% tax on imported poultry through the ECOWAS Common Tariff arrangement, it has not changed the current situation on the ground. The problem still persists because the poultry produced in the country is sold in the live market, with a low proportion moving through the processing channel, thus fuelling the urge to import more frozen chicken into the country (Yeboah, 2016).

The Kendall's Coefficient of Concordance is a reliability test used specifically in rankings of a set of variables. The calculated Kendall's Coefficient of Concordance (W) calculated was 0.36, indicating that only 36% of the respondents were in agreement with the ranking of the constraints outlined. With the chi-squared test, rejection of the null hypothesis is eminent when the calculated chi squared value is greater than the critical chi-squared value at the specified significance level. The calculated chi-squared value was 129.4504. With a degree of freedom of 5 at significance level of 5%, the critical chi-squared value was 16.750. Since the calculated chi-squared value is greater than the critical chi-squared value we reject the null hypothesis, H_0 . The calculated p-value of the test which was 3.11E-26 is less than the significance level of 0.05. Since the rule of rejection entails we reject when hypothesis when

the p-value is less than the significance level, we reject the null hypothesis that there is no agreement between the respondents in the study. The reliability test, specifically, the Kendall's Coefficient of Concordance showed that the problems facing the farmers were distinct to the farms they worked with and as such a constraint that was very severe to one farm was not the same with another farm.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 KEY FINDINGS

The Ghanaian poultry industry contributes significantly to the country's agricultural sector, nonetheless it is beset with many challenges that hinder its growth and development. About 95% of the country's total consumption of poultry products is imported from the United States, the European Union and Brazil. Development in the Ghanaian poultry sector is hindered by problems which include: high cost of feed; intense competition from imported frozen birds; difficulty in control pests; financial constraints; difficulty in controlling outbreak of diseases and inadequate power supply.

From a total of seventy three farmers selected from six farms, high cost of feed was ranked as the most severe problem that affected the poultry industry in Greater Accra with a total weight score of 228 out of a possible 292.

The second most severe problem that the poultry industry faced was fierce competition from imported frozen birds that had a total weight score of 196 from a possible 292.

The third most severe challenge that poultry farmers faced was the difficulty in controlling pests that scored a total weight score of 175 out of a total possible 292

The fourth ranked challenge was the inability to finance the business with a total weight score of 167 out a possible 292, with the fifth ranked challenge as the difficulty in controlling the outbreak of diseases scoring 150 out of a possible 292. Inadequate power supply was the sixth ranked challenge with a total weight score of 108 out of a possible 292.

Most of the challenges that affected Ghanaian poultry farmers run parallel across other poultry farmers in other parts of Africa, specifically Nigeria.

5.2 RECOMMENDATIONS

The government of Ghana should subsidize the cost of feed for poultry farmers. With a government keen on improving the agricultural sector it should try as much as possible to focus some of its efforts on the poultry sector. The government can divert some of the funds allocated to the agricultural sector into subsidizing the cost of feed for poultry farmers. This would make the feed affordable and as such enable farmers purchase quality feed and concentrates to improve development and growth of the birds.

The previous government, the National Democratic Congress, helped place a 35% tax on imported chicken through the ECOWAS Common Tariff arrangement to allow the local poultry grow. However, the problem still persisted because the birds produced in the country were sold in the live market with a low proportion moving through the processing channel. With the emergence of the “one district, one factory” campaign by the current government, funds could also be allocated to establish poultry processing factories to process the live birds.

More extension officers need to be trained to be able to cater for the number of farms in the Greater Accra region. These extension officers would be better equipped to educate illiterate and semi-literate farmers on better ways of caring for the birds. This in turn would curtail the problem of pests and diseases outbreaks.

Financial institutions should consider doing business with poultry farmers as well as reduce interest rates on the loans they give out. The poultry industry is a growing one in the agricultural sector, as such it provides profitable opportunities for expansion for farmers.

Financial institutions not only would they help farmers' businesses and the economy grow but would also profit from the interests paid from farmers.

5.3 CONCLUSIONS

The study reveals that the poultry industry in Ghana is beset with challenges such as financial constraints, high cost of feed, fierce competition from imported birds, difficulty in controlling pest and disease outbreak and the inadequate supply of power. These problems are very severe.

With the aid of the Kendall's Coefficient of Concordance, a reliability test tool, about 36% of the respondents were in agreement with the rankings of the constraints. The study also concludes that if these challenges are addressed, poultry productivity and its contribution to the agricultural sector and the economy, at large, is sure to increase.

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APPENDICES

Appendix 1

QUESTIONNAIRE

This questionnaire is designed to collect information regarding the challenges facing poultry production. Participation in this research is voluntary and the responses recorded are highly confidential. All responses received are very important to this study.

Please indicate

1. Gender

- ☐ Male
- ☐ Female

2. Age

- ☐ 18 – 25 years
- ☐ 26 – 30 years
- ☐ 31 – 40 years
- ☐ 41 – 60 years
- ☐ 61 and above

3. Education Level

- ☐ Primary
- ☐ J.H.S
- ☐ S.H.S
- ☐ Tertiary

NB: Please tick one box from each row

Indicate the severity of the following production factors as challenges to you

Key: 1=not a challenge, 2= a challenge, 3= a severe challenge, 4= a very severe challenge

Challenge	1	2	3	4
Inadequate financial assistance				
Difficulty in pest control				
Outbreak of diseases				
Inadequate power supply				
High cost of feed				
High competition from imported birds				

Appendix 2**Proposed Interview Questions**

1. How old are you?
2. What is your level of education?
3. Are you married?
4. How many children do you have?
5. Are you a local farmer from the area or did you migrate from another region in the country?
6. How big is the farm?
7. How long have you been a poultry farmer?
8. What problems do you encounter in poultry farming and how long have you been encountering them?
9. Do you have any suggestions on how to solve the problems?