ECONOMIC ANALYSIS OF POULTRY PRODUCTION

IN KWARA STATE

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UNDER THE SUPERVISION OF

MR.IGE R.K

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CERTIFICATION

This is to certify that the research work was carried out by **DHIKRULLAHI TAOFEEK OLAMILEKAN** with Matric No: 17012505007 in the Department of Agricultural Science, Tai Solarin College of Education, Omu-Ijebu, as completed his Project in Partial Fulfilment of the Requirement of the Award of Nigeria Certificate in Education (N.C.E) in AGRIC DM.

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MR R.K IGE **Date**

Supervisors Signature

DEDICATION

This project work is dedicated to almighty God, the author and the finisher of my faith, the God who knows the plan he has for me, the plan to prosper and not to fall.

I also appreciate my loving parents MR and MRS DHIKRULLAHI for their support financially towards my N.C.E programme.

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Mummy **(DHIKRULLAHI KIKELOMO)** you gave every care a child need from his / her mother, you encourage and give me hope when other hope were lost.

Mummy, you went further and work extra mile for making me somebody today. Mum my prayer this day is May almighty God grant you long life and prosperity in good health to eat and reap the good fruit which you have sown.

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ABSTRACT

The main purpose of this research work is to investigate. This study investigated the Economic Profitability of Poultry Production in Kwara State. To analyse this, an econometric method of multiple regression model was adopted, data were collected Kwara State based on the hypothesis formulated for this study. From the result of the work, I found that Economic Profitability of Poultry Production in Kwara State is concerned with the presentation of analysis and the interpretation of data collected during the distribution of the questionnaires of the study. The major problems of Economic Profitability of Poultry Production in Kwara State is the wide spread hunger and malnutrition are evident in the country. Poultry meat and egg offer considerable potential for bridging the nutritional gap in view of the fact that high yielding exotic poultry are easily adaptable to our environment and the technology of production is relatively simple with returns on investment appreciably high. Animal scientists, economists and policy makers are of the opinion that the development of the livestock industry is the only option for bridging the protein deficiency gap in Nigeria's diets.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

One of the major challenges facing most developing countries is the satisfaction of the ever-increasing demand for calories and protein. Most African diets [Nigeria inclusive] are deficient in animal protein which result in poor and stunted growth as well as increase in spread of diseases and consequently death (Yusuf and Malomo 2007)

Animal protein sources include fish, egg, poultry meat, beef, milk, beacon, pork and mutton. They are delicious but not readily affordable. The common sources accessible to Nigeria populace are frozen fish, beef and poultry products [egg and meet]. Most farmers produce poultry especially in Kwara state Nigeria, however, the level of the productivity still remain local and small- scale.

Poultry is a sub-sector in the livestock industry constituting a major component of the agricultural economy. The sector provides animal protein to the populace as well as employment for a considerable percentage of the population. According to FAO Report (2010) poultry comes fourth among sources of animal proteins for human consumption in Nigeria and contributes about 10% of the national meat production. Poultry business is attractive because birds are able to adapt easily, have - high economic value - rapid generation time and - a high rate of productivity that can result in the production of meat within eight weeks and first egg within eighteen weeks of the first chick being hatched.

Okoli et al., (2004) revealed that 85% of rural families keep small ruminants and local fowls primarily as an investment and sources of manure or meat at home or for use during festivals. In spite of this, livestock production is still not keeping pace with the protein requirements of the rapidly increasing Nigeria population. Demand is more than supply. Since the responsibility of any civilized government is to provide adequate food and assure an atmosphere free from hunger and malnutrition, the Federal Government of Nigeria placed a ban on importation of frozen chicken and turkey parts to encourage massive poultry production locally [Agricultural Transformation Agenda 2012]. This policy has encouraged many investments in poultry production in Nigeria. It has therefore, becomes a full time job for many and is considered to be a commercially viable enterprise

Considering poultry production as a commercially viable business, the knowledge of farm management demands economic measurement of profitability of such venture with the utmost aim of guiding the farmers in the appropriate use of resources/combination to maximize profit and encourage

potential entrants to increase output and bridge the gap between national demand and supply of animal protein. This study is therefore analysing the economics of poultry production in Kwara state

1.2 STATEMENT OF RESEARCH PROBLEM

In Nigeria, livestock production has not been able to keep pace with the animal protein demand. The FAO recommends that the minimum intake of protein by an average person should be 65gm per day; of this, 36gm (i.e 40%) should come from animal sources. Nigeria is presently unable to meet this requirement. The animal protein consumption in Nigeria is15gm per person per day (Tijjani et al.,2012) which is a far cry from the FAO recommendation. As a result of the above, wide spread hunger and malnutrition are evident in the country. Poultry meat and egg offer considerable potential for bridging the nutritional gap in view of the fact that high yielding exotic poultry are easily adaptable to our environment and the technology of production is relatively simple with returns on investment appreciably high. Animal scientists, economists and policy makers are of the opinion that the development of the livestock industry is the only option for bridging the protein deficiency gap in Nigeria's diets. The need to meet animal protein requirements from domestic sources demands intensification of production of meat and eggs derived from prolific animals like poultry birds

Apart from been a major source of protein in the country, poultry production has also been recognized as one of the quickest ways for a rapid generation of income. Ojo (2003) analysed cost and returns of commercial table egg production in Osun state, he reported that egg products has a mean value of N2, 158,162.53 with a net return of N1498.88 per bird. Similarly, Ibrahim et al.,(2009) in his findings revealed average net farm income of N85,558.30 with a return on capital invested of about 40%. In another report, Tijjani et al., (2012) showed that gross revenue and net farm income realised from poultry egg production in Maiduguri are N10, 5000.00 and N5, 540.00 respectively, thus, poultry egg production business was said to be highly profitable.

This study is also investigating the economics of poultry production in Kwara state with the view of encouraging prospective investors in poultry production which will not only reduce the gap between demand and supply of poultry products but will equally improves the livelihood of the people in the state.

This Study therefore provides answers to the following research questions:

i. How profitable is the poultry production in the study area?

ii. What are the factors contributing to the output of poultry production in the study area

1.3 OBJECTIVES OF THE STUDY

The major objective of this study is to determine Profitability of Poultry Production in Kwara State. The specific objectives are to:

i. estimate profitability of poultry production in the study area.

ii. identify the factor contributing to poultry production in the study area

1.4 JUSTIFICATION OF THE STUDY

Poultry production is commonly practiced on most farms but the profitability of such venture is questionable. This study is out to investigate the cost and returns to poultry production to enable farmer to see the advantages that poultry offers as a means of making money.

This research also aims to encourage anyone who is interested in poultry production. It result will not only show the lines likely to be most profitable, It will also point out those branches of the business not likely to be remunerative, except under special conditions.

Poverty reduction is one of the Nigeria's policy challenges inhibiting the overall development of the country's economy. Intensification of poultry production which has been recognized as one of the quickest ways for a rapid generation of income will go a long way to solve the problem.

1.5 LIMITATIONS OF THE STUDY

During the course of the research, many challenges are faced the major problem encountered was in the collection of data from target population due to the rumour of bird fluid disease the respondents were reluctant and do not want to be visited in their farm. The farmers do not allow farm visit which would have made the collection of data to be easy, methods like distribution of questionnaire to respondents and waiting for many days for reply was employ and also distribution through corporative society etc.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter will review literature related to the study, it will focus on poultry production, poultry management, problem facing poultry production and solution to the problems, economics of poultry production and analytical techniques used in economics of poultry production.

2.1 POULTRY PRODUCTION

The term "poultry" in agriculture generally applies to a wide variety of birds of several species including chicken, guinea fowls, pigeons, ducks, geese, turkey, swans, peafowl, ostriches, pheasants, quails and other game birds kept for eggs or meat production (Alders, Robyn). Chicken (*Gallus domesticus*) is the most common poultry dominating the small holder poultry production systems of Africa hence, it is sometimes considered synonymous with poultry. The domestic fowls (chickens) belong to the order "*Galli*" it originated in the tropical countries of the world, therefore birds from any country in the world can be easily introduced to the tropics with little difficulty of adaptation (Mgbakor Miriam Ngozi and E. Nzeadachie Chinonso 2013).

Commercial hybrids (layers and broilers) all over the world are being propagated for production of eggs and meat. The hybrid layers usually start laying, at about 20 weeks of age and peak egg production is attained during the first production cycle. The average production rate of commercial layers usually remains very close to 0.9 eggs per day (Ashagidigbi *et al.,* (2011)).

However, as the age increases, their egg production decreases. This situation is further aggravated during the second production cycle. Appetitive behaviour of hens is also affected during the later stage of production age. The climatic conditions have also been known to affect the production behaviour of the laying hens (Ashagidigbi, W.M, S.A. Sulaiman and A. Adesiyan (2011)). In areas where climate is hot and humid, commercial hybrids produce an average of 180 200 eggs per year, while in more temperate climate, birds can produce between 250 and 300 eggs per year. The production cycle of eggs may also be influenced by many other factors such as breed, mortality rate, body weight, laying house lightening schedule, feed and culling (Spielman, D.J. & Pandya-Lorch, R. 2009.).

After one year of production, layers are culled and used for meat purpose without exploiting their full inherent potential, which can be exploited up to second production cycle (Spielman, D.J. & Pandya-Lorch, R. 2009). The factors like diseases and market rates usually reflect a miserable picture of annual flock replacement while rearing new pullets for profitable egg production.

Moreover, keeping aged hens as such is uneconomical because of gradual decline in egg production with more erratic clutch cycles and poor feed efficiency in the relatively heavy layers. Therefore, pullets and spent layers must be managed effectively and efficiently in order to get maximum output and profitability (Beutler, 2007). However, very little research work has been conducted under local climatic conditions in Pakistan to exploit the production potential of spent layers.

Over the years there have however been human interventions on the natural habitat through domestication and research which have resulted with different management systems. This manipulation on the natural habitat is simply as a result of rise in the standard of living of Nigerians, which consequently makes the call for high demand for eggs and poultry-meat become substantial because most people cannot raise their own poultry. Essentially there are three (3) main prevailing management systems in Nigeria. The term "poultry" in agriculture generally applies to a wide variety of birds of several species including chicken, guinea fowls, pigeons, ducks, geese, turkey, swans, peafowl, ostriches, pheasants, quails and other game birds kept for eggs or meat production (Binuomote *et al.,* (2008).

2.2 POULTRY MANAGEMENT

The aim of management is to provide the conditions that ensure optimum performance of the birds (Alabi and Aruna (2006)). Given reasonable conditions, broody hens are very successful at hatching their chicks, but good hatchability using artificial incubation (both large and small) relies on careful management of temperature, humidity, ventilation, position and egg turning. During incubation, the egg loses water vapour through its shell. The rate of water loss depends on both the shell structure and the humidity of the air surrounding the egg. The quality of the hatch also depends on the age and health of the breeder flock, and on the evenness and cleanliness of the eggs set. (Bell and Weaver, 2001)

Housing management

Improvements to poultry housing systems in developing countries have focused on providing an environment that satisfies the birds' thermal requirements. Newly hatched birds have a poor ability to control body temperature, and require some form of supplementary heating, particularly in the first few days after hatch. Many developing countries are located in tropical areas where minimal heating is required. Indeed, the emphasis in these countries – particularly for meat chickens – is on keeping the birds cool. (Bell and Weaver, 2001)

Health management

Health programmes are planned and implemented with an emphasis on preventive measures in accordance with veterinary recommendations, and it may include but is not limited to vaccination, parasite control, medication, vermin control, hygiene, health status sampling, and bio security. Health problem are diagnosed with reference to all symptoms and signs, and checked against specialist advice where doubt exists. (Bell and Weaver, 2001)

Litter materials and management

Broiler litter is the material used as bedding in poultry houses to absorb faecal waste from birds and to make the floor of the house easy to manage. Common litter materials are wood-shavings, chopped straw, sawdust, shredded paper and rice hulls, and a wide range of other materials are used in different regions around the world. Litter should be light, friable, non-compressible, absorbent, quick to dry, of low thermal conductivity and – very important – cheap. After use, the litter comprises poultry manure, the original litter material, feathers and spilled feed. The litter quality in a shed is determined by the type of diet, the temperature and the humidity. The recommended depth for litter is between 10 and 20 cm. Sawdust can result in high dust levels and respiratory problems. Dust particles in the litter capable of causing health problems in the birds are derived from dried faeces, feathers, skin and litter; their adverse effects arise because they carry or incorporate bacteria, fungi and gases. (Bell and Weaver, 2001)

Management of lighting

Poultry have seasonal and daily biological rhythms, both of which are mediated by light, particularly day length. For day length to exert its controlling effect, there needs to be a dark phase (night) when light levels should be less than 0.5 lux. Day length and light intensity during the breeder bird's life have an important role in development of the reproductive system. The difference in day lengths and light intensities between the rearing and the laying phases is the principal factor responsible for controlling and stimulating ovarian and testicular development (Lewis and Morris, 2006). The response to increases in day length and lighting intensity depends on the body weight profile during rearing, which in turn depend on the nutritional regime. The effects of light are predominantly on the rate of sexual maturation and egg production.

The two types of artificial lighting commonly provided are incandescent and fluorescent. Incandescent globes are cheaper to install, but have lower light efficiency and a shorter life. Fluorescent lights are three to four times as efficient and last about ten times as long, but have variable performance in cold weather. The colour of the light rays has an effect on chickens' productivity. For example, green and blue lights improve growth, and lower age at sexual maturity, while red, orange and yellow lights

increase age at sexual maturity, and red and orange lights stimulate egg production. Birds are calmer in blue light, so blue lights are recommended for use during depopulation in commercial operations. (Lewis and Morris, 2006)

Lighting programmes for broilers*:* Lighting programmes for commercial broiler operations vary widely from company to company, and depend on the strain of bird used, the housing type (naturally ventilated versus controlled-environment), the geographical location and the season. Where light can be excluded from sheds, birds are typically reared under low-intensity (5 to 10 lux) lighting, to keep them calm and to prevent feather pecking. During early brooding, 25 lux is used to stimulate feeding. (Lewis and Morris, 2006)

Lighting programmes for layers and breeders*:* Light is critical for the onset and maintenance of egg production. Increasing day length (from winter to summer) during the rearing period stimulates the onset of sexual maturity, whereas shortening day length (from summer to winter) has the opposite effect. Early onset of lay may not be beneficial as it may predispose to reproductive problems. Where artificial lighting is possible, a constant day length (of between 12 to 16 hours per day) during the rearing period has been shown to result in a delayed onset of lay, and is the preferred rearing treatment. Shortening day length or too little light will discourage egg production, and must be avoided once the birds are in lay. (Lewis and Morris, 2006)

Ventilation management

All poultry houses need some form of ventilation to ensure an adequate supply of oxygen, while removing carbon dioxide, other waste gases and dust. In commercial operations, minimum ventilation is often practised in colder climates, but not generally in tropical ones (Glatz and Bolla, 2004). In large-scale automated operations, correct air distribution can be achieved using a negative pressure ventilation system. When chicks are very young, or in colder climates, the air from the inlets should be directed towards the roof, to mix with the warm air there and circulate throughout the shed. With older birds and in warmer temperatures, the incoming air is directed down towards the birds, and helps to keep them cool. Evaporative cooling pads can be placed in the air inlets to keep birds cool in hot weather. Tunnel ventilation is the most effective ventilation system for large houses in hot weather.

Tunnel ventilation*:* These systems are popular in hot climates. Exhaust fans are placed at one end of the house or in the middle of the shed, and air is drawn through the length of the house, removing heat, moisture and dust. Evaporative cooling pads are located at the air inlets. The energy released during evaporation reduces the air temperature, and the resulting airflow creates a cooling effect, which can reduce the shed temperature by 10 °C or more, depending on humidity. Maximum evaporation is achieved when water pumps are set to provide enough pad moisture to ensure optimum water evaporation. If too much water is added to the pads, it is likely to lead to higher relative humidity and temperatures in the shed.

Poultry production represents a very large and diverse. There are many facets of production, and hence many areas that are potential concern for the welfare of the animals involved. These areas may include, among others, housing of laying hens, beak trimming, toe clipping, spent hen disposal, molting of laying hens, feed restriction, lighting programs, growth rates and resulting effects of chicken and turkey broilers, transportation, pre-slaughter management, slaughter, and handling (Ismat *et al.,* (2009)). While research is actively being conducted in methods to improve welfare in most if not all of these areas, recommendations for present management schemes is to have producers ensure they are making the most of the research that has already been completed, using the best management practices that are possible.

2.3.0 PROBLEM FACING POULTRY PRODUCTION AND POSSIBLE SOLUTIONS

2.3.1 SITE EFFECTS ON POULTRY PRODUCTION

The type and intensity of poultry production and its development opportunities largely depend on site effects. Site effects are expressed through the importance of seasonal differences, the interactions between poultry and crop production, and the access to services and markets. Seasonal factors such as the differences between dry and wet seasons or winter and summer influence the availability of feed resources, the occurrence of diseases and the need for housing.

The distance of the producer from market affects the availability of inputs and services for production and the opportunities and ways of selling products. This is expressed in the relative importance accorded to poultry production for either food security or income generation. **(**Alders, R.G. & Pym, R.A.E. 2009)

2.3.2 DIVERSITY OF MANAGEMENT INTERVENTIONS

The performance of family poultry production depends on the type of genetic resources; feeding practices; the prevalence of diseases, prevention and control; the management of flocks and the interactions among these factors. Different combinations of these factors result in diverse production conditions.

Diseases of economic importance that result in high mortality for chickens are Newcastle disease (ND) in all regions and fowl cholera in Southeast Asia. The major concerns for ducks are duck plague and duck cholera. The most successful control programmes against these diseases in family poultry have involved vaccination by community vaccinators or poultry workers (Alders *et al.*, 2010).

Important management interventions include the adjustment of production cycles to seasonal patterns and the provision of shelter or confinement. Temporary or full confinement is used to have better

control over the management of birds and to reduce losses from theft or predators. Experiences from South Asian countries show that adoption of good practices of poultry management can significantly contribute to an improvement of farmers' livelihoods (SA PPLPP, 2010).

2.3.3 INPUTS, OUTPUTS AND EFFICIENCY

Depending on the production system and its intensity, the inputs into family poultry production can include different levels of feeding, housing, healthcare, labour and the birds themselves. These inputs can be valued either in terms of their direct cost or their opportunity cost.

The main outputs from family poultry production are food for home consumption, either in the form of poultry meat or eggs, and income from the sale of these products. In Asia, family poultry manure is used as feed for fish when poultry are raised on top of the ponds as part of an integrated system, for example, fish-cum-duck farming. Poultry also plays important social and cultural roles in the lives of rural people, not least for building social relations with other villagers. Ritual use of poultry is found on all continents and local breeds have a specific role in this respect. (Rushton, J. 2009)

2.3.4 CHICKEN DISEASES AND CAPACITY OF VETERINARY SERVICES

High mortality, often due to Newcastle disease, is a disincentive for owners to invest in improving their poultry raising activities. Other common diseases are fowl cholera, duck plague, internal and external parasites, and highly pathogenic avian influenza (HPAI). It is important to ascertain whether sufficient animal health services exist, including: qualified veterinary staff and vaccinators, means of communication, cold chain and transport availability, animal health education, and sale and control of veterinary medicines at national, regional and village level. (Alders, R.G., Bagnol, B. & Young, M.P**.** 2010)

2.3.5 FEEDING AND FEED SUPPLY

Inadequate and poor quality feed resources can make any expansion of the poultry sector impossible. The ready availability of commercial feed can be an important requirement for the promotion of semi-intensive production, and is essential for intensive family poultry production. (Sonaiya, E.B. 2006)

Table 2.1 showing technical constraints and intervention required for poultry production(**IFAD.** 2009)

Constraint	Intervention required
Genetic limitation or specific needs identified	Introduction of improved indigenous (and, if necessary, exotic) breeds and advice on special management
Feed as a limitation to increased flock size	Supplementation with locally available feed ingredients in combination with complete confinement, and regular provision of feed and water.
Disease risk	Disease control, biosecurity, improved sanitation and vaccination
Limited production and high demand	Upgrade to semi-intensive or intensive poultry production with housing
Marketing or inputs limits potential benefits and expansion of activity	Advice on egg handling and storage; training of farmers in flock management and live bird and egg marketing
Need for inputs to upgrade poultry production	Microfinance and access to credit
High costs and need for greater efficiency	Institutional development
Need for improved knowledge and practices	Training and extension
Policy limitations	Creation of a favourable policy environment

2.3.6 CHOICE OF APPROPRIATE STOCK FOR EACH PRODUCTION SYSTEM

Genetically "improved" specialized meat or egg-type chickens are widely available in developed and developing countries, and are used by the large majority of large-scale commercial poultry producers and companies. These birds have been bred exclusively for meat or egg production and require high-level inputs in terms of nutritional and health management to express their genetic potential. These birds are typically three or four-way crosses between "sire" and "dam" lines selected for different aspects important for either meat or egg production. General-purpose indigenous breed birds are ubiquitous in the rural regions of nearly all developing countries. In contrast with the above specialized "breeds", these birds have, for the most part, considerably lower genetic potential for meat and egg production, but are able to survive, reproduce and produce meat and eggs in the often harsh, semi-scavenging village environment. There is, however, significant variation in productivity between the various indigenous breeds and ecotypes across different regions, within and between countries, and indeed in the climatic and nutritional environments typically experienced by the birds. In addition to these two types, a number of dual-purpose breeds/crossbreds are available in certain regions. These have been bred exclusively to express relatively good meat and egg production under moderate climatic and nutritional management conditions, rather than the optimal conditions required by specialized meat and egg types. Commercially layers developed from imported parent stock have the capacitymore than 300 eggs per year, while indigenous hens often lay only 40 to 60 eggs (FAO, 2010a).

To achieve a laying rate corresponding to more than 300 eggs per year, under confinement housing, a commercial layer hen requires something like 100-110 g per day of a high-quality layer diet

containing 11.7 MJ metabolizable energy, 180 g crude protein and 35 g calcium per kg. The typical scavenge-able feed resource base would provide only a fraction of this, which means that these birds are unsuitable for un-supplemented extensive production systems, if reasonable productivity is required. (Cahaner, A. 2008)

2.3.7 FEEDS

A regular supply of feed, over and above maintenance requirements, is essential for improved productivity in all four family poultry systems. Careful attention should be paid to ensuring adequate and balanced feed resources. When feed resources are scarce, it is preferable to maintain a few birds in production than more birds without sufficient food for production. A list of feed resources available to family poultry producers was compiled from surveys undertaken in the Asia and Pacific region (Cahaner, A. 2008) and in Nigeria ((Olukosi, O.A. & Sonaiya, E.B. 2003).

Commercial feeds

A common recommendation is to use commercially manufactured feed. However, many farmers find this too costly and the supply irregular. In Malaysia, small flocks of poultry are fed on “domestic feed”, a reduced-price feed marketed by feed millers with a lower “nutrient density”6 than commercial broiler diets. Such “feed dilution or extension” takes many forms, including the use of lower density feeds such as grower feed for producing hens; and skip-a-day feeding where the recommended feed type is used, but not provided every day. The most common method is to purchase “pre-mixes”. These usually contain protein, vitamins and minerals, to which basal feed ingredient(s) is added as necessary. In fully commercial operations, the basal ingredients will be food grains (yellow maize, guinea corn, wheat, rice, oat, millet), tubers (cassava, yam, potatoes) or plantains.(Olukosi, O.A. & Sonaiya, E.B. 2003)

2.3.8 BIOSECURITY

Bio-security risks and requirements vary according to the production system involved. The range of bio-security measures that can be promoted when developing poultry projects include: segregation measures (confinement, controlling contacts with other birds, introduction of healthy birds only), cleaning (shelters, equipment, clothes and shoes) and decontamination measures. As family poultry includes small-scale intensive, semi-intensive and extensive production systems, the bio-security issues to be addressed must be tailored accordingly. Investing in adequate bio-security practices remains difficult for small-scale intensive poultry producers with low profit margins, especially with huge fluctuations in feed prices. Lack of access to information and education, mainly for women, continues to result in households and producers that are unfamiliar with the germ theory of disease and the science behind good nutrition and poultry husbandry. For a new project to effectively address bio-

security issues, it will likely require communication and education components as well as a participatory approach to the development of a bio-security plan. As small-scale non-industrial intensive and traditional household poultry production may occur side-by side within one village, a cooperative, community approach may be needed to develop effective, realistic bio-security measures (in the case of free-roaming birds, in particular, the whole village becomes the epidemiological unit). Bio-security does not start or stop at the household or farm gate. It is important to consider bio-security along the whole value chain, including in live bird markets and between markets and the producer's home. **(**Ahlers *et al.* (2009) and FAO (2008))

2.3.9 Housing and other infrastructure

Housing and other infrastructure requirements vary considerably depending on the production system concerned. The basic requirements for poultry housing are space, ventilation, light and protection. Poultry houses provide shelter from predators and bad weather, and can improve poultry production. They also assist with easy handling of birds if individual treatment or vaccination becomes necessary. Care must be taken to use designs and materials that do not promote infestations of internal and external parasites and the transmission of infectious disease agents. Villagers value their poultry, but most are left to fend for themselves under completely free-range conditions. The chickens find their own feed and water, breed at random, lay their eggs where they find it suitable to do so and raise their chicks on their own. Villagers slaughter or sell their chickens only when necessary and, in many regions, eggs are not collected for sale or consumption, but rather left for the hen to hatch. Housing for semi-intensive family poultry production systems builds on the efficiency of SFRB by adding the provision of supplementary feed to complement its deficiencies, improved housing and transport facilities to get increased numbers of birds to market. To promote cost efficiency, poultry houses including nests should be designed for local conditions and use local materials. Small chicks should be kept with their mother at night in a "night basket", a conical cage with a floor. A night basket may be made from bamboo or thin pieces of wood. Dry cut straw, rice husks, sawdust or shavings of 8-10 cm depth can be used as litter. In the morning, the chicks should be removed from the night basket and kept in a day basket. The basic requirements for poultry housing for small-scale intensive poultry production are well covered in the FAO technical guide on small-scale poultry production (FAO, 2004a). The guide also provides guidance on appropriate nests, perches, feeders, waterers and brooders. Designing housing for small-scale intensive poultry production is challenging, as it must meet bio-security standards within a capital investment level that can be justified by the scale of operation. In addition to poultry housing, pest-proof storage areas for supplies such as feed and areas for support personnel to change or wash their boots and clothes are also required. As the birds are constantly enclosed, they are unable to supplement their diet by scavenging. This means that the

producer must provide 100 percent of their feed and water. The feed must be nutritionally balanced according to the type of bird being raised (e.g. age and breed) and free from microbial contamination. Feed must be stored in an area where it cannot be interfered with by rodents or wild birds (which can introduce disease agents) or become moist (to prevent fungal growth). For example, pigeon droppings have contaminated poultry feed and led to outbreaks of ND in chickens ingesting the contaminated feed. Aflatoxins ingested on moist grain will greatly reduce the productivity of birds and cause immunosuppression in those that consume it. **(**Dolberg, F**.** 2008)

2.3.10 MARKETING AND VALUE CHAIN DEVELOPMENT

Value chain development

Family poultry can contribute to income generation only where appropriate value chains are present. Value chains are groups of people and processes through which a commodity is supplied to the final consumer. Incentives, information and other formal and informal linkages connect the people involved in the chain. Understanding the value chain is vital to building the basis for sustainable interventions and value chain development. A variety of tools from different disciplines are available to identify and analyse the various components of the value chain. The chosen assessment and intervention approach for poultry value chains should be guided by the objectives of the intervention or project. In general, poverty reduction and income generation projects focus on increasing output, product prices and traded volumes for producers. Many development projects have also been conducted to reduce the risk of disease transmission among poultry and between poultry and humans. These interventions are more likely to be sustainable if incentives such as increased income generation are ensured.

Further, establishment of a new value chain or changes to existing value chains requires the identification of companies and entrepreneurs able to overcome the financial and social costs. Development projects can contribute to this process, but should be careful not to crowd out entrepreneurial activity. Rigorous and multi-disciplinary value chain analysis plays an important role in ensuring the sustainability of such projects. **(**Saleque, M.A. 2007)

Marketing

In many instances, family poultry production is not the main household income-generating activity, and formal marketing links for production inputs and outputs are generally non-existent. However, in many countries well-established informal trading networks supply the majority of live chickens and ducks, as well as eggs. The absence of developed poultry sectors in combination with consumer taste preferences for local breed's results in a premium price for native birds, driving the demand for native breeds raised in family poultry production systems. If consumers prefer to buy live birds to ensure freshness and disease freedom, then marketing will be organized in a way that ensures live bird trading along the entire value chain. Considerable transport costs occur from the collection of birds from relatively small native chicken flocks in rural areas. Only a few birds are ready for sale from a single-family poultry flock at any point in time. Therefore, self-marketing of birds in urban centres by members of family poultry-producing households is often not profitable. Collection of larger batches and transport by live bird traders may be the only option to ensure access to higher value markets. The absence of competition and other marketing options for rural farmers can result in information asymmetry and exercise of market power between family poultry producers and traders. However, traders face considerable collection and transport costs in rural areas. (Gausi, J.C.K., Safalaoh, A.C.L., Banda, J.W. & Ng'ong'ola, D.H. 2004)

2.4 ECONOMICS OF POULTRY PRODUCTION

(Beutler, A. 2007), defined poultry production as an aspect of agriculture that generally deals with rearing of birds for meat and egg production; Turkeys, Chickens, Geese, Pigeons, Ostrich etc are different kinds of poultry. But Nigerian local poultry farmers are mostly interested in chicken. This aspect of agriculture is an attractive business which provides huge income throughout the year and generates quick and continues return.

Poultry production plays a major role in food security for the rapidly growing human population. It is a high economic activity in Nigeria′s moral communities.

(Dolberg, F. 2008) refereed to poultry production as all species that render economics service to man. This service includes: provision of poultry meat, eggs and feathers

Narahari (2002) said that modern fowl probably originated from four wild species namely: Gallus gallous; Gallus lafayeter; Gallus sonnerati; Gallus various and their origin is tropical and this account for the comparative ease with which modern breed can be introduced or transferred to any tropical country.

But Nigerian local poultry farmers are mostly interested in chicken. This aspect of agriculture is an attractive business which provides huge income throughout the year and generates quick and continues return.

In the economic analysis of broiler production in Anambra state, using gross margin model and regression model the result reveal that sizable portion of the farmers were woman and small scale having the highest percentage. Mgbakor Miriam Ngozi (2013)

2.5 ANALYTICAL TECHNIQUES USED FOR ECONOMIC ANALYSIS OF POULTRY PRODUCTION

M.A. Maikasuwa and M.S.M. Jabo (2011) in their research of Profitability of Backyard Poultry Farming in Sokoto Metropolis employ the use of farm budgetary techniques Farm to analyse the profitability of the enterprise and the input-output relationship was examined using multiple linear regression.

In the economic analysis of broiler production at miango plateau state by Kalla, Barrier, Haruna, Abubakar, Hamidu, and Murtala (2007) Farm budgeting technique was employed to analysed the cost and return structure of the poultry farm business. This was aimed at estimating the profitability of the enterprises. The viability of the poultry enterprise was determined using the benefit-cost ratio (BCR) and the Net Present Value (NPV). The BCR measures how the revenue generated from the broiler production covers the cost incurred from the same enterprise. The net present value (NPV) discount the stream of cost and cash flow at a rate usually determined as the opportunity cost of investing the capital into the business.

Nurudeen Ayoyinka Jatto, (2012) employ the use of Descriptive statistics and gross margin analysis in his Data analysis. The mathematical notation for gross margin is presented as:

GM = TR –TVC

GM = Gross Margin (N)

TR=Total Revenue (N)

TVC= Total Variable Cost (N)

He reported that the result also showed that majority of the revenue is generated through the sale of eggs.

This is similar to the findings of Narahari (2002) and Rajendran and Samarendu (2003) who found that sale of eggs account for approximately 85% of total revenue in poultry egg production. The result also showed that majority of the revenue is generated through the sale of eggs. This is similar to the findings of Narahari (2002) and Rajendran and Samarendu (2003) who found that sale of eggs account for approximately 85% of total revenue in poultry egg production.

This study will also employ the use of farm budgeting techniques and benefit cost ration in the analysis of cost and return of the poultry venture to find the profitability of the venture.

CHAPTER THREE

3.0 METHODOLOGY

3.1 THE STUDY AREA

The study was conducted in Kwara State. It is located between parallels 8º and 10º north latitudes and 3º and 6º east longitudes east. The state covers an area of 35,705 Sq kilometres, the climate of the state is characterized by both the wet and dry seasons, with the rainy season starting from march and last till October, while the dry season begins in November, it has a population of 2,371,089 (Nigeria, 2007 population census figures) with a population density of 66 people/Sq Km, it population makes up 1.7% of Nigeria's total population. Kwara State is one of the seven states that make up the north central Geo-political zone in the north central part of Nigeria with its capital at Ilorin. It shares an international boundary with the republic of Benin to the west and interstate boundaries with Niger state to the north, Oyo State to the southwest, Osun and Ekiti States to the southeast and Kogi State to the east. Ilorin climate is characterized by both wet and dry season each lasting for about six months. The raining season begins towards the end of April and last till October while the dry season begins in November and ends in March. Days are very hot during the dry season; from November to January, temperatures typically range from 33°C to 34°C, while from February to April, the temperature is between 34.6°C and 37°C. The total annual rainfall in Ilorin is about 1318mm with the mean temperature being between 30°C-33°C (Ilorin atlas, 1958). Relative humidity at Ilorin in the wet season is between 75 and 80% while in the dry season it is about 65% (tinuoye, 1990). The daytime is always sunny with the sun brightly shinning for about 6.5-7.7 hours daily from November to May (olaniran, 1983). The climate supports tall grass vegetation, which is interspersed with short scattered trees (guinea Savanna). Hence, it provides high quantity of feed for livestock animals. The only trees able to survive in this climate are those which are biologically suited to withstand dry conditions. Such trees have deep roots and they are adapted to conserve moisture in the dry season. The baobab, acacia, shears butter trees are typically examples of trees in the area. The vegetation on the other hands is dominated by derived scattered trees. Chicken species available in Ilorin include *gallus gallus* (red jungle fowl), *Gallus sonnerati* (gray jungle fowl) and *gallus lafayutti* (cylon fowl) besides the indigenous chickens the vegetation provides reasonable quantity of feed for livestock animals especially during the rainy season.

3.2 SAMPLING TECHNIQUES AND SAMPLE FRAME

The total number of registered poultry farmers in Kwara State is 480 as provided by the KWSADP. However, because of the enormous problems to be encountered in the use of the actual population size or even drawing an appropriate sample of poultry farmers from the population, a proportion sample formula of Bowles (1977) quoted from Yusuf (2011) was employed. The formula adopts the use of an assumed sample frame which represents an assumed mean of the true population. In this study the assumed sample frame is taken as 100 and is as presented

$$n = \frac{N}{1 + N(e)^2} \qquad \text{(Eq 1)}$$

Where

n = the sample size sought;

N = the population size (which is taken as the assumed sample frame)

e = is the level of confidence (taken as 95%).

The sample size (n) was calculated as: $\frac{100}{1+100(0.05)^2} = 80$

Therefore, 80 respondents were used as sample size for the study.

However, the selection of respondent poultry farmers is multi-stage and involved systematic random sampling method.

The first stage was a random selection of four LGAs out of 16 LGAs in the state. The second stage involved random selection of 16 wards from the 60 in the selected LGAs.. In the third, the last stage, 5 farmers were randomly selected from each selected ward. Overall 80 poultry farmers were sampled for the study

Table 3.1: Distribution of completed and returned questionnaires from the four LGAs chosen for the study

LGA	Ward	No. of Questionnaire
Asa	Afon	5
	Alapa	5
	Gambari/aiyekale	5
	Otte/ballah	5
Moro	Shao	5
	Oke-mi	5
	Lanwa	5
	Bode-sadu	5
Ilorin East	Zango	5
	Magaji aree 2	5
	Gambari 3	5
	Okeoyi	5
Ilorin south	Akambi 1	5
	Okaka 3	5
	Balogun Fulani 3	5
	Oke ogun	5
Total	16	80

Source: Field Survey 2015.

3.3 DATA COLLECTION

Primary and secondary data were used for this study. The primary data were collected with the use of structured questionnaires designed in line with the objectives of the study. Data were collected on Socio-economic variables such as, farmers age, gender, years of formal education, household size etc also on profitability variables including; output of eggs per crates size of the flock quantity and quality of labour hired quantity of feed vaccination cost. Information on poultry farming with respect to egg production weight of broilers and cockerels, feed intake, and were also collected. Secondary data were collected through internet journals, conference paper and document of poultry production association of the state.

3.4 METHODS OF DATA ANALYSIS

Five methods were used to analyse the data collected, for the purpose of achieving the specific objectives and the major objective of the study. These include descriptive statistics, budgetary analysis, benefit cost ratio, profit index and ordinary least squares regression (OLS).

Descriptive Statistics

This involves the use of means, percentages, and frequency distributions, to show the various findings about the respondents in the study area. The mean and percentage will be derived from the following formula:

$$\text{Mean} = \bar{x} = \text{mean} = \frac{\Sigma X_i f}{\Sigma f}$$

X_i = Observed Variable

f = Number of time the variable occurs

$$\text{Percentage} = \frac{X_i}{\Sigma X_i} \times \frac{100}{1}$$

Objective II was analysed using farm budgetary technique. Olukosi et al. (2006) stated that farm budgeting technique is a detailed physical and financial plan for operating farms for certain period. It enables the estimation of total expenses (costs) as well as various receipts (returns) within a production period.

The farm budgetary techniques focuses on the profitability of the poultry production after the total variable cost and fixed cost are deducted from gross income. The model for estimating farm budgeting techniques is outlined thus;

NFI= GM - TFC

Where; NFI= Net Farm Income

GM = Gross Income (Total Revenue) less total variable cost

TVC= Total Variable Cost

TFC= Total Fixed Cost

Total Revenue; was obtained by multiplying the total output with market prices of the output expressed in naira.

Total variable cost of production (Tvc); comprises expenses on water, electricity, hired labour and marketing etc.

Total fixed cost (Tfc); comprises expenses on land, equipment, generator, houses and machineries etc.

2. The viability of the poultry enterprise was determined using the benefit-cost ratio (BCR), which is the division of total revenue and total cost, The BCR measures how the revenue generated from the broiler production covers the cost incurred from the same enterprise.

Objective III was analysed using inferential statistics and the one employ include the use of OLS regression model. Three functional forms (linear, double log, and semi-log forms) were run concurrently to allow for selection of appropriate function which will adequately explains the relationship existing between poultry output and the input used based on their econometrics characteristics

The functional forms considered are presented below

Linear Function

$Y = â_o + â_1X_1 + â_2X_2 + â_3X_3 + â_4X_4 + â_5X_5 + U_i$

Exponential Function

$\text{Ln } Y = â_o + â_1X_1 + â_2X_2 + â_3X_3 + â_4X_4 + â_5X_5 + U_i$

Semi- logarithm Function

$Y = \text{Ln}â_o + â_1\text{Ln}X_1 + â_2\text{Ln}X_2 + â_3\text{Ln}X_3 + â_4\text{Ln}X_4 + â_5\text{Ln}X_5 + U_i$

Double-log Function

$LnY = Ln\hat{a}_o+\hat{a}_1LnX_1+\hat{a}_2LnX_2+\hat{a}_3LnX_3+\hat{a}_4LnX_4+\hat{a}_5LnX_5+ U_i$

Where,

Y = Output of chicken (number of birds)

X_1 = day old chick (naira)

X_2 = labour (naira)

X_3 = Feed (naira)

X_4 = depreciation cost of equipment (naira)

X_5 = operating expenses (naira)

U_i = Error term

$\hat{a}_o$ = Constant term

$\hat{a}_i$ to $\hat{a}_5$ = Regression coefficients to be estimated

The study will show whether the explanatory variables have significant effects on the output of poultry production in the study area.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter is concerned with the presentation of analysis and the interpretation of data collected during the distribution of the questionnaires of the study.

4.1.0 SOCIO-ECONOMIC CHARACTERISTICS OF THE POULTRY FARMERS

The socio-economic characteristics of poultry farmers considered in the study area include the age, gender of farmers, marital status, household size, educational level, main occupation, years of experience and method of land acquisition by farmers.

4.1.1 AGE DISTRIBUTION OF RESPONDENTS/FARMERS

Age is defined as the length of existence of a person; it is a major determinant of productivity even poultry keeping. In Nigeria, most common system of poultry management is the deep litter system which employs manual labour, the quality of this labour is dependent on the age. Table 4.1 shows the distribution of respondents/farmers according to their age.

TABLE 4.1: Age distribution of respondents/farmers

Age	Frequency	Percentage
11-20	1	1.25
21-30	21	26.25
31-40	28	35
41-50	22	27.5
51-60	7	8.75
>60	1	1.25
Total	**80**	**100**

Source: Field Survey, 2020

Table 4.1 shows that majority (88%) of the poultry farmers were within the age 20 and 50 years. The mean age was 38.7 years which shows that poultry management in the study area was dominated by young and middle age farmers.

4.1.2 GENDER DISTRIBUTION OF RESPONDENTS/FARMERS

Poultry management is usually seen as male occupation this study reveals that a sizeable proportion of female are also involved in poultry management. Table 4.2 shows gender distribution of respondents/farmers.

Table 4.2: Gender distribution of respondents/farmers

Gender	Frequency	Percentage
Female	22	27.5
Male	58	72.5
Total	**80**	**100.0**

Source: Field Survey, 2020

The table shows that 72.5% of the poultry farmers were male while 27.5% were female. This implies that male were more involved in poultry management than the female.

4.1.3 MARITAL STATUS OF RESPONDENTS

Marital status has to do with the number of respondents that are married and those that are not, it helps to determine the status of respondents towards other household responsibilities. Table 4.3 shows the marital status of respondents.

Table 4.3: Marital status of respondents

Marital status	Frequency	Percentage
Single	17	21.3
Married	63	78.7
Total	**80**	**100.0**

Source: Field Survey, 2020

Table 4.3 shows that 78.7% of the total respondents were married and 21.3% were single. The highest percentage of the married respondents indicates a higher chance of involving family labour in the poultry management.

4.1.4 Household size of the respondents

Household size is the sum total number of people that are leaving with the respondents and benefit from the income generated in the production. The distribution of house size of the respondents is shown in Table 4.4.

Table 4.4: Household size of the respondents

Household Size	Frequency	Percentage
1	1	1.25
2-5	38	47.5
6-10	41	51.25
Total	**80**	**100.0**

Source: Field Survey, 2020

Table 4.4 shows that the majority of respondents had relatively large household size. More than 50% had 6-10 persons in their household, 47.5% had between 2 and 5 and only one had no dependant. The mean house hold size was 5 persons. This implies that there might be enough labour from the household to manage poultry activities.

4.1.5 Educational level of respondents

Education shows whether a person is literate or learned. Education is very essential in the development of any country's economy. It is expected to have important influence on the respondent's ability to adequately keep record and manage their poultry production profitably.

The Table 4.5 shows the distribution of educational level of respondents.

TABLE 4.5: Educational level of respondents

Level of education	Frequency	Percentage
Primary education	2	2.5
Secondary education	33	41.3
Tertiary education	45	56.3
Total	**80**	**100**

Source: Field Survey, 2020

Table 4.5 shows that 56.3% of the respondents had tertiary education, 41.3% had secondary education while 2.5% had primary education. This finding shows that highly educated people are involved in poultry production in the area of study.

4.1.6 MAIN OCCUPATION OF THE RESPONDENTS

This is the principal occupation of the respondents;

Table 4.6 shows the distribution of respondents by their main occupation.

Table 4.6: Distribution of respondents by their main occupation

Main occupation	Frequency	Percentage
Poultry farming	51	63.8
Trading	5	6.3
Civil servant	24	30.0
Total	**80**	**100.0**

Source: Field Survey, 2020

Poultry farming is the major occupation for more than 63% of the respondents. Only 30% and 6.3% were civil servants and traders respectively.

4.1.7 YEARS OF EXPERIENCE OF THE RESPONDENTS

This is the number of years that the respondents have been into poultry production. Respondents' years of experience is shown in Table 4.7.

Table 4.7: distribution of respondents by their years of poultry keeping experience

Years of experience	Frequency	Percentage
≤ 1	1	1.3
2-4	13	16.3
5-8	39	48.8
9-12	18	22.5
13 above	9	11.3
Total	**80**	**100**

Source: Field Survey, 2020

Table 4.7 revealed that 48.8 % of the respondents had 5-8 years experience while 22.5% had between 9 and12 years experience and 1.3% had less than one year. The mean year of experience was 8 years. Respondents with longer years are likely to adapt to the challenges of the business hence being able to make good decision as well as managing risk.

4.1.8 MEANS OF FARM LAND ACQUISITION BY RESPONDENTS

This is the method through which the respondents acquire their farm land; the distribution of respondents according to their means of farm land acquisition is shown in Table 4.8.

Table 4.8: distribution of respondents according to their means of farm land acquisition

Means of acquisition	Frequency	Percentage
Inheritance	42	52.5
Communal	4	5.0
Government	1	1.3
Lease	33	41.3
Total	**80**	**100**

Source: Field Survey, 2020

Table 4.8 shows that 52.5% of the respondents acquired their land through inheritance which predominantly is a means of acquiring farm lands in Nigeria, 41.3% of the respondents acquired theirs through lease, while 5% and 1.3% of the respondents acquired theirs through community and government respectively.

4.2 Measures of Profitability of poultry production in the study area

Table 4.9 Estimates of cost and returns for layers and broilers

COST AND REVENUE FOR BROILERS PRODUCTION

COST		**BENEFIT**	
Items	**Mean Variable cost (₦)**	**Item**	**Average Revenue (₦)**
Feeds	277,002	Average sale of 2000 broilers @1500	3,000,000.00
Labour	218,549.50	GROSS MARGIN (GI-TVC)	2,182,396.00
Water cost	1,594.50	NFI (GM-TFC)	1,966,586.49
Electricity	26,040	NFI / BIRD	967.80
Fuel	21,789		
Vaccination	28,789		
Cost of 2032 day old	243,840.00		

chicks (@120.00			
Total variable cost	**817,604.00**		
	Average fixed cost		
Pen house (dep)	156,256.25		
Feeder & watering trough (dep)	10,968.9		
Vehicle & generator (dep)	48,585.13		
Total fixed cost	**215,809.51**		
Total cost (TVC+TFC)	1,033,413.51		

Source: filed survey 2020

BENEFIT COST ANALYSIS OF THE POULTRY HOUSING IN THE STUDY AREA

Total cost for layers production = **(₦)** 2,333,919.90

Total revenue = **(₦)** 5,834,600

Benefit cost Ratio = **(₦)** 5,834,600/ **(₦)** 2,333,919.9 = 2.49

Table 4.9 shows the cost and return of respondents in the study areas.

This finding shows that poultry production in the study area is highly profitable. The net farm income from layers production stood at ₦1,534,093.53 while that of broilers was ₦ 1,966,086.49 in one production cycle respectively. In addition, the viability of the business was determined through benefit cost analysis. The ratio of benefit to cost of production was 2.49 implying that poultry business in the study area is very solvent and capable of offsetting the cost involved in its production.

4.3 Relationship between input and output

Tab 4.10: Regression analysis for input/output relationship in poultry housing

Variables	Estimated parameters	Coefficient	Standard errors	t-values	Significant levels
Constant	X_0	4.385	0.325	12.756	0.000*
Cost of day old chick	X_1	0.063	0.047	0.752	0.563
Labour	X_2	0.435	0.239	0.892	0.041**
Feeds	X_3	0.32	0.235	8.072	0.000**
Operating expenses	X_4	1.345	0.412	0.943	0.067***
Depreciation of cages	X_5	0.222	0.147	2.825	0.057*
Diagnostics statistic; R^2=0.945 FValue=607.023 N=80					

Source: field survey, 2015; * = Significant @1% level of probability

** = Significant @5% level of probability

*** = Significant @10% level of probability

Analysis of the result in Table 2 shows that all the parameters estimated carry positive signs, which imply that Stock capacity (X_1) labour (X_2), feed (X_3), operating cost (X_4) and depreciating cost of equipment (X_5) all have direct relationship with farmers output in poultry egg production. The T-ratios showed that Stock capacity (X_1), feed (X), operating expenses (X) depreciating cost of equipment (X) were all significant at 1, 5 and 10%, respectively. The F-value 607.023 showed that all explanatory variables taken together have a significant effect on the dependent variable (Y).

R^2 value of 0.945 implies that 95% of the variation in the dependent variable has been explained by the independent variables such as labour (X2), feed (X4), depreciating cost of equipment (X5) and operating expenses (X6), and that the remaining 5%was as a result of random variable.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The specific objectives were to: describe the tips, socio-economic characteristics of poultry farming in the study area, estimate Profitability of Poultry Production in the study area, and determine the relationship between inputs and output obtained in Poultry Production. Primary data were collected from Kwara State Poultry Farming using structured questionnaire. Descriptive statistics, farm budgetary technique, benefit cost analysis and ordinary least square regression analysis was used to analyse the data.

The results of the analyses revealed that majority (72.5%) of the respondents were male with the mean age of 38.7 years. (63.8%) of these youths had keen interest in poultry production and chose poultry farming as their main occupation. Result of the cost and returns to estimate the profitability of poultry production in the study areas revealed that there is profit in poultry production in the study area with net farm income from layers production stood at ₦1,534,093.53 while that of broilers was ₦ 1,966,086.49 in one production cycle respectively. The finding reveals that poultry production is profitable in the study area. Analysis of the result also showed that inputs such as cost of day old chick, labour, feeds, depreciating cost of equipment and operating expenses have significant relationship with poultry output in the study area.

5.2 CONCLUSION

This study investigated the Economic Profitability of Poultry Production in Kwara State. Three important findings emerged;

Firstly, Poultry Production in Kwara State is dominated by highly educated youths, a positive sign for future poultry activities.

Second, Poultry Production is highly profitable in Kwara State; however, broiler production contributed the highest return in the area of study.

Thirdly, the costs of inputs as revealed by the regression analysis were high and increasing with the size of production thereby depriving the farmers the full benefit of their efforts

5.3 RECOMMENDATIONS

1. To reduce cost, production Farmers should form agricultural cooperative groups which will enable them to benefit from the economy of scale through bulk purchases of farm inputs.

2. Government should encourage the youths involved by providing them technical knowledge in the area of resource management through the extension agents to assist in reduction of production cost.

3. Government should try to provide the essential farm input such as drugs and vaccine to the farmers at the right time and at subsidized prices to reduce the cost of production in order to improve profitability.

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APPENDIX

QUESTIONNAIRE ON ECONOMIC ANALYSIS OF POULTRY PRODUCTION IN KWARA STATE

Dear Sir/ Madam

This questionnaire is designed to solicit information on the mentioned topic. I am a student of Tai Solarin College Education Omu Ijebu of the Agricultural Science Department. I hereby wish to assure you that information collected shall be purely used for academic purpose only. Thank You.

SECTION A: SOCIO-ECONOMIC CHARACTERISTICS.

1. Name of village ----------.
2. Name of respondent/farmer----------.
3. Age of respondent/farmer----------.
4. Gender: (a) Male [ ] (b) Female [ ].
5. Marital status: (a) single [ ] (b) Married [ ] (c) Divorced [ ] (d) widow/widower [ ].
6. Household size----------.
7. Educational level: (a) primary education [ ] (b) secondary education [ ] (c) Tertiary education [ ] (d) No formal education [ ].
8. Main occupation: (a) poultry farming [ ] (b) Trading [ ] (c) civil servant [ ] (d) others (specify) ----------.

SECTION B: PRODUCTION PRACTICES

9. What system of management do you adopt? (a) Deep litter system [ ] (b) Battery cage system [ ] (c) Free range system [ ] (d) Others specify----------
10. Why do you go for this system? (a) It is cheaper [ ] (b) Eggs are collected with ease [ ] (c) Requires less labour [ ] (d) Efficient [ ]
11. What is the full capacity of your battery cages/deep litter houses? ----------
12. Are you (a) Breeder [ ] (b) Egg producer [ ] (c) Broiler grower [ ] (d) Turkey grower [ ] (e) Duck/Goose grower [ ]
13. What type of birds do you rear?

Types of bird	Number of birds
Layers	
Broilers	
Cockerels	
Turkey	
Others (specify)	

SECTION C: PRODUCTION COST

14. Which one do you prefer in egg business (a) Day old chick [ ] (b) Bird at point of lay [ ] (c) Your own hatchery [ ]
15. If day old chick, how much did you purchase it? (₦) ----------
16. At what age did your bird start laying? ----------
17. How many birds are laying presently? ----------
18. Can you estimate out of every 100 birds, how many fail to lay eggs? ----------
19. What quantity of feed do you used till they reach maturity? ----------
20. Can you estimate the size of broilers you raise? ----------
21. What quantity of feed do you used till they reach maturity? ----------
22. Can you estimate the average weight of broilers

OPERATING COST AND RETURNS

(A) Complete the tables below

S/N	FIXED INPUTS	NUMBER	COST(₦)	LIFE EXPECTANCY
1	Poultry houses			
2	Battery cages			
3	Feeding trough			
4	Watering trough			
5	Egg crate			
6	Vehicle			
7	Generator			
8	Others			

(B)

S/N	VARIABLE INPUTS	NUMBER	PAYMENT/AMOUNT (₦)
1	Labour (a) Skilled (b) Unskilled		
2	Energy and water cost (a) Water bill (b) Electricity bill (c) Fuel bill (d) Others		

S/N	FEED	NO OF BAGS CONSUMED/WK	AVERAGE PRICE/25Kg
1	Chicks feed		
2	Growers mash		
3	Layers mash		

23. Did your birds undergo vaccination? (a) Yes [ ] (b) No [ ]

24. If yes, please state the cost of vaccination in a production cycle (₦) ----------

25. How much do you sell your birds?

TYPE OF BIRD	PRESENT VALUE PER ONE	NUMBER OF BIRDS SOLD
Layers		
Broilers		
Cockerels		

Turkeys		
Others (specify)		

26. How many birds do you produce in a production cycle? ----------
27. How often do you pick eggs from the poultry in a day? (a) Once daily [ ] (b) Twice daily [ ] (c) Others specify ----------
28. What is the average number of eggs (crates) collected in a day? ----------
29. For every 100 eggs how many eggs get broken from point of collection to the final point of grading? ----------
30. How do you grade the eggs? (a) Grading machine [ ] (b) By hand [ ]
31. What factors determine the price of your eggs? (a) Weight [ ] (b) Size [ ] (c) Cracks (d) Others specify ----------
32. How much do you sell a crate? (a) Small size(₦) ---------- (b) Medium size(₦) ---------- (c) Large size(₦) ---------- (d) Crack (₦) ----------
33. How many crates do you sell a day? ----------
34. What is the average number of crates of eggs sold in a week ----------
35. At what age do you cull your layers? ---------- weeks/Months

EXPLANATION ON COST AND RETURNS

Average number of crates of eggs collected over the production seasons =₦ 1227

Total no of sold spent layers = ₦ 2,623

Average price per crate of eggs = ₦ 600

Average price of sold spent layers bird = ₦ 800

Total revenue from crates of egg sold (Total no of sold spent layers * Average price per crate of eggs) = ₦ 736,200

Total revenue from spent layers sold = ₦ 2,098,400

Total revenue from layers (addition of revenue from crates of eggs and spent layers sold) = ₦ 2,834,600

Gross margin (total revenue – total variable cost) = ₦ 1,843,941.50

Net farm income (addition of total revenue from crate of eggs and spent layers sold) = ₦ 1,534,093.53

Net farm income per bird (dividing net farm by total no of birds) = 378.80

Cost and revenue for broilers production

Average total day-old broilers considered = 2032 birds

Average Total sold = 2000

Average price per bird= 1500

Total revenue = no of sold birds * price

Total revenue= 3,000,000

Gross margin= total revenue – total variable cost

Gross income = 2,310,816

Net farm income = gross income – total cost

Net farm income = 1,966,086.49

Net farm income per bird = average net farm income / total no of birds

Net farm income per bird (net farm income divided by total no of birds) = 967.80