THE PREVALENCE OF POULTRY DISEASE AND ITS MORTALITY RATE IN ASA LOCAL GOVERNMENT AREA

ABSTRACT

The purpose of the study was to investigate the Prevalence of Poultry Disease And its Mortality Rate in Asa Local Government Area. For specific objectives, four research questions were formulated to guide the study. Related literatures were reviewed in the study. The area of the study was Uyo Local Government Area. The population comprised of 54 poultry farmers domiciled in Asa and registered with Ilorin office of the Kwara Agricultural Development Programme (KWADP). The sample size of 50 was used for the study using simple random sampling technique to select. Information was gathered through questionnaire. An instrument called "PREVALENCE OF POULTRY DISEASE AND ITS MORTALITY RATE QUESTIONNAIRE" (POPDAMRQ) to access information on prevalence of poultry disease and its mortality rate; with 32 items. Data collected were subjected to Analysis using Descriptive statistical tools; frequency table, histogram and pie chart were used to answer research questions. The findings of the study revealed that 64% of farmers had high rates of Avian influenza and only 10% of farmers had very low rates of Avian influenza; 74% of farmers had high rates of Newcastle diseases and 2% of farmers had very low; 42% of farmers had high prevalence rate of Gumboro disease and 22% had low rates of Gumboro. Recommendation were made which include early and timely vaccination of the birds.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Agriculture in Nigeria has remained the largest sector contributing nearly 39% to the gross domestic product for the past two decades and employing nearly 60% of its workforce. Over 80% of the country's population in the rural areas is directly or indirectly dependent on agriculture for its livelihood (NBC,2005). The Nigeria livestock resources consist of 13,885,813 cattle; 34,453,724 Goat; 22,092, 602 sheep; 3,406,381 pigs; 104,247,960 poultry (Rim, 1992). From these figures, poultry is about 58. 72% of the total livestock production which indicates the place of poultry sub-sections in the livestock industry.

Poultry plays an important economic, nutritional and socio-cultural role in the livelihood or rural household in many developing countries including Nigeria. Poultry are birds that include fowl, turkey, duck, goose, ostrich guinea fowl, pigeon etc. which render not only economic services but contribute significantly to human food as a primary supplier of meat, egg, raw materials for industries (feathers, waste products), source of income and employment to people compare to other domestic animals (Avila 1985; Demehe, 2004).

Poultry meat and eggs play a very useful role in protein production in Nigeria. They are palatable and generally acceptable. This acceptability cuts across nearly all cultural region boundaries in Nigeria. Poultry industry plays important role in the development of Nigeria economy. Poultry production has become a full time job for many Nigerians and significantly contribute to the Gross National Product (GNP) (Umeh and Odo; 2002). Poultry products mainly meat and eggs represent important food for improving the nutritional status particularly of the most vulnerable populations-children and pregnant women. Poultry production is an important part of

farming in many parts of the world. The major attracting factor in poultry production is probably the tendency of providing a fairly rapid return on capital (Abdulkali; 2002).

The poultry industry in Nigeria has recorded considerable expansion in recent time (FAO, 2000). While overall national increase in poultry production has probably triggered off vigorous research into alternative and cheaper feed resources urgently needed to sustain such growth: there is the need to continually focus attention on the health of the animals in other to realize the full potential of the industry (Fasami; 1990).

Poultry diseases remain one of the major threats to boosting poultry production in Nigeria (Halle et al., 1998; Laseinde, 2002). Poultry diseases continue to play major central role in hampering its development (FAO, 1998; Rushton et al, 1999). The impact of diseases on animal agriculture is typically assessed in quantitative terms. In poultry industry examples of these terms include lost revenues, costs of vaccination/prevention, eradication decontamination and restocking. These have been referred to as a negative input (Unrusfield, 1995). In Nigeria, diseases are among the major factors that hinder poultry development (Alanargot, 1987; Alemu, 1995).

A lot of losses in poultry have been linked to diseases causing agents such as viruses, bacteria and parasites. It has been estimated that more than 750 million chicken, guinea fowls and duckling in Africa die each year as a result of various infections (Sonaiya 1990). Although somewhat in birds parasitic has been achieved by commercial production system mostly due to improved housing hygiene and management practices, the prevalence of infectious diseases is still very rampant (Pandry et at: 1992). Nigeria has a comparatively well developed poultry industry for West African Nation.

Apantaku, (2006) described this trend to the low level of poultry production in comparison to the level of poultry technologies being generated by Nigerian poultry researchers. The prevailing situation became worsen in 2006 by the reported outbreak of highly pathogenic and viral diseases like Avian influenza, Newcastle disease,

infectious bursal disease and coccidiosis. Obayelu (2007) reports that the diseases outbreak led many poultry farmer into psychological breakdown due to losses incurred and also affected animal protein intake of a large sector of Nigeria population.

Major limitations confronting the industry are numerous. The problems confronting the poultry industry in Nigeria include disease, low egg production, poor chick quality, poor weight gain, lack of capital, management problems etc (Van et al.; 1995; Apantaku et al; 1998; Ojo; 2003). Other problems include high cost of drugs and equipment such as battery cases, high cost of feeding, increasing cost of medications, marketing and lack of storage facilities as well as unfriendly government policy and finance. Sources of economic losses in poultry include lack of technical know-how, poor quality feed, poor housing, and mismanagement are of great significance, disease outbreak which had received tremendous attention (Adekumisi et al; 1996; Torimiiro et. al., 2002).

Despite the economic significance of the diseases to the commercial and small scale poultry producers in the country, no substantial research has been done to assess its economic losses. With the increasing interest in poultry production evidenced by the proliferation in poultry farms, it is pertinent to continually evaluate the prevalence rate and management issues associated with common poultry disease such as Avian influenza, Newcastle disease, infectious bursal disease and coccidiosis.

1.2 Statement of the Problem

The incidence of poultry diseases in Nigeria has led many poultry farmers into psychological breakdown due to losses incurred. Poultry diseases have a gross attack rate on commercial poultry production. Culling birds in order to eradicate and control the spread of the diseases has negatively affected the livelihoods of all classes of poultry owners and producers. Such an impact is most serious on the smaller family producer and commercial producer whom poultry production is their sole of income generation. Effects of poultry diseases on the economy. Where market is lost through

the reduced rate to export, restriction of movement of birds and the closing of some domestic markets is especially the constraint which affect the income generating ability of smaller producers in the zone (Mettzer et al., 1999). The non consumption of poultry meat as well as its products has also affected animal protein intake in the large sector of the population. The most pronounced effect is the sharp decline in demand as people avoided eating and demanding for poultry product out of fear of being infected (WHO, 2004a). The survivability of poultry industry in Nigeria is very low due to poor management techniques embarked upon by rural poultry farmers, and outbreak of seasonally defendant diseases that can account for high chick losses and mortality.

1.3 Purpose of the Study

The study is aimed at examining the prevalence rate of poultry diseases and mortality of flock in the study area. Specifically the study seeks the following objectives.

1. To determine the prevalence rate of Avian influence and its mortality rate on poultry in Asa Local Government Area of kwara state.
2. To determine the prevalence rate of Newcastle Disease and it mortality rate on poultry in Asa Local Government Area of Kwara State.
3. To determine the prevalence rate of infectious Bursal disease and its mortality rate on poultry in Asa Local Government Area of Kwara State.
4. To determine the prevalence rate of coccidiosis and its mortality rate on poultry in Asa Local Government Area of Kwara State.

1.4 Research Questions

1. What is the prevalence rate of Avian influenza and its mortality rate on poultry In Asa Local Government Area?
2. What is the prevalence rate of Newcastle diseases and its mortality rate on poultry in Asa Local Government Area?.

3. What is the prevalence rate of infectious Bursal disease and its mortality rate on poultry in Asa Local Government Area?.
4. What is the prevalence rate of coccidiocsis and its mortality rate on poultry in Asa Local Government Area?

1.5 Significance of the Study

The finding of this study will motivate the farmer to produce quality and disease free products capable of meeting the nutritional requirement of address the problems of malnutrition, food insecurity low income and poverty as a whole.

1. Nigerian policy makers and Animal Health Professionals will benefit from the study as the studies will expose them to the cause of major epidermis seen each year resulting in death of many birds, and this knowledge will enable more precise disease control planning.
2. The study will provide valuable data to the scientist for epidemiogical studies both logically throughout Nigeria through collaboration. The data will also assist them with a role informing animal health and disease control policy.
3. The study will be significant in the training of farmers on improve livestock breeds for the gradual upgrading of local breeds.
4. This study will help to increase productivity of poultry farms which in turn will create job opportunity to the community and reduce the cost of production. Also the more progressive or productive the poultry farm is, the more produce will be supplied to the market for distribution.
5. The study will help the community dwellers and those practicing poultry on subsistence level in Asa Local Government Area by teaching them poultry management practices and approaches which can be used to achieve improved performance in their business.

1.6 Delimitation of the Study

This study is delimited to prevalence of diseases and the mortality rate of poultry in Asa Local Government Area of Kwara State, only four infectious diseases of poultry are being surveyed in the study i.e Avian influence, (AI), Infectious Bursal Disease (Gumboro), Newcastle disease (ND) and coccidiosis (C).

1.7 Operational Definition of Terms

Important terms relevant to this study is operationally defined as follows;

Prevalence: This is the proportion of a population found to have a condition (typically a disease or risk factor) at a specific time.

Poultry disease: This is a disease that afflict poultry.

Mortality rate: This is the number of deaths due to a disease divided by the total population.

Avian Influenza: This is a disease caused by any of many different strains of influenza viruses that have adapted to a specific host.

Newcastle disease: This is an acute viral disease of poultry marked by respiratory difficulty, reduced egg production and, in chicks, paralysis.

Infectious bursal disease (IBD, Gumboro): This is an acute, highly contagious viral infection in chickens manifested by inflammation and subsequent atrophy of the bursa of Fabricius, various degrees of nephroso-hephritis and immunosuppression.

Coccidiosis: Coccidiosis is a parasitic disease of the intestinal tract of animals caused by coccidian protozoa.

CHAPTER TWO

INTRODUCTION

This chapter review of related literature consist of the following headings:

1. Theoretical Framework
2. Conceptual Framework
3. Review of Related Empirical Studies
4. Summary of Review of Literature

2.1 Theoretical Framework

2.1.1 Theory of risk management

Risk is everywhere and is substantially an unavoidable element in the business of farming according to Ayinde et al (2008). Farming decisions are generally made under the environment of risk and uncertainties. Some of these risks are natural hazards such as floods, droughts, fire outbreak, diseases and pest attack. In farming, yield, product prices, prices input and quantities are usually not known with certainty when investment decisions are being made. In many cases, farmers are confronted with risk of pests and diseases which may cause product price to decline, and these characteristics results in returns displaying high variability, (Ajieh 2010). Olartinde et al. (2007) stressed that there are four forms of farming risks which are natural, social, economic and technical risks. Natural risk are natural occurrences such as drought, flood, wind storm, diseases and pests and they have adverse effect on output of agricultural production. Social risk referred to actions of human beings on the farm such as theft of produce, bush fire, invasion of farms while economic risks was identified as risk resulting from input and output, price fluctuations which translate to low income. Technical risks are seen as types that affect production process which include insufficient and untimely supply of inputs, insufficient credit and inadequate processing facilities. Adubi (2000) however emphasized that small scale farmers are more exposed to risk than other segments of the population because they exist at the margins of modern economy.

Walker et al. (2011) identified risk management as finding the preferred combination of activities with uncertain outcomes and varying levels of expected returns. He further asserted that risk management involves choosing among alternatives to reduce the effect of risks on a farm and by so doing affect the farm's welfare position.

Walker et al. (2001) identified risk management to include enterprise diversification, insurance, production contracting, vertical integration, marketing contracts, hedging in future, future option contracts, maintaining financial reservoirs and leveraging liquidity, leasing inputs and hiring custom work, off-farm employment and other types of off-farm income. Managing risk in farming does not necessarily involve avoiding risk, but instead involves finding the best available combination of risk and return given a person's capacity to withstand a wide range of outcomes (Onyekole, 2000). Effective risk management involves anticipating outcomes and planning a strategy in advance given the livelihood and consequences of events not just reacting to those effects after they occur. Olarkinde et al. (2007) however identified four main aspect of risk management to include identifying potentially risky element, anticipating the livelihood of possible outcomes and their consequences, taking actions to obtain a preferred combination of risk planning strategies when distress conditions have passed. Kindre (2006) reported that farmers can also manage their farming risks by either leasing inputs including land or hiring workers during harvest or other peak months.

2.2 Conceptual Framework

2.2.1 The Concept of Poultry Diseases

Poultry production in Nigeria is an important component of the livestock sub-sector and has developed to the level of commercial enterprise involving thousands of birds that provide employment, income, animal protein for Urban and Rural dwellers as well as manure for crop production. It is an important instrument for alleviating problem associated with poverty in Nigeria (Food security and Mal nutrition) and significantly contributes to women's income and helps meet some level of house hold protein needs (Obi 2008). Small holder poultry farmers that operate various strategies provide the bulk of poultry meats and eggs for the populace (Eduvie 2002). Abdu et al. (1992) identified diseases as major constraint in the development of the poultry

industry in Nigeria thus causing a huge loss to farmers. Major diseases of poultry are Newcastle Disease (ND), Infections Bursal Disease (IBD) or Gumboro, Avian influenza and Corcidiosis. Others include Marek disease (MD), Fowl typhoid, Fowl cholera, Mycoplasmosis etc. (Ambali 2003).

The importance of rural poultry in national economies of developing countries and its role in improving the nutritional status and incomes of many small farmers and landless peasants has been recognized by various scholars and rural development agencies (FAO 1982, Cleevey, 1991).

Poultry infections can cause severe losses to production efficiency and can result when exposure combined with the virulence of an organism is greater than the resistance of the host. It may spread from one animal to another in two ways: horizontal spread which occur between one infected animal and another; or vertical spread which is the passage of the infection – producing agents from parents to the offspring through egg, (Aher 2004). Infectious diseases are the major limiting factor in intensive animal production all over the world possibly more so in Tropical country like Nigeria. The economic impact of these diseases may be expressed as mortality but quite often as reduced performance (Cuming 1992). Infection which occur in the poultry industry is the same, (Yordan 1981).

A healthy bird which comes in contact with a disease-producing organism may remain healthy but in some cases, the bird may develop a disease on exposure. Infection is increased under the condition of stress. Some internal and external factor influence the outbreak of a disease, (Kekeodia, 1987). These include: heredity, age, sex, immunity, stocking density, temperature, and vaccination among others. Under practical conditions, outbreaks should duly be reported. However, some knowledge of the disease will assist considerably in adopting preventive measures, (Oluyemi & Roberts 1985). Diseases reduce the gross profit of production and limit the supply of poultry products. They can be broadly categorized into those affecting the general

health of the birds and those that affect the production capacity of the birds in terms of egg and meat production.

2.2.2 Avian Influenza

Avian influenza is a viral disease of all domestic and wild birds characterized by respiratory, digestive and in some cases nervous signs and high morbidity and mortality. Incubation period ranges from a few hours to 2 weeks depending on the viral dose, route of infection and species of birds. An important feature of the avian influenza (AI) epidemic and the virus is the wide range of species of birds infected (Perkins and Swayne, 2003). AI is widely in distributed (Alexander 2003: Senne, 2003) Alexander 2004; FAO 2005) with a negative socio economic impact apart from the public health significance of the disease. In the Asian epidemic (1997-2005) all species of domestic poultry were affected (Alexander 2004; FAO 2005). In country with mixed population of birds village chickens and ducks were the principal focus of clinical disease (FAO 2005). Highly pathogenic avian influenza (HPAI) is a devastating disease in poultry: it is associated with a high death rate and disrupts poultry production and can be transmitted to humans. The dreaded Avian Influenza (AI) was first reported at a farm in Kaduna, Nigeria on the 14 January 2006 (Adene et al. 2006) and confirm by the OIE world reference laboratory at Padova, Italy on the 7th February, 2006. This outbreak in Nigeria was first reported outbreak of the HSNI Asian strain on the African continent (NADIS INFO, 2006).

Despite immediate containment measures taken by the veterinary and public health authorities in conformity with standard operation procedures, the disease still spread to 14 States and 26 Local Government Areas, Over 268 suspected cases were analyzed at the national veterinary Research Institute (NVRI), where 58 were found positive and over 200 tested negative (NHDIS IHFO, 2006). Prior to the first confirmed AI case at Kaduna on January 14th 2006, scores of local poultry were

reported to have been dying in Jigawa State between December 2005 and early January 2006, from a strange disease that was more devastating than Newcastle disease. In Kano State also, birds were reported dying due to an unknown disease condition from which chemotherapy and supportive care proved abortive in many cases.

Influenza pandemics are rare but recurring events. Research has shown that avian influenza typically occurred every 10-15 years throughout recorded history. It has found a permanent ecological niches becoming entrenched among domestic ducks. Avian influenza has been recognized as a highly lethal generalized viral disease of poultry since 1901. In 1955, a specific type of influenza virus was identified as causal agent of what was then called fowl plague. This virus disease was however first noticed in South Africa in 1961. The virus is usually most specific with more than 100 subtypes that only infect birds and in rare instances, pigs and cause a wide range of disease syndromes ranging from wide range of disease syndromes ranging from mild to severe in domestic poultry, since 2003. Highly pathogenic Avian Influenza (HPAI) HSNI had shaken the world. In 10 countries; 258 confirmed cases in humans and 154 deaths have been reported. The number of countries with confirmed HPAI in poultry and wild birds rise to 54, (WOAH 2006). Almost all the people infected with HSNI have had close contact with sick or dead poultry by having butched them, plucked them or played with them.

Avian Influenza is a global challenge with animal and human health implications. It is unknown what percentages of birds can pass on the HSNI virus without becoming sick, that is, they can be asymptomatically infected. The danger posed by wild birds is that they transmit HSNI to domestic poultry flocks, which is a direct threat to both animal and human health (WHO; 2004b). The incidence of Avian Influenza in Nigeria has led many poultry farmers into psychological breakdown due to losses incurred. AI has a gross attack rate of 20-40% (Tanbenberger, 2005). Culling birds in order to eradicate and control the spread of disease has negatively affected the livelihood of all classes of poultry owners and producers. Such an impact is most

serious on the smaller family operated commercial producer for whom poultry production is their sole source of income generation. Effect of avian influenza on economy, where market is lost through the reduced ability to export, restriction of movement of birds and the closure of some domestic markets is especially the constraint which affect the income generating ability of smaller producers (Meitzer et al. 1999). The most pronounced effect is the sharp decline in demand as people avoided eating poultry products out of fear of being infected, (WHO, 2004a).

Nigeria was the first country in Africa to be affected by the Avian influenza (AI) type AHSN. The peak HPAI outbreak in February 2006 and February 2007 has affected 3.057 farm and farmers; about 1.3 million of the country's 160 million birds were destroyed and the Nigeria government had to pay ₦900 million in compensation to farmers (FDL, 2008). The disease was reported in July 2008, in the states of Kano and Katsina (FDL 2008). Since that time effort to carry out active surveillance for the influenza viruses have been intensified by the national authority. The fact that AI is now endemic in Egypt justifies that researchers in Nigeria should also place AI viruses under constant surveillance.

Avian influenza and Newcastle Disease (ND) are among the important viral diseases of poultry affecting both domestic and wild birds. Avian Influenza is caused by influenza A viruses that infect birds (Holt, 2004; Capua & Alexander, 2009). It is an acute highly fatal disease of chicken, turkey, pheasant, certain wild birds, ducks, shorebirds, gease and a variety of avian species. The infection was once considered to run an entirely asymptomatic course in the natural hosts, particularly water birds (Swayne & Suarez 2000), however recent studies have shown that adult mute swans (Cygnus olor) are highly susceptible to the disease, producing clinical signs (Palmai et al., 2007; Kalthof et al., 2008). Few adult mute swans are recognizes to have the ability to survive infection with highly pathogenic Avian Influenza (HPAI) virus (HSNI) (Palmai et al. 2007; Kalthof et al., 2008). Survivors are usually older swans in good health that were infected with low viral dose. The survivors continue to shed the virus

in their saliva, nasal secretions, and feces and can infect susceptible birds contaminated material, thus constitute outbreak risk (Swayne & Suarez, 2000). This zoonotic disease is responsible for outbreak in birds and a cumulative human case fatality rate of 60.5% (Alexander & Broron, 2000; Capua & Alexander, 2002, 2007). It is said to have the potential to develop into a global pandemic that can be devastating to humans (Capua & Alexander, 2007). Since the introduction of the HPAI virus HSNI into Nigeria in 2006, at least four distinct genotype of the virus co-circulation, now, enabling reassortment, high mortality losses in poultry and confirm animal-human infection (Fusaro et al., 2009).

2.2.3 New Castle Disease in Poultry

New castle disease (ND) and, infectious, bursal disease have remained most important infectious diseases threatening the village chicken and commercial poultry production in most parts of the world (Etyuguda et al., 2005; Etyuguda et al 2009). The epidemiology of these diseases is usually influenced by certain factors like host's immune status, wide host range, thermo-stability and variation in strains of the causative viruses. Although vaccination of chickens has remained as the method to control these diseases (Okwor et al., 2013; Susan et al. 2004). Some important factors determining the success of vaccination include the time of vaccination, vaccine type, maternal antibodies in the chicks and pathogenicity of the offending virus (Hair-Beyo et al., 2004). Farmers administer ND vaccines simultaneously with the aim to reduce stress by catching of individual birds and to minimize labor cost (Okwor et al., 2013).

The New Castle disease (ND) is endemic in Nigeria (Saidu, 1998). The first documented outbreak of the disease occurred in Ibadan in 1952 (Hill, 1953). Since then, the disease has been the most important disease of chicken in Nigeria (Ezeokoli, 1984). ND was reported in exotic and local chickens (Fatumbi, 1979). Currently the disease is controlled by routine vaccination (Ezeokoli, 1984). ND continued to be a

serious economic threat to the poultry industry resulting in increased morbidity and mortality rates and loss of eggs for both breeding and human consumption. (Fatumbi O.O., 1979). Village chickens according to Martin (Martin, 1991) are free-ranging poultry, mostly unimproved indigenous breeds. A high proportion of households in the village keep such birds and the flock size generally ranges from a few to up to 100 birds. In village poultry, the occurrence of ND is dependent on a combination of factors. The presence of the pathogenic strain of ND is a factor which is necessary for the disease to develop, but it is not in itself the cause. This is because village poultry populations are mixed in terms of susceptibility to infection with the Newcastle disease virus (NDV) because of immunity due to age and exposure to NDV and because of extreme conditions, the spread of the virus from bird to bird does not occur as readily as in intensely housed poultry (Martin, 1991).

The major disease affecting village chickens around the world is ND, and it generally appears in its severest form, often killing 100% of birds (Cumming, 1991). ND is enzootic within individual regions and even villages. There was serological evidence of NDV infection in Nigeria local chickens and a prevalence of about 4% was recorded (Adu, 1986). In Nigeria, local indigenous chicken constitute about 92% of the total chicken population of 134 circulation by these local chickens (Adu, 1986). Because of the introduction of susceptible birds through hatching and the probability that some flocks or individuals will have evaded infection during the passage of the disease through the poultry population in the village, it is possible that within the village poultry population, there will be susceptible birds to which diseases birds will transmit NDV always (Martin 1991).

The introduction of the NDV to a village most likely occur when infected live chickens are introduced. Live birds markets are probably a major means of spread (Alexander, 1988) particularly, since in many villages, owners take birds to market as soon as they become sick, in an attempt to recuperate something. Other means of introducing new strains of ND to a village poultry population include wild birds, live

infected chickens being transported through the village, infected carcasses, and movement of objected from infected site. Cases of contaminated vaccines have also occurred (Alexander, 1988).

Spread by the fecal (oral route is slower than by the respiratory route) chicken infected with NDV shed the virus in the feces and the infection can become established following its ingestion. This means of spread is important particularly for how virulence viscerotropic strains (Martin, 1991). NDV can survive in feces, on egg shell, on feathers, on walls and other inanimate objects, and in water. In each of these situations, virus is more resistance to inactivation when it last more than a day or two, it can survive many days in ponds and lakes full of organic material. Sick and dead birds are often eaten by flocks owners and viscera from birds for the table are often fed to poultry. The combination of these two practices provide an excellent opportunity for ND to spread (Martin, 1991).

There are four forms of the disease caused by different strains of the virus the Doyle's form, Beach's form, Beaudette'd form and Hitchker's form. In Doyle's form all ages are susceptible morbidity may reach up to 100% and mortality is very high usually 90% (Dobson, 2000). In Beach's form, morbidity is also is high and mortality variable. A 10% mortality in the adult is very common though it may be higher. Among immature chickens, mortality is as high as 90% mortality in the adult in the case of the beaudettes form of the disease has neglible death losses although in young birds especially, when complicated with other infectious diseases, the mortality rate can reach 30%.

Newcastle disease (ND) is a highly contagious and commonly fatal viral poultry disease caused by paramyxo-virus 1 (PMV-1) or Newcastle disease virus (NDV) (Nwankiti, 2010). ND is considered among the most important disease of poultry and outbreaks with mortality up to 100% are common (Saidu, Okwor, 2010). ND infection

takes place through virus inhalation or ingestion and its spreads from one bird to another overall. Seropositive rate of 32.5% was reported by (Jibril, 2004) for Sokoto State Nigeria. (Okwor, 2012) reporteda prevalence rate of 3.2% for NDV in clinically healthy chickens in Nsukka area, Nigeria. (Manchang, 2004) reported a higher incidence rate (68.4%) of ND during the dry season against 34.6% in the rainy season and higher rate in the young (20.7%) against 12.1% in the adult. Newcastle disease can cause great mortality in birds without any clinical signs. Sometimes reaching 100% in unvaccinated poultry flocks, and even in vaccinated poultry (Jublili 2014). This disease is endemic causing huge economic losses to farmers and hampering growth of poultry industries in Nigeria, which has an estimated poultry population of 137.6 million with backyard poultry population and 16% (21.70 million) of exotic poultry. There is no means of treatment for this disease except vaccination which is not effective as outbreak are reported yearly in vaccinated chickens. Lack of data regarding the prevalence of the disease in most part of Nigeria has made policy formulation on controls and prevention difficult.

Newcastle disease (ND) is one of the most important avian viral diseases because of its high economic impact on the poultry industry. Newcastle disease was discovered in Newcastle upon Tyne. Newcastle upon Tyne is a city and a metropolitan borough of Tyne and wear, in Northeast England in 1926 (Doyle, 1927), but at this time slightly different strains were found in other parts of the world. The disease was initially reported in 1925 in Southeast Asia (Alexander, 1997) since then it has become an economically important disease of poultry all over the world. Endemic Newcastle and associated mortalities constitute a major obstacle to the promotion of large holding of birds (Majiyade and Lamorde, 1997). The disease is worldwide in distribution and virus strains of wide varying degrees of pathogenicity exist. Reports from some parts of Nigeria rated Newcastle disease as one of the greatest constraint to the development of the rural poultry production (Dipeolu and Kenipe, 1998).

Newcastle disease since the report in 1927 poses a threat on the poultry industry. The incidence of this disease has reduced over the years because of effective vaccination policies. However the disease continues to be reported even in vaccinated flocks which necessitate industry, the commercial vaccines against the epizootic isolates (Hofacre, 1986).

2.2.4 Infectious Bursal Disease (IBD, Gumboro)

Infectious bursal disease (IBD) is an acute and highly contagious viral disease of immature chickens caused by a member of the Birnaviridae family, who genome consists of two segments of double stranded RNA (Vande Berg et al., 2000; Gary and Richard, 2003). The IBD was first recognized in the United State Of America (U.S.A) in 1962 and has since been reported worldwide, including Nigeria (Cosgrove 1962; Ojo et al., 1973; Onunkwo 1978; Okoye and Uzoukwu, 1981). During the 63rd General session of the office internation des Epizooties, IBD was considered as a disease of socio-economic importance at international level, as the disease was present in more than 95% of the member in a country (Eterradossi et al., 1997). Infectious bursal disease is a major problem in poultry production in Nigeria; the disease is rated as one of the most prevalent disease of commercial poultry in Nigeria (Ojo et al., 1973; Abdu, 1986).

Despite the various vaccination programmes and route of administration that have been developed, the outbreak has continued to be recorded in both vaccinated and non-vaccinated flocks in Nigeria (Abdu, 1997; Ezeokonkwo, 1997; Oyekunle and Adeniji, 2008).

Infectious Bursal Disease (IBD) also known as Gumboro is an acute, highly contagious viral disease of young chicken (Hukert and Saifi 1997). The causative agent is infections bursal Disease virus (IBDV) which belongs to the agent Avibirnavirus with the family Birnaviridae (Dobos et al., 1979). It is a non-enveloped icosahedral, bisegmented double stranded RNA virus with a diameter of about 55-60 mm (Ismail

and Saif, 1990; Anonymous, 2009). The two serotypes 1 and 2 of the virus are differentiated by virus Neutralization (VN) test (Meferran et al., 1980). Serotype 1 contains the pathogenic strains to chicken and can be grouped into classical, antigenic, variant and very virulent (VV) strains (Brown et al.,1994; Cerono, 2008).

When infectious Bursal Diesease (IBD) appeared in chicken in 1962, the disease as designated as Gumboro disease after the geographic location of the first recorded outbreak (Muller et, al., 2003(. Since the first report, IBD has been reported in the poultry industries all over the world (Sait, 1998; Sharma et al., 2000). Ojo et al. (1973), first reported the disease in Nigeria. Subsequent studies have shown that the disease has acquired endemic status among the Nigerian poultry populations (Nawathe et al., 1978; Durojaiye et al., 1984; Abdu 1988) IBD is an acute highly contagious viral infection of chicken between 3-6 weeks of age (Abdu, 1988). The outcome of IBD is largely dependent on the strain and the amount of the virus, age and breed of birds, the route of inoculation, the presence or absence of neutralization of antibodies, intercurrent primary and secondary pathogens and environmental and managemental factors (Muller et al., 2003).

IBD is an acute contagious viral disease of poultry characterized by the inflammation of the bursa of fabricius with its conspicuous enlargement (Echeonwu, 1993). All breeds of chickens are susceptible, with those between 2-7 weeks being most susceptible (Ojo, 1973). However IBD has been reported in 20-week-old birds (Durojaiye, 1985). Mortality in pheasants has been reported to range between 20 and 80% (Louzis, 1979), and Onunkwo (1975) reported mortality to reach 100% in chickens. The immunosuppression precipitated by damaged to the bursa of fabricius in survivors and subclinically infected chicken result in increased susceptibility to the other diseases (Adere, 1985). IBD is a viral disease regarded as the second most important diseases of village chicken in Nigeria (Abdu et al., 1992) following Newcastle disease which is considered as the principal factor limiting village chicken production in Africa (Awan et al., 1994). Infectious bursal diseases an

immunosuppressive disease associated with poor response to vaccination increased susceptibility towards other pathogens and high mortality in a susceptible population (Bell et al., 1990). IBD is a major setback to productivity and profitability in the poultry indultries of both developing and industrialized nations (Shane, 1997; Sainsbury 2000): Gumboro disease is worldwide distributed with two recognized serotypes (1 and 2) (OIE, 2008). Serotype 1 is responsible for clinical cases of Gumboro to which commercial vaccine against Gumboro disease were mainly produced (OlE, 2008). Of the four pathogen of serotype 1 that exist in the field, the hyper or very virulent IBD Virus is capable of infecting chickens in the presence of maternally derived or higher levels of vaccinal antibodies causing very high mortalities and bursal damage with severe economic losses (Lukert and Sait 1997; Shane, 1997; Sainsbury 2000; Islam and Samad 2004; Maisa et al., 2010). The time when chickens are most susceptible to IBD is between 3-6 weeks. When the bursa of fabricius is at its maximum rate of development and the bursa follicles are filled up with immature lymphocytes (Lukert and Sait, 1997; Baxendale, 1981). This is because the IBD virus replicates in and cytolytically affects the actively dividing B lymphocytes in the bursa of fabricius (Lukert and Sait, 1997; Baxendale 1981). However, cases of IBD have also reported in chicken 14-20 weeks in Nigeria over the years (Okeye and Ozoukwo 1981; Owaade and Durojaiye, 1995; Igbokwe et al., 1996; Dashe et al., 2009; Musa et al., 2010), necessitating a rethink in IBD was by Ojo in 1973 (Okoye and Uzoukwu, 2001). Pullets, cockerels and indigenous chickens were shown to be more susceptible than broilers and males had higher mortality rates than females following outbreak (Okeye, 1983) (Sainsbury, 2000). It has become almost practically impossible to control IBD in Nigeria due to poor biosecurity practices in most Nigerian households and poultry farms (Musa 2009; Musa et al., 2010).

2.2.5 Coccidiosis

Poultry coccidiosis is an enteric parasitic disease caused by multiple species of the protozoan parasite of the germs Eimeria and is one of the commonest and economically most important disease of poultry world-wide, causing production losses high morbidity (due to acute, bloody enteritis) and mortality rates (Shirley et al., 2005). Seven species of Eimeria are widely recognized as the causative agents of coccidiosis in chickens of which E.tenella, E. Megatrix, E. maxima and E. praecox is regarded as the least pathogenic (MC Dougald, 2003; Shirley et al., 2005; Conway and Mckenzie, 2007). In Nigeria, Majoro (1981) reported and describe the seven Eimeria species in exotic commercial broiler chickens. Six Eimeria species were also identified by Majoro (1993) in indigenous domestic fowls and these included; E. acervulina, E. tenella, E. brunette, E. maxima, E, megatrix and E.mitis.

Epidemiological studies in Nigeria have established the economic importance of coccidiosis as a major parasitic disease of poultry (Majoro, 1980, 1983, 2001, Adene 2014, Abdu, 2007). The disease occurs throughout the year in Northern Nigeria but with commercial poultry in Zaria, Nigeria (Abdu et al, 2008; Musa et al, 2010). Coccidiosis has been shown to be common to intensively managed commercial poultry farms especially where management or hygienic standards are compromised (Adene and Ohyele, 2004). The increasing interest in commercial poultry production in Nigeria evidenced by the proliferation of poultry farms; suggests increased risk outbreaks of coccidiosis.

The commercial poultry in Nigeria has recorded considerable expansion in recent post (FAO, 2000). Unfortunately poultry diseases serve as major threats facing poultry production in the country (Halle et al, 1998) of these diseases, coccidiosis is essentially a disease of poultry under intensive management condition caused by a protozoan parasite known as Eimeria. A mild coccidian infection due to non pathogenic or low dose of pathogenic, Eimeria Oocyts is not harmful and creates flock

immunity against coccidiosis. A severe attack of coccidiosis can however cause weight losses; morbidity and mortality (Sharma et al, 2013). Coccidiosis in chickens is one of the most costly disease affecting the poultry industry worldwide (Nematouahi et al, 2009). It is an intestinal parasitic disease caused by intra cellular protozoan parasites of the genius Eimeria (Nematouahi et al, 2009). The infection inflict severe economic loss due to extensive destruction of the enteni epithelium resulting in reduction of feed conversion, body weight gain and egg production (Min et al, 2004; Morris & Gasser, 2006; Kiuehoy et al, 2007).

The disease is endemic in most of the tropical and subtropical regions where ecological and management conditions favour an all-year round development and propagation of the causal agent (Obasi et al , 2006). Coccidiosis has been reported in most part of Nigeria (Okoye, 1985; Molta et al; 1999; Muazu et al, 2008; Jai au et al; 2012). Epidemiological studies on coccidiosis in Nigeria indicated 12% prevalence and contributed up to 37% of all internal paracstes of poultry in Ibadan (Adene and Oluleye, 2004). In Zaria, studies indicate 12% prevalence and contributed up to 37% of all internal parasites of poultry indicated E. tenella and E. negatrix to be the most pathogenic Eimeria species causing bloody caecal and intestinal coccidiosis respectively (Bishul, 1982). Coccidiosis is a disease common in intensively managed farms especially where management or hygienic standards are compromise (Adene and Oluleye 2004). Deep litter that has high moisture content and warmth temperature of 25-30^{o}c favor Oocyst spovulation (David, 2000). Sudden outbreak of coccidiosis had occurred following ingestion of high classes of the spovulated Oocyst over a short period of time by non immune young (3-8-old) birds (Davis, 1981; Unquhart et al, 1996; David, 2000). Birds of any age are susceptible to coccidiosis but most birds get infected in the few weeks of life (Chookyinox et al, 2009). Immunity to coccidiosis in chickens is Eimeria Specie – specific (Davis, 1981; Unquhart et al, 1996; David 2000). Birds that survive severe coccidiosis may never be productive while survivors of one

strain of Eimeria may become infected with another different strain thereby requiring further treatment (Chookyinox et al, 2009).

Coccidiosis in poultry is divided into ceacal and intestinal. Ceacal coccidiosis may produce bloody droppings and anaemia. That is often followed by death, intestinal mucosa of different animals and birds. Further complication in the adult birds is that, in some cases, the adult birds tolerate certain levels of infection if they are under poor condition and feeding but some as they are stressed they become clinically ill (Williamson and Payne, 1978). The important of coccidiosis is controllable under most circumstances, the cost of control makes the disease one of the most expensive parasite disease encountered in the poultry industry (Majoro).

With the increasing interest in poultry production evidenced by the proliferation of poultry farms, it is pertinent to continually evaluate the prevalence and management issues associated with common diseases in the area.

2.3 Review of Related Empirical Studies

M. Abdu (in 2008) conducted a study to assess the impact of Avian influenza in some states of Nigeria. Cases of Avian Influenza (AI) outbreaks reported and confirmed were extracted from the records of control committees on AI in Kano and Katsina states, Veterinary Teaching Hospital of Ahmadu Bello University, Zaria, Pan-African control of Epizootic (PACE) project office at Kaduna Information on AI outbreaks in the four states under study between the period of January and March 2006. Chickens accounted for more than 99% of all the birds affected followed by guinea fowls and turkeys. More than 60% of the birds affected were adults. The concentrations of poultry farms in Kano metropolis particular along Gwarzo where the epidemic was first noticed might have been responsible for the fast spread of the disease within Kano metropolis. It is a common practice to find geese, ducks and turkeys in one farm in the study area. This practice makes the chickens and turkeys more prone to disease. From the track of outbreaks, it is possible that the disease spread from Jigawa State to Kano

state to another state in the study area and other parts of the country through trade in live birds and poultry by products. For proper diagnosis and control of AI in Nigeria, poultry farmers should be educated on the necessity for prompt diagnosis and control of AI in Nigeria, poultry farmers should be educated on the necessity for prompt disease reporting to veterinarians and appropriate authorities. E.B. Etuk in (2004) conducted a study to asses the prevalence and management issues associated with coccidiosis in Abak Agricultural Zone of Akwa Ibom State, Nigeria. The study, which involved scrutiny of farm and clinical records, distribution of structured and pre-tested questionnaires to elicit relevant data, showed that in the previous 12 months, 3,327 (29.36%) birds out of the 11,333 encountered in the 30 farmers suffered from coccidiosis. Overall mortality rate was 2.63%. The highest prevalence rates were recorded in the rainy season (12.7%), among birds manage in deep litter (26.69%), birds 1-5 weeks old (18.75%) layers (22.29%) and Harcostrain (26.42%). Sixty percent of the farms consulted veterinarians for diagnosis. Good sanitary and hygiene practices were being employed in 50% of the farms and the major preventive measure. Combined administration of anticoccidial drugs and removal of litter (43.33%) ranked highest as control measures. Continued veterinary Education and extension services are needed in the area to update the knowledge of the farmer especially on the benefits of vaccination, dangers of self-diagnosis and adoption of an integrated approach involving good hygienic practices and use of both drugs and vaccines for disease prevention.

I.J. Mbuko in (2010) conducted a five year retrospective study (2004-2008) of the prevalence of Gumboro disease (infectious bursal disease, IBD and other poultry disease diagnosed at the poultry unit of the Ahmadu Bello University Veterinary Teaching Hospital (ABUVTH), Zaria, Kaduna Nigeria was conducted. A prevalence of 7.26% (107 cases) was recorded out of 1473 cases of poultry disease. Gumboro disease occurred throughout in Zaria with a high incidence during the festival periods (July-September, October-December and January- March). The outbreaks of IBD were

observed to be 1.3 times more likely to occur in pre-rainy season (April-June). Improved breeds of chickens were 5.8 times more likely to suffer from IBD than free range local chicken with broilers being 5.7 times more likely to suffer from the disease than other type of birds followed by layers kept together with cockerels. The prevalence of IBD is influenced by age of birds with an increase in the livelihood of IBD occurring within the age range of 3-5 weeks. Birds at 5 weeks old were at highest risk. Chickens within one vaccination history against IBD were 8.2 compared to non-vaccinated chickens. This study recommended that poultry farmers should be encouraged to improved on farm biosecurity and ensure that their birds are vaccinated at least twice, before 3 and 5 weeks of age (at 1 and 3 or 2 and 4 weeks). Oluwole, in (2012) conducted a study to assess the perception and attitude of poultry farmers in the selected local Government Areas in Ibadan towards vaccination of birds against these diseases, and to find the types of vaccines that were available for the control of the two diseases. A total of 84 respondents of 100 (84%) completed and returned the questionnaires administered. The result indicated that all farmers vaccinated their birds against HD. The regime for HD vaccination was not the same across the local government areas. Some 32 (38.1%) farmers operated on vaccination schedules provided by hatchery technicians, while 43 (51.2%) farmers vaccinated their birds at about 4-6 weeks interval. Nine (10.7%) farmers combined hatchery and laboratory evaluation to determine schedule. Thirty nine farmers (46.4%) indicated that they were aware of National policy of non-vaccination against AI. However, 14 out of 84 farmers (16.7%) vaccinated their birds against HPAI. There is a need to continue with the national policy of slaughter of HPAI infected poultry birds and compensation of farmers, albeit allowing strategic use of vaccine to effectively control HPAI outbreaks in South-Western part of Nigeria.

Razia et al., (in 2004) designed a study to record the prevalence of economically important viral disease in broiler and layer flocks in District Lahole Pakistan during the period July 2012 to June 2013. Out of 210 broiler and layer flocks 22, 5, 2. boiler

flocks were affected with Newcastle disease, Gumboro and Hydropericardium syndrome respectively. The prevalence of Newcastle disease, Gimboro and Hydropericandium syndrome in broiler flocks was 10.47%, 2.38%, 0.95% respectively, out of 148 layer flocks 18, 11, 2, 3 layer flocks were affected with New Castle disease, infectious bursal disease, hydropericardium syndrome and fowl pox in layer flocks was 12.16%, 7.43%, 1.35%, 2.20% respectively. It was noticed that prevalence of Newcastle disease in broiler and layer flocks maintained poor managemental condition such as poor ventilation, overcrowding, unvaccinated flocks had high susceptibility to these viral diseases.

Adamu, in (2009) conducted a retrospective study of clinical records in the Veterinary Teaching Hospital in Usmanu Dan Fodiyo, University of Sokoto (VTH – UDISS) and Sokoto Veterinary Centre (DVC) was carried out to establish the occurrence and distribution of poultry diseases over the period of five years (2004-2008). A total of 1034 cases were recorded out of which 337 (32.9%) was infectious bursal disease (IBD), 147 (14.0%) was coccidiosis, while 124 (12-4%) and 102 (9.9%) were Newcastle disease (NCD) and fowl typhoid (FT) respectively. Other diseases / conditions with lower occurrences include fowl cholera (FC), malnutrition / starvation and the highly pathogenic Avian Influenza (HPAI) with 33 (3.2%), 17 (1.6%) and 2 (0.26%) cases respectively. The highest prevalence of 50% (515 cases) was indicated in viral diseases and the least was from malnutrition / starvation with only 1.6% (17 cases) recorded. Dry period represented the period of increased disease occurrence of 71% (788 cases) which on comparison to that of dry season 29% (246% cases) revealed statistically a significant difference ie (PL 0.05) by the chi-square analysis. The years 2005 and 2008 recorded the highest 272 (26%) and the lowest 127 (12.3%) disease occurrences respectively. Poor management, inappropriate vaccine handling and self medication practices by the poultry farmers in conjunction with lack of facilities and awareness on diagnostic laboratory sciences may be associated with the distribution pattern of cases recorded in the clinics.

2.4 Summary of review of related literature.

This chapter was reviewed related literature in various poultry diseases. It has also surveyed the empirical work of other scientific investigators. Infectious disease has consistently been a major limiting factor to profitable poultry production. These diseases have to be put in check to maximize production. Several reports on prevailing poultry diseases across some states in Nigeria have been documented. Viral Diseases threatens the poultry industry by causing heavy mortality and economic losses of production often as a result of the chickens increased susceptibility to secondary infectious. It is obvious that poultry disease cause major setback in the poultry industry it is therefore pertinent to adopt proper control and control and biosecurity measures in other to increase the output and achieve maximum result.

CHAPTER THREE

METHODOLOGY

3.1 Design of the Study

The researcher adopted survey design for the study. A pre-tested and validated structured questionnaire was used to elicit responses from the respondents. This design was used to obtain additional information on the disease and its economic impact that could not be obtained from farm records. They were also used to assess farmer's

awareness of the diseases and its impact on flock performance. It utilized historic data from farm records. The farmers' records were supplemented with questionnaire.

3.2 Area of the Study

The study is carried out in Asa Local government Area of kwara state. Asa a local government in in kwara extends from latitude 8.80^0 and 8.40^0N and longitude 4.12^0 to 4.40^0E of the equator. It comprises of 9 towns and villages and a total land area of 1286kilometer square . The relief of Asa Semi Urban is that of relatively gentle to monotonously plain land higher than 61 meters and the town falls within the tropical savanna climate with a mean rainfall ranges from 990mm to 1318mm and a yearly relative humidity average of 63%.The area lies in the wet tropical rainforest zone of south east Nigeria and is characterized by wet and relatively dry season. The rainy season usually begins in April and ends in October with peak rainfall occuring in June and September . The climate and adaptive factors such as seasonality, temperature and climate favor crop and livestock production (Anon., 2009). The Kwara State Agricultural Development Programmes (KWADP) is a government agency responsible for agricultural development and service in the area.

3.3 Population of the Study

These comprised of 54 poultry farmers domiciled in the study area and registered with the Ilorin office of the Kwara Agricultural Development Programme (KWADP)

3.4 Sample and Sampling Technique

A simple random sampling technique was used. 50 poultry farmers from a list of 54 in the selected zones were randomly selected to take part in the study.

3.5 Instrumentation

Questionnaire items were used to collect data from poultry farmers in the study area.

A pre-tested and validated structured questionnaire was utilized with the aid of trained enumerators to collect responses from the purposefully selected 50 functional poultry farms in Asa Local Government Area. All the questionnaire were accurately completed and used for the analysis farm records where available. Scrutinized and direct observation and hygienic practices in each farm noted. Information generated include: farm location, flock size, date of visit, poultry species and strain with specification of typology (e.g. broilers, layer, age, husbandry details, housing and treatment records). Respondents were thereafter requested to give their perception on their level of severity of each of the disease outbreak.

3.6 Method of Data Collection

Structured questionnaire were developed, pre-tested to eliminate ambiguity and then used during scheduled interview to elicit relevant information required from the farmers, managers and other key players in the selected farms. Enough time and necessary explanations were offered to the respondents enabling them to give dear

answers to the questions. Where farmers were not sufficiently literate, questions were translated into their local language and responses recorded. All the questionnaires were correctly completed and used for the analysis. Farm record that where available were scrutinized and direct observation on the hygienic practices in each farms noted. Other data were collected on the poultry disease prevention measures used, mortality rates, vaccinations, constraint to vaccination, general poultry disease management and extension service delivery.

3.7 Method of Data Analysis

Descriptive method including frequency table, histogram and pie chart were used to analyse the data.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF RESULT

INTRODUCTION

This chapter deals with the presentation of the result of the study and will be discussed accordingly.

The results and discussions are presented based on the research questions.

Presentation of Result

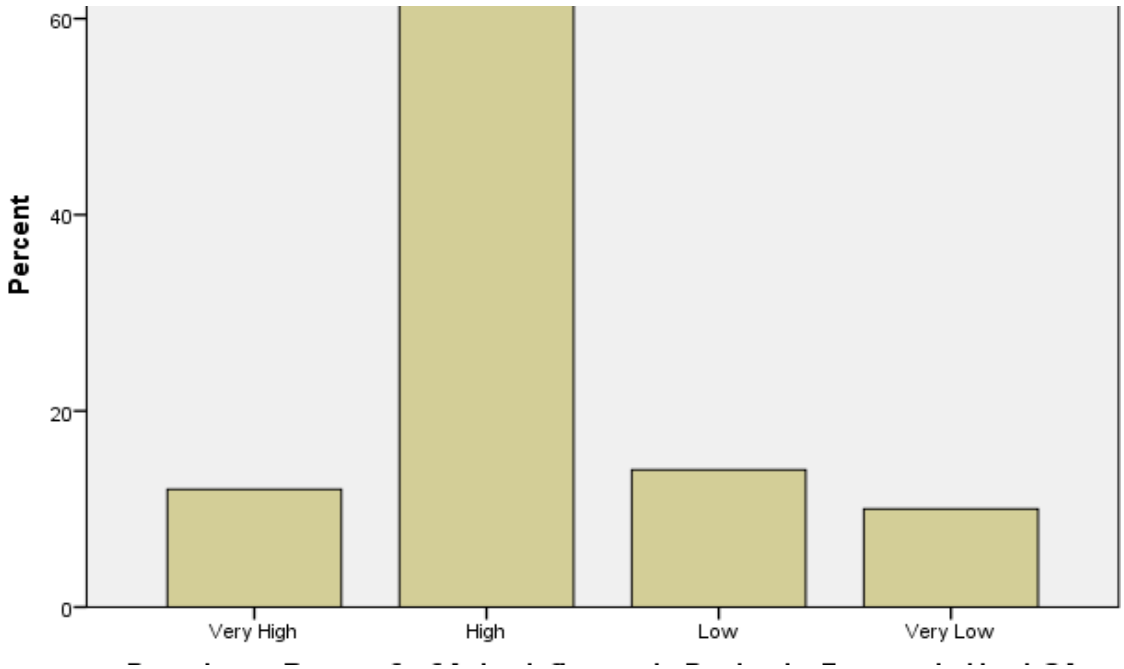
Tables and figures 1-3 highlight the summary of prevalence and mortality rates of Aviran influenza, Newcastle and Gumboro diseases in poultry in Asa Local Government Area.

4.1 Research Question 1

What is the prevalence and mortality rates of Avian influenza in poultry in Asa Local Government Area?

Table 1. Prevalence Rates of Avian Influenza in Poultry in ASA L.G.A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very High	6	12.0	12.0	12.0
	High	32	64.0	64.0	76.0
	Low	7	14.0	14.0	90.0
	Very Low	5	10.0	10.0	100.0
	Total	50	100.0	100.0	



Mortality Rates for Avian Influenza in Asa LGA

Frequencies

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	1-29% Mortality	7	14.0	14.0	14.0
	30-49% Mortality	13	26.0	26.0	40.0
	50-69% Mortality	17	34.0	34.0	74.0
	70-89% Mortality	9	18.0	18.0	92.0
	90-100% Mortality	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

Mortality rate of avian influenza in Asa local government

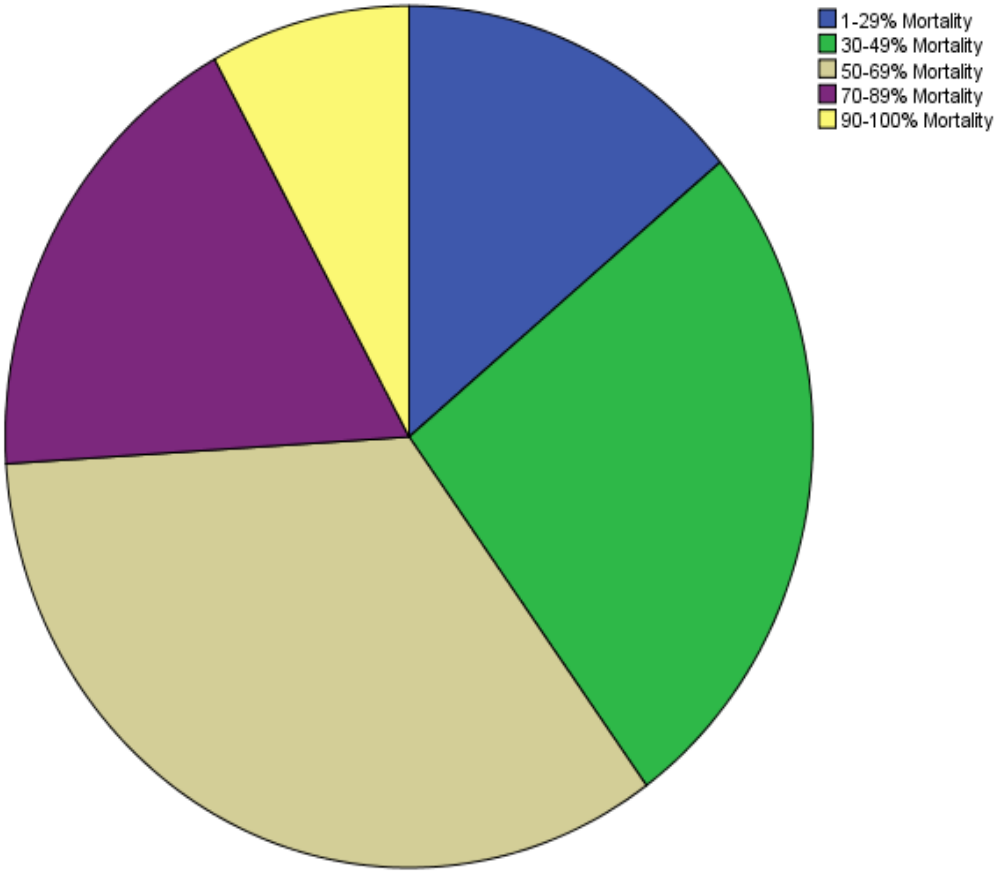


Table: I and Figure I present the frequency table for the prevalence rates of Avian influenza in Asa L.G.A. it indicates that 64% of farmers had High rates of Avian influenza and only 10% of farmers had very low prevalence rates of avian influenza

respectively. 12% and 14% of the farmers had very high and low prevalence rates Avian influenza respectively.

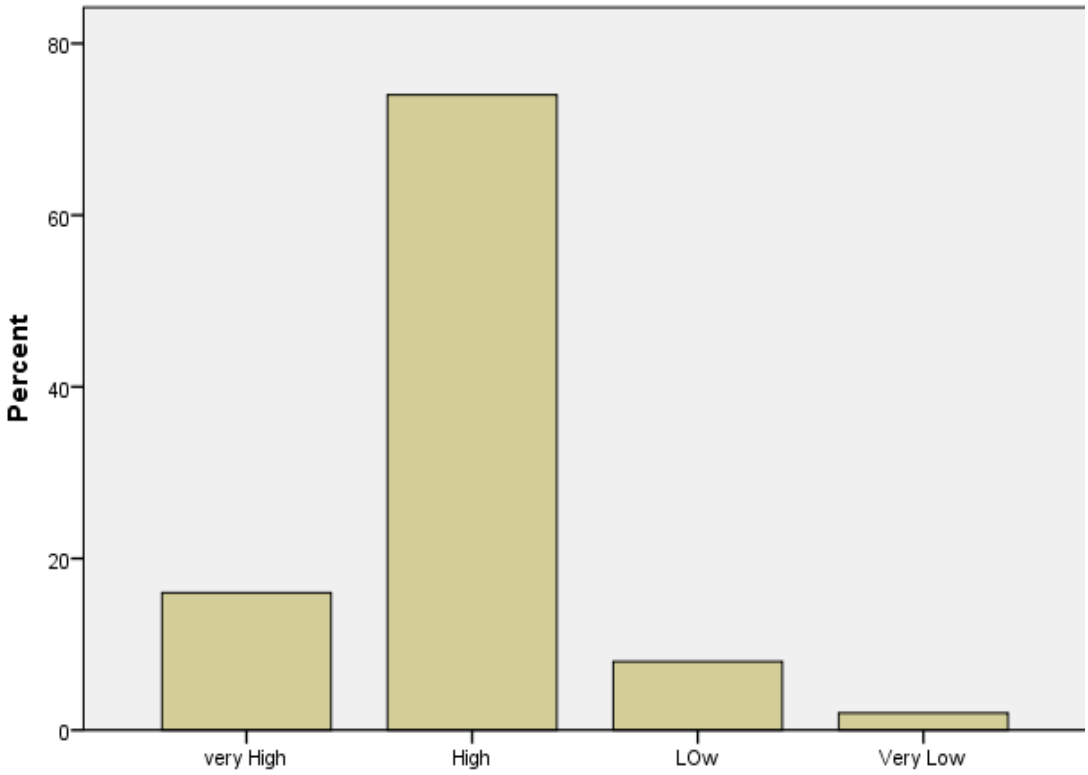
For mortality rate, 80% of farmers had 90- 100% mortality rate of Avian influenza, 34% of farmers had 50- 69% mortality rates. 26% had 30- 40% of mortality, 18% had 70- 89% of mortality and 14% of farmers had 1 – 29% of mortality rate of Avian influenza in poultry.

4.2 Research Question II

What is the prevalence Rates of Newcastle and its mortality rates of poultry in Asa L.G.A.

Table 2 :Prevalence Rates of New Castle Disease of Poultry in Asa Local Government Area

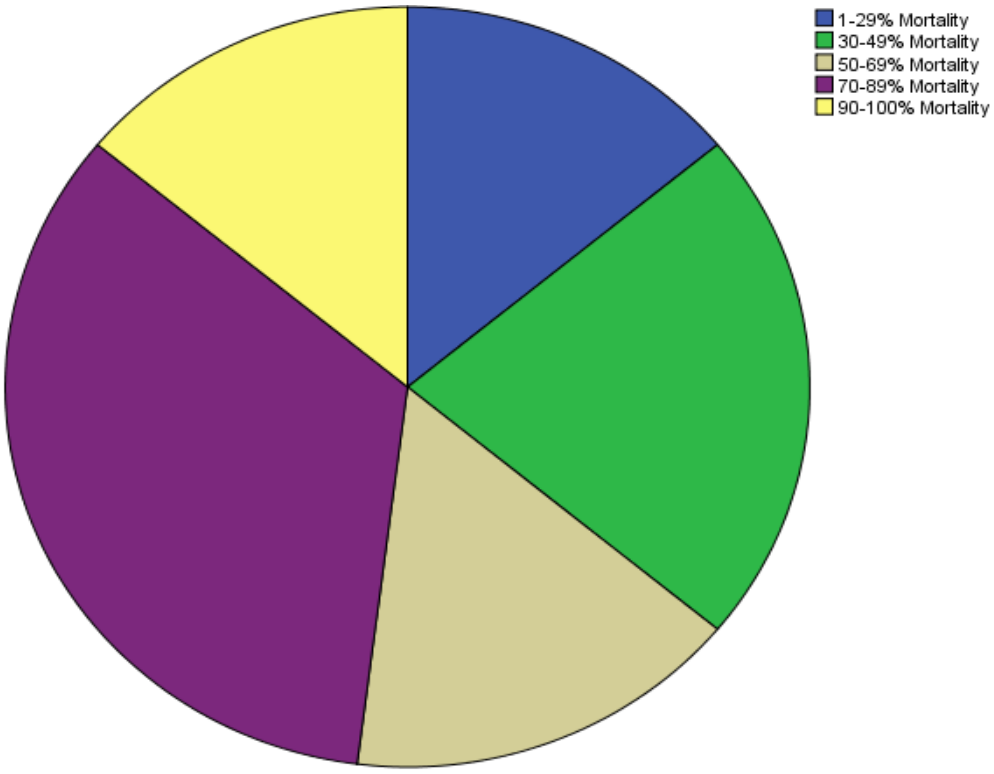
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very High	8	16.0	16.0	16.0
	High	37	74.0	74.0	90.0
	LOw	4	8.0	8.0	98.0
	Very Low	1	2.0	2.0	100.0
	Total	50	100.0	100.0	



Prevalence rates of Newcastle Disease of Poultry in asa local Government Area

Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-29% Mortality	7	14.0	14.0	14.0
	30-49% Mortality	11	22.0	22.0	36.0
	50-69% Mortality	8	16.0	16.0	52.0
	70-89% Mortality	17	34.0	34.0	86.0
	90-100% Mortality	7	14.0	14.0	100.0
	Total	50	100.0	100.0	



Mortality rates of Newcastle Disease of poultry in Asa local Government

Table 2 and Figure 2 present the frequency table for the prevalence Rates of Newcastle disease and its mortality Rates in Asa Local Government Area. It shows that 74% of farmers had high rates of Newcastle disease and 2% of farmers had very low of Newcastle disease. 16% and 8% had very high and low prevalence Rates of Newcastle disease respectively.

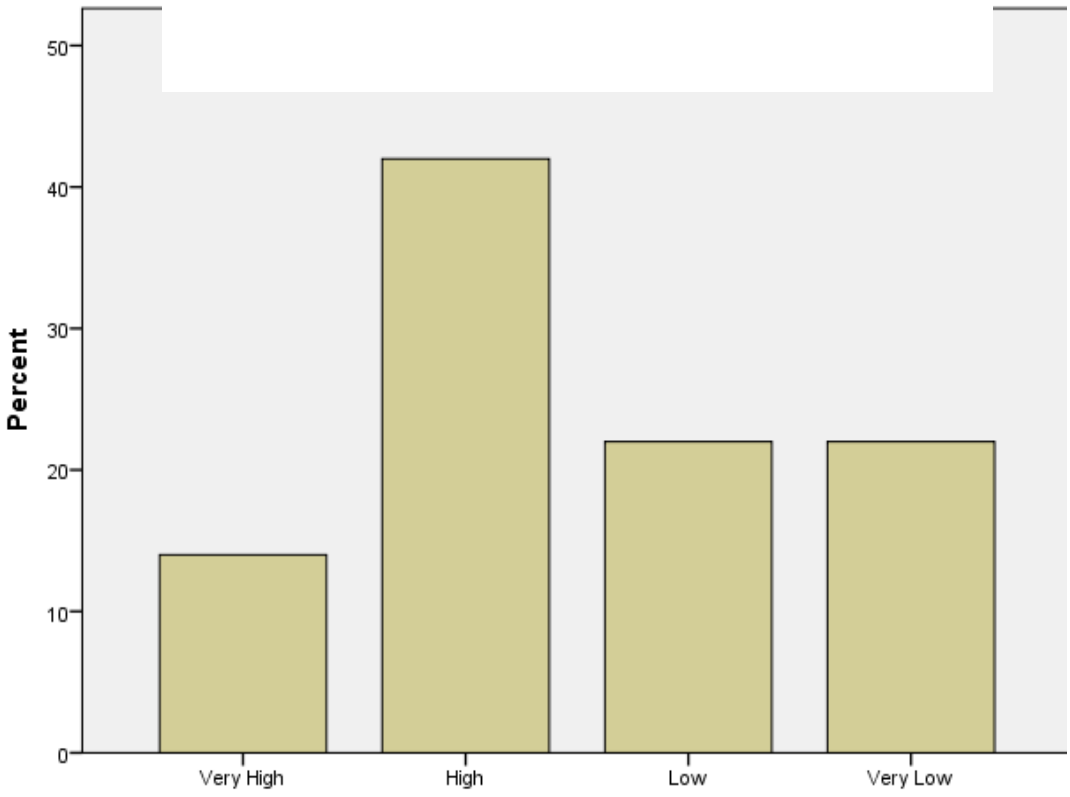
For Mortality Rate: 34% of farmers had 70%-89% mortality rates of Newcastle, 22% of farmers had 30- 49% mortality rate, 16% had 50%-69% mortality rates, 14% of farmers had 90- 100% mortality rates. 14% hacl 1-29% mortality rate of Newcastle disease respectively.

4.3 Research Question III

What is the prevalence Rates of Gumboro and its mortality Rates in poultry in Asa L.G.A.

Table 3;
Frequency

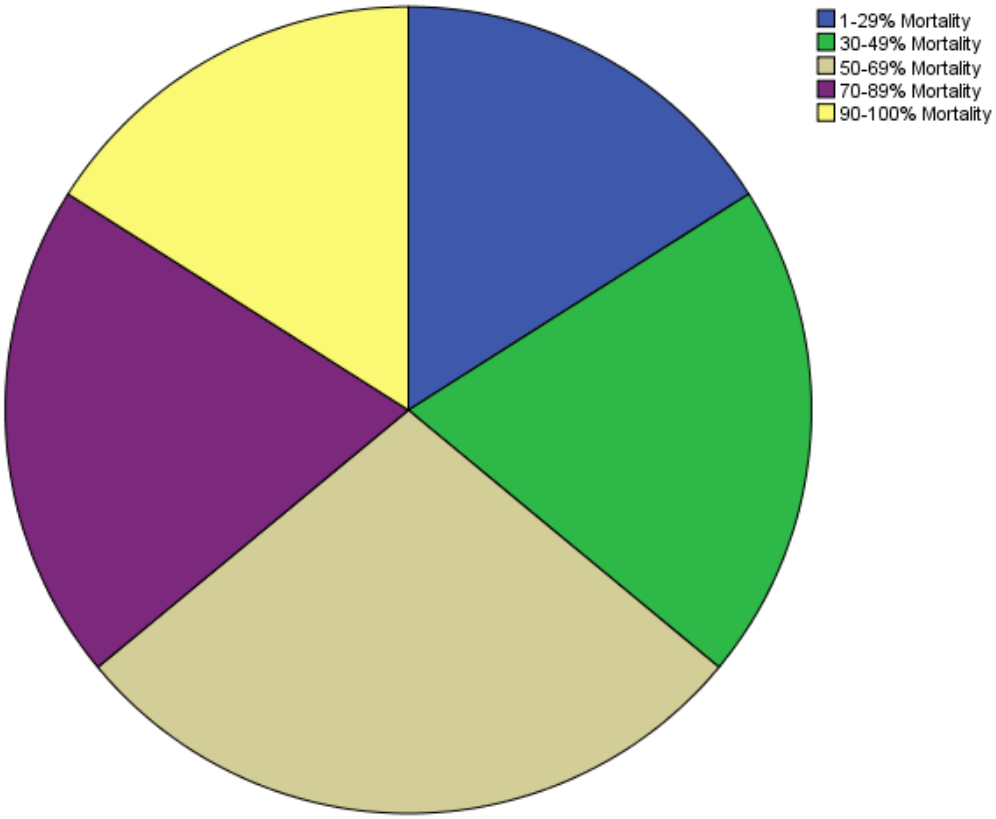
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very High	7	14.0	14.0	14.0
	High	21	42.0	42.0	56.0
	Low	11	22.0	22.0	78.0
	Very Low	11	22.0	22.0	100.0
	Total	50	100.0	100.0	



Prevalence Rates of Gumboro Diseases of Poultry in Asa LGA

Mortality Rates of Gumboro Diseases of Poultry in Asa LGA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-29% Mortality	8	16.0	16.0	16.0
	30-49% Mortality	10	20.0	20.0	36.0
	50-69% Mortality	14	28.0	28.0	64.0
	70-89% Mortality	10	20.0	20.0	84.0
	90-100% Mortality	8	16.0	16.0	100.0
	Total	50	100.0	100.0	



Mortality Rates of Gumboro Diseases of in Poultry in Asa LGA

Table 3 and Figure 3 present the frequency table for the prevalence rates of Gumboro disease and its mortality rate in poultry in asa LGA. It shows that 42% of farmers had very high pre2valence rate of Gumboro, 22% of farmers had very low rates, 14% of farmers had very high rate and 22% of farmer had low rates of Gumboro disease respectively.

For Mortality Rates: 28% of farmers had 50-69% mortality rates of Gumboro, 20% of farmers had 70-89% mortality 20% of farmers had 70-89% rate, 20% of farmers had 30-49%, 16% had 1-29% mortality rates and 16% of farmer had 90-100% mortality rates of Gumboro respectively.

4.4 Discussion of Findings

1. The prevalence rate of Avian influenza and its mortality rate on poultry in Asa Local Government Area:

The study discovered that a greater percentage of farmer experienced high rate of Avian influenza and only about 10% of the farmers had low rate of Avian influenza. Pathogenic Avian influenza is a devastating disease in poultry; it is discovered to be associated with high death rate and disrupts poultry production and could be transmitted to humans. Despite immediate and proactive measures embarked upon by the veterinary and public health authorities, the disease still spread to 14 states and 26 Local Government of which over 268 suspected cases were analyzed by veterinary researchers. The first confirmed Avian influenza was at Kaduna on January 14 in 2006 and death cases in Jigawa State in December 2005 (Adene, et al, 2006).

2. **The prevalence rate of Newscastle Disease and Mortality rate on poultry;**

New castle disease (ND) and infectious disease have remained most important infectious diseases threaten village chicken and commercial poultry production in most part of the world (Etyugada et al, 2005(. The Newcastle disease (ND) is endemic in Nigeria and the documentated outbreak of the disease occurred in Ibadan is 1952 (Hill, 1953). ilorin has not really been so affected by the disease. It is discovered that there the major disease affecting village chickens around the globe is Newcastle disease and is generally appears in its several form, often killing 100% of birds (cumming, 1991). There are serological evidence of Newscastle Disease infection is Nigeria Local chickens and a prevalence of about 4% was recorded. It is also discovered that are four forms of the disease caused by various strains of the virus: Doyle's form, Beach's form, Beaudettes' form and Hitcher forms. Newscastle is caused by paramyxo-virus (DMV-1) or newscastle virus (NDV) (Saidu, 2010).

3. **The prevalence rate of infectious bursal disease and its mortality rate on poultry;** the infectious Bursal Disease (IBD) (Gumboro) was first recognized in the United States of America (USA) in 1962 and has since been reported worldwide including Nigeria Cokeye et al 1981). Infectious Bursal disease is a major problem in poultry production in Nigeria.

Despite the various vaccination programmes and route of Administration that have been developed, the outbreak has continued to be recorded in both vaccinated and non-vaccinated flocks in Nigeria. The causal agent is Avibinavirus. Subsequent

studies have shown that the disease has acquired endemic status among Nigerian poultry populations (Abdu, 1988). Mortality in peasants has been reported to range between 20 and 80% (Louis, 1998) and mortality in chickens at 100%. IBD is a virus disease regarded as the second most important diseases of the village chicken in Nigeria.

The infection inflict severe Economic loss due to extensive destruction of the Enteli-epithelium resulting is reduction of feed conversion, body weight gain and egg production coccidiosis has been reported in most part of the world including Nigeria.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

INTRODUCTION

In the light of the findings of this study, summary is here presented from where conclusions are drawn and recommendations made. This chapter therefore considers re-statement of the problem, description of the procedure used, educational implications, conclusion, recommendations and suggestion for further studies.

5.1 Re-Statement of the Problems

Poultry products are among the fastest growing components of global agricultural demands. Nigeria like other developing countries is experiencing rapid growth in its poultry sector. This is being driven by rising incomes and the expanding middle class. Together with sources of protein. Rapid economic

growth urbanization in developing countries has resulted in fast expansion of industrial large scale, vertically integrated, poultry production units with the resultant large scale commercial poultry farming (Adeyemo and Onikoyi, 2012). However, this rapid growth and expansion still have some factors militating against it. One of the major factors is Nigeria in infections diseases.

Across the globe, and in the study area emerging trans boundary epidemic and zoonotic diseases are causing heavy losses of life and money. Many rural areas in developing regions including Nigeria and Kwara State are constrained by poultry diseases. Poultry diseases have major negative economical impacts on poultry production. Currently, there are outbreaks of highly pathogenic Avian influenza, Coccidiosis. IBD and Newcastle diseases in Nigeria, and these are having very bad effects on small scale poultry producers in the countries concerned. This situation calls for national, regional and international disease prevention and control strategies that are sensitive to the needs of smallholder poultry products.

5.2 Description of the Procedure

A survey design was used for the study; carried out in Asa Local Government Area of Kwara State.

The researcher developed instrument ”The prevalence of poultry disease and its mortality rate in Asa Local Government Area” which was used to elicit data for the study. The instrument was face and content validated. The

instrument was administered by the reseachers and research assistant. Descriptive method including Frequency table, pie chart and histogram were used as the statistical tools for analysis of the data obtained.

5.3 Educational Implications of the Findings

The study confirms findings from earlier reports (Byarugaba, 2007: Kyomugisha, 2008) that poultry diseases are still a major constraint for small holder poultry production and that poultry production practices are quite risky. Biosafety and biosecurity measures are either non-existent or below acceptable standards. Producers should be sensitized and made aware of the dangers associated with buying poultry from markets. Poultry buyers can be advised to quarantine new birds before introducing them into their flocks.

Mechanisms for instituting and enforcing safety measures precautions, rules and regulations to govern the operations of all markets should be put in place otherwise it will be coupled with sensitization of farmers and poultry keepers about best farming practices including those for the purchase of breeding birds, and routine management practices such as the use of disinfectants. There are high risks of disease spreading among house holds as there is no inspection of the birds sold in markets, no disinfection and no checking of birds slaughtered for cooking at markets. Clean hygiene and safety guidelines for the management of live bird markets must therefore be put in place.

Appropriate and Suitable housing for different poultry species should be constructed with locally available materials, to minimize the sharing of houses among bird populations. Regular cleaning and disinfection of poultry houses, tools and equipments should be emphasized, and poultry workers should be encouraged to use personal protection wear. The eating of birds that have died of disease should be discouraged and dead birds should burned or buried appropriately. Community based mechanisms for reporting diseases need to be enforced in villages. Mechanisms should include recording all the poultry deaths to disease or following vaccination or drug use, to provide data for monitoring poultry diseases and the effectiveness of vaccinations and treatments. This could be achieved with support from extension workers. Community-based animal health workers.

There is need to develop farmer's institutions through encouraging the formation of farmers' groups and poultry associations, empowering existing groups, and using community structure built on team work and cooperation, such as educating school children and providing public demonstrations of good poultry management practices.

The different roles of men and women in poultry production should be recognized to give them a sense of responsibility for and ownership of their birds. This would encourage smallholder farmers to participate in activities for improving poultry production and disease control. Poultry producers should be

sensitized and educated on disease risk management and safer poultry production.

5.4 Conclusion

The study has revealed that the poultry diseases has brought functional changes in the socio-economic structure of the entire Kwara State and the study area Asa. It was also revealed that the poultry industry still falls short of its aim of ensuring self-sufficiency in animal production in the country. Against this background. It becomes imperatives to institute far reaching measures to revamp the poultry enterprise industry in Kwara State and Nigeria. Adequate measures must be taken to avoid poultry disease outbreaks otherwise it will continue to cause considerable losses to the poultry industry particularly when conducive conditions for the parasite development are created. For proper control of poultry diseases in Kwara State in Nigeria poultry farmers should be educated on the necessity for prompt disease reporting to the nearest veterinarian, also the disease reporting system needs to be improved and there is the need for active surveillance of the diseases in both local and exotic poultry.

5.5 Recommendations

1. Kwara State Agricultural Development Programme and Extension Agency should undertake training on symptoms of Avian influenza and vaccination of birds for the extension officers in order to assist them in dissemination of such information to poultry farmers.
2. An in depth studies on the epidemiology of these diseases should be carried out and also exposure to disease organisms should be reduced by ensuring proper biosecurity measurers and stress management.
3. Government at all levels must intervene decisively in providing centers where farmers can report the disease in case of outbreak. Those centers should provide information on the disease and how it can be controlled in addition to registration of farmers for compensation.
4. There should be easy flow of agricultural information from research institutes. World Health Orgainsation, Food and Agricultural Organisations and Universities to poultry farmers. For this purpose, the Agricultural Development Programme (ADP) in Nigeria should be used to monitor and provide farmers with information on the early symptoms of the disease, mode of transmission and the biosecuirty measures to be observed to avoid spreading.
5. Support for quality vaccines to farmers as an essential link to which more licensed veterinarians could play active role. The production, importation and distribution chains for these vaccines thus being quality assured to safeguard the industry and public health.

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APPENDIX A