FACULTY OF SCIENCE AND EDUCATION

DEPARTMENT OF BIOLOGY

FINAL YEAR PROJECT

MEDICINAL PLANTS USED IN THE TREATMENT OF COCCIDIOSIS DISEASE AMONG POULTRY BIRDS, A CASE STUDY OF KWAPA SUBCOUNTY TORORO DISTRICT.

By

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BU / UP / 2020 / 2052

A REPORT SUBMITTED TO BIOLOGY DEPARTMENT IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION OF BUSITEMA UNIVERSITY, NAGONGERA CAMPUS

NOVEMBER, 2023

DECLARATION

I **EKISA FAITH**, Reg No. BU/UP/2020/2052 does hereby declare that this report is my original work and has not been presented in any institution of higher learning for the award of the degree or any other qualification.

Signature.....

Date...4th/12/2023.....

APPROVAL

This dissertation has been submitted to Busitema University as a requirement for the partial fulfilment of the award of the Bachelors of Science Education

Supervisor:

Madam Flavia Natukunda

DEPARTMENT OF BIOLOGY

Sign .....

Date: 4th/12/2023

DEDICATION

This research report is dedicated to my beloved Parents Mr. and Mrs. EKISA RICHARD together with my Esteemed Brother ARNOLD ONGIRO for the heartless sacrifice you made towards paying my tuition and giving me all the necessary guidance and assistance towards achieving my goals and dreams in life, I cannot thank you enough but it is my heartfelt prayer that God rewards you abundantly and satisfy you with long life and every good thing you desire.

ACKNOWLEDGEMENT

In the first place I would like to thank the almighty God for the wisdom, knowledge and understanding he has granted unto me in every journey of life and am so persuaded that he who begun a good work in me shall bring it to accomplishment till the day of Jesus Christ.

My special thanks go to my beloved supervisor Madam NATUNKUTA FLAVIA for all the necessary support granted unto me towards the success of my research work, I can't thank you enough I pray that the almighty God blesses you abundantly.

I continue to thank the Biology department of Busitema University for their time that they have given to me during the learning process may the almighty God bless you abundantly

Other special thanks goes to my beloved family from my parents, brothers, sisters, relatives and all my friends and spiritual leaders that always kept on supporting me spiritually, financially, materially and in different aspects of life, may the almighty God bless you abundantly and grant all your hearts desires.

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ABSTRACT

Coccidiosis is known to be an expensive parasitic disease for the poultry industry worldwide which has led to great economic losses by causing poor growth rate and feed efficiency among poultry birds leading to high mortality rate. As a result large sums of money are being used in vaccination and inclusion of synthetic drugs in the diet of poultry birds. In the recent years, the development of resistance to coccidiostants resulted to high costs of systematic vaccination and coccidial synthetic drugs. Anticoccidial properties of various medicinal plants such as *Moringa Oleifera* (Moringa), *Carthamus tinctorius* (sun flower), *Azidirachta indica* (Neem), *Bidens pilosa* (Black jack) and *Aloe Vera* supplements have been reported (Ljiljana Kostadinovic, 2019). This research was aimed at discovering the various medicinal plants used by the poultry farmers in kwapa Sub County to treat coccidiosis disease. The methods were employed in data collection include; blended questionnaire-guided interviews with a checklist Use of check list.

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

The poultry industry is one of the main suppliers of animal protein worldwide, contributing both meat and eggs. Each year, over 50 billion chickens are raised as a source of meat, accounting for over one-third of protein food for humans(Munson, 2021).This industry is in constant growth, as demonstrated by the United States Department of Agriculture (USDA) (Putman, Thoma, Burek, & Matlock, 2017). The USDA reported that 102.9 million tons of chicken meat were produced in January of 2020, which represents a 3.9% increase compared to the same period of the previous year(Lin, Yu, Wen, & Liu, 2022). This increase is important, given that by 2050 the human population is expected to exceed nine billion people making sustainable and safe protein production a worldwide priority(Carolina Mesa Pineda, 2021).However, poultry production is often confronted by avian Coccidiosis, flu, and other infectious(McMullin, 2022). Coccidiosis is a parasitic intestinal disease of poultry birds caused by coccidial protozoa(Abebe & Gugsa, 2018). It is a contagious disease infect through contact with contaminated feces and with ingestion with bacterial, fungal and viral pathogens(Meena, Swapnil, Barupal, & Sharma, 2019). Coccidiosis is a disease of hot and humid environments caused by different Eimeria species of the phylum Apicomplexa (Moryani, Rajput, Naeem, Shah, & Jahejo, 2021)

Due to Eimeria multiplication in the intestinal tract, the parasite causes tissue damage(Galli et al., 2019). This can disturb the feeding, digestive processes and nutrient absorption, leading to signs of dehydration, blood loss, poor skin pigmentation and increased susceptibility to feed conversion ratio and increased mortality(Ghafouri et al., 2023). The disease is characterized by , enteritis, dysentery, bloody diarrhea, poor growth, drooping wings, decreased production and emaciation(Moryani et al., 2021).This disease annually causes a global loss of over 2.4 billion US dollars in the poultry industry, including poor growth performance, replacement of chicks, and medication(Blake et al., 2020). Since the prevention of diseases and enhancement of growth, feed intake and feed efficiency are critical factors in modern poultry production today(Adedokun & Olojede, 2019), to prevent coccidiosis and minimize related economic losses, anticoccidial drugs such as polyether ionophores, sulfonamides and chemical drugs are applied via feed prophylactically(Chapman & Rathinam, 2022). Its control through anticoccidial live vaccines and drugs has been very successful. However due to various limitations such as high cost of production of live vaccines, drug resistance, and residues representing public health concerns(Chapman & Rathinam, 2022), there is a need for alternative strategies of combatting the effects of coccidiosis among poultry birds. The most effective and readily available alternatives are the use of the natural medicinal plants such as *Camellia sinensis* (Green Tea), Bidens pilosa (black-jack, beggar ticks), Aloe Vera (Aloe) and Carthamus

tinctorius (Sunflower)(Jamil et al., 2022). Compared with synthetic antibiotics or inorganic chemicals, this plant-derived products have proved to be less toxic and thought to be ideal feed additives (some feed directly) in food poultry production. Because of an increasing demand for natural herbal food products, a lot of herbal extracts are studied for the treatment of poultry coccidiosis to find new alternatives of the traditional anticoccidial drugs(Rizwan et al., 2022). This research study therefore aims at discovering the medicinal plants used by poultry farmers and any other new medicinal plants that have not yet been discovered by famers in kwapa sub county Tororo district to treat coccidiosis disease among poultry birds, displaying the control and preventive measures that can be employed to curb the spread and treatment of the coccidiosis disease in this sub count.

1.2 STATEMENT OF PROBLEM AND JUSTIFICATION

1.2.1 Problem of statement

The increasing prevalence of coccidiosis disease among poultry birds is a big concern among poultry farmers. Despite the known and available preventative measures, many farmers are continuously losing their birds due to high cost of synthetic drugs and this undermines their income and livelihood (Rizwan et al., 2022). Therefore, this research was intended to determine possible alternatives and affordable herbal treatment for coccidiosis among poultry birds in kwapa sub county Tororo district. (Hanen Fathy Whater, 2020).

1.2.2 Justification

Since Avian coccidiosis is a common widespread disease associated with considerable economic losses to poultry farmers worldwide and it affects birds raised in any production systems and for any production purposes (Wondimu, Mesfin, & Bayu, 2019). There are increased number of studies going on in search of alternatives for avian coccidiosis control, Naturalproductsareemerging as an attractive way to combat Coccidiosis (Hayajneh, Jalal, Zakaria, Abdelqader, & Abuajamieh, 2018).Because other researchers have discovered various medicinal plants used in the treatment of coccidiosis disease among poultry birds such as Moringa Oleifera (Moringa), Carthamus tinctorius (sun flower), Azidirachta indica (Neem), Bidens pilosa (Black jack) and Aloe Vera supplements (Chandran et al., 2022). This research was aimed at discovering the medicinal plants that poultry farmers in kwapa sub county Tororo district use to treat coccidiosis among poultry birds.

1.3 RESEARCH QUESTIONS.

i. How do you identify that the bird is sick of coccidiosis.
ii. How often does your poultry get sick of coccidiosis?
iii. What are the available medicinal plants that you often use in the treatment of coccidiosis disease among poultry birds?
iv. Which part of the plant is being used?

v. In which form is the plant administered i.e. liquid, solid, powder?
vi. What is the dosage of the medicine?
vii. How often are medicinal plants used over synthetic drugs in the treatment of coccidiosis disease

1.4 HYPOTHESIS

HA: Medicinal plants are used in the treatment of coccidiosis disease among poultry birds in kwapa sub county Tororo district.

HO: Medicinal plants are not used by poultry farmers in kwapa sub county, Tororo district to treat coccidiosis among poultry birds.

HA: Medicinal plants are more effective than synthetic drugs in the treatment of coccidiosis among poultry birds.

HO: Medicinal plants are not more effective than synthetic drugs in the treatment of coccidiosis among poultry birds

1.5 OBJECTIVES

1.5.1 Main objective

The main aim of the study was to determine the most used herbal medicine in the treatment of coccidiosis.

1.5.2 Specific objectives

i. To investigate the prevalence of coccidiosis among poultry birds in kwapa sub county.
ii. To discover the most preferred herbal remedies used to treat coccidiosis.

1.6 SIGNIFICANCE AND ANTICIPATED OUTCOMES.

The significance of this study was that poultry farmers will be able to access the most affordable alternative herbal remedy in their locality to treat coccidiosis and improve on their daily income.

CHAPTER TWO: LITERATURE REVIEW

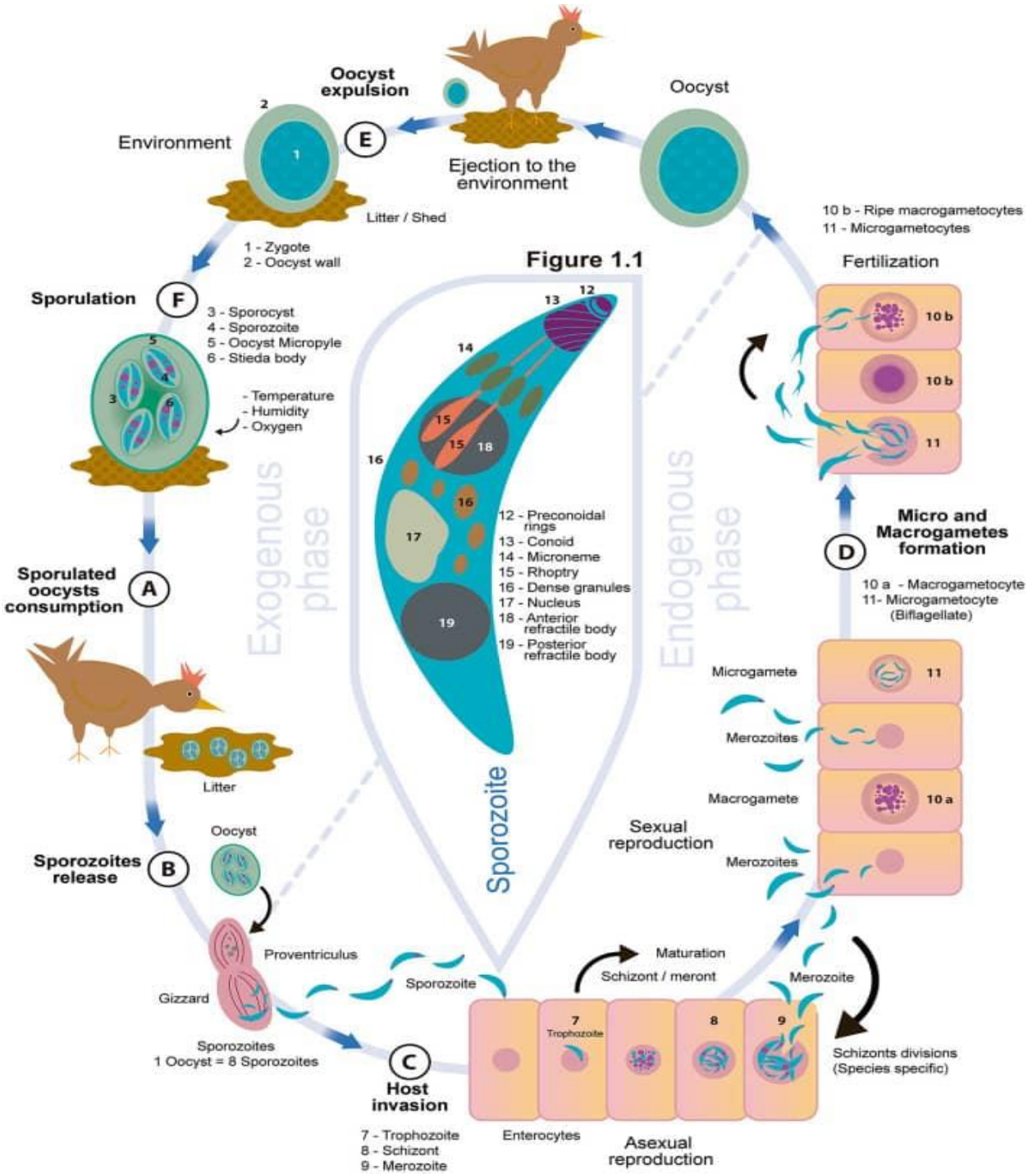
2.1 Conceptual review.

Coccidiosis is an important intestinal disease and a serious threat to poultry birds. It is caused by protozoan parasites of the genus Eimeria (Madlala, Okpeku, & Adeleke, 2021). Seven species of Eimeria (E.acervulina, E. brunetti, E. maxima, E. mitis, E. necatrix, E. praecox and E. tenella) are recognized as affecting chickens. Each of the seven species occurs in a single host species or a group of closely related hosts and they invade the lining of the intestine or ceca, causing death or reduced productivity in poultry. Infection by coccidian parasites in sufficient numbers produces clinical manifestations of the disease (Madlala et al., 2021).

2.2 Life cycle of protozoan parasites of the genus Eimeria

A study conducted by Kalkal, Kumar, and Vohra (2021) found out that Eimeria life cycle includes: sporogony, an exogenous stage, and merogony/schizogony, an endogenous stage,Sporulation of oocysts occurs under standard environmental conditions like humidity, oxygen, and favorable temperature that maximally require 24 to 36 hours. Infection occurs after the ingestion of sporulated oocysts found in litter, feed, and water systems. Excystation occurs in the digestive tract by a chemical process where sporozoites are emerged out from sporocysts which invade the intestine. Merozoites converted into schizonts through asexual reproduction and merozoite formations occur from schizonts through merogony. Merozoites penetrate the epithelial cells and convert to micro and macrogametes through the second merogony/schizogony stage. Zygote development occurs through the fusion of micro and macrogametes. Encystation of zygote led to the formation of the oocyst. The oocyst comes out in the feces via the rupturing of the host cell at the maturation stage (Gondipon & Malaka,2021).

2021)



2.3 Clinical signs and symptoms of coccidiosis

There are two categories of pathological signs of coccidiosis in broiler chickens namely, Sclinical and subclinical. The clinical signs of coccidiosis occur when the enterocytes (intestinal epithelial cells) and the primary connective tissue of the mucosa deteriorate, leading to lumen hemorrhage as the symptoms progress. This is subsequently reflected in a

loss of weight, decreased feed consumption, ruffled feathers, paleness, bloody diarrhea, huddling, pale comb and wattle, dimmed eyes, and dehydration, which eventually may lead to a rise in mortality. On the other hand, subclinical symptoms of coccidiosis are made manifest in terms of poor growth performance including reduced weight gain, inefficient feed utilization, and decreased growth rate leading to high economic damage (Borgonovo et al., 2020).

2.4 Epidemiology of chicken coccidiosis

Coccidiosis disease is promoted by poor housing and management system of poultry (Price & Barta, 2010). The disease is more rampant in the intensive deep litter system which does not only support the breeding of oocyst but also increases the incidence of infection among chickens. Coccidia oocyst sporulate under warmth condition of about 25–30^{o}c with adequate aeration and water while dry condition at 10^{o}c delays sporulation. Coccidiosis affects chicken of all ages, but the infection begins at younger age when the immune system is immature. The disease affects both the intestine and caecum with incubation period of 5–6 days respectively. Coccidia infection outbreak occurs when chicks ingest large quantities of sporulated oocyst. Reduced food intake, bloody diarrhea and loss of weight are some of the symptoms associated with infected birds(Mesa-Pineda, Navarro-Ruíz, López-Osorio, Chaparro-Gutiérrez, & Gómez-Osorio, 2021). The severity of the disease is dependent on the number of Eimeria species that co-infect the birds (Keel, 2020)

2.5 Diagnosis

Correct identification of Eimeria species is important for the diagnosis and control of the disease and from a commercial standpoint, a diagnosis of coccidiosis is required when the gross lesions are evident(Mesa-Pineda et al., 2021). Classical methods for the evaluation of Eimeria infections include macroscopic diagnosis with observation of clinical signs in infected animals, the location and appearance of gross lesions during necropsy; and microscopic diagnosis, which focuses on evaluating the size and shape of oocysts. Sometimes the evaluation of other developmental stages in microscopic smears is also included. In addition, when greater diagnostic precision is needed, molecular diagnostics can be included.

Management has always been important to controlling coccidiosis in poultry, however, it is very difficult to keep chickens coccidia free as oocytes are omnipresent and spread widely in the poultry house. Management focuses on decreasing coccidial numbers to keep infection at a minimum until immunity is established in young birds since species specific immunity develops rapidly. Hygiene, anticoccidial drugs and vaccines all play major roles in commercial operations (Kadykalo et al., 2018).

2.6 Control measure of coccidiosis

Due to drastic effect of coccidiosis on the poultry, different control methods have been deployed. Thorough biosecurity coupled with the use of prophylactics were the first strategies deployed in the control of this disease. Synthetic drugs such as amprolium, nicarbazin, diclazuril, and toltrazuril were used effectively to control coccidiosis disease in poultry for many years (s.s. mousauinasab, 2022). The drugs target the sporozoite/merozoite developmental stage of the parasite. However, the constraint of this strategy in the control of coccidiosis disease is the emergence of drug resistant isolates of Eimeria parasite. Public pressure to reduce drugs in the food chain has led to search for alternative strategy to the control of coccidiosis. Among the alternative measures explored is the use of natural products include probiotics, plant extracts and fungal extracts (Adekele, 2018). Since then, a consistent report on the use of probiotics either alone or together with other supplements has been confirmed to reduce microscopic lesion in birds infected with coccidiosis. Similarly, significant reduction in the mortality of birds infected with coccidiosis has been reported among different plant extracts (Hanen Fathy Whater, 2020). Increase body-weight and reduced lesion scores are some of the advantages of plants extracts when put into use. (Adekele, 2018)

Also adaptation of better environmental practices plays an important role in managing and reducing the occurrence of diseases. The best poultry housing practices include managing wet litter, routine cleaning, and prevention of overcrowding to reduce stress and the chance of coccidia infection at the farm level. (N.Acharya, 2021)

CHAPTER THREE: MATERIALS AND METHODS.

3.1 Study site.

The research study was conducted in kwapa sub-county Tororo district in different households within the sampled areas. The results obtained were used to analyse the topic of the study and the data collected was used to deduce the set hypothesis.

3.2 Materials used, sample size and determination, study design

The materials that were used to conduct this study included; Blended questionnaire guided-interviews and a checklist. The blended questionnaire guided interviews were designed in such a way that it helped in answering the laid down research questions thus meeting the purpose of the research study. Poultry farmers who were able to read, comprehend and write were given questionnaires and pens to answer the research questions which are closed ended and also open ended. The poultry farmers who acquired informal education were interviewed orally one-on-one in order to capture their views on the prevalence of coccidiosis among their birds and measures employed to combat this disease but putting emphasis on the medicinal plants commonly used in their locality. A checklist was used to ensure that all the research questions are answered appropriately, the objectives of the study were met and nothing important was forsaken during the execution.

Cameras were used to take pictures of the sited medicinal plants that are commonly used by the poultry farmers to treat birds that are infected by coccidiosis disease

3.3 Sampling method

Simple probability sampling technique was used to select the respondents from different zones within the sub county. The respondents were poultry farmers and at least 400m from each household

3.4 Sampling size

All people above 18 years of age were randomly selected in the selected parishes of the sub county.

3.5 Study design

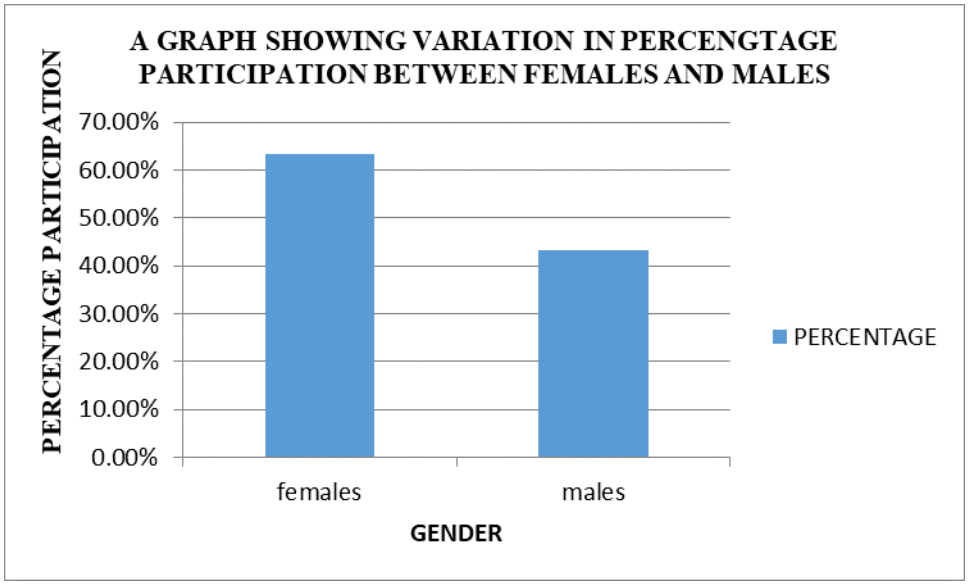
This research was conducted in selected parishes within kwapa Sub County and the results obtained were used to analyse the topic of the study and the data collected was used to deduce the set hypothesis

CHAPTER FOUR: RESULTS AND DISCUSSIONS.

Tables, pie-charts, graphs and pictorials were used in data presentation

Table 1. Variation in percentage participation between females and males

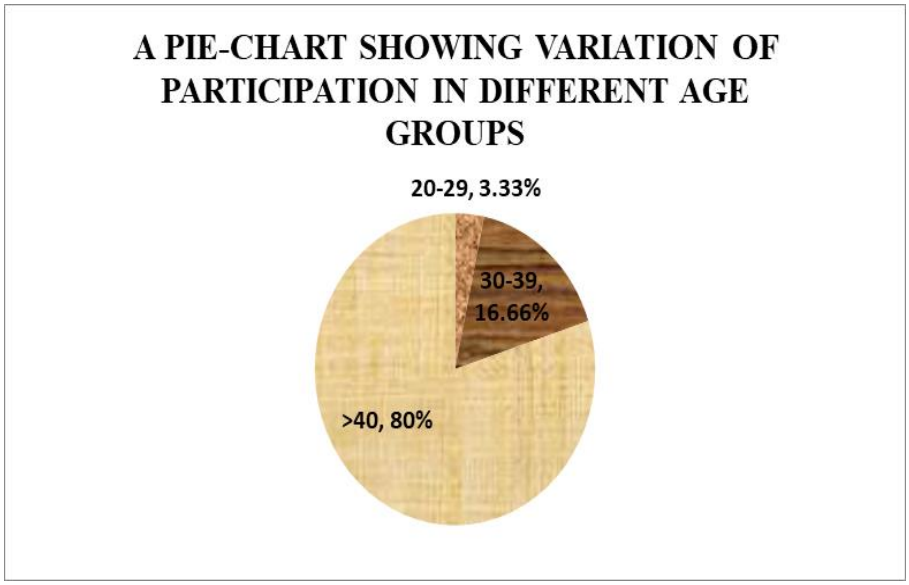
GENDER	COUNT	PERCENTAGE
Females	19	63.33%
Males	13	43.33%



According to the information above, more females were interviewed than males.

Table 2. VARIATION OF PARTICIPATION IN DIFFERENT AGE GROUPS

Age	Count	Percentage
20-29	1	3.33%
30-39	5	16.66%
>40	24	80%

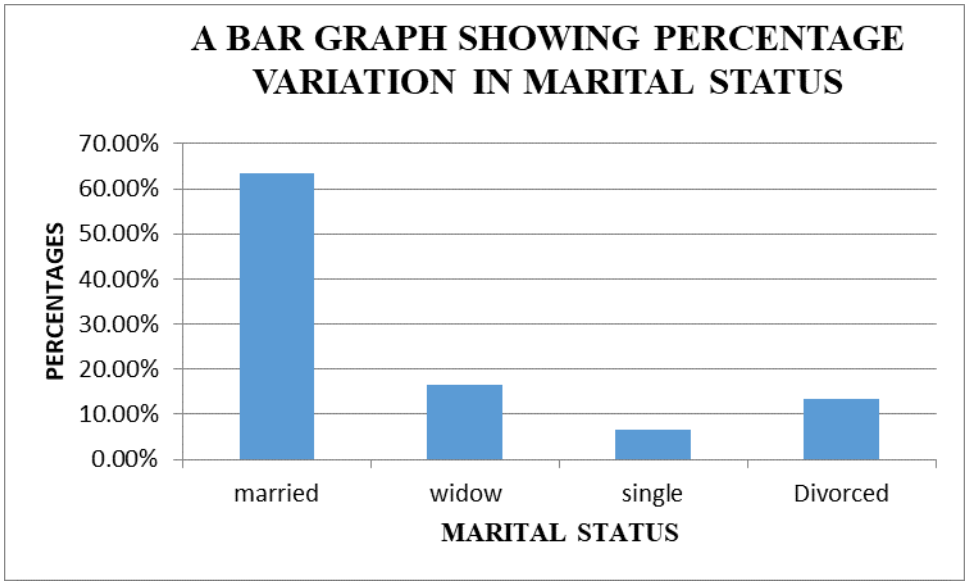


According to the data above, most of the poultry farmers interviewed were above 40 years of age (80%), followed by those between the age of 30-39(16.66%) and the least were between the age of 20-29(3.33%).

Most poultry farmers were above 40 years of age because of accumulated experience and knowledge in the field because poultry farming requires a deep understanding of various factors such as breed selection, nutrition, housing and disease management.

Table 3. **VARIATION IN MARITAL STATUS**

Marital status	Count	Percentage
Married	19	63.33%
Widow	5	16.66%
Single	2	6.66%
Divorced	4	13.33%



The results above show that of the 30 poultry farmers interviewed, 19 were marrieds (63.33%),5 were widows (16.66%),4 were divorced (13.33%) and only 2 were single (6.66%).

Table 4. VARIATION IN PARTICIPATION ACROSS DIFFERENT LEVELS OF EDUCATION

Level of Education	Count	Percentage
Tertiary	5	16.66%
Secondary	6	20%
Primary	10	33.33%
None	9	30%

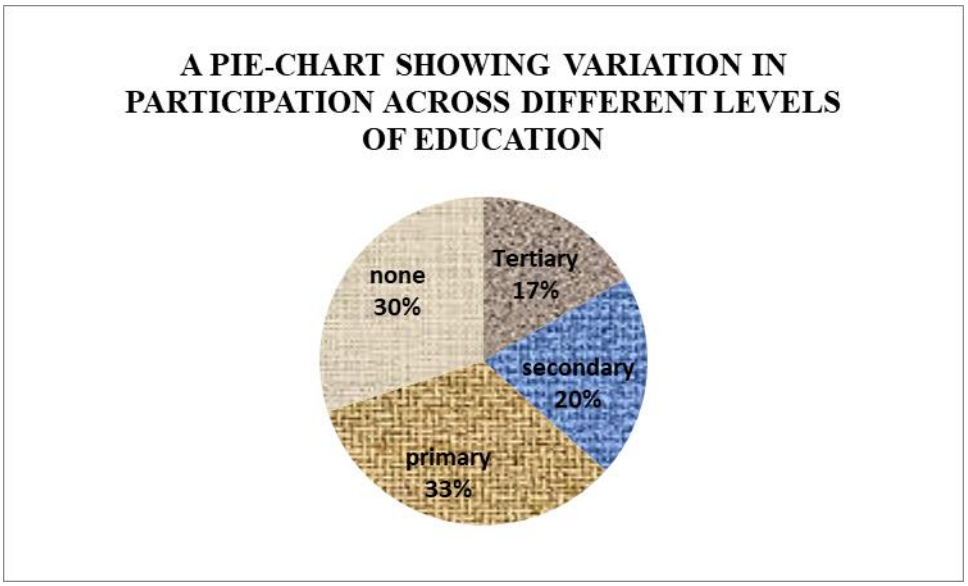


Table 5. VARIATION IN FAMILY, SCIENTIFIC NAME AND NAME OF PLANT CITED, NUMBER OF PEOPLE WHO CITED THE PLANT AND IMAGE OF THE PLANT CITED.

Family,Scientific name and local name of plant cited	number of people who cited the plant	Image of the plant part
Meliaceae,Azadirachta indica(Neem)	5	
Asteraceae,Bidens Pilosa(Black jack)	8	
Moringaceae,Moringa Oleifera(moringa)	3	
Liliaceae,Aoevera supplements (Aloe vera)	2	

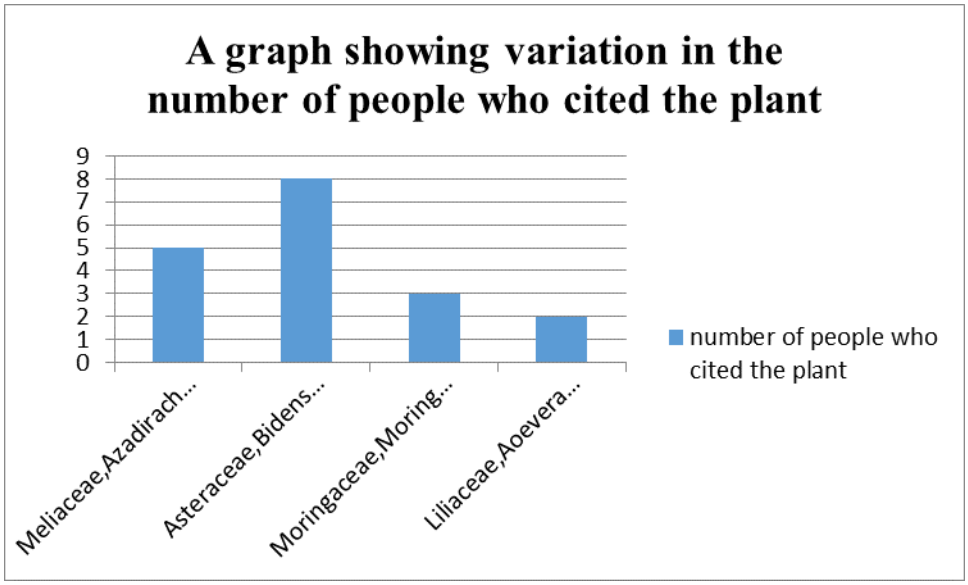
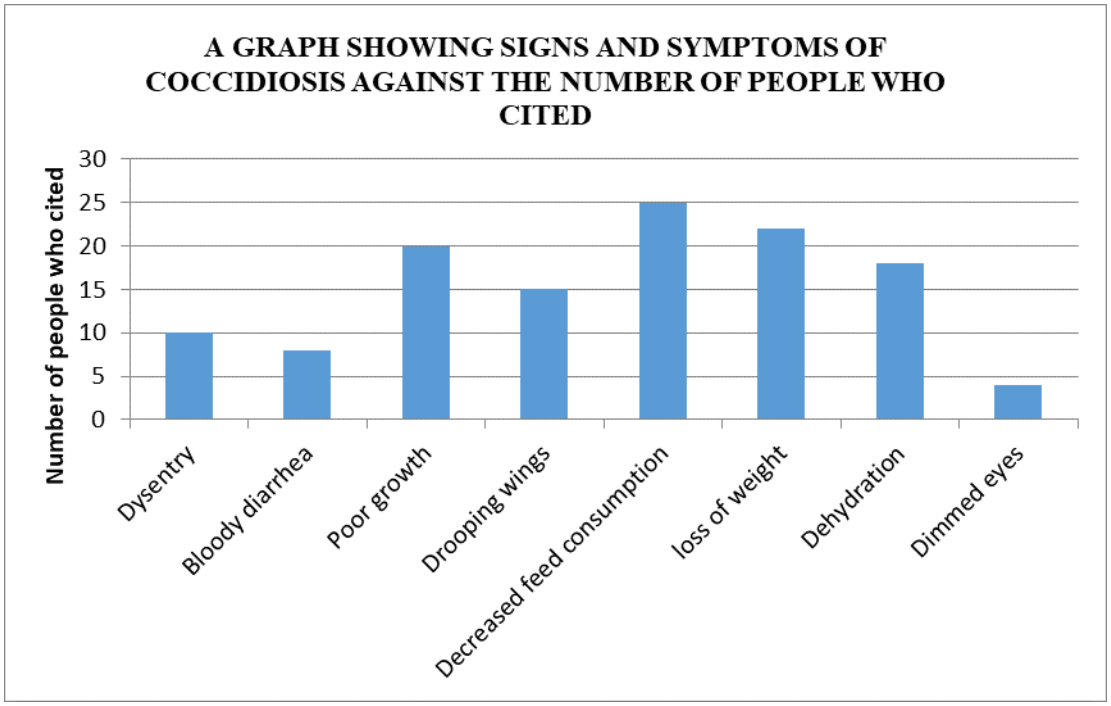


Table 6. VARIATION IN THE NUMBER OF PEOPLE WHO CITED THE DIFFERENT SIGNS AND SYMPTOMS OF COCCIDIOSIS AMONG THEIR POULTRY BIRDS.

Signs and symptoms	Number of people who cited
Dysentery	10
Bloody diarrhea	8
Poor growth	20
Drooping wings	15
Decreased feed consumption	25
loss of weight	22
Dehydration	18
Dimmed eyes	4



4.2 DISCUSSION OF RESULTS.

Table1.Variation in participation between males and females.

According to table1 above, it was discovered that most poultry farmers who participated in the research study were females. This could be because of the following reasons;

- Changing societal norms which play a significant role in the increasing number of female poultry farmers. This shift in societal norms has created an environment where women feel empowered to enter the poultry farming industry.
- Economic opportunities. Agriculture, including poultry farming has become an attractive sector for women due to its potential for income generation and financial independence
- Furthermore, the nature of poultry farming itself may be more conducive for female participation. Poultry farming often involves tasks that are less physically demanding compared to other forms of agriculture. For instance, raising chicks does not require extensive physical strength or heavy machinery operation. This aspect of poultry farming makes it more accessible to women who may have different physical capabilities compared to men.

Table 2. Variation of participation in different age groups.

- According to the results presented in table 2 above, of the 30 farmers interviewed, most of them (80%) were above 40 years of age. This could be due several factors that have shaped the demographics of the industry over time;

- Experience and knowledge. Poultry farmers require a deep understanding of various aspects such as breed selection, housing, nutrition and disease management. This expertise is typically gained through years of hands-on experience and learning from past successes and failures
- Capital investment. Establishing a poultry farm involves purchasing land, constructing suitable housing facilities, acquiring equipment, and buying initial capital stock. Older individuals often have more financial stability and resources at their disposal, enabling them to make necessary investment tom start a poultry farm.
- Generational shift. Over time, there has been a gradual shift away from traditional family-owned farms towards larger-scale commercial operations entering the industry as new farmers. The younger generation may be more inclined towards pursuing higher education or seeking employment in non-agricultural sectors, leading to a decline in the number of young poultry farmers
- Lack of succession planning.
- Succession planning, which involves the transfer of ownership and management of a farm from one generation to the next, is often lacking in many poultry farming operations.

Table3. Variation in marital status.

According to the data analyzed in table 3 above, more marrieds take part in poultry farming and this could be due to the following reasons;

- Economic Stability: Poultry farming can provide a stable source of income for married couples. By raising and selling poultry products such as eggs and meat, couples can generate a steady stream of revenue. This economic stability is particularly appealing for couples who may be looking for a reliable source of income to support their family or invest in other ventures.

- Flexibility and Work-Life Balance: Poultry farming offers flexibility in terms of work hours and location, allowing married individuals to balance their work and personal lives effectively. Unlike certain professions that require fixed working hours or extensive travel, poultry farming allows couples to manage their own schedules and work from home. This flexibility enables them to spend more time together as a family and attend to other responsibilities.

- ❖ Shared Responsibility and Collaboration: Engaging in poultry farming as a married couple fosters a sense of shared responsibility and collaboration. Both partners can actively participate in various aspects of the business, such as feeding the birds, cleaning the coops, monitoring health conditions, and marketing the products. This shared responsibility strengthens the bond between spouses and promotes teamwork, leading to increased productivity and success in the venture.

- ❖ Skill Development and Learning: Poultry farming provides an opportunity for married individuals to acquire new skills and knowledge related to animal husbandry, business management, marketing strategies, and agricultural practices. Couples can learn together, attend workshops or training programs, and stay updated with advancements in the industry. This continuous learning not only enhances their expertise but also contributes to personal growth and self-improvement.

- ❖ Sustainable Lifestyle Choice: Many married individuals choose poultry farming as a way to embrace a sustainable lifestyle. Raising chickens or other poultry species allows couples to produce their own food, reducing their reliance on external sources. Additionally, poultry farming can be practiced using organic and environmentally friendly methods, minimizing the use of chemicals and promoting animal welfare. This aligns with the growing global trend towards sustainable agriculture and conscious consumerism.

Table 4. Variation in participation across various levels of education.

According to the data analyzed in table 4 above, it was discovered that of the 30 farmers interviewed most of them(10) had acquired primary level of education which is a low level of education and this could be due to the reasons discussed below,

- Lack of Access to Formal Education: In many rural areas where poultry farming is prevalent, access to formal education is limited. As a result, many young people in these areas do not have the opportunity to attend school or receive formal training in poultry farming.

- Traditional Practices and Limited Awareness: Poultry farming has been a traditional occupation for many families, passed down from generation to generation. As a result, many poultry farmers rely on traditional practices and methods that have been handed down to them, rather than seeking out new knowledge and techniques. Additionally, there may be limited awareness of modern poultry farming practices and technologies, which can further hinder the adoption of more efficient and productive methods.

- Limited Financial Resources: Poultry farming requires a significant investment of time, money, and resources. Many poultry farmers, especially those in developing countries, may not have the financial resources to invest in new technologies, equipment, or training. As a result, they may be unable to adopt more advanced and productive methods, which can limit their productivity and profitability.
- Social and Cultural Factors: In some communities, poultry farming is seen as a lowly occupation, and farmers may be stigmatized or discouraged from pursuing higher education or more advanced training. Social and cultural factors can also play a role in limiting the opportunities for education and advancement among poultry farmers.
- Government Policies and Support: Government policies and support can also influence the level of education among poultry farmers. In some countries, governments may not provide sufficient support or resources for education and training programs for poultry farmers, which can limit their ability to improve their skills and knowledge.

Table 4: VARIATION IN FAMILY, SCIENTIFIC NAME AND NAME OF PLANT CITED, NUMBER OF PEOPLE WHO CITED THE PLANT AND IMAGE OF THE PLANT CITED.

Of the 30 people who participated, 18 farmers were able to cite some medicinal plants which they often use in the treatment of their birds which get sick of coccidiosis. 8 farmers cited Bidens pilosa (black jack) which belongs to family Asteraceae,5 people cited Azadirachta indica(Neem) which belongs to family Meliaceae,3 people cited Moringa Oleifera (Moringa) which belongs to family Moringaceae and 2 people cited Aloevera supplemements which belongs to family Liliaceae. This shows that Bidens pilosa is the most commonly used medicinal plant by the poultry farmers of kwapa subcounty in the treatment of coccidiosis among poultry birds.

All the farmers who managed to cite the medicinal plants they often use to treat their birds which get sick of coccidiosis confessed that their birds always get cured and take long to be infected again, this confirms that medicinal plants are so effective in the treatment of coccidiosis.

Since the number of farmers who use medicinal plants is greater than those who do not use, we can conclude that medicinal plants are used in the treatment of coccidiosis disease by poultry farmers in kwapa subcounty and therefore the null hypothesis is rejected and the alternative hypothesis is accepted.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION.

5.1 Conclusion of results.

According to the results obtained, the first alternative hypothesis which states that Medicinal plants are used in the treatment of *coccidiosis* disease among poultry birds in kwapa sub county Tororo district is accepted and the null hypothesis is rejected, this is because most of the farmers being interviewed cited some medicinal plants that they often use to treat their birds sick of coccidiosis and *Bides pilosa* being the most highly cited plant used by poultry farmers of kwapa sub-county. Also the second alternative hypothesis which states that Medicinal plants are more effective than synthetic drugs in the treatment of coccidiosis among poultry birds is accepted because most of the farmers confirmed that their birds quickly recover when treated with medicinal plants as compared to synthetic drugs and therefore the null hypothesis which states that Medicinal plants are not more effective than synthetic drugs in the treatment of coccidiosis among poultry birds is rejected

5.2 Recommendation.

I therefore recommend that most poultry farmers should embrace the use of medicinal plants in the treatment of their poultry birds sick of coccidiosis because of their effectiveness in the treatment of the disease, financial implication since they can be cheaply got within their localities and their availability.

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