AN ASSESMENT OF SOCIO-ECONOMIC FACTORS AFFECTING THE PROFITABILITY OF BROILER PRODUCTION AMONG SMALL-SCALE FARMERS IN BINDURA DISTRICT.

A dissertation submitted in partial fulfillment of the requirements of the Bachelor of Agricultural Science Honor's Degree in Agricultural Economics and Management.

Bindura University of Science Education

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DECLARATION

I hereby certify that the research project, "An Assessment of Socio-Economic Factors Affecting the Profitability of Broiler Production Among Small Scale Farmers in Bindura District," submitted to the Department of Agricultural Economics, Education and Extension of the Bindura University of Science Education, is a record of original work completed by me Tanaka Maideyi under the direction and supervision of E. Zivenge and that this work is submitted in partial fulfillment of the requirement.

DEDICATION

My family is the inspiration for this dissertation. May God bless you?

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Abstract

The government should put in place regulations that safeguard the poultry industry while also offering inputs and high-quality information to assist small-scale poultry producers in increasing their output. In many rural areas of Africa, poultry production is thought to be essential for creating income and eradicating poverty. One of the main pursuits of many households in the Bindura District is the production of broilers. Because they complement one another, this study used mixed techniques, which are a combination of qualitative and quantitative research designs. The survey served as the foundation for the current study's quantitative research design. The small broiler farmers in the Bindura district were the study's target demographic. The representative sample was selected using a targeted and random sampling strategy. Due to the fact that among the wards, Districts 9, 10, 12, and 20 had the highest number of broiler breeders, they were carefully picked. Second, a final sample of 60 farmers were questioned after utilizing simple random sampling to select 15 farmers at random from each village. Data from both primary and secondary sources were collected and used. A selected sample of the targeted smallholders was taken, and primary data were gathered using a well-structured questionnaire.

In conclusion, the study shows that the important and alarming reasons affecting the profitability of broiler chicken producers in the Bindura district are high feed costs and low broiler market prices.

It was shown that, of all the constraints, the lack of clean and fresh water shortages has the least effect on profitability. The paper recommends that the government and other decision-makers develop a strategy that can support small-scale producers by offering subsidized inputs to reduce the cost of production and by producing ready for the small-scale producers in order to achieve profitability..

Contents

1.0 CHAPTER 1

1.1 Introduction

This chapter includes the study's historical context, which highlights the value of broilers to people's livelihoods. Additionally, it places the problem statement, which hypothesized a few factors that compelled the researcher to do this investigation. It also includes the reason for the study endeavor, which highlights its significance to various stakeholders. This chapter also provides an overview of the study's goals, research questions, purpose, and restrictions.

1.2 Background of the study

With a total area of more than 39 million hectares, including 33.3 million hectares dedicated to agriculture, Zimbabwe is a landlocked nation in Africa. She has set aside the remaining six million hectares of her land for national parks, animals, and urban areas. The nation is divided into four regions: the lowlands, the middle highlands, the middle highlands, and the eastern highlands. Zimbabwe shares borders with Zambia, Mozambique, South Africa, and Botswana. 12,084,304 people live there, and 41.9% of them are under the age of 15. (McKague and Siddiquee, 2014). The global economy depends heavily on the agricultural industry. In reality, between 2000 and 2019, the value added by agriculture, forestry, and fisheries increased by 73% in real terms, reaching $3.5 trillion. In addition, 874 million people will have occupations in agriculture by 2020. That amounts to 27% in all. comparable to the global labor force (FF, 2020).

Production of meat increased dramatically as well, reaching 337 million tonnes, up 44% since 2000. and poultry products will increase as a result of rising per capita consumption around the world. The expansion of trade will also result from advancements in transportation, infrastructure, and marketing networks (Chamboko, 2019). For low- and middle-income countries, these elements, combined with fast evolving legislation and raising food safety requirements in high-income nations, present both opportunities and challenges. The finest sources of the high-quality protein that millions of people who live in poverty require are chicken and eggs.

It is a crucial auxiliary endeavor that increases household income (Mbuza et al., 2017). In fact, the livestock business is currently characterized by extensive pig and poultry production on a global scale. Due to push-pull considerations, the poultry business is expanding quickly

in the agriculture sector globally. Global demand for animal protein, particularly poultry, is being driven by rising profitability as a result of declining costs. Consumer behavior changes as a result of urbanization. rapid increase in population (Gororo and Kashangura, 2016).

The smallholder sector has contributed to the growth of Zimbabwe's broiler industry. Sukume (2011) classified Zimbabwe's broiler production into four basic categories, according to his degree of integration. Small and medium scale he accounts for 65% of the broiler industry. The smallholders sector mainly includes smallholders, semi-intensive and communal large-scale agriculture. Semi-intensive production systems consist of races dedicated to middle-level management and are labor-intensive.

70% of all chickens in Zimbabwe and other sub-Saharan African nations are produced using sophisticated production techniques (Foti et al., 2008) Stricter controls on chicken imports led to an increase in domestic output as key providers grew their breeding and hatchery operations to fulfill the demand. 65% of them were primarily from small or unorganized farmers (Nijs, 2014). The three most prevalent broiler breeds in the nation are Ross, Cobb 500, and Hubbard Flex. However, in order to maximize broiler production, the majority of producers in this industry lack the requisite abilities and technical knowledge on the fundamentals of broiler production. This manual aims to close this knowledge gap. Small-scale farmers' ability to participate in markets is influenced by a variety of socioeconomic and production-related factors, including market accessibility, household income and wealth, and other factors.

The doctor claims that Maska caught sight of him. Masuka stated that it is disheartening because livestock husbandry is characterized by low productivity despite the fact that it is essential for rural communities. The main factors limiting this low livestock productivity are the scarcity of feed, the poor genetics of the animals, the prevalence of animal diseases, and the frequent droughts. (2021, COVID-19 in Zimbabwe and National Food Systems).

1.3 Statement of the problem

In response to the strain that population growth and climate change place on the food supply system, farmers are switching from growing crops to raising livestock. The majority of small-scale farmers raise indigenous chickens to reduce poverty and raise living standards and income for essentials, but farmers in the Bindura district raise broilers instead, which is more profitable. Production period is fairly brief compared to other livestock enterprises, such as

goat and pig farming, and the rearing requires relatively less investment. In the Bindura district, small-scale broiler farmers continue to make very little money because of a variety of difficulties, including a lack of market intelligence, high production costs, a lack of adequate management skills, and a few other outside influences.

Day-old chick production costs have increased dramatically, by 50%, from an average of $38 per 100 in 2019 to an average of $57 in 2020, with an additional $1 per chick in 2021. It significantly strains the producer's finances. This study attempts to address the variables affecting the profitability of broiler production among small-scale farmers in Bindura District because there are no integrated and comprehensive interventions that would address the dynamic and complex constraints of the nation's smallholder chicken production and marketing. The majority of smallholder farmers in this industry lack the essential knowledge and expertise needed to produce broilers..

1.4 Research questions

What types and levels of small-scale poultry production are there in the Bindura district?

What production and marketing limitations are preventing smallholders in the Bindura district from producing broilers?

What is the anticipated profitability of broilers in the Bindura District?

What socioeconomic variables do small-scale farmers in the Bindura district face that could affect the profitability of their broiler production?

1.5 Objectives

1.5.1 Main objective

The asses the economic performance of broiler production among small-scale farmers in Bindura District is the primary goal of this study.

1.5.2 Specific objectives

1. 1. To assess the profitability of broiler chickens in the district of Bindura.

2. To analyze the socio-economic factors affecting the profitability of broiler production among small-scale farmers in Bindura district.
3. To identify major constrains affecting the small-scale production of broilers in Bindura district.

1.6 Justification of the study

Zimbabwe's broiler production is now progressively making a substantial contribution to the country's economy. Due to the freshness and high nutritional content of chicken products, the worldwide market tends to seek more meat, which is one of the many reasons why broiler production is crucial. Since meat is a necessary component of the public's diet, it is also a straightforward project that can be finished in six weeks with a consistent supply of meat for the market. Many people are given the opportunity to work and earn money through the production of chickens because anyone can start a broiler farm—students and women are also welcome. On a small plot of land, it is a job that can be finished quickly with limited resources. In light of all these benefits, raising broilers is thought to be a very thriving business; but, in the Bindura district, farmers are having trouble making a profit, and some are giving up on the practice altogether. This study aims to inform readers on the Bindura district's broiler farmers' potential to make a profit. As a result, various stakeholders and bodies, such as consultants, researchers, students, policy makers, producers, traders, and last but not least, consumers, will use this research as the primary source of information on broilers.

1.7 Organization of the study

There are five chapters in this work. The context, problem statement, research questions, aims, and hypotheses are all included in Chapter 1's introduction, along with information about the study's organization and justification. The second chapter provides a review of the theories relating to the profitability of broilers. Chapter Three presents the study's geographical focus—the Bindura District—as well as an explanation of the research's methodology. The findings and an overview of the study are covered in chapter four. Chapter 5 of the publication presents the findings and suggestions derived from the investigation.

1.8 Limitations of the study

- Lack of funds since the research was self-sponsored.
- Some farmers did not want to disclose accurate information since they consider it confidential.
- Lack of transport because some of the farms are far from the main roads and inaccessible.

2.0 Chapter 2

2.1 Literature review

2.2 Introduction

This chapter provides a review of the literature based on the findings and recommendations of previous writers about the analysis of the variables influencing the profitability of broiler production among smallholder farmers in Zimbabwe. The emphasis and level of smallholder poultry production, production and marketing barriers that affect broiler production, estimation of profitability, and the impact of socioeconomic factors on the profitability of broiler production among small farmers in Bindura district are all covered in great detail in this chapter.

2.3 Small-scale broiler production in Zimbabwe

The Food and Agriculture Organization (FAO) claims that Zimbabwe's economy is primarily driven by farming and other related rural economic activities, making agriculture the nation's

primary industry (2020). According to the United Nations Development Program (UNDP), 75% of the world's impoverished reside in rural areas and mostly depend on agriculture and fishing (2012). Agriculture employs between 60 and 70 percent of the workforce, supplies 60 percent of the industrial sector's raw materials, and generates 40 percent of all export income (Runganga, 2021).

Zimbabwe's chicken industry is divided into large and small producers, like many other developing countries. Taking into account the aforementioned, big scale production is dominated by major companies and is defined by intensive management, mechanization, and specialization, whereas small scale production is comprised of semi-intensive and broad agriculture (Agriculture and Science, 2019). The cattle industry continues to be seriously concerned about inflationary pressures, according to a 2019 Cattle and Meat Advisory Council desk study. Covid-19 movement limitations and lockout caused poor day-old chick eating as well as limited marketing of finished broilers and eggs. In contrast to 91,079 chicks in 2019, In 2020, 670,084 chicks were gassed, mostly due to the Covid-19 pandemic. Prices for chicks increased by 50% between 2019 and 2020, going from an average of $38.00 per 100 chicks to an average of $57,000 per 100 chicks.

However, despite the Covid-19 pandemic's considerable impact on poultry restrictions in 2020, small-scale broiler production continued to dominate, accounting for 73% of the entire broiler meat produced. (FF, 2020).

Poultry farming has emerged as one of Zimbabwe's newest business endeavors and is still an important economic sector that boosts the country's per capita income.

As a result, losses and waste can be enormous, and both production and productivity continue to fall far short of their potential. Day-old chick production dropped from 73.4 million in 2019 to 71.4 million in 2020, resulting in a reduction in meat production. According to minister Ncube, this decline was caused by high feed production costs and a shortage of feed availability.

Family poultry refers to small broiler producers who, whenever possible, employ family labor and readily available feed. It is regrettable that the decline in growth of the broiler industry in Zimbabwe has not stopped, as small producers are constrained by problems like long routes to markets due to restricted access to markets, weak institutions, a lack of technical and

marketing expertise, knowledge, and appropriate technology, pest and disease outbreaks, a lack of day-old chick availability, high transportation costs, and some socioeconomic issues.

2.4 Major constrains affecting the small-scale production of broilers

2.4.1 High cost of inputs

Small-scale chicken producers are concerned about unstable input and output pricing because rising input costs and declining output prices can reduce producer or farmer net income (Ariyaanti et al., 2021). The day-old chicks contribute around 22% of the overall variable costs, which creates a significant production issue. Labor, vitamins, and equipment together only account for less than 9% of the total variable costs (Studies, 2017). Feed has the highest variable costs, whereas medications and immunizations have the lowest costs. This has an impact on a lot of small farmers in Bindura since they are unable to afford to buy enough feed to raise their chickens. The economic situation and weak agricultural production as well as dependence on imported feed lead to an increase in feed production costs (Zengeni, 2012).

2.4.2 Unavailability of chicks

According to the Livestock Assessment Report, the day-old chick output decreased by 2.5% to 71.4 million chicks in 2020 from 73.4 million last year as a result of rising input costs and the Covid-19 pandemic that has wreaked havoc on the poultry business. According to the most recent report from the Meat and Advisory Council, Zimbabwe is still experiencing severe shortages on a daily basis, which caused the price of the good to rise by 15-20% in January of this year (Gororo and Kashangura, 2016). This was partly caused by the breeding stock's sluggish recovery and the market's persistently high demand for chicks, chicken meat, and eggs (report, 2012)

2.4.3 Lack of readily available market

Although three major corporations dominate the broiler market and set the commodity's internal prices, other factors also have an impact on small-scale broiler production. Lack of market knowledge about their product is one of these reasons; for instance, they may not

know where to sell their chickens or at what price. This has an impact on profitability because most small farmers end up selling their products for less than what it costs to produce them. As their produce is sold through the live broiler meat market, small-scale broiler farmers depend on limited supplies to distribute to consumers. 2020 (Luis and Moncayo). Traders and middlemen are now the primary buyers of live birds from producers (Shumba, 2013). Small-scale broiler producers in the Bindura district struggle since there are no readily accessible markets, forcing them to sell their chicks live, which increases the cost of production because more feed is required to keep the birds alive. Low product prices, price volatility, and sloppy market arrangements are to blame for all of these marketing issues. Small-scale broiler producers in the Bindura district struggle since there are no readily accessible markets, forcing them to sell their chicks live, which increases the cost of production because more feed is required to keep the birds alive. All of these marketing issues are caused by low product prices, price volatility, and unorganized market systems.

Long distance to the market and high cost of transport

While their intended clients are far from the markets, the majority of small broiler producers lack suitable storage facilities for their products. The majority of farmers in the Bindura district must travel to Bindura City to deliver their chickens to those who own butcher shops, and this is made expensive by extremely high transportation costs because the majority of the farmers lacked their own transportation and were forced to rent or use public transportation and pay exorbitant transportation costs. Additionally, transportation expenses may increase as a result of wear and tear and frequent vehicle maintenance due to inadequate road development.

2.2.4 Low market price

The main obstacle for small-scale broiler growers in the Bindura district is the low market price. The broiler business is dominated by large companies, which have a great impact on market prices because they set low prices to drive out competitors. However, this hurts small-scale farmers because they have to struggle before they can expand. This significantly reduces the profitability of broilers in the area. Due to their lack of market strength, most small-scale farmers accept prices as they are. Due to their lack of organization, the farmers are unable to enter the market and are forced to take the backseat, which forces them to sell their produce to the traders at a very low price (Adeyonu and Odozi, 2022). Small-scale

farmers' only customers are those who have low incomes since they prefer live birds because they get all the offal, and wealthy consumers are more likely to purchase from well-known stores (IFAD, 2021). Native chickens are typically sold alive at live poultry markets, also known as wet markets, where consumers can also buy butchered fowl or poultry meat. In order to participate in marketing channels that guarantee the price of their produce, smallholders need organize into marketing groups (International Livestock Research Institute (ILRI), 2021).

2.4.5 Estimation of smallholder broiler profitability

The greatest difference between revenue and costs is where the maximum margin is evidently achieved rather than by reducing feed costs. In the meat industry, supply and demand have a direct impact on the price of the final product. In general, portioned goods generate higher yields than entire birds, but this is greatly reliant on regional market demands. The price to establish a broiler business depends on the size and infrastructure needed to manage the farm. The investment amounts are shown in the budget based on the size of the income, variable costs, fixed costs, and profits. The broiler maker can clearly see the operation and determine if it is viable or not by determining these values and using a company budget sheet (Geo, Saediman and Ariani, 2020).

2.5 Socio-economic factors affecting profitability of broilers

2.5.1 Age of the farmer

Farmers' ages can have a big impact on broiler output and profitability, despite being influenced by a range of factors. Since they still have the energy to pursue money from other endeavors, talented young farmers often produce more than elderly farmers. This isn't always the case, though, as some young, competent farmers are also lax. Age and profitability may correlate favorably for farmers who have been producing broilers for a longer period of time (Madzimure et al., 2014).

2.5.2 Gender

Gender can be defined in terms of interpersonal interactions, gender norms, attitudes, and roles, as well as differences in the biological and physiological characteristics of men, women, and intersex people (Ogolla, 2016) While women play a crucial role in keeping poultry and maximizing profits through daily tasks, men occasionally perform money-requiring actions like go buy inputs and treat hens with drugs. The bulk of the time, women manage broiler farms with mostly male employees who have just finished elementary or secondary education. This indicates that, at a certain level, literacy and numeracy skills are required for effective broiler management, and that there is some space for improvement in broiler output.

2.5.3 Education level

The Food and Agriculture Organization (FAO) claims that Zimbabwe's economy is primarily driven by farming and other related rural economic activities, making agriculture the nation's primary industry (2020). According to the United Nations Development Program (UNDP), 75% of the world's impoverished reside in rural areas and mostly depend on agriculture and fishing (2012). Agriculture employs between 60 and 70 percent of the workforce, supplies 60 percent of the industrial sector's raw materials, and generates 40 percent of all export income (Runganga, 2021).

2.5.4 Land size

Land size is an important aspect in the production of broilers since, due to space constraints, many farmers with big areas tend to produce greater output than farmers with small areas. More people owning land can raise annual family income, which in turn could encourage farmers to spend more in broiler farms (Machethe, 2016). Even though broilers don't require a lot of space, the size of the land is a factor in their profitability because it may be utilized to produce maize and soybeans, which can be fed to the chickens to lower their feed costs.

2.5.5 Experience in broiler production

The management level, which directly influences the profitability of broilers, is significantly influenced by experience. Farmers with more experience in the field typically have higher earnings and more efficient production (Cooper et al., 2022). It makes sense that a farmer with more experience in broiler production would make more money than a farmer who is

new to the industry due to exposure to issues and marketing tactics in the field. However, a farmer may only have production experience, which is useless today because marketing experience is now more crucial.

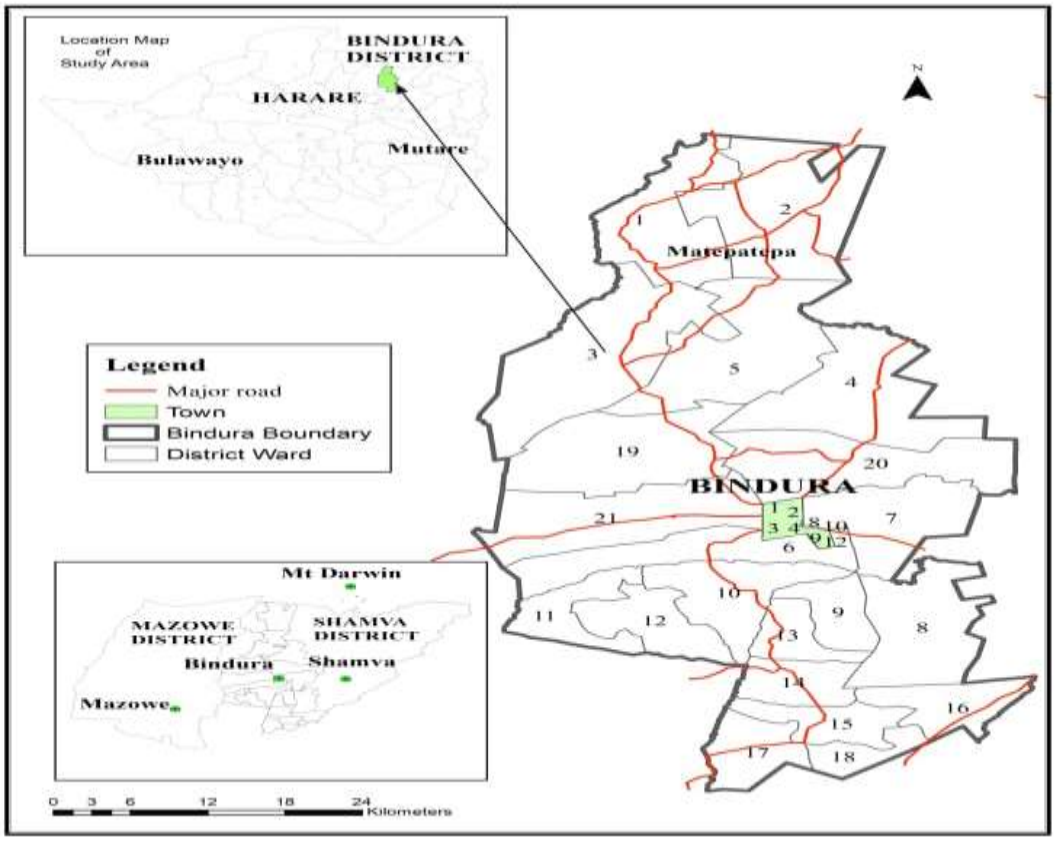
3.0 Chapter 3

3.1 Introduction

This chapter gives an account of the study area where the research was conducted. The target population's sample size is established, and the sampling process is also explained. Tools used to gather data are described in the section on data collection methodology. The analytical framework provides an overview of the descriptive statistics and econometric models, together with justifications for the models' selection.

3.2 Study site

Figure1: Bindura Map



Located in the Mazowe valley, 88 kilometers northeast of Harare, Bindura is in Zimbabwe's Mashonaland Central Province. In the area, cotton and grain are produced in great quantities. In Zimbabwe's Mash-Central Province, the study was carried out in the Bindura District. The study was place specifically in wards 9, 10, 12, and 20 out of the district's 21 wards. The predominant crops, such as peanuts, tomatoes, butternut, maize, and sweet potatoes, as well as the production of poultry and small livestock, such as domestic ducks, rabbits, chickens, broilers, and pigs, are all well suited to the semi-intensive crop and livestock production of the area.

3.3 Research design

The small broiler farmers in the Bindura district were the study's target audience. The representative sample was chosen using a targeted and random sampling strategy. Districts 9, 10, 12, and 20 were specifically chosen because they had the highest concentration of broiler breeders among the wards. Secondly, using basic random sampling, 15 farmers from each

village were chosen at random, resulting in a final sample of 60 farmers who were interviewed. Both primary and secondary data were gathered and utilized. A selected sample of the targeted smallholders was taken, and primary data were gathered using a well-structured questionnaire. Information on the type and volume of poultry production, production and marketing limitations, cost projections, and finally the socioeconomic impact on profitability was requested from the respondents. The National Chicken Association, the Ministry of Agriculture and Livestock, and other organizations that have extensively studied the chicken industry in Zimbabwe, particularly among small farmers, were used to compile secondary data.

3.4 Data collection

Both primary and secondary data were acquired for the investigation. The majority of the information came from smallholder farmers who grow broiler chickens. Individual researchers collected secondary data from academic journals, Zimstat statistics, the ministry of agriculture, and Zimbabwe Poultry Association statistics..

3.4.1 Secondary data

Secondary data is information that has already been obtained and reviewed by another entity (Cheelo, 2019). For the most recent information, the researcher looked at both published and unpublished books, dissertations, theses, journal articles, research papers, and reports. But when it comes to broiler production, the focus is on elements that have an impact on the profitability of commercial poultry production. Examining the literature supports the use of various models of data analysis elsewhere and also helps create the foundation for the research endeavor. Its conclusions can be used to discover knowledge gaps (Alfonita, 2018) . The questionnaire covers a wide range of production-related factors, including farm size (the number of broilers), batch size, labor costs, drug prices, feed costs, costs of equipment like water and feed troughs, production price per bird, other costs, and an average number of broilers per batch. The supplementary information about the questioner includes the marketing challenges faced by small broiler farmers, such as feed prices, travel time to marketplaces, and market pricing. The questioner also takes into account the socioeconomic factors of age, gender, education, and experience in poultry farming. Prior to distribution, the data from the questionnaire surveys had to be pre-tested. A representative sample of broiler farmers in the Bindura district were given the questionnaires.

3.4.2 Primary data

Each household's primary data were collected utilizing a well-constructed questionnaire. With the help of the questionnaire, data on the kind and volume of small-scale poultry production as well as the factors affecting broiler profitability were gathered. Restrictions on production and sales, calculating the profitability of broiler producers, and finally socioeconomic factors that affect profitability are among these.

.A range of production-related elements, such as batch size, labor expenses, drug costs, feed costs, costs of equipment like water and feed troughs, farm size (the number of broilers), production price per bird, other costs, and an average number of broilers per batch are covered in the questionnaire. The marketing difficulties experienced by small broiler farmers, such as feed costs, travel time to markets, and market pricing, are included in the additional information about the questioner. Additionally, the socioeconomic aspects of age, gender, education, and experience in poultry farming are taken into consideration by the questioner. Prior to distribution, the data from the questionnaire surveys had to be pre-tested. A representative sample of broiler farmers in the Bindura district were given the questionnaires.

3.4.2.1 Limitations of primary data collection.

Farmers who were chosen had to be omitted from the research because they lacked production records, and finding replacements was expensive because it would take longer to collect the data. Since the majority of the farmers lacked sufficient documentation of the feeds and medications given to the broilers, the researcher was obliged to make educated guesses. Because some farmers lacked basic literacy skills, they would inflate their productivity figures.

3.5 Data analysis

3.5.1 Data analysis methods

Objective	Data obtained	Data analysis

1. Analyzing profitability	Variable costs, output prices, and Revenue	Gross margin
2.socio-economic factors affecting profitability	Independent variables	Multiple linear regression
3. Constraints being faced by broiler farmers	Qualitative	Likert scale

3.6 Objective 1: Profitability Analysis in Bindura District

One of the oldest and most basic analytical techniques in farm management is gross margin analysis. It's been used in a lot of economic studies to assess the profitability of farming practices. Since 1960, the concept of gross margin as a contribution to marginal costs and has been frequently used in farm management. (Fani et al., 2015). Gross margin reveals the amount that an entity earns from the sale of its products and services, after the deduction of expenses incurred during the production period. (Mature, 2019). Therefore gross margin is obtained after deducting the total variable costs from the gross income obtained by the broiler farmers.

Gross margin formula:

Gross margin= Ps ×Q -∑ (Pq Xq)

Gross margin is calculated as the product of the unit price of a broiler (Ps), the quantity sold (Q), and the sum of the variable cost price per unit (Pq) and unit quantity (Xq).

According to Johnson (1985), gross margin is the difference between an enterprise's gross income and its operational expenses (variable costs). On the other hand, because it doesn't include fixed and overhead expenditures, gross margin isn't a true measure of profit. It serves as an analytical unit for assessing an enterprise's financial performance and offers a gauge of its viability and contribution to household income**.**

3.7 Objective 2: socio-economic factors affecting broiler production profitability in Bindura district

3.7.1 Regression model

A statistical technique called regression analysis is used to look at the relationship between a quantitative response variable and one or more explanatory factors. (2015). (Sykes & Sykes, 1993) affirmed that it is a tool for the exploration of relationships between explanatory variables, which was another source of support for this. Typically, the researcher wants to know how an explanatory variable affects the dependent variable or how explanatory variables relate to one another.

Multiple linear regression analysis was utilized to identify the elements influencing broiler profitability. The main goal of regression analysis, as stated by Onoja et al. (2012) quoting Greene (2008), is to identify the variables that have an impact on the dependent variable. One important technique for identifying the socioeconomic variables that affect the profitability of broiler production is linear regression using Ordinary Least Squares (OLS).

The ordinary least square linear regression model was employed for use in this study.

$$\mathbf{Y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \beta 3 X3 \ldots\ldots\ldots\ldots + \mu i}$$

Where:

Y	Revenue to broiler producer (in usd$)
X1	Age of the farmers (years)
X2	Gender (male=1, female =0)
X3	Weight of the broiler (in kgs)
X4	Price per kg (in usd$)
X5	Access to credit (yes=1, no =0)
X6	distance to market (number)
$B0$	Constant
$\beta 1 - \beta 7$	Parameter estimates

μ Error term

3.8 Objective 3: Constraints faced by broiler farmers in Bindura District

3.8.1 Likert scale

The Likert scale was developed in the early 1990s by professor Rensis Likert. By measuring how strongly people agreed or disagreed with a statement, he hoped to learn about people's attitudes toward it. 2013 (Artino & Sullivan) (Artino & Sullivan). A Likert scale, an ordered scale, allows respondents to select the option that best describes their position. It was characterized as a psychometric response scale that was mostly used in surveys to determine respondents' preferences or degrees of agreement with a claim or set of claims. Respondents are asked to rate their degree of agreement on an ordinal scale in order to indicate how much they agree with a particular idea. 2020, Bertram & Bertram

The researcher utilized this scale to evaluate the challenges faced by broiler growers in the Bindura District. Infections, the cost of transportation, and the high cost of feed and medication were among the challenges that were highlighted.

The limitations experienced by smallholder broiler growers were determined using a three-point Liket scale. On a three-point numerical rating scale, one key informant was asked to assess the difficulties the farmers were facing in the interview guide:

0=Insignificant

1= significant

2=severely significant

The key informant was expected to use a ranking numeric according to the scale against each constraint in the given table of the listed broiler production constraints.

4.0 Chapter 4

4.1 Introduction

This chapter covers the presentation and analysis of the research project's findings. In order to examine the descriptive data, percentages and frequency distribution were used. Multiple regression analysis was employed to ascertain the effect of the explanatory factors on the

profitability of broiler production. This chapter is divided into four sections: the first examines the demographic data of broiler farmers; the second examines the challenges faced by these farmers and was evaluated using a Likert scale; the third examines the profitability of broiler production and was evaluated using a Gross Margin Budget; and the fourth examines socioeconomic factors influencing broiler profitability using multiple liner regression.

4.2 Household demographic and characteristics

According to Table 1, all farmers are A1 and both men and women are involved in the broiler industry. The table clearly demonstrates that women produce 60% of the total, while men only contribute 40%. Since it has been seen that women tend to produce more broilers, the Zimbabwean government has put into place initiatives aimed at empowering women. According to the updates and the plans, 2019 indicates that the active involvement and leadership of women would be the priorities strengthening. Only 20% of households are single, 10% are widowed, 8.3% are divorced, and 62% are married. According to the marital status of small broiler farmers, the findings demonstrate that married farmers are more actively involved in the poultry industry than single ones., as shown by the marital status of small broiler farmers in Bindura District (Gororo and Kashangura, 2016).

The youngest farmer interviewed was 20 years old, while the oldest was 69.. All of the farmers that were surveyed were 40.85 years old on average. This data demonstrates that these farmers, who are in the age range of 20 to 60, are capable and motivated to engage in broiler production operations. This is because they can seek for funding to begin broiler production, and those over 60 are also eligible because the majority of farmers are retired and have access to funding to begin broiler production (Machethe, 2016). The majority of farmers, or 78.3%, have families of fewer than ten members, whereas the minority, or 21.7%, have the highest profitability due to having no labor costs (Kawsar et al., 2017).

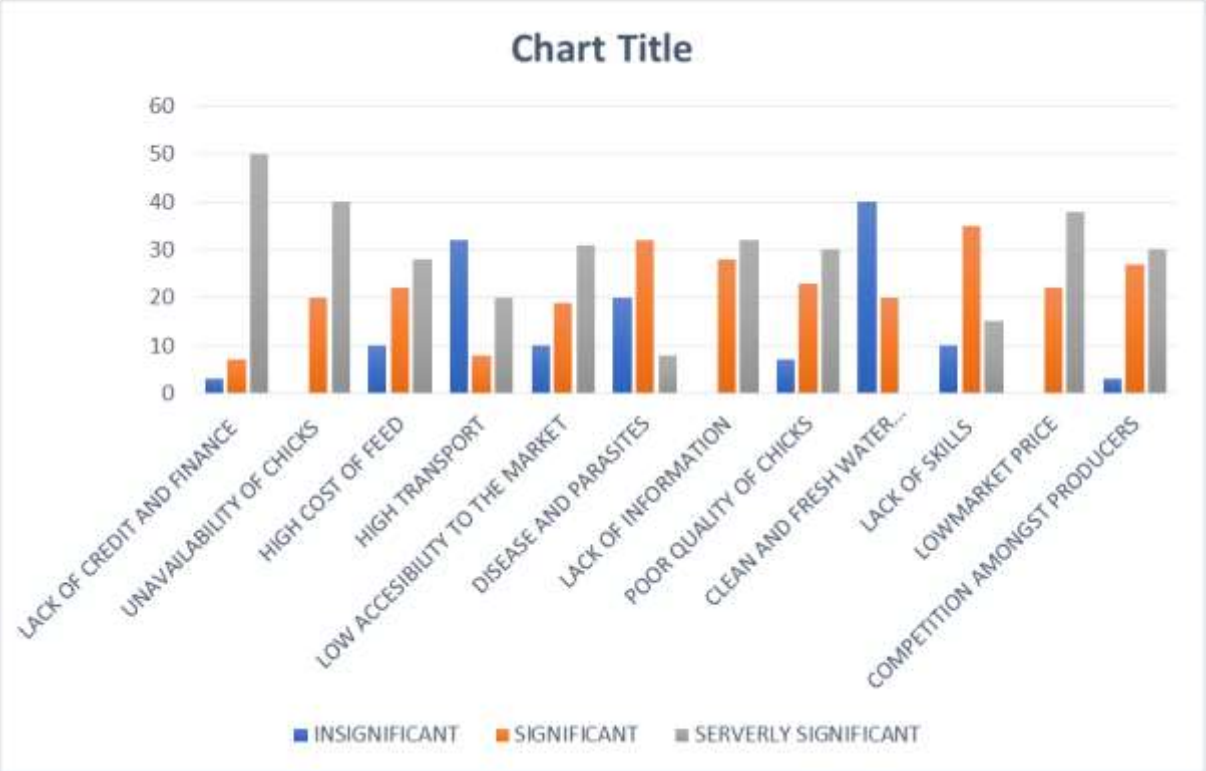
According to the demographic findings, 63.3% of farmers reported having completed their secondary education, 26.7% of farmers had completed their tertiary education, and 10% had completed their primary education. The graphic below illustrates how most farmers have fewer than five years of experience. Most farmers have land sizes of 5 hectares or less, and only 28.3% have 6 hectares or more. 63.3% of farmers have experience of less than 5 years, while only 26.7% have experience of more than 6 years.

4.2.1 TABLE 2: household demographic and characteristics

farmer background	Frequency	Percentage
TYPE OF FARMER		
AI	60	100%
A2	0	0
GENDER		
MALE	24	40%
FEMALE	36	60%
AGE		
41 AND ABOVE	28	56.7%
40 AND BELOW	32	43.3%
MARITAL STATUS		
SINGLE	12	20%
MARRIED	37	61.7%
DEVORCED	5	8.3%
WIDOWED	6	10%
POPULATION		
5 AND BELOW	47	78.3%
6 AND ABOVE	13	21.7%
HEALTH STATUS		
BED RIDDEN	0	0
BAD HEALTH	0	0
GOOD HEALTH	60	100%
LEVEL OF EDUCATION		
PRIMARY	6	10%
SECONDARY	38	63.3%
TERTIARY	16	26.7%
EXPERIENCE IN POUTRY		

5 AND BELOW	37	63.3%
6 AND ABOVE	23	26.7%
LAND SIZE		
5 AND BELOW	43	71.7%
6 AND ABOVE	19	28.3%

4.3 Production and marketing constraint (licket scale)



4.3.1 Lack of credit and finance for market

The researcher found that a significant challenge for broiler farmers in the Bindura district is the lack of credit and funding for the market through formal institutions, which was ranked as severely significant during the study. Due to the high interest rates charged by unregulated money lenders for small loans to members of their communities, they have had to seek credit

from unofficial sources, which has increased the cost of their production. The majority of farmers were not eligible for bank loans because they lacked collateral and were mostly unemployed. Small-scale broiler producers lacked access to financing for transportation, forcing them to sell live birds in the market because there were no refrigerators available to store prepared chickens.

4.3.2 Unavailability of chicks

According to the most recent report from the Meat and Advisory Committee, Zimbabwe is still suffering from a significant dearth of day-old chicks, which caused the price of the commodity to climb by 15-20% in January of this year. The study backs up the farmers' observations, which show that the lack of chicks was a key issue that came in second-to-last. Since broiler production is a successful sector, everyone is participating, and as a result, producers are unable to meet demand. Many businesses closed as a result of COVID 19, yet the number of broiler growers has continued to increase (Adeyonu and Odozi, 2022).

4.3.3 High cost of feed and high transport cost

The cost of feeding was among the highest, according to the figures displayed in the table above. Zimbabwe has seen high feed costs, especially those for broiler starters and finishers, which are a result of general inflation, due to the high exchange rates across countries. The high cost of feed was a significant cause for concern and evidence that the majority of farmers were impacted by the rising cost of feed, as a decline in the price of output can result in a reduction in the producer's or farmer's net income. Evidence shows that since most farmers sold their hens to local butcher shops and some residents, the high cost of transportation was insignificant. Some farmers were influenced, though, by the high transportation costs associated with obtaining the materials. Due to the fact that the majority of farmers sell their chickens at their homes, high transport costs to markets are seen as minor. (FAO, 2019).

4.3.4 Low accessibility to the market and Diseases and parasites

Farmers cannot access the other market, which was previously only accessible to neighborhood butcheries and residents at the farmers market, due to competition from large

businesses and a lack of contractors to set up suitable markets for them. This is an extremely crucial component. The responses from the farmers in the Bindura district, which confirm that illnesses and parasites are raising mortality rates and decreasing productivity and profitability of their broilers, demonstrate that the majority of broiler farmers in Zimbabwe are struggling to prevent illnesses and parasites from affecting their chickens. This was noted as having a significant impact on broiler productivity. Small broiler chicken growers in the Bindura district are also affected by disease outbreaks like the Avian Flu and Newcastle because of their low-input farming practices. This is likely due to the fact that the majority of small broiler farmers are incapable of spotting the disease's early warning signals to stop the disease's onset, which offers a serious threat to the eradication of many broilers in developing nations (Norton, Alwang, and Masters, 2021).

4.3.5 Lack of information and Poor quality of chicks and clean and fresh water

Lack of market knowledge, per the report, is the primary impediment to the production of broilers. This problem develops because there is no deliberate effort made to identify an existing market before manufacturing in order to retain current customers and attract new ones. The majority of the smallholders in the area now produce some chickens for sale, thus individual farmers are not investing much time or energy in selling their goods. This is demonstrated by the 2019 Zimbabwean Broiler Production Handbook, which offered the business plans in response to the realization that many Zimbabweans had entered the broiler business without having a thorough understanding of the industry, the market, or how to conduct business. This is because of the high failure rate of their businesses, the risks involved, and the high cost of doing business. the business's profitability and associated costs. However, it will be crucial to comprehend the market and how it is evolving (Plan, 2018).

The high demand for chicks has led unregistered persons to enter the day-old chick production industry and supply inferior chicks of non-broiler breeds, which has been noted as a big problem. Chicks from reputable firms like Novatek, Profeeds, and Irvine's cannot satisfy the demand. Because most farmers have boreholes on their homesteads, the availability of clean, safe water was also abundant, making it an insignificant factor. Adeyonu and Odozi in 2022.

4.3.6 Lack of skills, Low market price and Competition amongst producers

The majority of farmers lack the necessary skills to produce broilers, which limits their ability to earn significant incomes, and this results in a serious problem, according to the responses of the farmers interviewed. It makes sense that farmers who are skilled will produce more than those who are only marginally competent.

Since they claimed that the extremely low market price is causing them problems, the market price is now what determines how many broilers are produced. Extremely low prices have an immediate negative impact on broiler profitability because they cause the total revenue, which is the deciding factor, to be lower than the production cost. Price is also employed as a strategy to stave off market competition, leading to full market dominance by large businesses and compelling small-scale farmers to accept the fixed prices whether they make a profit or not (Rapsomanikis, 2015).

The comments of the farmers polled reveal that there is intense competition in the market, which is why the broiler industry is growing swiftly in both Africa and Zimbabwe. The majority of people today are getting into the broiler industry in an effort to make quick money. Price decreases and improvements in quality will be brought about by intense competition in the market, but this will have an effect on small-scale broiler production (Agriculture and Science, 2019).

4.3.7 Estimation of smallholder broiler profitability

Table 1: Gross Margin Budget

Variable factors(per chick)		Average costs(per chick)
Chicken stock		1
Feeding		0.5
Vaccinations		0.3
Labor cost		0.4
Water		0.3
Cost of transportation		0.2
Miscellaneous		0.3
Total variable cost		3
Fixed costs		

Land\rentals		0.5
Equipment		0.3
other		0.2
Total fixed costs		1
Total costs		4
Revenue		
Output (kgs)		2.5
Unit price($USD)		2.4
Total Revenue		6
Gross margin(GM)		4
Net profit(NP)		2
ROI		0.83
BCR		1.93

According to the findings, a chicken in Bindura District typically weighed 2.5 kg. Additionally, broiler producers made an average gross income of USD $6. The aforementioned statistics made it very evident that farmers received an average profit margin of UDS$4 per chick. The average return on investment for the broiler farmers in the Bindura district was $0.83 per chick. This shows that the profits were enough to offset the initial dollar spent on the purchase of variable production elements. All of these data demonstrate that the returns from broiler production in the Bindura district were adequate to offset the costs of the initial investment. The average cost of production and marketing for broiler producers was $4 USD.

The benefit-cost ratio (BCR) is a concept used for project evaluation. A project with a benefit-cost ratio less than one, equal to one, or greater than indicate loss, break-even, or profit respectively. Also, the rate of return on investment was 1.93 which indicates that on every USD1.00 invested in pig production, USD0.193 will be attained as profit.

Due to different sales volumes in the production of broiler production, in the course of the study, it was found that on average selling 1 chick would generate a net profit of USD$2 which implies that pig production in the study area is profitable and viable. Finally, since the BCR is greater than 1 (1.93) it is a profitable enterprise that would be worth investing in.

4.5 Socio-economic factors affecting profitability of broilers

4.5.1 TABLE 4: socio-economic factors affecting profitability of broilers

Table 2: coefficient table

Explanatory variables	B value	T value	Significance level
(Constant)	.936	2.220	.031**
Age	-.125	-1.859	.069**
Gender	-.147	-1.363	.179
Marital status	-.044	-686	.469
Population	-1.00	-973	.335
Level of education	-0.28	.346	.731
Experience	.207	1.947	.057**
Land size	-171	-1.527	.133
Number of broilers	.771	11.046	.000**

* Significance at 1% ** Significance at 5% and *** significance at 10

Age of the farmer

The regression analysis showed that there was a correlation between age and revenue gained through pig production in the Bindura district as shown by a 0.69 significance level which was below 10%. It has a negative correlation (-0.125) reflecting that as people grow older, their revenue will decrease because they will no longer be able to work as before since broiler production is labour-intensive

Gender

The data analyzed using the SPSS package shows that gender was not statistically significant at a 10% confidence level since its significance level is not within the range. (0.179).This

implies that gender does not affect broiler profitability. Therefore, there is no significant difference between the revenue earned by male farmers and female farmers who are participating in broiler production.

Marital status

Given that its significance level does not fall inside the acceptable range, the data examined using the SPSS software demonstrate that married status was not statistically significant at a 10% confidence level. (0.469). According to this, broiler profitability is unaffected by marital status. As a result, the income received by married, single, divorced, and widowed individuals is not significantly different**.**

Household population

The household population was not statistically significant at a 10% confidence level according to the data examined using the SPSS package since its significance level was beyond the acceptable range. (0.335). This suggests that the number of households has no bearing on the profitability of the broiler industry. As a result, there is no discernible difference in the amount of money that large populations and small populations make**.**

Level of education

The data analyzed using the SPSS package shows that level of education was not statistically significant at a 10% confidence level since its significance level is not within the range. (0.731).This implies that level of education does not affect broiler profitability. Therefore, there is no significant difference between the revenue earned by attended primary, secondary or tertiary education

Experience

The coefficient of experience (0.207) was positive and statistically significant at a 10% significance level. This is statistically accurate as experience increase any farm's revenue also increases. This is because the farmer with more experience is likely to produce broilers at the least possible cost thereby increasing revenue.

Land size

Land size was not statistically significant at a 10% confidence level according to the data examined using the SPSS package because its significance level did not fall inside the acceptable range. (0.133). This suggests that land size has little bearing on the profitability of

the broiler industry. As a result, there is little difference between those who own large or little parcels of property in terms of income.

Number of broilers

The quantity of broilers has a positive regression coefficient, which denotes a direct or favorable association to revenue. Furthermore, it has a statistical significance level of 0.000 at a 10% level of confidence. This demonstrates that raising the number of broilers per unit will boost the farmers' income in the Bindura district.

4.5.2 TABLE 5

4.5.3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.887[a]	.787	.754	.381

a. Predictors: (Constant), number of broilers, experience, land size, years in the market, age, gender

The coefficient (r-square) calculation gauges how well the model fits the data. If the r square is higher than 50%, the model is therefore considered to have a good fit. According to the regression model, the number of broilers, experience, land size, years on the market, age, and gender account for 78,7% of variations in the dependent variable.

The accuracy of the linear models is further assessed using adjusted r square. It indicates the portion of the target field's volatility that can be accounted for by the independent variables. Additionally, it calculates how well the linear regression model fits. Given that it is more than 50%, this suggests that the model is well-fitted.

Finally, r square and adjusted r should differ by no more than 15% for a model to be considered accurate. Due to the fact that the difference is inside the range, this suggests that the research model fits the data well..

5.0 CHAPTER 5

5.1 Recommendations and Conclusion

The primary goal of the study was to evaluate the economic viability of raising broilers in the Bindura District, and the results showed that, on average, farmers received positive returns that were sufficient to offset the producers' initial dollar investment. This demonstrated that broiler production met the criteria for being a successful livestock enterprise in the Bindura District, and people are urged to get involved in broiler farming and reap the rewards. Farmers must handle various issues, such as the extremely high cost of feed and day-old chicks. Lack of market information and credit financing were two more reasons that were significant, although the lack of clean and safe water was evaluated as insignificant..

5.1.2 Recommendations to the farmer

To be able to use the knowledge perfectly, I advise farmers to regularly receive training on a variety of topics of husbandry and disease prevention. It makes sense that a farmer with more training and experience would be better equipped to perform this task competently. To build market strength and compete with big businesses, poultry farmers need to be schooled in breeding, housing, health, and entrepreneurial issues. They should also work in group markets.

5.1.3 Recommendations to the government

In order to provide smallholder farmers with high-quality information so they can improve in many areas, including lowering the mortality rate in broiler production in the study area, the government should send more extension workers to the farmers. The government should also use extension workers to connect farmers, particularly small-scale producers, to other stakeholders, government agencies, and private companies. This will help them network, find opportunities, and learn from successful commercial broiler farmers how to improve their production processes and product marketing. There should be a review of the current smallholder broiler farmer assistance programs because some disadvantaged farmers do not receive their assistance through these programs, leaving them with few opportunities to improve their operations.

5.1.4 Recommendations to the policy makers

First, policymakers should impose high tariffs on meat importers to shield small-scale broiler producers from low-cost imports. Small-scale local producers, in particular, may see an increase in profitability as a result. They ought to put into place a policy, similar to what they did with command agriculture, that assists the poultry industry by supplying inputs to support increased production and improved quality. In addition to putting policies in place that protect small-scale farmers from being taken advantage of by the industry's major corporations, policymakers should encourage contracting broiler farmers more so that they will have ready markets as they struggle with marketing.

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QUESTIONEER OF THE STUDY

QUESTIONNAIRE BROILER PRODUCTION IN FOUR WARDS OF BINDURA DISTRICT, WARD 6, 9, 10, AND 13.

Questionnaire Serial Number.

My name is Maideyi Tanaka and I am an Agriculture student at Bindura University of Science Education. I am carrying out a research project on Economic analysis of small-scale broiler production, for the partial fulfillment of the requirements of my degree program. May you kindly assist by faithfully responding to the below questions. The data collected is for academic purposes only and will be treated with strict confidence.

Section A. FARMER`S BACKGROUND OR HOUSEHOLD INFORMATION

Tick the appropriate response or fill in the space provided.

SECTION A: DEMOGRAPHIC PROFILE OF THE HOUSEHOLD		
1	**Type of the farmer**	**A1 [ ] A2 [ ]**
2	**Gender of the household**	**1=male [ ] 2= female [ ]**
3	**Age of head of household (years)**	
4	**Marital status of household head**	**Single [ ] married [ ] divorced[ ] Widowed[ ]**
5	**What is the total number of people who live in Your house?**	
6	**Health status**	**Bed ridden [ ] Bad health [ ] good health [ ]**
7	**Level of education of household head**	**Primary [ ] secondary[ ] tertiary[ ]**
		Informal [ ] None [ ] Others (specify) [ ]
8	**Experience in poultry production**	**( ) years**
9	**Land size of the farmer**	
10		

SECTION B. CONSTRAINS FACED BY SMALL-SCALE BROILER PRODUCERS.

Rank these challenges according to their weight or importance in the day to day running of your broiler enterprise. (Answer in the spaces provided):

1) insignificant 2) significant 3) severely significant

Point of lickert scale

Challenges	
Lack of credit and finance	
Unavailability of chicks	
High cost of feed	
High transport cost	
Low accessibility to the market	
Disease and parasites	
Lack of information	
Poor quality of chicks	
Clean and fresh water shortage	
Lack of skills	
Low market price	
Competition among producers	
Flooding of broiler production in the industry	
Lack of information	
High transport cost to the market area	

SECTION C: PROFITABILITY OF SMALL-SCALE BROILER PRODUCTION		
	Age of the farmer in the market	
1	**How many broilers do you have?**	
2	**What is the selling price per bird?**	
3	**Which market channel do you use?**	
4. State your broiler production costs		

Description	Quantity	Unit cost	Total cost
Day-Old-Chicks			
Starter			
Growers			
Finisher			
Transport Cost			
Labour Cost			
Stress pack			
Vaccine (1) Cost:			
Vaccine (2) Cost:			
Energy Cost			
Other Costs (Specify) **1)** **2)** **3)**			

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY