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And Extension

AN ANALYSIS OF THE PROFITABILITY OF WHEAT TO SMALLHOLDER FARMERS: THE CASE OF WARD 7, GOROMONZI DISTRICT FROM THE PERIOD 2022/2023 season.

By

ROBERT KADEMAUNGA

A dissertation submitted in partial fulfilment of the requirements of the Bachelor of Agricultural Science Honours Degree in Agricultural Economics and Management

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DEDICATION

The dissertation is dedicated to the Kademaunga family. Thank you for your financial and moral support throughout the course of my studies.

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ABSTRACT

The thesis examines the profitability of wheat farming for smallholder farmers in Goromonzi district. The study finds that wheat farming is generally profitable but varies with input cost, experience, transport cost, market price, farm size and gender. Wheat farming in Goromonzi district is triggering potential benefits which include increased food security and income for the betterment of their lives. Despite these potential benefits high input costs, high transport cost and small farm size is limiting the target goals and success of the smallholder farmers. The government is recommended to put in place regulations that safeguarded the smallholder wheat farming industry by ensuring that inputs are offered at affordable prices, provide transport to the farmers, enable price stability and increase their farm sizes. A total of 40 households were randomly selected out of 68 farmers who practised wheat farming in ward 7. Primary and secondary data was used in the study. The research adopted both qualitative and quantitative approaches in data collection and analysis. The researcher used descriptive analysis to characterise wheat smallholder farmers. Additionally, both the profitability and the factors affecting the profitability were assessed using multiple linear regression and gross margin analysis, respectively.

Keywords: Wheat**,** Profitability, Profit maximization, Cost minimization, factors affecting profitability

Table of Contents

List of tables

List of figures

LIST OF ABBREVIATIONS AND ACRONYMS

FAO……..... FOOD and Agricultural Organization

GDP……... Gross Domestic Product

GMB……... Grain Marketing Board

GM……..Gross margin analysis

RBZ…….Reserve Bank of Zimbabwe

ROI……..Return on investment

SPSS……....Statistical Package for Social Sciences

TVC…….....Total variable cost

USD……..United States American Dollar

ZIMSTAT…… Zimbabwe National Statistics Agency

CHAPTER 1

1.0 INTRODUCTION

The study's background is provided in this chapter, which emphasizes the value of wheat to people's daily lives. It contains the problem statement, which hypothesized the few push factors towards the study. The chapter includes focus of the study, research questions, objectives, research hypothesis, significance of the thesis, scope and limitations of the study and organization of the thesis.

1.1 Background of the study

Agriculture plays an important role in the global economy. According to Moyo et al. (2017), agriculture is a key industry for the Zimbabwean economy because it greatly boosts the GDP and employment. Over 60% of the labour force in Zimbabwe is employed in the agricultural sector, which contributes about 15% to the nation's GDP (Munyati et al., 2015).

Food security continues to be a top priority for all governments during this time of political and economic crises. The current epidemic highlights the value of agricultural trade for ensuring worldwide food0security, which expands the role and accountability of nations that export food. One of the most significant commodities in international trade continues to be wheat and its history in human culture is extensive. It is currently the cereal that is grown the most commonly in the world. More than 220 million hectares of land are planted wheat since it is produced in both developed and poor nations. Therefore, 50% of the production and 53% of the total harvested area are concentrated in the developing world. In the underdeveloped world, wheat accounts for about 35% of the cereal calories consumed, while providing 74% in the industrialized world (Shiferaw et al., 2013).

The International Grains Council (IGC, 2021) estimates that 763.7 million tons of wheat were produced over the 2019–2020 period, of which more than 523.3 million tons and 137.4 million tons, respectively, were used as human food and livestock feed. In

addition, 24 million tons of wheat were used for industrial processing. Wheat exports totaled 184.3 million tons worldwide. According to the IGC, wheat production will climb to 768 million tons in 2020–2021, with consumption and export rising to 531 and 186.8 million tons, respectively. Due to rising urbanization and income growth, wheat is steadily becoming a significant staple crop in Africa. But because African nations only produce about 30% to 40% of what is needed for domestic consumption, they are heavily dependent on imports and making the African region to be exposed to global market and supply shocks (Negassa et al. 2013).

The Zimbabwean government has put in place a number of policies and initiatives to advance agricultural development and enhance the standard of living for smallholder farmers. These include the Command Agriculture program, which was introduced in 2016 to support smallholder farmers with inputs, irrigation, and mechanization, and the Fast Track Land Reform Program, which was established in 2000 to transfer land from large commercial farmers to smallholder farmers (Moyo et al., 2017). While these programs have had some success, they have also come under fire and faced difficulties, including questions about the sustainability and security of land tenure (Munyati et al., 2015).

Smallholder farmers make up the majority of the wheat producers in Zimbabwe, producing over 70% of the country's total wheat (Mutsamba et al., 2017). Wheat is not a major crop in Zimbabwe, but smallholder farmers who cultivate it play a significant role in the country's agricultural industry.

Therefore, smallholder wheat farmers in Zimbabwe contribute to food security, income generation, and value addition, which is essential to the country's agricultural sector. The promotion of sustainable and lucrative smallholder agriculture in Zimbabwe depends on the profitability of wheat cultivation for smallholder farmers (Mutsamba et al., 2017).

1.2 Research problem statement

Input costs, yield, and market pricing are only a few of the variables that have an impact on wheat farming's profitability (Mutsamba et al., 2017). For smallholder farmers in the Goromonzi District to increase the profitability of their wheat growing, it is essential to comprehend these variables. For example, having access to inputs like improved seed

and fertilizer can greatly boost wheat yields and profitability (Moyo et al., 2017). Additionally, Munyati et al. (2015) found that smallholder farmers who have access to markets and market information can sell their goods for more money**.**

In Zimbabwe, wheat is a significant crop that has the potential to be a lucrative source of revenue for smallholder farmers. However, it is unclear how profitable wheat farming is for smallholder farmers. Previous research has centred less on particular districts and more on the profitability of wheat cultivation in Zimbabwe as a whole (Mutsamba et al., 2017). Therefore, there is a research gap on the profitability of wheat in the Goromonzi district. The research questions such as the level of profitability and the factors affecting the profitability should be answered by this study.

1.3 Focus of the study

In order to shed light on how profitable the crop is because it is not well understood, the study analyzes the profitability of wheat to smallholder farmers. The problem statement identifies the cost of production of inputs to grow wheat as the primary issue. According to Moyo et al. (2017), smallholder farmers in Zimbabwe encounter major obstacles when trying to produce wheat profitably. By concentrating on the cost and returns of wheat production as well as the variables affecting wheat's profitability, this study achieves its primary goal of analyzing the production of wheat. The profitability of wheat will be evaluated using analytical techniques including gross margin analysis, and the factors influencing the profitability will be investigated using multiple linear regression.

1.4 Research question

1. What are the characteristics of farmers that grow wheat in Goromonzi District?
2. What is the level of profitability of wheat in Goromonzi District?
3. What are the factors affecting the profitability of wheat in Goromonzi District?

1.5 Objectives of the study

1.5.1 Main objective

The main objective of this studyis to analyze
the profitability of wheat production in the Goromonzi District.

1.5.2 Specific objectives

To analyze in Goromonzi District of Zimbabwe:

1. The characteristics of smallholder farmers that grow wheat
2. Level of profitability by smallholder farmers
3. Factors affecting the profitability of wheat

1.6. Significance of the study

The research will be aimed at analyzing the profitability of wheat in the Goromonzi District of Zimbabwe. This study covers the information appertaining to the characteristics, level of profitability, and the factors affecting the profitability of wheat among smallholder farmers. It will be of significance to quite a number of stakeholders.

The research will be of significance to students, the university, researchers, project developers, policymakers, contractors, government, and non –government organizations. The research or study will contribute additional information on the existing knowledge of wheat. This study will support enhancing wheat profitability to bring a 360-degree transformation of the living standards of people in the Goromonzi district.

1.7 Scope and Limitations of the study

I focused on the Goromonzi district because it is the area i was attached during the time of internship. During the attachment period i had an opportunity to supervise the growing of wheat where i was attached and had time to study about it. I moved around to other nearby farmers to learn more about wheat and I therefore interested in observing the problems they face and their influence on the profitability of the crop.

I did not have enough time during attachment to collect data and i therefore gathered the data after attachment. I travelled from Bindura to Goromonzi and lack of enough funds was a big challenge for the research was self- sponsored.

One of the major problem is that of lack of information by the respondents particularly women. Most of the household i paid a visit i found no man as they were out with other business and automatically a woman becomes the next responsible respondent. Women lacked information on the price of inputs, chemicals they use and even the market price they sold their crop. They referred some of the questions to their husbands, ‘murume wangu ndiye anoziva.’

Another problem is that of lack of transport though i had not have enough money to pay for the fares. Some of the farmers are far from the main roads and inaccessible and i had to walk great distances on foot to collect data hence being exhausted.

1.8 Summary

The main problem faced by smallholder farmers in Goromonzi district is that of high cost of production of inputs such as fertilizers, low yield due to farm size, fluctuations in market prices. Due to these problems and those not mentioned, the research will answer research questions on the characteristics of smallholder farmers, level of profitability and factors affecting the profitability. This will be of great importance in the field of agricultural economics as the costs and the returns will be analyzed, hence providing information as recommendations to the state, farmers and policy makers.

1.9 Organization of the study

In chapter two relevant literature is reviewed. Chapter three do with the description of the study area, data collection, and analytical tools for the research study. Chapter Four details the study results and discussion. The conclusion and recommendation are presented in chapter five.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter reviews current literature that covers determinants and issues to the realization of profits in wheat production systems. Williams Jr. et al. (2021) described the purpose a literature review as an approach for combining a body of information, including all relevant material, and convey what is known as well as what is lacking. This review will also help researchers to identify research gaps left in the target field of study that are worth exploring. In this study, the focus was on relevant literature that explored characteristics of smallholder wheat farmers, their level of profitability, and the factors affecting wheat's profitability.

2.2 Definition of key terms

2.2.1. Profit

Profit according to Debertin (2012), is what remains after all costs associated with production have been covered. Profit, in terms of economics, is the difference between gross income and operational expenses. After deducting all costs, profit is a measure of the positive benefit from an enterprise (Evans, 2020).

2.2.2 Profitability

Profitability in contrast to profit is the capacity of a given investment to provide a return from its use. Profitability in crop production is defined as the ability of a farm or agricultural enterprise to produce income or revenue that surpasses the cost of production. The profitability of crop production depends on the prices received for the crop, the cost of inputs such as seeds, fertilizers, and pesticides, and the yields obtained from the land farmed (USDA, 2017).

2.2.3 Gross margin

Gross margin according to Jeter and Chaney (2019), is the equivalent of gross profit. Additionally, it alludes to the discrepancy between gross income and variable expenditures paid during the course of production (Fani et al., 2015). In other terms, it is the expected gap between total variable costs (TVC) and gross farm income (GFI)**.**

2.2.4 Smallholders farmers

Smallholder farmers are farmers that operate on a small scale and have restricted access to land. Farm size is the most typical metric used by (Baloyi 2010) to define smallholder farmers. Smallholder farmers own an average of 6 hectares (Sibanda, 2005). Additionally, family members provide a source of labor for smallholder farmers (Hazel et al., 2007). Smallholder farmers are those who pursue agriculture on a small- scale and are therefore further classed as A1 in this study.

2.3 Theoretical Framework

2.3.1 Theory of profit maximization

The standard neoclassical economic theory is also referred to as the classical profit maximization theory. In this investigation, this theory is crucial. The social welfare of a firm, which includes labor payments, is indirectly served by the profit maximization theory (Academics, 2019). Wheat farmers aim to reduce expenses and increase revenue. If earnings are generated and farmers do not switch to cultivating other cash crops, farming wheat might be economically viable.

2.3.2 Theory of cost minimization

The theory of minimization is just as significant in our study as the theory of profit maximization. A key idea in economics is the theory of cost minimization, which describes how businesses can create goods and services for the least amount of money. By selecting the best mix of inputs (labor, capital, and materials) that will result in a specific level of output, firms attempt to reduce their overall cost of production, according to this idea (Varian, 2014).

2.3 Overview of wheat production

Wheat is one of the most important cereal crops globally, providing a significant portion of the world's food supply. According to the Organization (FAO), global wheat production has steadily increased over the Food and Agriculture past few decades, reaching a record high of 771 million tonnes in 2020 (FAO, 2021). This increase in production has been driven by a combination of factors, including technological advancements, improved farming practices, and the expansion of wheat cultivation areas in developing countries (FAO, 2019). Wheat is now grown in over 200 countries and is a major crop in many regions of the world, including North0America, Europe, Asia, and Australia (FAO, 2021).

Between 2015 and 2020, the world produced 752 million tons of wheat, which was topped by 768 million tons of rice (Tendall et al., 2015). To meet future food demands, it is predicted that wheat production should be increased by 87 Mt to 840 Mt by 2030 (Ranaivo et al., 2022). According to Sowell (2023), updated figures for Ukraine, the European Union, and the United Kingdom lead to an increase in global wheat production of 0.7 million metric tons (MMT) to 781.3.

According to the Annual Agricultural Statistics Book (2020), wheat consumption will also increase by 12% by 2030, with more than two-thirds of it going toward food. Global consumption for 2022 has increased from 0.2 MMT to 783.2, according to Sowell (2023). Consumption is adjusted to match the World Agricultural Supply and Demand Estimates (WASDE) based on the local marketing year (MY) trade adjustment for 2022-2023.

Table 1: Global 2022/2023 wheat supply and use a glance (in million metric tons)

Balance sheet	2020/22 January	2022/2023 December	2022/2023 January	Month-to Month change
Supply				;59

Beginning stock	290.0	276.3	276.8	0.5
Production	779.3	780.6	781.3	0.7
Trade year	200.2	204.1	204.9	0.8
Demand				
Feed and residual use	160.2	154.9	155.3	0.4
Food, seed, and industrial use	628.3	628.1	627.9	(0.2)
Domestic, total use	788.4	783.0	783.2	0.2
Trade year exports	205.1	208.8	209.6	0.9
Ending stock	276.8	267.3	268.4	1.1

Source: USDA, Economic Research Service: USDA, Foreign Agricultural Service, and Production, Supply, and Distribution database.

In the context of Africa, a substantial source of dietary energy and protein in many African nations, wheat is a key crop across the continent. The Food and Agriculture Organization (FAO) reports that during the previous few decades, wheat production in Africa has continuously climbed, reaching a record high of 31 million tonnes in 2020 (FAO, 2021). The extension of wheat growing areas in several nations as well as

government backing, better farming techniques, and other factors have all contributed to this growth in production (FAO, 2021). However, Africa still falls short of other continents like Asia and Europe in terms of wheat production.

Wheat is a common food source in many African nations, especially in North Africa and the Sahel, where it is used to make bread, couscous, and pasta (FAO, 2021). The rise in wheat consumption in some nations is also attributed to changing dietary habits and rising demand for items made from wheat (FAO, 2019). Africa still consumes less wheat than other continents, and many Sub-Saharan African nations depend on imports to meet their needs (FAO, 2021).

Africa's wheat production and consumption face a number of obstacles, including a lack of access to inputs, high-quality seeds, and fertilizers, as well as inadequate transportation and storage facilities (FAO, 2020). The ability to access markets with dependable demand and fair prices is crucial for farmers (Dorward et al., 2017). Government policies can help or hurt wheat production and consumption, therefore they play a significant influence as well (Jayne et al., 2018).

In the case of Zimbabwe, the agricultural sector is primarily responsible for Zimbabwe's economic growth, household income creation, and food security (Dzvimbo et al., 2017). With a heavy reliance on irrigation, Zimbabwe is known as one of Africa's most prolific wheat-producing countries (CIMMYT, 2012. The Food and Agriculture Organization (FAO) reports that Zimbabwe's wheat production has been inconsistent during the past few decades, peaking at 325,000 tonnes in 1990 and declining to 19,000 tonnes in 2019 (FAO, 2021). The importation of wheat and other wheat products has increased as a result (Mutambara et al., 2013).

In Zimbabwe, the consumption of wheat is high, especially in urban areas where it is used to make bread, biscuits, and other items with wheat-based products (FAO, 2021). The rise in wheat consumption in the nation has also been attributed to changing dietary habits and an increase in the demand for items made from wheat (FAO, 2019). Zimbabwe still imports more wheat to meet its needs because its consumption is still more than its output (FAO, 2021).

2.4 Characteristics of smallholder farmers

2.4.1 Gender of the household head

As opposed to women, men presided over the majority of homes that produced wheat. The fact that the and reform program was designed for families and that the majority of households are led by men accounts for the prevalence of male-headed households (Mazuru et al., 2007). As a result, since the men dominate the organizational tasks at the farm, the rest of the family supports them through labor. In this instance, it is obvious that gender inequity results from the patriarchal structure of family duties.

2.4.2 Marital status

The government policy that stipulated that a settler has to be married or widowed, according to research by Mazhawidza and Manjengwa (2009), had a discriminating attitude toward single, unmarried women who desired land in their names. As married couples were commended for good or superior production and management decisions as a result of their joint efforts and balanced decision-making, which boosted viability, singles were cast aside.

2.4.3 Age of the household

According to the age distribution, younger and lower middle-aged age groups make up the bulk of A1 resettlement scheme land recipients. Age has been linked to decision-making processes in social networks as well as physical resource access, according to Chiweshe (2015). Since most of the wheat farmers in the study region are over 50 years old and have been producing wheat for 20 years, it follows that the majority of them bought their land when they were in their 30s.

2.4.4 Experience

According to the study, there is a strong correlation between experience and wheat productivity. The scheme's new farmers contended that cultivating wheat is unprofitable while veteran farmers made moderate to substantial profits. Additionally, skilled farmers are able to fix mistakes before they happen, leading to high yields and greater earnings (Qwabe et al., 2013). Their knowledge consequently improved the wheat crop's profit

margin. This outcome supports the findings of Okam et al. (2016), who claimed that there is a connection between farming experience and farm profitability.

2.4.5 Household size

Wheat farming depends on the size of the household. The majority of small businesses use family members as a source of labor, which lowers their labor costs. In comparison to the national average of 5 people per household (Zimstat, 2012), the sector's households are significantly larger. Due to the fact that they do not employ workers, households' with no children are at a disadvantage compared to those with many children in terms of the labor supply. Successful wheat cultivation requires easy access to inexpensive labor, especially for land preparation and bird scaring.

2.4.6 Source of Income

According to the study, the majority of farmers view their farms as their exclusive source of income, and very few also make money off their farms. As a result, the majority of A1 farmers surveyed are full-time farmers. The key crops that are primarily targeted are maize, wheat, tobacco, horticulture, animal husbandry, and broiler production.

2.4.7 Off-farm income

Smallholder farmers' off-farm income is rising, while their wheat production profit margin is declining. This may be because the smallholder farm household focuses more on activities that generate revenue outside the farm and pays less attention to wheat production, which results in a poor profit margin. But involvement in non-farm occupations boosts smallholder farmers' financial capacity and crop production profitability (Techane, et al., 2006). According to the study by Tadele, 2016 and (Techane, et al., 2006), many farmers engage in extra work during lean times in order to supplement their income. This is thought to improve their financial situation, allowing them to easily employ labor as row planting requires a lot of effort.

2.4.8 Level of education

According to Hawlet et al. (2019), education improves producers' knowledge and can be utilized to gather information, understand it, and make informed marketing decisions.

Therefore, having more education enables farmers to work more effectively. This agrees with (Knowler and Bradshaw, 2007), who argued that higher education levels provide farmers with more control over innovative ideas and the risks and rewards involved. Therefore, it is expected that farmers with higher education will adopt new technologies to boost their wheat yield and profitability.

2.5 Evaluating level of profitability by wheat smallholder farmers

2.5.1 Gross margins

The determination of the gross margin per unit of production, which is commonly stated in monetary terms, is essential to the gross margin analysis. Given the pricing of inputs and outputs as well as the quantities produced, this metric enables farmers to compare the profitability of alternative crops or systems on a per-unit basis (Nugent, 2014). The quantity of output produced multiplied by the market price yields the total revenue, from which the total variable costs which include the costs of inputs like seeds, fertilizer, labour, and machinery are subtracted to arrive at the gross margin (Upton et al., 2016). It is crucial to carefully analyse these costs because skipping or underestimating some charges can produce erroneous findings.

2.5.2 Return on investment (ROI)

Return on investment (ROI) is a metric used to determine how much was made in returns on the system for producing wheat. The return on investment (ROI) is computed by dividing the wheat sales profit by the entire investment in the wheat production system. The wheat production system is considered desirable if ROI is high and is profitable. A low or negative ROI, on the other hand, suggests that the investment is generating sufficient returns to justify the resources invested (Investopedia, 2021).

2.5.3 Net income

This is the amount of money made by selling wheat after all production-related expenses have been paid. An important statistic for assessing the profitability of a wheat production system is net income, which offers a measure of profitability that takes into account all

costs related to wheat production. According to the research, there were significant regional difference in the net incomes in the Southern Plains (USDA, 2019).

2.5.4 Cost of production

This is a reference to the whole cost of growing wheat. All direct and indirect expenses related to the production of wheat are included in the cost of production. Farmers can assess the effectiveness of their wheat production system and find areas where costs can be cut to increase profitability by analyzing their cost of production.

2.5.5 Yield

The amount of wheat produced per area or unit of land is referred to as yield. Farmer can assess the productivity of their wheat producing system by evaluating yield. As more wheat is produced for sale, a system that delivers a high yield is likely to be profitable.

2.6 Comparative assessment of regional and global wheat smallholder production systems

2.6.1 Regional difference

In general, mechanization, high input use, and the use of cutting-edge technologies are characteristics of wheat production systems in developed nations like Europe and North America. Although these systems produce great yields, their growing reliance on artificial fertilizers and pesticides makes them potentially less sustainable. On the other side of the coin, low input use, manual labor, and little mechanization are characteristics of wheat smallholder production systems in developing nations like Africa and Asia. Due to the utilization of organic farming methods and a variety of crops, these systems produce lower yields but may be more sustainable (Senanayake, 2018).

2.6.2 Global differences

The difference between large-scale commercial farms, which typically have access to more resources like capital, land, and technology, allow them to generate larger yields and achieve high profitability, are another feature of the global wheat smallholder production system. Smallholder farmers are frequently marginalized, and this might

prevent them from accessing necessary resources and markets, which can result in poorer yields and reduced profitability (Lunduka et al., 2016).

Additionally, experts have emphasized that distinct regional effects of climate change are expected to be seen on small-scale wheat production systems. For instance, increasing temperatures and an increase in pest and disease activity may result in lower yields in Europe, whereas drought and other extreme weather conditions may result in crop failures in Africa (Asseng et al. 2015).

2.7 Innovations that can boost profitability levels of smallholder systems

There are several innovations that can boost the profitability levels of wheat systems such as improved wheat varieties, conservation tillage, Integrated Pest Management (IMP) and crop diversification.

2.8. Factors affecting the profitability of wheat

2.8.1 Cost of inputs

According to a study by Hassan (2010) on the price of growing wheat in Pakistan, costs for fertilizer, seeds, planting rates, and irrigation were all influencing the price of growing wheat in Punjab. Gitau et al.'s (2010) study in Kenya found that high costs were compared to farmers' efficiency and that the high costs of inputs, seeds, and fertilizer made up 44% of the whole cost. These elements all appeared to have a considerable impact on the price of producing wheat.

2.8.2 Cost of Labour

Despite the fact that most work is now getting more computerized, research done in California demonstrates that the cost of labor per hour is still a significant expense, according to Kadigi (2012). Farmers who are smallholders typically rely on family members for work. The contribution of the family should be subtracted from the gross revenue even though they are providing the labor.

2.8.3 Irrigation Infrastructure

Farmers must pay substantial costs to upgrade their irrigation system and replace worn-out machinery. Aluminium sprinkler irrigation pipes are being stolen, making it harder to get new pipes. Due to economic sanctions, the World Bank and International Monetary Fund (IMF) ceased to provide funding for infrastructure development (Ministry of Finance, 2003). As a result, wheat production is impacted, which reduces anticipated revenues.

2.8.4 Transport cost

Farmers are unable to access more lucrative and high-value marketplaces since they are unable to afford to rent Lorries due to their expensive costs (Makoni et al., 2014). Farmers are additionally impacted by transportation costs when there is a high moisture content because of impending rain before harvest. After being rejected in the market, they are obliged to dry their wheat or sell it for less than it is worth. Additionally, using bad (dilapidated) roads is another problem that raises costs because it makes cars more likely to break down.

2.8.5 Lack of storage facilities

Because they lack storage to stockpile certain of their commodities, like wheat, to take advantage of current market opportunities, smallholder producers must sell their goods at reduced rates. Commodity prices in a liberalized market are decided by the dominant price mechanism (market forces of supply and demand). As a result, farmers must store their products for later sale because agricultural commodity values frequently fall precipitously right after harvest (Jacobs, 2008; Omiti et al., 2009). However, the majority of smallholder farmers lack adequate and sufficient storage facilities to hold goods for later sale. To take advantage of this market opportunity, smallholder farmers must consequently upgrade their storage facilities (Masanganise, 2002).

2.8.6 Delayed payment

The GMB is a parastatal that the state owns entirely. The government treasurer is responsible for releasing funds for grain purchases, however, due to financial difficulties,

no funds are being paid to GMB (USDA, 2016). This resulted in farmers receiving money later than expected, which prevented them from adequately preparing for the following seasons.

2.8.7 Source of energy

According to IRIN (2007), ZETDC is unable to keep up a consistent power supply to the farmers. During the winter, farmers rely on electricity as a source of energy to pump water for irrigation. Given how it affects the crop, ZETDC's electrical supply continues to be a significant deterrent for wheat farmers. This also contributes to the high cost of production, which results in low or no profitability.

2.8.8 Quelea birds

Wheat producers face a significant obstacle when the grain is still milky, soft, and doughy during the early stages of sprouting: quelea birds. Birds and other animals are the main problems in a tiny grain, as is the case in the majority of research (Nciizah 2014; UNDP 2018a). Since the flocks of quelea birds concentrate in one region, no farmer can avoid the consumption of their wheat (Nciizah, 2014).

2.8.9 Research gap

We can see from the examined literature that a variety of factors influence how profitable wheat is for smallholder farmers. There are still gaps in the literature, despite the existence of an extensive study on the profitability of wheat in Zimbabwe. There is no study attempted to concentrate on the degree of profitability or budgetary analysis of smallholder farmers, and although many researchers have studied the elements that determine profitability, there is still a research gap that needs to be filled.

2.8.10 Chapter Summary

This chapter examined the literature on wheat profitability. The chapter considers the theoretical framework that includes the theory of profit maximization and the theory of cost minimization. Relevant pieces of literature were also discussed.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 INTRODUCTION

The research technique used to address the study's research questions is presented in this section. The study area, data collecting, data analysis, presenting strategies, and analytical tool are all described in this part.

3.1 Description of the study area

The Goromonzi district served as the site of the study. Goromonzi, a small town with roughly 47,000 residents, is situated in Mashonaland East, region 2 about 30 kilometers northeast of Harare. Effective rainfall is 800-925mm per year, with annual rainfall ranging from 1000 to 1500mm. Its diverse soils, which include deep sandy soils, sandy loam soils, and red soils (Jowah 2009, Marimira 2010), are appropriate for a variety of crops. Major crops include maize, wheat, tobacco, soybeans, and horticulture crops are produced in the area. This study aims to investigate the irrigation-grown winter wheat as one of the crops. Cattle, pigs, goats, chickens, and other animals are also raised in intensive livestock production (Chakona 2011, Njaya 2015).

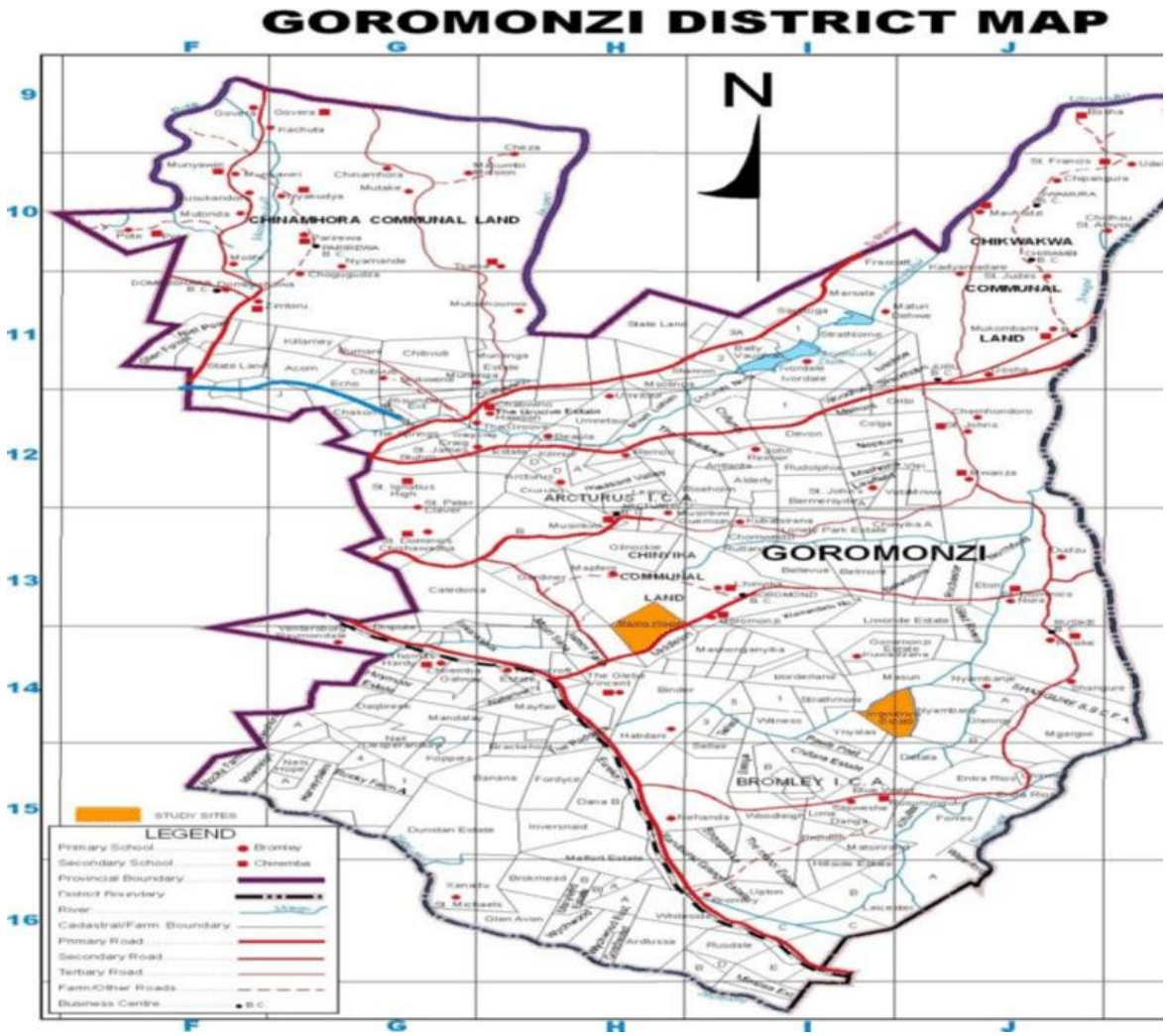

Figure 1: Goromonzi district map

Source: Surveyor General, 2013

3.2 Research design

The study was a survey in nature and questionnaire qualified to be the main instrument for data collection. In addition, the study is descriptive in nature due to the values that will be numerically analysed .The study used both qualitative and quantitative methods for gathering and analyzing data. The use of quantitative or qualitative methods had some weaknesses, and the use of both (quantitative and qualitative) concurrently result in neutralizing the weakness of each method (Creswell, 2014). Therefore, the researcher measured views, ideas, estimations, facts and quantifiable data relating the profitability of wheat.

3.3 Sample size

The size of the sample is an important consideration in the research process since it affects how accurate the sample is (Holladay, 2013). A questionnaire was used to acquire household information such as the characteristics of smallholder wheat producers, level of profitability and factors that affect profitability of wheat. A total of 40 households was randomly selected out of 68 farmers in Goromonzi district ward 7. According to Siddik (2023), a slovin can be used to determine the sample size and is expressed as follows:

$$n = \frac{N}{1+Ne^2}$$

$$= \frac{68}{1[(68\ (0.1^2)]}$$

$$= 40$$

Where,

n = number of samples

N= total population

e=margin of error / error margin.

3.4 Sampling technique

Finding the correct individuals with the traits and abilities required for the study is what sampling is all about (Brynard et al., 2014; Flick, 2007). According to the researcher's judgment alone as well as the fundamental units that will be helpful in the study, a purposeful sampling strategy was adopted (Bless et al., 2013).

Goromonzi district was selected because of its greatest participation in wheat production. In ward 7, the respondents were selected from villages, farms and commercial compounds where smallholder farmers reside. A simple random sampling method of using a hat system was used. The advantage of using simple random sampling is that everyone has a chance of being selected from the target population participated in wheat production. The decision is solely based on the researcher's assessment and what they believe to be the fundamental units that will be helpful for the study (Bless et al., 2013).

3.5 Data sources

For this research, both primary and secondary data were employed. While secondary data is already processed and may be found in the form of reports, publications, or saved in any other forms of soft or hard copies, primary data refers to the raw material that is the original straight from the interviews (Nyariki, 2009).

3.5.1 Primary data

According to (Thakur, 2020), primary data is defined as the information that has been obtained for the first time and hence unique. Primary data is an unprocessed information collected from the smallholder farmers in this context of study. This data was collected using a structured questionnaire as the main instrument and household interviews were done to those who randomly selected. The questionnaires were administered to a total number of 40 out of 68 households and the researcher did not exceed the number of respondents due to lack of adequate finance for transport. Before field survey, pre- tests of the questionnaire was done to 3 farmers. The main aim was to improve the quality of questionnaire design hence quality responses obtained from the farmers. Suffice to say, three fellow students (enumerators) were

engaged and trained by the researcher to undertake the research. In addition, an extension officer played a pivotal role in carrying out this research.

3.5.2 Secondary data

The major secondary data collection method was review of literature. Library textbooks, newspapers and online journals were the main sources of secondary data where the data was gathered .Secondary data was used to review literature on trends and varieties as well as the production for profitability analysis. The researcher consulted the AGRITEX in Goromonzi for wheat trends in the district.

3.5.3 Ethical issues

Ethics is a professional researcher's behavioural guide (Guthrie, 2011), as it points out what is morally right and morally wrong (Nueman, 2014). Research ethics include criteria for daily work, the preservation of individuals' dignity, and the dissemination of study findings. This research adhered to ethical considerations to uphold people's rights, dignity, diversity and social responsibility. Information collected during research was taken as private and confidential. Therefore, there was no use of real names of respondents in interviews and questionnaire. They were named as respondents or participants or in other way pseudo names (false names) were used to promote anonymity.

3.6 Data analysis methods

The data was obtained using a questionnaire. The data was coded, entered, cleaned, and ran in the Statistical Package for Social Sciences (SPSS) version. Data processing and analysis were done using programs like Microsoft Excel and SPSS version 20.0. It a tool used for the analysis of data. The storage capabilities and simple-to-use inclusion of the essential analytical tools are two benefits of SPSS. Checking for duplicate entries, inconsistent data, and poor data quality, such as mistakes, were all part of the cleaning process. Descriptive analysis as analytical tool was used to determine the characteristics of farmers that grow wheat in Goromonzi District. As important as descriptive analysis is gross profit margin and was used to determine the level of profitability of wheat in

Goromonzi District. Multiple linear regression analysis is a different analytical approach that was utilized to identify the variables influencing wheat's profitability. The objectives, data to be collected and analytical tools can be summarized well in table 1 below.

Table 2: Summary of objectives and analytical tools

Objective	**Analytical tool**
the characteristics of smallholder farmers that grow wheat	descriptive analysis
the level of profitability by smallholder farmers	gross margin analysis
factors affecting the profitability of wheat	multiple regression analysis

3.7 Objective 1: To characterize the smallholder farmers

Table 3 : below shows the characteristics to be considered:

HOUSEHOLD CHARACTERISTICS LIST
Gender of the household head Marital status Age of the household Household size Main occupation of the household Source of income

Number of active participants
Number of household members with off- farm employment
Education level of the farmer
Number of year in farming

3.8 Objective 2: To evaluate the level of profitability by smallholder farmers

3.8.1 Gross margin analysis

Analysis of gross margins will be performed to determine whether wheat production is economically viable. The difference between the value of the output and all of the variable costs is the gross margin. Gross margin shows how much money a company makes from the sale of its goods and services after deducting production-related costs (Mature, 2019).

3.8.1 Gross margin analysis

Gross margin analysis shall be used to evaluate the viability of wheat production. Gross margin is the difference between the value of output and the total variable costs. Gross margin reveals the amount that an entity earns from the sale of its products and services, after deduction of expenses incurred during the production period (Mature, 2019).

3.8.2 Gross margin formula:

$$\sum GM = \sum Pi \times Qi - \sum TVC$$

Where,

GM= Gross Margin per hectare in US$

Pi= the price of wheat per tonne

Qi= total quantity produced by a farmer

TVC= total variable cost (US$)

Despite the fact that use of gross margin is an important analytical tool for assessing the profitability, it has a number of disadvantages and one of them is the absence of overhead and fixed costs. Moreover, gross margin analysis are valid for a season under consideration hence not applicable to other recommendations.

3.9 Objective 3: To determine the factors affecting the profitability of wheat

The study used multiple regression analysis technique to examine smallholder wheat production and profitability. Multiple linear regression analysis, according to Wooldridge (2012), is more conducive to ceteris paribus analysis since it enables us to explicitly adjust for numerous other variables that simultaneously affect the dependent variable. Therefore, the relationship between two or more variable can be examined in a sophisticated manner.

The multiple linear regression adopted took the following form:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + \beta n Xn + e$

Where Y (yield) is the dependent variable

X_1-n are the independent variables

B_0-n are the coefficients to be estimated and

E is the random error term

Table 4: Description of variables used in multiple regression analysis

Variable	**Responses**	**Expected outcome (+/-)**

Factors affecting the profitability of wheat	**YES/ NO**	
Land preparation	1=Yes 2. =No	+
Fertilizer cost	1=Yes 2. =No	+
Chemicals cost	1=Yes 2. =No	+
Experience	1=Yes 2. =No	+
Labor	1= Yes 2. No	-
Source of energy	1=Yes 2. =No	+
Irrigation equipment	1=Yes 2. =No	+
Farm size	1= Yes 2. =No	+
Mice	1=Yes 2.= No	-
Quela birds	1= Yes 2. = No	+
Harvesting	1=Yes 2. =No	+
Yield	1= Yes 2.=No	+
Quality of produce	1=Yes 2. =No	+
Storage	1=Yes 2. =No	+
Transport cost	1=Yes 2. =No	+
Market price	1=Yes 2.=No	+
Delayed payment	1= Yes 2.= No	+
Gender	1= Yes 2. =No	+

3.10 Chapter summary

The study was conducted in Goromonzi District ward 7, Mashonaland East of Zimbabwe. Forty wheat farmers was selected using a purposive sampling technique. Both primary and secondary data were employed in the investigation. Visits to the research site were used to gather primary data. The researcher, assisted by friends, distributed survey questionnaires to the respondents. Data analysis tools were SPSS version 20.0 and Microsoft Excel. Descriptive analysis was used to describe smallholder farmers, gross margin analysis to assess profitability, and multiple regression analysis to identify the variables influencing profitability. The research findings will be the main topic of the following chapter.

CHAPTER 4: INTRODUCTION

This chapter involves data analysis of objective 1 which shows the characteristics of smallholder farmers, objective 2 highlights their level of profitability, and finally, objective 3 focuses on the factors that affect the profitability of wheat.

4.2 Objective 1: Characteristics of wheat smallholder farmers

Table 5 Respondents Demographic Characteristics

Farmer background	Frequency	Percentages
Gender		
Male	25	62.5%
Female	15	37.5%
Marital status		
Married	20	50%
Divorced	6	15%
Single	5	12.5%
Widow	9	22.5%
Age		
18-29	2	5%
30-39	11	27.5%
40-49	8	20%
Above 50	19	47.5%

Income earned outside farming		
Yes	20	50%
No	20	50%
Level of Education		
Primary	11	27.5%
Secondary	16	40.0%
Tertiary	13	32.5%
Experience in growing wheat		
2-5	11	27.5%
6-10	5	12.5%
11-15	6	15%
16-20	11	27.5%
21-25	7	17.5%

Source*: Author Data Analysis 2023*

4.3 Discussion of the Results

4.3.1 Gender of the smallholder farmers

The distribution of wheat growers by gender in the Goromonzi district is shown in Fig 2 below. The research's findings showed that 62.5% of participants are men and 37.5% are women. While women and the rest of the family provide support through labor, men are increasingly taking the lead in organizational activities at the farm level (Singh and Mehta, 2019).

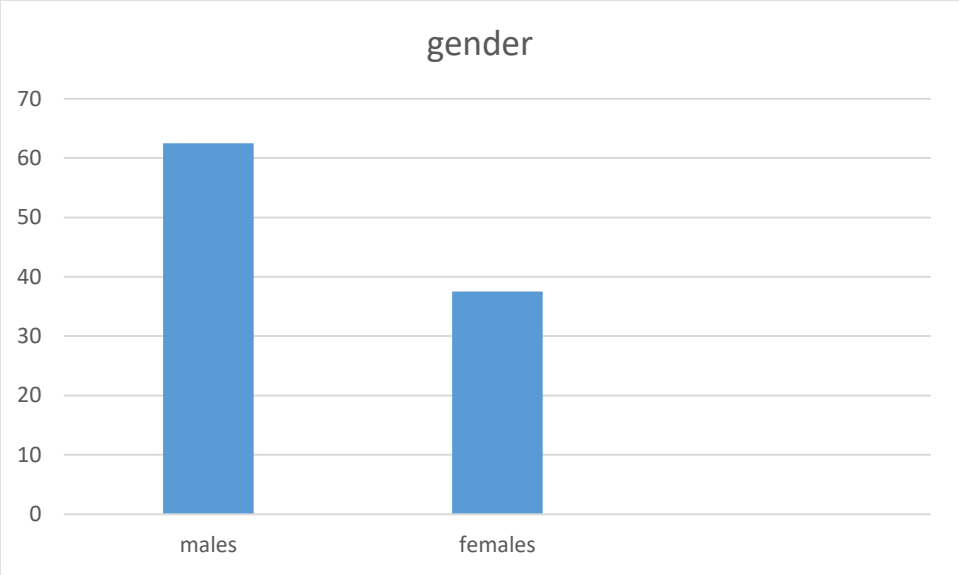

Figure 2 Showing gender expressed as a percentage

4.3.2 Marital status

According to the results on the pie chat in fig 3 below, 50% of the interviewees were married, followed by 22.5% widowed, 15% divorced, and 12.5% single. Married couples typically make more profitable production management decisions because they make decisions together and in balance (Bhandari et al. 2018).

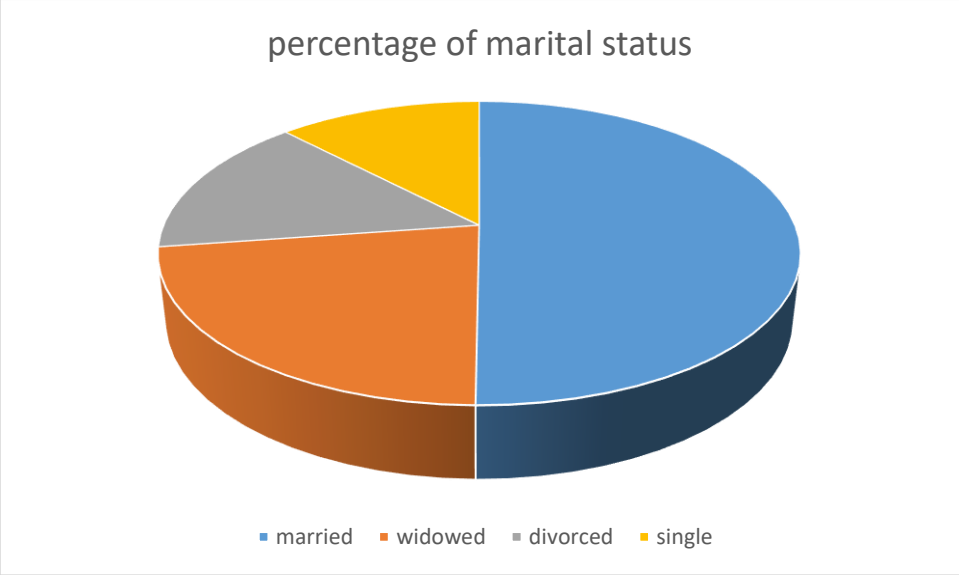

Figure 3 Showing percentage of marital status

4.3.3 Age of the respondents

The youngest householder in the survey was 26 years old, with the oldest being 74 years old. The majority of the respondents are above 50 years and constituted 47.5% followed by 30-39 with 27.5%. Age between 40- 49 constituted 20% while 18 -29 had 5%. This shows that they gained land during the resettlement program in their 30 as most of them are at most 24 years in the field.

4.3.4 Income earned outside farming

The results show that 50% of the respondents had their income from farming activities as their only source of income while 50% again had income from farming and other sources. As a result, this makes it difficult to judge the profitability of the crop as there are different sources of revenue.

4.3.5 Level of education

From fig 4 below, shows that about 40.5% of farmers reported having finished their secondary education, 32.5% had finished their tertiary education, and 27.5% had finished their primary education, per demographic findings. Because farmers' level of education is positively correlated with their output, raising that level will help farmers produce more and turn a profit. Because of this, education and agricultural productivity in low-income

countries were positively correlated, including in the case of wheat production (Jolliffe and Fackler, 2017).

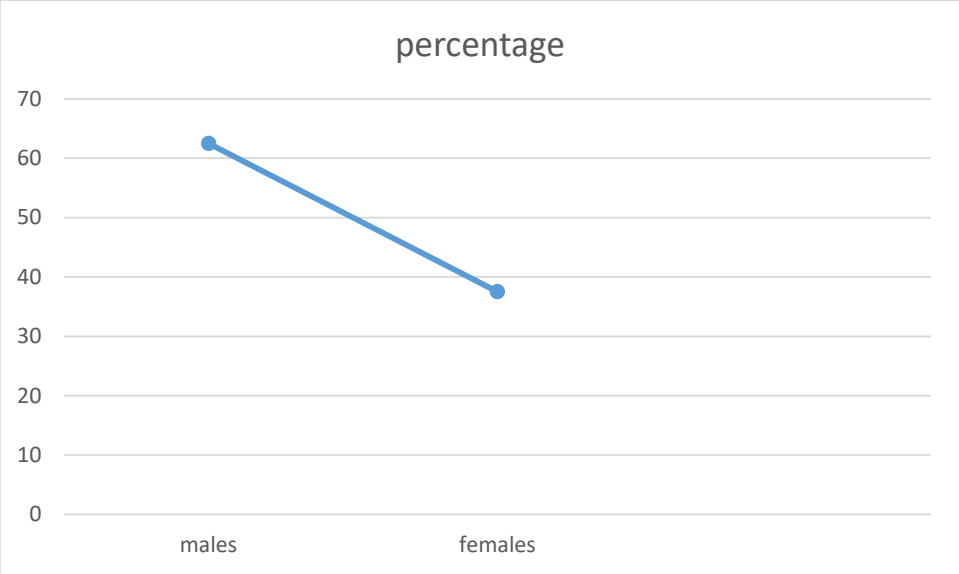

Figure 4: Line graph showing level of education

4.3.6 Experience

According to the demographic findings, 27.5% of the sampled farmers had been involved in the wheat industry for less than five years, and 27.5% had been involved for more than twenty years. Those who had been involved for less than 25 years made up 17.5% of the sample, followed by those who had been involved for less than 15 years, 15%, and 12.5% for less than ten years.

4.4 Objective 2: Level of profitability of smallholder farmers

Table 6: Gross Margin Budget

Variable factors per 4 hectares		**Average costs(US$)**

Land preparation		1000.00
Wheat seed		760.00
Basal fertilizer		980.00
Top dressing		1320.00
Chemical(MCPA)		4.50
Cost of Energy		390
Maintenance of irrigation equipment		90
Harvesting		470.50
Transport		496.00
Total costs		5511.00
Average yield(ton/4ha)		12.4
Average selling price/ton		600
Average income/4ha		7440.00
Average profit/4ha		1929

Source*: Author Data Analysis 2023*

The results indicated that the yield of wheat in Goromonzi District was 12.4 tons on average per 4 hectares. This implies that gross income obtained by the majority of the smallholder wheat farmers of the Goromonzi district at an average selling price of US$600.00 was US$7440.00. After a total of costs of US$5511.00 was deducted an average profit of US$1929 was obtained as indicated in the table above.

As a result, the return on investment in wheat was enough to cover the costs incurred in production. A profit margin of 26% may seem to be reasonable but the magnitude is very low and farmers are not satisfied with it. In terms of serving as their income, it may be enough but not sufficient to reinvest and make significant investments in farming. As a result, they either reduce the hectares or quit production of wheat due low returns attributed to the high cost of production and resort to other profitable businesses.

However, the smallholder sector can be turned into a commercial industry, nevertheless, to address the issue of low return on investment. Commercial farmers benefit from economies of scale, and assuming that they sold their wheat for US$1929 on average per 4/ha while cultivating 100 hectares of wheat, it represents a significant amount of money to them.

4.5 Objective 3: Factors affecting the profitability of wheat

Multiple linear regression analysis was done to examine the variables influencing the profitability of wheat. Wheat yield served as the dependent variable, while land preparation, fertilizer cost, chemical cost, experience, energy cost, harvest cost, transport cost, market price, delayed payment, farm size, gender, maintenance cost of irrigation equipment, and quality of produce served as independent variable.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.942	.886	.836	2.225

Source: ***Author Data Analysis 2023***

The correlation coefficient is what r is called in the regression model. A correlation coefficient is defined as the relationship or correlation between a dependent and an independent variable.

Another is the determination of the coefficient(r square). The model's goodness of fit is gauged by R square. A value of r square greater than 50% ensures quality of fit. The model indicates that the predictors, which include land preparation, fertilizer cost, chemical cost, experience, energy cost, harvest cost, transport cost, market price, delayed payment, farm size, and gender, maintenance cost of irrigation equipment and quality of produce account for 88.6% of the fluctuations in the dependent variable.

In addition, adjusted r square is of great importance. Adjusted r square was modified from r square. It has been adjusted for a number of predictors in the model to measure the accuracy and identify the percentage of variance present that independent variables should explain. It should also be greater than 50% to be of good fit in the model, hence 83.6% can fit well and 16.4% is explained by the error term.

Table 8: Coefficients

Model	**Unstandardized Coefficient**		**Standard Coefficient**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		

	(Constant)	**21.842**	**19.148**		**1.141**	**.264**
	Land preparation	**8.09E-005**	**.000**	**.013**	**.189**	**.8510.**
	Fertilizer cost	**0.011**	**0.002**	**1.190**	**5.511**	**0.000***
	Chemical cost	**-.072**	**.077**	**-.174**	**-.936**	**.357**
	Experience	**.192**	**.068**	**.217**	**2.817**	**.009***
	Energy cost	**-.016**	**.015**	**-.086**	**-.10**	**.303**

					30	
	Harvesting cost	-.006	.004	-.185	-1.486	.149
	Transport cost	.006	.002	.303	3.427	.002*
	Market price	.002	.001	.176	2.108	.044**
	Delayed payment	.279	1.199	.018	.232	.818
	Farm size	5.088	1.261	.958	4.034	.001*

Maintenance cost of irrigation equipment	**-.284**	**.216**	**-.109**	**-.134**	**.200**
Quality of produce	**.882**	**.853**	**.081**	**1.034**	**.310**
Gender	**2.349**	**1.034**	**.173**	**2.271**	**.031**

P*< 1% ***P* <5% * *P*<10%**

Source: ***Author Data Analysis***

4.6 Discussion of the results

4.6.1 Fertilizer cost

Fertilizer cost had a highly statistically significant at 1% level of significance and a P value of 0.000. The researcher found out that fertilizer has a significant impact on the profitability of wheat due to the high cost of fertilizers in season 2022/23, hence lower net returns. This concurs with the findings of Raza et al. (2021) which indicated that increasing fertilizer costs can lead to lower net returns for wheat farmers. This signifies that increasing cost of fertilizers reduce the profitability of wheat to smallholder farmers.

4.6.2 Experience

The regression analysis showed that experience has a positive correlation with profits earned through wheat production as shown by a 0.009 significance level at 5%. As the experience of a farmer increases the profits increase as well and this coincides with the findings from the study of Adebayo and Adejobi (2017) which indicated that experienced farmers had higher wheat yields and higher net returns per hectare compared to less experienced farmers. As a result, experience increases the profitability of wheat.

4.6.3 Transport cost

The coefficient of transport cost to the market (0.006) was positive and statistically significant at 5% with a P value of 0.002. As the distance to the market increases the variable cost also increases due to an increase in transport cost. More specifically Nhamo et al (2019) point out that in Zimbabwe high transport costs and poor road infrastructure resulted in high input prices, which reduced farmers' profitability. This was in line with World Bank (2018) which revealed that Goromonzi district has a poorly developed road network, which makes it difficult for farmers to transport

their goods to the markets. Therefore, transport reduces the profitability of wheat because of its inaccessibility.

4.6.4 Market price

The coefficient of the market price (0.002) was positive and statistically significant at 5% with a P value of 0.044. The market price is a key determinant of farm profitability. Higher prices can increase the net returns while lower prices reduce the returns. This collaborates with the outcomes of Kassie et al (2013) which indicated that farmers in Ethiopia who received higher prices for their crops had higher profits than those who received lower prices. Therefore, higher prices increases the profitability of wheat and on the other hand lower prices reduces the profitability of wheat.

4.6.5 Farm size

The farm size had a P value of 0.001 which is less than 5%. Farm size has a positive relationship with the profitability of wheat. According to Adebayo and Adejobi (2017) in Nigeria found that farm size was positively correlated with wheat profitability, with larger farms having higher net returns per hectare than small ones. As a result, the bigger the farm size the greater the chances of making profits and on the other side of the spectrum, the smaller the farm size the lesser the chances of making profits.

4.6.6 Gender

The data examined using the SPSS package shows that gender had a positive relationship with the profitability of wheat to smallholder farmers in the Goromonzi district. The P value is statistically significant at 0.031 which is less than 5%. Gender had a significant impact in affecting the profitability of wheat. A study in Malawi found that women farmers had lower yields and lower profits than male farmers due to their limited access to inputs,

extension services, and markets (Chipeta et al. 2019). The results indicated that male wheat farmers grab more profits than their female counterparts.

4.7 Summary

Descriptive statistics were used to analyze the characteristics of wheat smallholder farmers gross margin analysis was used to examine the profitability and finally, multiple linear regression was used to analyze the factors affecting the profitability of wheat. The next chapter will be dealing with the conclusion and the recommendations.

CHAPTER 5:Conclusion and Recommendations

5.1 Conclusion

The main objective of the study was to determine the profitability of wheat in the Goromonzi district. The results from the study indicated that wheat smallholder farmers on average obtained a reasonable income. The returns were positive and able to cover the initial cost of production though not enough for reinvestment in farming. However, problems such as high fertilizer costs, high cost of transport, market price as well as delayed payment need to be addressed to reduce the high total cost of production.

5.2 Recommendations

- The state should subsidize inputs such as fertilizer, chemicals, and seeds to reduce the high cost of production of wheat. To add on, the prices being offered at the market are not enough to match the costs incurred, therefore the state should make sure pricing policies are in line with the cost incurred by contracted and non-contracted wheat farmers.

- In terms of transport, the government to provide transport to farmers rather than for them to look for transport to anyone else. This protection may serve farmers from being overcharged. Also, the government should make sure that wheat farmers are paid on time by the Grain Marketing Board (GMB).

- Policy makers are recommended to support research and development: To increase the productivity and profitability of wheat production, research and development are essential. By supporting research institutions and universities, encouraging public-private partnerships, and offering financial incentives to the private sector.

- Farmers are encouraged to be contracted in schemes such as the wheat command program and pfumvudza program rather than to depend on their own capacities.

- Farmers are also recommended to attend wheat training programs, and workshops, utilize research and extension services, participate in farmer cooperatives or associations, and finally read agricultural magazines about the best practices in wheat farming to build their capacities.

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APPENDIX 1: QUESTIONNAIRE

INTRODUCTION

This questionnaire serves to facilitate a research on the analysis of profitability of wheat to smallholder farmers carried out by Robert kademaunga a student at Bindura University of Science Education in Zimbabwe currently studying towards my honours degree in Agricultural Economics and Management. Successful completion of this project should lead to insights and recommendations that are important for researchers, government, farmers and policy makers. This, however, would not be possible without your contribution, and I would therefore be very grateful if you could spare a few minutes of your time to complete the enclosed questionnaire. I assure you that your responses will be treated with complete confidentiality and used only for research purposes.

Finally, I would like to take this opportunity to thank you in advance for spending your valuable time in answering the questions in this survey, for your opinions and your suggestions which will be extremely useful to achieve the research's aims.

Thank you in advance

Research Questions

NB. Please tick the appropriate response in the space provided below

SECTION A

OBJECTIVE 1: To find out household-level characteristics of smallholder farmers that grow wheat in Goromonzi District, Zimbabwe

1. Name of household head……..

2. Gender of the household head. Male [ ] Female [ ]

3. Marital status of household head. Single [ ] currently married [ ] Divorced [ ] Widow [ ]

4. Age 18-29 years [ ], 30-39 years [ ], 40-49 years [ ], Above 50 [ ]

5. What is your household size?

Household members	Numbers
Men	
Women	
Children	

6. What is the main occupation of the household? Farming (crop t livestock) [ ] Business Casual labour on farm or off farm [ ]

7. If farming is the source of income, do you have any other source of income? 1. Yes [ ], 2. No [ ]

8. How many household member actively involved in wheat production? ……...

9. Number of household member with off-farm employment……

10. Which is the highest level of education achieved by the household head? No formal education [ ], Primary [ ], Secondary [ ], Tertiary [ ]

11. Number of years household has been farming and making decision? .....

SECTION B

OBJECTIVE 2: To evaluate the level of profitability by wheat smallholder farmers in Goromonzi District

1. How many hectares did you cultivate for wheat? ……..

2. How much money is required to plough 1 hectare? ……..

3. How did you prepare your land? Hired equipment [ ], Use own equipment [ ]

4. If hiring at what cost per hectare?

5. Did you receive any input from the government support or input scheme? 1. Yes [ ] 2. No [ ]

6. If yes what types of and quantity of inputs did you receive? .....

7. Are you contracted or you buy inputs? Specify……..

8. How many kgs of seed is required per hectare and at what cost? ……

9. How many bags of fertilizer required per hectare? .....

10. Each bag is costing how much? .....

11. What chemicals did you use in wheat per hectare? .....

12. What price is it for every chemical? .....

13. How much money is required to harvest 1 hectare of wheat? .....

14. How many tons of wheat produced per hectare? .....

15. How much amount of money is required to transport 1 tonne of wheat to the market? .....

16. How much per tonne is offered at the market? .....

17. Are you satisfied with the return? 1. Yes [ ] 2. [ ]

18. What is your perception of the profits derived from wheat production? 1. No profits [ ] 2. [ ] Medium profits [ ] 3. High profits [ ]

SECTION C

OBJECTIVE 3: To determine the factors affecting the profitability of wheat in Goromonzi District

Are the factors likely to affect the profitability of wheat?

Please indicate using a tick on the choice as provided below

FACTORS	YES=1	NO=2
1. Land preparation		
2. Cost of hiring land		
3. Cost of labour		
4. Machinery used		
5. Cost of seed		
6. Seed variety		
7.Cost of seed		
8.Cost of fertilisers		
9.Cost of chemicals		
10.Experience		
11.Source of energy		
12.Irrigation equipment		
13. Harvesting		
14. Mice		
15. Qualia birds		
16. Storage		
17.Transport cost		
18.Market price		
19.Expected quality at the market		
20. Delayed payment		

If any other, specify:

THE END

THANK YOU FOR YOUR PARTICIPATION