Determinants of Malt Barley Value Chain Performance: The Case of Galema Farmers Cooperatives Union (GFCU)

By: Samuel Girma

A Thesis Submitted to Addis Ababa University School of Commerce for Partial Fulfillment of the Requirements for Masters of Arts Degree in Logistics and Supply Chain Management

Advisor: Berhanu Denu (PhD)

Addis Ababa University

College of Business and Economics

School of Commerce

Addis Ababa, Ethiopia

June, 2020

Addis Ababa University College of Business and Economics School of Commerce

Department of Logistics and Supply Chain Management

Determinants of Malt Barley Value Chain Performance: The Case of Galema Farmer's Cooperatives Union (GFCU)

By

Samuel Girma

Approved by Board of Examiners

Berhanu Denu (PhD)	_____
Advisor	**Signature and date**
Busha Temesgen (PhD)	_____
Internal Examiner	**Signature and date**
Yehualashet Demeke (PhD)	_____
External Examiner	**Signature and date**

DECLARATION

I, the undersigned, hereby declare that this thesis entitled as **"Determinants of Malt Barley Value Chain Performance: The Case of Galema Farmer's Cooperatives Union (GFCU)"** is my original work and has not been presented for the award of any degree or diploma in this or any other university. All sources of materials used for this study have been duly acknowledged.

Declared by: - Name: **Samuel Girma Tadesse**

Signature: _____

Date: 19 June, 2020

Place of Submission: Addis Ababa University School of Commerce,

Addis Ababa, Ethiopia

STATEMENT OF CERTIFICATION

This is to certify that the thesis entitled as **"Determinants of Malt Barley Value Chain Performance: The Case of Galema Farmer's Cooperatives Union (GFCU)",** submitted in partial fulfillment of the requirements for the award of the Degree of Masters of Arts in Logistics and Supply Chain Management to the School of Commerce, Addis Ababa University, done by **Samuel Girma Tadesse** is an authentic work carried by him under our guidance. The theme embedded in this thesis has not been submitted earlier for the award of any degree or diploma in any other university to the best of our knowledge.

Berhanu Denu (PhD	_____	_____
Name of Advisor	**Signature**	**Date**

ACKNOWLEDGMENTS

Above all, I am thankful to Almighty God for allowing me to enjoy this part of my academic career. I am highly indebted to my advisor Dr. Berhanu Denu, and Dr. Shiferaw Mitiku, whose professional guidance, advice and patience has been remarkable.

I would also like to extend my deepest appreciation to my families and best friends for their continuous and valuable support during my study. I have got all your support and encouragement throughout my study with utmost pleasure to my wife, Milka Acham for her unreserved encouragement and support throughout the whole work of this project. I have special thanks for my little baby (*Mathania*) for giving me time to work on my thesis and took his golden time with his mother.

I also would like to thank all those who helped me in collecting the required data and information from different sources. In this regard, special thanks have to go to Habesha Agronomists (Gadissa, Belete and Getnet) who are experts in malt barley production and import substitution efforts; malt barley focal persons of GFCU; AMF higher officials; and malt barley producers in Arsi, Digelu Tijo Woreda.

Samuel Girma
June, 2020
Addis Ababa, Ethiopia

ABSTRACT

The main objective of this study was to analyze determinants of malt barley value chain performance in Arsi Zone Galema Farmers Cooperatives Union (GFCU). The assessment of the current status of the malt barley value chain, identify key actors in the chain, their roles, relationship, SWOT and overall value chain management practices. The study was based on data gathered from three hundred forty malt barley producers. Purposive and simple random sampling technique was applied to select sampled households. Descriptive statistics and correlation analysis methods were used to analyze the data. Result from correlation analysis indicates that five variables are significantly affecting malt barley value chain performance. These are actors' relationship, access to market issues, actors' role, human & physical resource issues, government policy issues and market competition issues. The relative importance of actors' relationship is higher than other independent variables. Therefore, the implication is that actors should coordinate strongly in managing all aspects of their performance of value chain analysis of malt barley in the study area.

Key words: *Malt barley, Value chain, Value chain analysis, Value chain actors', Value chain performance,*

TABLE OF CONTENTS PAGES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AMF:	Asella Malt Factory
ATA:	Agricultural Transformation Agency
ACDI/VOCA:	Agricultural Cooperative Development International
BGI:	Brasseries et Glacières Internationales
CSA:	Central Statistics Agency
CREATE:	Community Revenue Enhancement through Agricultural Technology & Extension
EIAR:	Ethiopian Institute of Agricultural Research
ESE:	Ethiopian Seed Enterprise
ETB:	Ethiopian Birr
EUCORD:	European Cooperative for Rural Development
FAO:	Food and Agriculture Organization of United Nations
FCA:	Federal Cooperative Agency
FOREX:	Foreign Exchange
GDP:	Gross National Product
GFCU:	Galema Farmers Cooperatives Union
GIZ:	German development agency
GMF:	Gonder Malt Factory
HBSC:	Habesha Breweries S.C.
ICA:	International Cooperative Alliance

ILO:	International Labor Organization
KARC:	Kulumsa Agricultural Research Center
KII:	Key Informant Interview
MBVC:	Malt Barley Value Chain
MFI:	Micro Finance Institution
MoFED:	Ministry of Finance and Economic Development
NGO:	Non-governmental Organization
OSE:	Oromia Seed Enterprise
PC:	Primary Cooperatives
PPESA:	Privatization and Public Enterprises Supervisory
PPS:	Probability Proportional to Size
SPSS:	Statistical Package for the Social Sciences
SSA:	Africa South of the Sahara
SWOT:	Strengths, Weaknesses, Opportunity & Threat
USAID:	United States Agency for International Development
UNIDO:	United Nations Industrial Development Organization

CHAPTER ONE

INTRODUCTION

The introduction part describes the background of the study, problem statement, research question, general and specific objectives of the research, significance of the study, scope of the study, definition of terms and organization of the study.

1.1. Background of the Study

Value chain analysis extends traditional supply chain analysis by adding values to each stage of the chain (Karthikeyan, 2015). This can end in which value at one stage seen as being at the expense useful at another. The malt barley value chain in Ethiopia involves multiples actors, including: input suppliers, producers, traders (local assemblers and wholesalers), retailers, processors, and consumers. In order to beat market failures and to deal with changes within the market environment many developing countries, including Ethiopia, are returning to agricultural cooperatives (Anteneh, Muradian, and Ruben, 2011 as cited in Nicola, 2009). Agricultural cooperatives are important rural organizations supporting poverty reduction and livelihood development. For instance, co-operative firms play a set of roles in market economies, based on the co-operative values and principles that are rarely noted in economic literature (Novkovic, 2008; Markelova *et.,al*, 2009). In reality, cooperatives are subject to the same economic forces, legal restrictions and international relations that other businesses face (Krishinaswami and Kulandaiswamy, 1992).

In the malt barley value chain of Ethiopia multipurpose primary cooperatives face competition of traders in the supply of malt barley by smallholder farmers (Mulatu and Grando, 2011). Although, several unions focused on malt barley marketing are established in Arsi and West-Arsi, AMF is supplied for most of its malt barley grain by traders and private wholesalers (N.Persoon, 2014). Based on a field visit report prepared by Ayono (2012) for Agriterra and SNV stated that even 99% of the malt barley supply is delivered by traders in the Assela and Shashemene woredas in respectively the Arsi and West-Arsi zones.

Different researches conducted around the world have identified the key advantage of value chain analysis. Rashid et al. (2014) conducted a research on barley value chain in Ethiopia focused on production and productivity, determinants of quantity supplied and a few value chain aspects of barley; generally, on selected zones using focus group conference and key informant interview. Though the findings of the previous study are useful, it didn't specialize in malt barley and was more general in its approach. Also, another research was conducted on malt barley by Samuel et al., (2017) focusing on a way out for agricultural commercialization specifically on market orientation using descriptive statistics and econometric method which only focuses on Lemu Bilbilo district. Hence, this entails a need for more comprehensive and detailed study which thoroughly analyzes determinants of malt barley value chain performance in Galema Farmers Cooperatives Union (GFCU). Therefore, in this paper, the researcher was tried to analyze how each actor coordinated along the chain, who are the key actors in the map of malt barley value chain, what roles these main actors are playing in the value adding process of malt barley, the SWOT of these key actor's and the overall malt barley value chain management practices in the study area.

1.2. Statement of the Problem

According to the AMF report (2017), the mushrooming of breweries is expected to generate additional demand for malt. Ethiopia has experienced one among the fastest increases of beer consumption within the recent years, with consumption growing by the maximum amount as 90 percent between 2002 and 2011 (FAO, 2014). The country has only two malt factories with a capacity of 52,000 tons of malt per annum catering for domestic beer industries, with significant supplement from import. In 2015, malt barley supply in Ethiopia met only 35% of the demand, with the remaining 65% (63,526 tons of malt) imported at a price of $38 million. Ethiopia is currently not competitive in its malt barley and malt compared to imported malt barley and malt. Currently, it is by far cheaper to import from the world market than sourcing locally. This has to do with the large gap between yields in Ethiopia and Europe (Ethiopia 2mt/ha versus France 7mt/ha), inefficiencies in the supply chain and high logistic costs (Tarekegn 2016).

Although, the establishment of different agricultural cooperatives has great importance to the wellbeing of the farmers, they are challenged by different problems. The same is true for barley cooperatives, most of the malt barley cooperatives lack required human resources and logistical capacity. Currently, there are more than 388 multi-purpose cooperatives union and more than 16,700 primary cooperative members in Ethiopia (FCA 2019). Galema Farmers Cooperatives Union (GFCU) is one of the major multi-purpose cooperatives union in the country comprising of around 121 primary cooperatives, out of them 80 have a potential to produce and supply malt barley. But, only 60 primary cooperatives are engaged on malt barley production and marketing (GFCU 2018).

Despite heavy public emphasis on farmers' organizations, cooperatives are playing a minimal role within the barley value chain and half a percentage of marketed barley passes through cooperatives, which has little influence on the cooperatives revenues (Tarekegn 2016). Bernard et al. (2008; 2010) also reported that cooperatives accounted for 5-10 percent of all grain marketing. According to (Alemu et al. 2014) study that focused on malt barley found that cooperatives marketed 6 percent of the surplus. In 2016 purchase season (January – June), Heineken secured its supply from Model/Nucleus farmers, unions/cooperatives and other sources with a proportion of 84%, 12% and 4% respectively (EUCORD Report, 2016). This shows that the performance of malt barley value chain is weak and needs detail research and improvements.

In Ethiopia, small traders (mainly local assemblers) are the main actors in the barley value chain. As the value chain develops, the role of those actors will diminish, and therefore the farmer will have more direct access to the terminal markets. However, given the present state of the market fundamentals—that is, infrastructure, institutions, and information—these actors perform a crucial market function, namely product aggregation. Most of those traders are also smallholders who conduct commodity trade as a secondary business. Therefore, the surpluses generated through trading ultimately contribute to improving well-being and food security.

Therefore, the country is not advantaged from malt barley production and marketing as it is expected because the value adding activity is insignificant. The union is also struggling to become the best cooperatives in malt barley grower, processor and supplier, and its capacity is limited due to shortage of funds with which to purchase enough malt barley. So, this impacts the performance of malt barley value chain. The union receives various types of support from the government and international aid agencies such as ACDI/VOCA, ATA, and GIZ. But, the support they got from those funders is limited and not satisfactory to do their job in a better and standard manner for the value-added activity. This also greatly impacts the value adding process of the cooperatives. In addition, the technology, market integration, management capabilities and accounting skills of cooperatives is critical for the development and sustainability of cooperative activities in the malt barley value chain.

Therefore, assessment of value chain is an essential requirement to find out the likely reasons that limit the overall performance of value chain in terms of production and marketing of malt barley and come up with specific workable solutions. Even though, some related studies on cereal crops like malt barley were carried out in different regions of the country, empirical evidence of improving production and marketing of malt barley has not been undertaken in the study area. Hence, there is a strong need to conduct determinants of malt barley value chain performance to identify malt barley value chain actor's, their respective roles, value chain map of malt barley, actor's SWOT, malt barley value chain management practices and malt barley value chain performance and marketing. This study was conducted to analyze malt barley value chain analysis in Galema Farmers Cooperatives Union (GFCU) by taking into consideration all the above-mentioned problems.

1.3. Research Question

The following research questions are established to be answered by this study:

1. Who are the major actors in the map of malt barley value chain?
2. What is the role of malt barley value chain actor's?

3. How malt barley value chain actors are coordinated along the chain?
4. What is the SWOT of malt barley value chain actor's?
5. How malt barley value chain management is being practiced?

1.4. Research Objectives

The objectives of the study are shown below;

1.4.1. General Objective

The general objective of this study is to undertake a research on determinants of malt barley value chain performance in Oromia region. Galema Farmer's Cooperatives Union is taken as a case study.

1.4.2. Specific Objectives

The specific objectives of the study are:

A. To identify major actor's in the map of malt barley value chain
B. To assess malt barley value chain actor's role in the value creation activities.
C. To examine the relationship/linkage between actors.
D. To assess the SWOT of malt barley value chain actors.
E. To assess malt barley value chain management practice.

1.5. Significance of the Study

In agriculture, value chain has the capacity to extend efficiencies, business integration, responsiveness and eventually market competitiveness. This study will be going to be used for the management bodies of malt barley farmers marketing cooperatives under consideration GFCU and also for other cooperatives operating under similar conditions in improving their performance through proper and relevant measures. Also, it will give a lesson for the new malt barley cooperatives to be set up and allowing them to achieve greater effectiveness in their value adding activities. In addition, the study will assist in

identifying policy interventions and/or institutional innovations to improve malt barley production. This study will also be a good stepping ground for other studies on marketing cooperatives and value chain analysis.

1.6. Scope of the Study

Due to financial and time scarcity this study only assesses the determinants of malt barley value chain performance the case of Galema Farmer's Cooperatives Union in Arsi Zone, Oromia Regional State. The target populations of the study were primary cooperatives who are members of the union, farmers who are members of the cooperatives, rural collectors, wholesalers/big traders, and processors of malt barley.

1.7. Limitation of the Study

The study only focuses on assessing determinants of malt barley value chain performance the case of Galema Farmer's Cooperatives Union. As a result, the study was conducted in one woreda and important information were collected from sampled farmers and key value chain actors involved within the study area. However, there are spatial also as temporal limitations to form the study more representatives in terms of wider range of area coverage and time horizon. Furthermore, since Ethiopia has different institutional capacities and organizations, the results of the study may have limitations to form generalizations and make them applicable to the entire country.

1.8. Definition of Terms

Value Chain: the complete range of activities which are required to bring a product or service from conception, through the various phases of production (involving a mixture of physical transformation and therefore the input of varied producer services), delivery to final consumers, and final disposal after use (Kaplinsky and Morris, 2001).

Value chain analysis: The activities within and around an organization, and relates them to an analysis of the competitive strength of the organization (Porter, 1985).

Malt Barley Value Chain: are actors that are directly involved in malt barely from cultivation, harvesting, acquisition, grading, malting, to selling to business users/final consumers.

A Cooperative: is a business that is owned and democratically controlled by the members who use its services. (Centre for Cooperatives, 2019).

Buyer-seller relationship: The relationship between buyer (e.g. multipurpose primary cooperative, trader) and smallholder farmer concerning the transaction of malt barley (Nick, P., 2014).

Commercialization decision: the choice of smallholder farmers regarding to malt barley marketing (Nick, P., 2014).

Contract farming: An arrangement between one or more farmer(s) and a contractor (i.e. buyer) for the assembly and delivery of agricultural products under forward agreements regularly at predetermined prices (Eaton and Shepherd, 2001).

Smallholder farmer: ‘’Those with a minimal asset base, operating by below 2 hectares of cropland’’ (World Bank, 2003).

Malt barley: Raw barley grain which are appropriate for malting purposes.

Malt: processed malt barley cultivars which are suitable for brewing (Habtu, 2008)

Food barley: Raw barley grains which are not appropriate for malting purposes.

1.9. Organization of the Study

The thesis organized in five chapters. Chapter one deals about background of the study, statement of the problem, objective of the study, significance of the study, scope and limitation of the study. Chapter two is about literature review which emphasized on correlation between the existing studies, researches, reports, etc. that will act as a basis for the propose study and it is specific and up to the requirement of the propose study. Chapter three deals about research methodology which elaborates and identified all possible analysis of bases on the available data. Chapter four is about data analysis and interpretation of the study and finally chapter five emphasized on conclusion and recommendations of the study.

CHAPTER TWO
REVIEW OF RELATED LITERATURES

This chapter presents review of related literatures about malt barley value chain analysis. The researcher explains theoretical, empirical, and conceptual reviews. The source considered in the review includes books, websites, past article journals and previous thesis.

2.1. Theoretical Literature Review

2.1.1 Basic Concepts of Value chain

Value Chain: The term value chain is defined by different authors, for instance according to (Schmitz, 2005) a value chain consists of all value-generating activities, sequential or otherwise, required to produce, deliver and dispose of a commodity. More specifically (Kaplinsky and Morris, 2000) defined the term as, it "describes the full range of activities which are required to bring a product or service from conception, through the various phases of production (involving a mixture of physical transformations and therefore the input of varied producer services), delivery to the ultimate consumer and final disposal after use". In addition, according to (McCormick and Schmitz, 2002) a typical value chain includes all of a product's stage of development, from its design to its sourced raw materials and inputs, its delivery, and provision to the final consumer. Westlake (2005), define value chain as a supply chain or marketing and processing chain. He defines the value chain as the conduit that runs from a farmer down to a final user, through which the commodity passes and embodies the transactions and activities. A value chain is additionally, encompasses the whole network of actors involved in input supply, production, processing, marketing and consumption (Gereffi, 1995). Even though the term was defined by many authors (Porter, 1985) was the first to use the term value chain. He defined the value chain as the various activities which are performed in particular links within the chain.

The value chain concept involves the addition of worth as the product developments from input suppliers to producers and consumers. A value chain, therefore, incorporates productive conversion and value addition at each phase of the value chain. At each phase in the value chain, the product changes hands through chain actors, operation costs are incurred, and some form of value is added. Value addition comes from various activities including bulking, cleaning, grading, packaging, transporting, storing and processing (Anandajayasekeram and Berhanu. 2009).

Supply chain: A supply chain can be defined as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of those materials into intermediate and finished products, and therefore the distribution of those finished products to customers. (Ganeshan and Harrison, 1995). A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. A supply chain is not only including the manufacturers and suppliers, but also includes transporters, warehouses, retailers, and customers themselves (Chopra and Meindl, 2001). Broadly, supply chains contain new product development, marketing, operations, distribution, finance and customer service (FAO, 2007).

Value chain actors: Actors in a value chain may include input suppliers, producers, collectors (small and mobile traders who visit villages and rural markets), assembly traders (also called primary wholesalers who usually buy products from farmers and collectors and sell to wholesalers), wholesalers (who transact with larger volumes than collectors and assemblers and regularly achieve vital storage functions), retailers (who distribute goods to final consumers), and processors (companies and individuals who perform the conversion of a product (Kapliniskyand Morris, 2001).

(Bammann, 2007), also define value chain actors as owners of the product taking risk in the chain: basically, buying from other actors, processing (in which ever form) the product and selling the product to the next actors. Value chain actors are those who directly deal with the production, processing, packaging, trading etc. of the product.

Value Addition: Value addition can be done at different phases and by different actors throughout the supply chain. generally, adding value is that the process of adjusting or converting a product from its original state to a further valuable state. Many raw supplies have essential value in their original state. the amount of value addition is set by the end-customer's willingness to pay. Opportunities for the actors to feature value depend upon variety of things, like market characteristics (size and variety of markets) and technological capabilities of the actors. Moreover, market data on product and process requirements is vital to having the ability to supply the proper value for the proper market. In this aspect finding value adding opportunities isn't only associated with the relief of market access constraints in existing markets but also searching opportunities in new markets and fixing new market channels to deal with these markets (Kaplinsky and Morris, 2000).

2.1.2 Mapping a value chain

Mapping a value chain enables a transparent understanding of the order of activities, key actors and associations involved within the value chain. This exercise is administered in qualitative and quantitative terms through diagrams presenting the varied actors of the chain, their associations and every one's operations of the chain from pre-production (supply of inputs) to manufacturing process and marketing (UNIDO, 2009).

Based on Kaplinsky and Morris (2000) mapping the chain means giving a visible picture of the networks between actors and tracing a product flow through a whole channel from the product concept generation to the final consumption. It's a perfect tool for measuring and quantifying the value of administrative distortions that hamper competitiveness of products. In its simplest form, value chain is simply a flow chart. Value chain can be complex and encompass an enormous number of actors. Each actor also can be connected to quite more than one value chain players. Therefore, it's vital to recognize the aim of the study and therefore the point of interest. Thereafter decisions are often made on where within the chain to start out and what to incorporate within the chain analysis. The primary step during a value chain study is to spot the actors and therefore the connections

between them to urge the chain planned out. This will be through with a qualitative study, followed by a quantitative one when the map of the chain is finalized. The quantitative study gives additional information about activities and relationships within the chain and makes the study more positive (Hellin and Meijer, 2006).

To get an honest picture of the value adding throughout the chain it's important to gather the data over time to ascertain changes and trends within the chain. According to (Kaplinsky & Morris, 2000) a five-year period is recommended for different actions along the chain to be achieved and influenced by each other. For instance, relations between actors in a chain can be affected by the governance within each step. The conditions could be found out by the foremost powerful actor within the value chain and therefore the others need to adapt to the principles. the most important firm usually has the most important influence on the opposite actors within the chain. By doing a value chain analysis diverse indicator are often calculated to urge a touch about which actor is that the most powerful. One indicator is how big share each actor has from the entire value added within the chain. As (Kaplinsky & Morris, 2000) another indicator is how big share of the total profit in the chain each actor gets.

2.1.3 Why Value Chain Analysis?

Traditionally, little attention has been paid to the value chains by which agricultural products reach final consumers and to the intrinsic potential of such chains to generate value added and employment opportunities. Value chain analysis is very important in increasing the productivity of the crop. Value chain analysis is necessary to identify some constraints in value addition of the crop in the chain. There are three main sets of reasons why value chain analysis is vital during this era of rapid globalization. The first reason they raised is that with the growing division of labor and therefore the global dispersion of the assembly of components, systemic competitiveness has become increasingly important. Second, efficiency in production is merely a necessary condition for successfully penetrating global markets. Third, entry into global markets which allows

for sustained income growth requires an understanding of dynamic factors within the whole value chain (Kaplinsky and Morris, 2002).

Value chain analysis is done for various purposes. The first purpose of value chain analysis is to know the explanations for inefficiencies within the chain, and find potential leverage points for improving the performance of the chain by using both qualitative and quantitative information. Value chain analysis facilitates a better thoughtful of competitive challenges, helps for the identification of associations and coordination instruments, and assists in understanding how those actors affect powers and who governs or influences the chain. The value chain framework seeks to beat these constraints by recognizing different entry points and links that small and medium enterprises can leverage during a given supply chain (USAID, 2008).

The value chains analysis highlights the need for enterprise growth, enhancement of product quality and safety, quantitative dimension of value addition along the chain, promotion of harmonized linkages among producers, processors, and retailers; and enhancement of the competitive position of the enterprises in the market. This approach goes outside looking at agro-industrial production in segregation to scrutinize connections and synergies with other actors and policy. By revealing SWOT, value chain analysis helps recognize possible remedial actions. Also, this approach brings together the various levels and components of potentially upgrading chain interventions.

Value chain analysis also tells the active flow of economic, organizational and coercive events involving actors in different sectors. According to UNIDO (2009), power relations are vital to understand how entry barriers are formed, and how advantage and risks are disseminated. It analyses competitiveness in a global perspective. Regardless of a variety of different value chain analysis methods as experience has shown that all analyses have similar elements. These elements include: end markets and competitiveness, relations among participants (shown in a value chain map), governance structures, and constraints.

2.1.4 Malt Barley Value Chain

On top of the recent rapid growth of the local beer market, the entrances of world-class multinational breweries like Society for Brassiere and Glaciers International (BGI), Heineken N.V., and Diageo to the Ethiopian beer sector created a meteoric opportunity for the chain to develop. However, there are several challenges related to the structure of the chain that the new entrants should tackle in collaboration with other chain members. These multinationals already started some ground work to improve local sourcing to meet their high targets in this regard. For instance, Heineken N.V. aspires to meet 60 percent of its malt requirement from local source by 2020 and started to make some interventions at the grassroots level to realize this target. Other breweries also set similar targets in relation to local sourcing (Watabeji, M.D, 2016).

Most of the breweries (Heineken, DIAGEO, Habesha and Dashen) have their own local malt barley projects which support farmers EUCORD (2016). Particularly, Heineken has a local malt barley project called CREATE which is an exceptional effort towards realizing the country's self-support of malt barley in the near future. Heineken also imported and adopted in collaboration with ATA and EIAR new high yielding and quality malt barley varieties called Traveler and Grace. It was confirmed that over the last 3-4 years productivity of smallholders who have grown these varieties increased to 4.6 tons per hectare on average. There are some farmers who recorded maximum of 8.2 tons per hectare in 2016 harvest season. To boost the malt barley sector, Heineken is undergoing seed multiplication with Oromia Seed Enterprise (OSE) and in 2016 planting season sufficient certified seed was made available to farmers. This is big donation to the country and to the malt barley sector.

Farmers are one of the key players/actors who are directly involved in malt barley production activities and accomplish most of the value chain functions ranging from farm inputs, land preparation or gaining of inputs from other sources to post-harvest management and marketing. The main farming and value adding activities which are performed by malt barley producers include plowing, sowing, fertilizing, weeding, pest/disease controlling, harvesting and post-harvest management. The larger quantities

of malt barley are sold during and immediately after the biggest harvest season to marketing cooperatives, rural collectors, grain wholesalers, unions, processors (breweries and malt factory) and to final consumers of the district. Rural collectors are also other actors within the malt barley value chain system. These are medium traders or farmer/part-time traders who collect outputs from small rural markets within the kebeles and from nearest woreda market, and sell to grain wholesalers. The grain wholesalers are mostly involved in procuring malt barley from rural collectors or they directly collect from producers/farmers in larger quantities and transport it by truck to processors (AMF and Breweries) through their brokers/middlemen. Malt barley processors are also important actors in improving malt barley quality and also perform the major value addition activities at malt factory as well as the breweries (Watabeji, M.D, 2016).

2.1.5 Malt Barley Production in Ethiopia

Ethiopia is ranked twenty-first in the world`s barley production with a share of 1.2 percent and second in Africa next to Morocco with a share of 26 percent of the total barley production of the continent (FAO, 2014). In Ethiopia, barley is mainly categorized as food and malt barley based on their usages. According to (Asfaw, 2000) the bigger proportion of land for barley production is allocated for food barley. Mulatu and Grando (2011) stated that the demand for malt barley in Ethiopia not covered is due to the malt barley supplied to malt factory is produced by farmers having fragmented and small plots of land. Asella malt factory's annual report, shows, only about 35% of the demand for malt barley is covered by domestic production while the rest is imported from foreign countries (AMF, 2017).

Even though, Ethiopia is largest producer of malt barley and other barley products in Africa south of the Sahara (SSA), the country also the biggest consumer of these products. In addition to its use for malting and animal feed, barley is a key ingredient in staple foods (e.g., enjera, porridge, and bread) and local drinks (e.g., Tella and Besso). According to (CSA, 2014), about 64 percent of the total barley production in the country was consumed by households in 2013/14 year.

2.1.6 Importance of cooperatives sector

A cooperative is an autonomous association or enterprises controlled, owned and managed by and for their members to realize their common economic, social, and cultural needs and aspirations (International Cooperatives Alliance, 2019). Cooperatives reduce the transaction costs that smallholders face in their transactions with the suppliers of farm inputs and buyers of farm products as hybrid governance structures (Bonus, 1986; Hendrikse & Bijman, 2002). These transaction costs are high due to farmers are geographically dispersed, have limited resources to get market information, have minimal bargaining power, often face uncompetitive market structures and experience limitations in accessing credit and technical assistance. The contribution of the sector was massive for the past economic development of different countries in the world.

In most African countries physical availability of inputs is regularly a major constraint to access within unreliable rural distribution networks. Kindness and Gordon, (2001) stated that cooperatives act as a vehicle for input distribution. Dorward, Kydd, Morrison, and Urey (2004) highlighted that the success of cooperatives in managing the provisions of several services to smallholders. In addition to supplying inputs, cooperatives frequently deliver technical assistance about the use of those inputs (Markelova, Meinzen-Dick, Hellin, & Dohrn, 2009). Furthermore, 21 million people or 21% of the population are members of cooperatives in 2019 by assuming the total populations of Ethiopia is 100 million (FCA, 2019).

2.2 Empirical Literature Review

2.2.1 The Role of Malt Barley Value Chain Actor's

Hailye *et al.* (1998) conducted empirical research on factors that influence the awareness and adoption of wheat varieties (i.e. bread and durum) by executing a questionnaire among 200 smallholder farmers in northwestern Ethiopia. The analysis identified that agro-ecological zone, access to credit, contact with information sources (e.g. extension

services) and membership in an organization influence the awareness of new wheat varieties. The adoption of improved wheat varieties was highly influenced by cultivated landholding size, farming experience, number of oxen owned, membership in an organization, and interaction with information sources.

A research conducted by Tarekegn (2016) on the role of smallholder farmers in the import substitution and industrialization of Ethiopia found out that the mean productivity per hectare for malt barley varieties in three zones (Arsi, West Arsi, and Bale) is 39 quintals as opposed to 18.7 quintals per hectare in 2013 which has an increase of 109 percent. In 2016 purchase season AMF fully got its raw material supply locally and Gondar malt factory secured 30percent of its supply. The study also found out that 99 percent of the local malt barley is sourced from smallholders and still there is huge potential to use smallholder farmers to realize self-sufficiency and even think of export after some years. Currently producers are looking for the improved role of farmers' organization, private organizations and financial institutions in the malt barley value chain and the role of NGOs and government offices should also be reasonable. In order to realize the self-sufficiency of the country; key supports required on improved seed, finance, pesticides/herbicides, extension support and market relation. Presently, the role of formal financial institutions (MFIs) in the malt barley is confirmed by only 4 percent of the respondents. The study also found out that regardless of the contract they have; 58 percent of the respondents store their grain for more than 2 months. The major reason farmers store the barley are speculating/waiting for better price, saving mechanisms (sell when cash is needed), wait for the planting season to sell as seed with better price and keep for food security/consumption. Therefore, companies like AMF and breweries pushing for strict delivery time in the study area.

Furthermore, Delelegne *et al.,* (2016) studied an assessment on agricultural cooperatives in Ethiopia and the result shows that the influence of commercialization on farmer wellbeing is still questionable due to the internal governance structure and institutional environment which have a hard time adjusting to changing economic conditions.

2.2.2 Malt Barley Value Chain Actor's Coordination

Nick Persoon (2014) conducted a research on Optimize buyer-seller relationships between malt barley smallholder farmers and multipurpose primary cooperatives in the Arsi and West-Arsi zone, Oromia region, Ethiopia. Semi-structured in-depth interviews, focus group discussions and a survey among smallholder farmers (n=200) are applied as a research method. Cooperatives face strong competition as 90 percent of the supply of farmers is sold to traders. Assela malt factory and brewery companies are announcing contract farming practices to get more control on the supply and delivery of malt barley. Most competing crops for malt barley cultivation are food barley and wheat. Farmers consider the agroecology, productivity (i.e. yield), and market prices of last year as most important factors for crop planning decisions. Probability and productivity of malt barley cultivation is significantly affected by agronomic technical assistance from development agents, total landholding size, and membership in credit and/or saving associations. Malt barley is primarily used by farmers as a cash crop. Level of commercialization is significantly affected by distance from the primary cooperative and trainings received from NGO's. A price offered, trust, and convenience are identified as the most important determinant factors for selling to different types of buyers.

A study on value chain structure, integration and performance: the malt barley value chain in Ethiopia by Watabeji, M.D (2016) shows that malt barley value chain members should be encouraged to consider value chain integration as an important strategic means to improve performance. These members need to be aware of the important role that value chain integration constructs play towards improving value chain performance though costly to implement and achieve. Moreover, value chain members and policymakers should establish salient "rules of the game" that promote value chain thinking at every tier of the value chain and increase the maturity level of each member concerning value chain integration practices to revive performance. The study also identified several fragmentations in the malt barley value chain structure which are causes for the weak integration and low performance of the chain. The quality of malt barley produced by small-scale farmers in the study area is very low. Cooperative

organizations are poorly structured and loosely organized to make bulk collection of malt barley. Traders are extensively engaged in the adulteration of good quality malt barley with inferior ones to serve their egoistic profit derives. The members of the MBVC collaborate less on the development of improved malt barley seeds though the use of outdated malt barley seeds is the major hindrance to the MBVC integration and performance.

2.2.3 Malt Barley Value Chain Management Practices

A study conducted by Shewayrga and Sopade (2011) on assessing quality attributes of barley landraces by smallholder farmers in Ethiopia by including descriptive analysis of the relationships with the types of prepared barley foods and drinks. The study was conducted among 275 households in the highlands in northeastern Ethiopia. In this region barley is known for its suitability in a variety of foods and drinks. Some of these are solely prepared from barley while others may also be prepared from other grain crops such as sorghum, maize or teff. Smallholder farmers indicated that the very important reason for favoring the farming of barley is the appropriateness for many types of dishes, including injera, with a better taste. Next to medicinal purposes, best choice for local beverages, and the perceived good source of energy were seen as very important. Suitability for high altitude, tolerance to weather and agronomic stresses and suitability for both *belg* and *meher* season production were also labelled as very important cultivation reasons., The capability to use barley as a cash crop was realized as a less important reason by smallholder farmers in the northeastern part of Ethiopia.

Shahidur *et al.* (2015) conducted a research on barley value chain in Ethiopia and the study concluded that the country does enjoy a comparative advantage, but there are small distortions (about 2 percent) to producing malt barley due to macro policies, especially through overvalued exchange rates and domestic taxes. Given that exchange rate policies have larger policy implications, it is wise to avoid making the case of exchange rate policy reform based on one commodity value chain study.

Samuel *et al.,* (2017) conducted an empirical research on Value Chain Analysis of Malt Barley (Hordeumvulgarel): The Case of Lemu Bilbilo District, Oromia Region, Ethiopia. Based on the study; input suppliers, malt barley producers, marketing cooperatives, unions, rural collectors, grain wholesalers, processors (AMF and Breweries), beer distributors, and retailers are the key actors in the malt barley value chain. About 30 percent and 42 percent of the gross marketing margin and 51 percent and 22 percent of net marketing margin are shared by producers and malt factory, respectively. The econometric results of the study show that the most important factors of malt barley producers' market orientation are literacy of household head, family size, land allocated for malt barley; farming experience, access to improved seed, oxen ownership, access to credit service, agricultural input cost and productivity of wheat.

Generally, in order to identify challenges and indicate solutions an effective approach is a value chain analysis. However, according to (Kaleb, 2008) in Ethiopia for some important crops a value chain analysis is not adequate. Moreover, the value chain analysis in the malt barley sector that will have significant impact on the country's foreign currency savings need to get great emphasis. Especially areas with high producing potential of malt barley require greater concern. Due to this the researcher conducts research on the value chain analysis of malt barley in Arsi Zone in general with special focus on Galema Farmer's Cooperatives Union (GFCU) in particular.

2.3 Identified Literature gap

Even though, some related studies on cereal crops like malt barley were carried out in different regions of the country, empirical evidence of value chain performance and marketing of malt barley has not been undertaken in the study area. Moreover, previous studies related with malt barley focused on production and market orientation rather than giving attention on the value chain performance, access to market, marketing relation, actors role, government issue, financial issue, competition issue, human and physical issue, and linkages among actors which include input suppliers, producers, traders, processors, and consumers in the study area. In general, the above reviewed articles and

research papers have the following major gaps; failure to make specific conclusion regarding the malt barley marketing cooperatives in the malt barley value chain, unable to conduct the relationship, roles, actor's SWOT, failure to study malt barley marketing cooperatives as a single actor in the value adding activities, poor sampling method, failure to justify sample size selection and lacking focus.

2.4 Theoretical framework

A value chain consists of many stages of a technical production process by different actors and the interaction between these phases. The production process starts from input supply, then covers production, processing, marketing and ends with the consumption of a certain product. Production process can be seen as the hard skill of a value chain. The other part of a value chain is coordination between the single stages. The relationships and contractual linkages are not only determinants of the way the goods are traded among different stages but also critical for the overall character of the chain. According to (Schipmann, 2006) the linkages between the stages lead to the governance structure of a chain which can be treated as the soft skill.

Value chains comprises of key process actors like input suppliers, producers, processors, traders, supporters, enablers and consumers. At one end there are the producers/farmers who cultivate the crops and raise the animals and at the other end there are consumers who eat, drink and wear the final products. In the middle there are many individuals and firms which perform one or more small steps in the chain such as transporting, processing, storing, cleaning, selling, buying, packaging, checking, monitoring and making decisions. A value chain also includes a variety of services required including but not limited to technical support (extension), business enabling and financial services, innovation, communication, and information sharing. Service providers and actors in the value chain cooperate in different ways from local to national and international levels.

The value chain includes direct actors who are commercially involved in the chain (producers, traders, wholesalers, retailers, unions, processors, and consumers) and also

indirect actors who deliver services or support for the effective functioning of chain. Some of these indirect actors are like financial or non-financial service providers such as bankers and credit associations, business service providers, government, researcher institutions and extension agents. Figure 1 illustrates the general framework for malt barley value chain actors, their linkage, SWOT of the actors, overall malt barley management practices and support system.

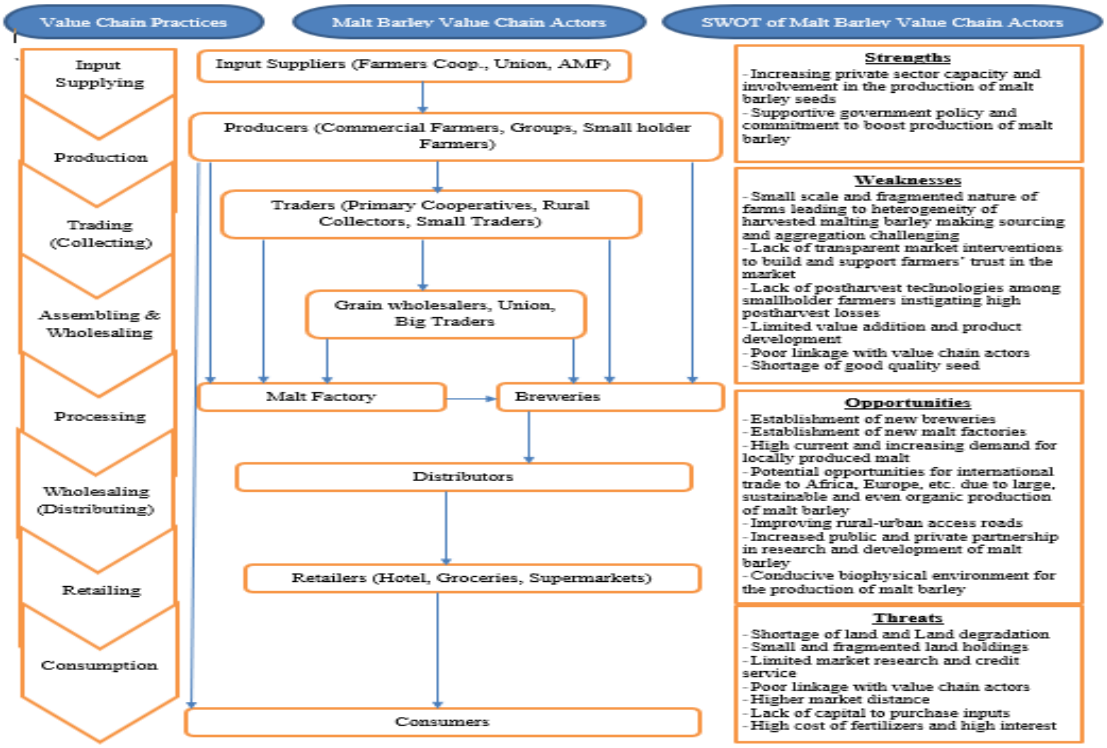

Figure 1. Malt barley value chain theoretical framework

Source: Own design

2.5 Conceptual framework

Among different value chain variables stated in the literatures reviewed, the researcher selected actor's relationship, actor's role, access to market, government policy, finance, competition, and human and physical resource issues and analyzed malt barley value chain performance Galema Farmer's Cooperatives Union (GFCU). In this study, actor's relationship, actor's role, access to market, government policy, finance, competition, and

human and physical resource issues are independent variables and malt barley value chain performance is the dependent variable. Accordingly, the researcher developed the following conceptual framework and indicated the relationship between the independent and dependent variables.

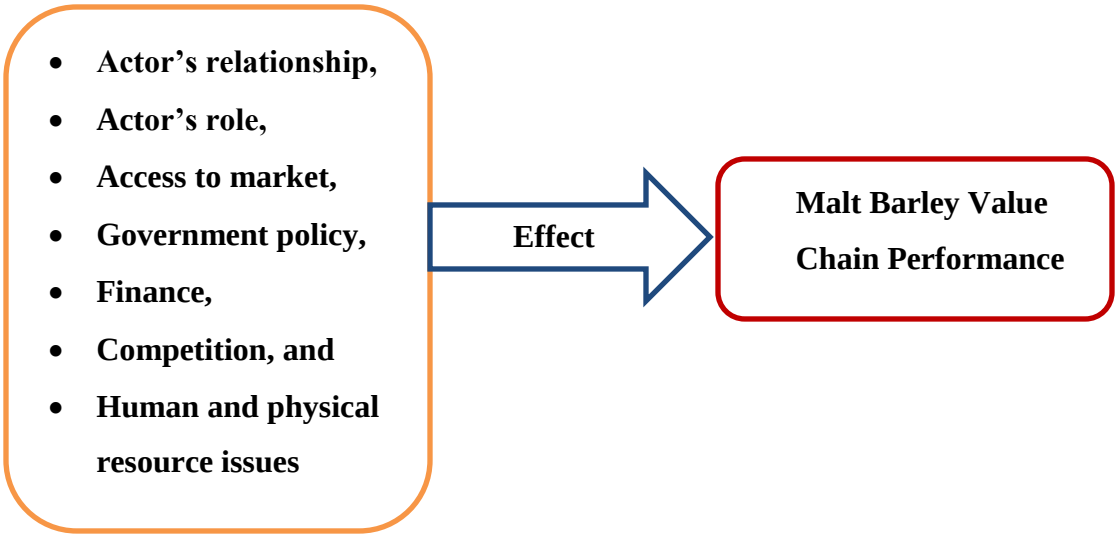

Figure 2. Conceptual framework

Source: Own design

CHAPTER THREE
METHODOLOGY

This chapter describes the research methodology in general. It discusses description of the study area, research approach, research design, methods of data collection, population and sample, data source and types, data collection procedure, data analysis, scale reliability and validity, and ethical consideration.

3.1 Description of the Study Area

This study was conducted in the Arsi zone of Oromia region in Ethiopia by focusing on the Galema Farmers' Cooperatives Union (GFCU). The Arsi zone is divided into 24 administrative woredas. The total area of the zone is around 20,737 km2 (2,073,724 ha.) from which 43.6% is arable land. The zone also divided into four major climatic zones; Dega (highland) 39.7%; Weyna dega (medium highland) 27.5%; Kola (lowland) 29.1%; and Werch (frost highland) 3.7%. At present, from 24 woredas 16 of them are cultivating malt barley. Based on agro-ecology six woredas are labelled by the Kulumsa Agricultural Research Center (KARC) as highly potential for malt barley cultivation, including the Lemu Bilbilo and Digelu Tiyu woreda (KARC, 2013).

The Galema Farmers Cooperatives Union has been established in 2000 in Bekoj'i town, in the Arsi zone about 50 kilometers from the malt barley commercial center, Assela. The union has currently 121 multipurpose primary cooperative as members. These multipurpose primary cooperatives are located in four different woredas and represent 74,917 smallholder farmers in the region. Based on the union annual report 11% of these smallholder farmers are female (GFCU, 2018).

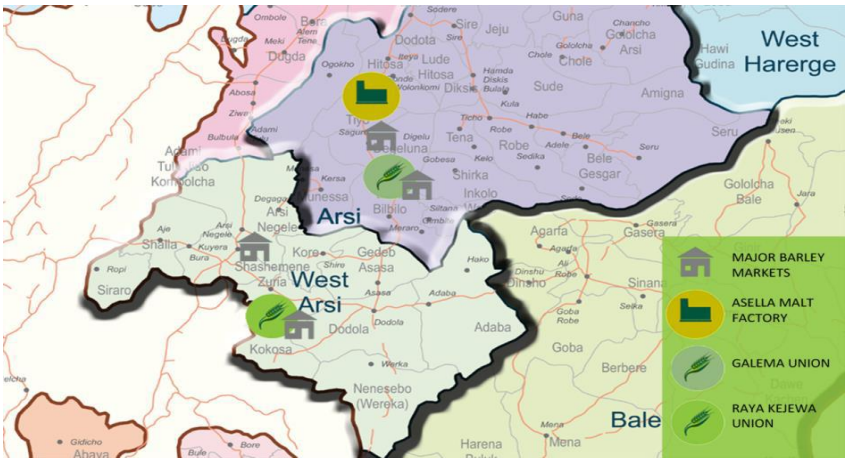

Figure 2. Location of the Arsi and West-Arsi zones.
Source: Agritera 2014

3.2 Research Approach

For this study the researcher was used mixed research approach. A researcher employed a mixed method to get detail and diverse information on the same issue. It also helps to triangulate the reliability of the information which will be gathered. According to Sarantakos (1998) it is usual for researchers to employ mixed method designs to investigate different aspects of the same phenomenon.

3.3 Research Design

The researcher used both quantitative and qualitative methods. The design of the research study was descriptive and explanatory for the aforementioned objectives. Kothari (2004) explains descriptive research as a situation or condition at hand, it is one in which information is collected without changing operating environment. This design helps to identify practices of malt barley value chain in GFCU. On the other hand, the researcher used explanatory design to analyze the performance of malt barley value chain in GFCU. The researcher also used cross-sectional field survey method to identify the relationship between dependent and independent variables. Semi-structured and structured interview,

and questionnaires were used to gather primary data from farmers, rural collectors, wholesalers, and processors. Secondary data were also collected from AMF, GFCU, and HBSC. This method is selected by the researcher to gather the required data.

3.4 Population and Sample

Sampling method is one of the most significant issues while conducting a research. Hence, sample size determination needs an important decision in sampling technique. Rangaswamy (1995) stated that suitable sample size depends on several factors relating to the subject matter like the time and cost aspect, the degree of accuracy desire, etc. When a sample size increases, the sampling distribution of the mean decreases in variability and become more like the normal distribution shape, even the population distribution is not normal.

3.4.1 Primary cooperatives and Farmers sampling

The researcher was used a multistage purposive random sampling procedure to select representative PC and households in the study area. In the first stage, Galema Farmer's Cooperatives Union was selected purposely as it is the largest union for malt barley production and marketing in the study zone. According to (GFCU 2018), the union has currently 121 primary cooperatives as members. These multipurpose primary cooperatives are located in four different woredas/districts (Digelu Tijo, Lemu Bilbilo, Shirka, and Honkolo Wabe) and represent around 74,917 smallholder farmers in the region.

However, to undertake this research paper, the researcher purposively selected Digelu Tijo district due to its high potential of malt barley production in the Zone and it is one of the major suppliers of Galema Farmers Cooperatives Union and represent 32 multipurpose primary cooperatives (GFCU 2018). Secondly, out of 32 multipurpose primary cooperatives in the districts, five primary cooperatives (Arabi, Handura Digelu, Shalo Jigesa, Wucale, and Sena Boru) has been selected randomly for the purpose of the study by considering the time and financial shortages and the wide geographical disparity

of the cooperatives. Since a population from which a sample is to be drawn constitutes a homogeneous group, simple random sampling technique was generally applied.

Malt barley producers in the selected primary cooperatives was used as the sampling frame and the sampling units were the household heads. The researcher used Yamane (1967) sample size determination formula at 5% level of precision.

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

Where: n = sample size = 348

N = Population size = 2,687

e = sampling error/level of precision = 5% was used.

Table 1: Malt Barley grower households and actors sampling technique

Name of sample Primary Malt Barley farmer's marketing cooperatives	**The Total Members**	**Sampled Households**	**%Share**
Arabi	723	94	27%
Handura Digelu	483	63	18%
Shalo Jigesa	614	80	23%
Wucale	570	73	21%
Sena Boru	297	38	11%
Total	**2,687**	**348**	**100%**

Source: GFCU Report (2018) and own calculation

Lastly, a total of 348 respondents was selected randomly from malt barley producers of primary cooperatives. List of farmers identified in each primary cooperative using Probability Proportional to Size (PPS) sampling technique against the total number of malt barley producers in the Kebeles, which constituted the sampling frame.

3.4.2 Rural Collectors, Wholesalers, and Processors sampling

In addition to PC and farmer households, rural collectors, wholesalers, and processors was selected. Here sampling will be the very difficult task due to absence of recorded list of population of rural collectors/small traders & wholesalers/big traders and the opportunistic behavior of the traders. Hence a purposive sampling method was used to select rural collectors and wholesalers from the study area. As a result, five rural collectors and two wholesalers/big traders were selected randomly. Furthermore, Production and Raw Material Supply Director from AMF, GFCU executives and agronomists from Habesha Brewery S.C. also selected and interviewed since they are the major purchaser of malt barley produced in the study area.

3.5 Data Sources and Types

The researcher used both primary and secondary data sources for this study. The primary data was collected from producers/farmers. The information includes the overall socioeconomic characteristics, overall malt barley value chain performance, actor's relationship, actor's role, and problems farmers facing in the malt barley value chain of the cooperatives. In addition, interview was conducted with the officials of primary cooperatives, executes of the union, rural collectors, wholesalers/big traders/, AMF (Production and Raw Material Supply Director) and Habesha Breweries S.C (Agronomists) in order to get diverse information on the above listed issues as well as to see the overall malt barley value chain practices and actor's SWOT. On the other hand, the study was included information from secondary sources from Asela Malt Factory, GFCU, and Habesha Brewery S.C.

3.6 Data Collection Procedures

The researcher analyzed the study based on the data collected from primary sources through questionnaire and interview. Although this study is supported by both theoretical and empirical literatures and secondary data, the researcher used primary data to achieve aforementioned objectives and to answer research questions. Primary cooperatives officials, agronomists and Enumerators, who know the local language and have

acquaintance with the culture of the local people was trained and assigned for the data collection. Primary data were collected from selected respondents and secondary data were collected from published journals, reports of GFCU, AMF, & HBSC and websites. The researcher used both quantitative and qualitative research methods. The study used questionnaire as a quantitative data collection instrument that helps to cover larger target groups than the interview given the quality and chance of no response. The questionnaire was prepared using 5-point Likert-Scale approach (i.e., from "Strongly Disagree to Strongly Agree"). A pilot survey was conducted in order to ascertain if the questionnaire adequately addressed the critical aspects of the research objective. Accordingly, respondents were asked to indicate their level of agreement on 5point Likert scale with the following ratings; Strongly Disagree (1), Disagree (2), neutral (3), Agree (4) and Strongly Agree (5) for ordinal scale measurement and to generate data suitable for quantitative analysis. In addition to quantitative data collection, the researcher used qualitative approach. Qualitative data were gathered through interview from officials of primary cooperatives, executes of the union, rural collectors, wholesalers/big traders/, AMF (Production and Raw Material Supply Director) and Habesha Breweries S.C (Agronomists).

3.7 Data Analysis

The researcher identified key dependent and independent variables in order to process data analysis. The quantitative data was inspected, summarized, verified, edited and organized properly. The data was summarized on the data summary sheet and then carefully edited, coded, verified and encoded into the computer. The overall levels of responses were observed from numerous angles. The data was analyzed with the appropriate statistical tools SPSS (Statistical Package for Social Sciences) version 23 to understand and summarize the data collected on value chain analysis of malt barley in terms of overall performance of malt barley value chain, actor's relationship, actor's roles, market issues, competition issues, government issues, financial issues and human and physical resources issues; and further computed their descriptive statistics like frequencies, percentage, mean and standard deviation. Therefore, the summary statistics

were either represented by tabular form or graphically. In addition, correlation analysis was conducted to measure the strength of the association between independent and dependent variables. Also, content analysis was employed on information collected through structured and semi structured interview with officials of district primary cooperatives, rural collectors, wholesalers, GFCU, AMF & HBSC.

3.8 Scale Reliability and Validity

The five-point Likert scale is found to be the appropriate measurement for rating the malt barley value chain performance and management practices and also helps to easily describe the data output using mean and standard deviation. For the purpose of performing statistical analysis on the questionnaire, the responding firms are asked to rate some statements related to malt barley value chain performance and management practices. The questionnaire consisted of scaled response from 1 to 5, such that 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree.

The relationship of the factors was analyzed based on Pearson's correlations. Pearson correlation was used because it is relevant correlation tool for data that is ratio or interval type. Since, this study was used questions of interval type Pearson was found to be relevant. According to Ratner (2009) correlation is relationship between two variables or impact of one variable on other. In this study correlation coefficient shows the amount of association or impact a given variable has on malt barley value chain performance and it is interpreted as follows;

- ✓ If r = 1, it shows a perfect positive impact
- ✓ If r = -1, it shows a perfect negative impact
- ✓ If r = 0, it shows absence of impact
- ✓ If r is +ve, it shows positive correlation and if it is -ve, it shows negative correlation and impact.

For this study the researcher used Marczyk et al (2005) known book entitled as *Essentials of Research Design and Methodology* for classification of correlation and impact as strong, moderate, or weak and the classification is follows;

- ✓ If r falls between 0.01 and 0.30, there is weak correlation
- ✓ If r falls between 0.31 and 0.70, there is moderate correlation
- ✓ If r falls between 0.71 and 0.90, there is a strong correlation
- ✓ If r falls between 0.91 and 1.00, there is very strong correlation

Even though, the authors suggest large sample size as a factor to rely on this classification this study has followed this particular classification so as to determine the relationship of the variables.

The researcher used reliability analysis in order to measure the consistency of a questionnaire. Though, there are various methods of reliability test, for this study the author used Cronbach's alpha to test reliability as Cronbach's alpha is the most common measure of reliability. For this study, the alpha coefficient for the overall scale calculated as a reliability indicator is 0.919 and the scales were presented on the following table. Andy (2006) described the values of Cronbach's alpha more than 0.7 is good. So, since the alpha values in this study were far from 0.7 the questioner has a very good reliability.

Table 2: Reliability Statistics

Construct	**Number of Item**	**Cronbach's alpha**
Malt Braley Value chain Performance	3	0.931
Actor's Relationship	7	0.720
Actor's Role	6	0.788
Access to Market	9	0.708
Government Policy	6	0.879
Finance	4	0.796
Competition	5	0.954
Human and Physical Resources	7	0.762

3.9 Ethical Consideration

Ethical clearance is obtained from Research Ethical Review Board of Addis Ababa University, School of Commerce, Department of Logistics and Supply Chain Management to conduct this research study. According to (Adams et al, 2007:35) there is an ethical responsibility to do the work honestly and with integrity in undertaking any research. In light of this view, all participants including GFCU and Primary stakeholders of the research were informed and the researcher treats any information from any individual confidentially without disclosing the respondent's identity.

Data from potential respondents was collected after their consent is obtained. Also, the researcher was going to be as open mind as possible and express opinions as they are given. The literatures consulted in this study were acknowledged appropriately. Furthermore, data collectors were given due attention for requesting the will of each actors to be treated as respondents of the study. The survey questionnaire instrument was reduced the researcher's bias and it also avoided sensitive and leading questions while at the same time circumvents issues that may offend the research participants.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents the results of the study. Descriptive analysis is used to outline the socio-demographic characteristics of sampled farmers. These data are presented and analyzed based on data collected through structured questionnaires, interview, and secondary data or documents from district malt barley marketing cooperatives, Asela Malt Factroy, Galema Farmers' Cooperatives Union, and Habesha Brewery S.C. For this purpose, questionnaires have been distributed to 348 malt barley producers in selected primary malt barley farmers marketing cooperatives and 340 of the distributed questionnaires were returned. So, the analysis was made based on 340 responded questionnaires. These survey questionnaires and interview questions are related to MBVC performance, actor's relationship, actor's role, actor's SWOT, problems farmers faced in the malt barley value chain of the cooperatives and overall malt barley value chain management practice. In addition to the questionnaires, secondary data or documents that are related to malt barley value chain activities of the union were used in the presentation and analysis.

4.2. Response Rate

A total of 348 questionnaires were disseminated to malt barley producers in selected primary malt barley farmers marketing cooperatives and out of those 340 questionnaires were collected representing approximately 98% response rate. According to Babie (1979), the return or success rate 50% is 'adequate'; 60% response rate is 'good' and 70% rate or higher is 'very good'.

4.3. Demographic Data

The demographic data of respondents is presented in the following table. These include sex of household head, age, marital status, religion, family size and educational level of respondents. To get information on these issues the respondents were asked structured

question and their responses are presented and analyzed as follows. The results of this survey were managed using SPSS software.

Table 3: Respondent's Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FEMALE	41	12.1	12.1	12.1
	MALE	299	87.9	87.9	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

As indicated on the above table, the sex characteristics of sampled households dominated by male headed with 88% of the sampled households and 12% of them are female headed. This indicates that the majority of cooperative member households are male headed.

Table 4: Respondent's Age Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	15	4.4	4.4	4.4
	30-39	117	34.4	34.4	38.8
	40-49	129	37.9	37.9	76.8
	50-59	66	19.4	19.4	96.2
	60 AND ABOVE	13	3.8	3.8	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

The larger portion of the respondents which is 129 (37.9%) falls within the age group of 40-49. Age group from 30 to 39 and 50 to 59 holds 117 (34.4%) and 66 (19.4%) number of respondents respectively. Respondents of age group 20 to 29 and 60 and above holds the least number of respondents, which are 15 (4.4%) and 13 (3.8) respectively. From this we can say that 246 (72.3%) malt barley marketing cooperatives is filled with most

actively working age group that can be able to transform the mission and vision of the malt barley marketing cooperatives into reality.

Table 5: Marital Status of Respondent's

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SINGLE	4	1.2	1.2	1.2
	MARRIED	223	65.6	65.6	66.8
	DIVORCE	95	27.9	27.9	94.7
	WIDOWED	18	5.3	5.3	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

As depicted from the above table concerning marital status, 65.6% were married. While, 27.9%, 5.3% and 1.2% of the respondents were, divorce, widowed and single, respectively. Therefore, majority of members were married. From this one can conclude that they carry out different activities responsibly.

Table 6: Respondent's Religion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CHRISTIAN	176	51.8	51.8	51.8
	MUSLIM	126	37.1	37.1	88.8
	WAKEFFATA	16	4.7	4.7	93.5
	PROTESTANT	22	6.5	6.5	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

As shown on the above table around half of the respondents were Christian with 51.8% (176). While 126 (37.1%), 22 (6.5%) and 16 (4.7%) of the respondents were Muslim, Protestant and Wakefata respectively.

Table 7: Respondent's Family Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	27	7.9	7.9	7.9
	3	106	31.2	31.2	39.1
	4	102	30.0	30.0	69.1
	5	68	20.0	20.0	89.1
	6	27	7.9	7.9	97.1
	7	4	1.2	1.2	98.2
	8	4	1.2	1.2	99.4
	9	2	.6	.6	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

The other one is respondent's family size, and around 97% of the respondents have a family of six or below.

Table 8: Respondent's Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ILLITERATE	32	9.4	9.4	9.4
	READ & WRITE	127	37.4	37.4	46.8
	PRIMARY (1-4)	94	27.6	27.6	74.4
	JUNIOR (5-8)	33	9.7	9.7	84.1
	SECONDARY (9-10)	38	11.2	11.2	95.3
	PREPARATORY (11-12)	10	2.9	2.9	98.2
	ABOVE GRADE 12	6	1.8	1.8	100.0
	Total	340	100.0	100.0	

Source: Own Survey Data, 2020

As showed from the above table, out of 340 household head, only 6 (1.8%) of the respondents were above grade 12. On the contrary, 127 (37.4%) of the respondents can read and write. In addition, 94 (27.6%) were completed primary education (1-4) and 32 (9.4%) were illiterate or had not received any type of education. The rest 38 (11.2%), 33

(9.7%), and 10 (2.9%) of the sampled households had attended secondary (9-10), junior (5-8) and preparatory (11-12) respectively. Thus, more than 90% sampled respondents were literate. Consequently, they can easily understand and communicate with the principles and values of the cooperatives.

4.4. Results

4.4.1. Analysis and Discussion of Malt Barley Value Chain

Table 9: Malt barley value chain performance as perceived by the respondent

		Count	Sub table Total N %	Mean	Standard Deviation
The overall malt barley value chain performance is well and above industry average	STRONGLY DISAGREE	22	6.5%	3.51	1.07
	DISAGREE	37	10.9%		
	NEUTRAL	75	22.1%		
	AGREE	159	46.8%		
	STRONGLY AGREE	47	13.8%		
In general, malt barley value chain performance is excellent	STRONGLY DISAGREE	13	3.8%	3.89	.99
	DISAGREE	20	5.9%		
	NEUTRAL	49	14.4%		
	AGREE	168	49.4%		
	STRONGLY AGREE	90	26.5%		
We are outstanding at performing our value chain activities	STRONGLY DISAGREE	7	2.1%	3.76	.98
	DISAGREE	33	9.7%		
	NEUTRAL	71	20.9%		
	AGREE	151	44.4%		
	STRONGLY AGREE	78	22.9%		

Source: Survey result, 2020
N.B. Mean value >3 high, mean=3 moderate and mean <3 low.

As indicated in the above table, 60.6% of the farmers agree that the overall malt barley value chain performance is well and above industry average while, 17.4% of the farmers disagree on this issue. The mean value of 3.51 showed that there is an agreement on the

stated issue. The data collected from the Key Informant Interview also confirmed the results from the respondents. Also 75.9% of the respondents agree on malt barley value chain performance is excellent and the mean value also greater than the moderate mean value (X=3) which is 3.89. Furthermore, 67.3% of farmers agree on they are outstanding at performing their value chain activities with the mean value of 3.76. Therefore, based on the above result overall malt barley value chain performance is good.

Table 10: Actors relationship in the malt barley value chain as perceived by the respondent

		Count	Sub table Total N %	Mean	Standard Deviation
The relationship between actors in the malt barley value chain is good	STRONGLY DISAGREE	24	7.1%	3.46	1.09
	DISAGREE	41	12.1%		
	NEUTRAL	78	22.9%		
	AGREE	150	44.1%		
	STRONGLY AGREE	47	13.8%		
Each actor regularly exchanges information and knowledge with each other	STRONGLY DISAGREE	17	5.0%	3.42	1.02
	DISAGREE	54	15.9%		
	NEUTRAL	68	20.0%		
	AGREE	171	50.3%		
	STRONGLY AGREE	30	8.8%		
Equipment and input factors for production, loans and technical assistance and training are kind of information do you get from each other	STRONGLY DISAGREE	19	5.6%	3.57	1.04
	DISAGREE	35	10.3%		
	NEUTRAL	67	19.7%		
	AGREE	170	50.0%		
	STRONGLY AGREE	49	14.4%		
Relationship is one of the problems in the malt barley value chain	STRONGLY DISAGREE	14	4.1%	3.64	.97
	DISAGREE	29	8.5%		
	NEUTRAL	71	20.9%		
	AGREE	177	52.1%		
	STRONGLY AGREE	49	14.4%		

		Count	Sub table Total N %	Mean	Standard Deviation
Members attend on meetings of malt barley marketing cooperatives regularly	STRONGLY DISAGREE	17	5.0%	3.58	1.01
	DISAGREE	35	10.3%		
	NEUTRAL	69	20.3%		
	AGREE	172	50.6%		
	STRONGLY AGREE	47	13.8%		
Members attend on the planning & implementation activities of the cooperatives regularly	STRONGLY DISAGREE	23	6.8%	3.37	1.07
	DISAGREE	53	15.6%		
	NEUTRAL	74	21.8%		
	AGREE	156	45.9%		
	STRONGLY AGREE	34	10.0%		
Members attend on fund raising and decision-making activities of the cooperatives	STRONGLY DISAGREE	31	9.1%	2.81	1.16
	DISAGREE	141	41.5%		
	NEUTRAL	63	18.5%		
	AGREE	72	21.2%		
	STRONGLY AGREE	33	9.7%		

Source: Survey result, 2020

As indicated in the above table 10 items1, 57.9% of the farmers agree that the relationship between actors in the malt barley value chain is good while, 19.2% of the farmers disagree on this issue. The mean value of 3.46 showed that there is an agreement on the stated issue. The data collected from the Key Informant also confirmed the results from the respondents. This result also agreed with finding of Porter (1985) that indicated the fundamental success of the value chain would depend on the form of relationship between the members. The mode of relationship is essential for the planning of the value chain. Hence the relationship between actors in the chain positively affects the malt barley value chain of the union.

Moreover, 59.1% of the farmers agreed that each actors exchange information and knowledge regularly. Besides the mean response were greater than the moderate mean value(x=3) which is 3.42. Therefore, it is possible to conclude that each actors exchange

information and knowledge regularly. The results from key informant interview are also aligned with such views of the respondents. Therefore, each actor needs to continue the smooth flow of information and knowledge along the chain.

In addition, malt barley producer was requested about their opinion whether information about market requirements and developments, equipment and input factors of production, loans and technical assistance and training are kind of information they get each other. Consequently, 64.4% of malt barley producer explained that each actor along the chain exchange the above kind of information in order to effectively achieve their activities. Thus, one can conclude that the level of information exchange among members is high on the above main issues.

Regarding item 4. 66.5% of farmers agreed that relationship is one of the problems in the malt barley value chain with a mean value of 3.64 which is greater than the neutral value(x=3). However, 12.6% of the farmers disagree to this issue. Moreover, the calculated mean value 3.64 revealing that farmer agrees that the relationship is one of the problems in the malt barley value chain. The data gathered by interview from District malt barley marketing cooperatives officials agreed with such sights of the respondents. As a result, the unions should have to create conducive environment to minimize the risk.

The last but not the least response related to actor's relationship with attending the meetings of the malt barley marketing cooperatives; and 64.4% of farmers agreed that they regularly attend on the meetings of the marketing cooperatives with the mean value of 3.58. Also, the respondents were asked to ensure their regular participation on the planning & implementation activities of the cooperatives and 55.9% of farmers agreed that they regularly attend on the planning and implementation activities of the cooperatives with the mean value of 3.37. On the contrary, 22.4% of the respondents disagree on attending planning and implementation activities regularly. Furthermore, the respondents were asked if they attend on fund raising and decision-making activities of the cooperatives and 50.6% of the respondents disagree and only 30.9% of farmers were agreed with mean value of 2.81. Therefore, malt barley marketing cooperatives are

expected to initiate members to actively attend on the fund raising and decision-making activities of the cooperatives.

In general, the above findings are in parallel with finding by Krishnaswami and Kulandaiswamy (2000), which specified cooperative leaders, most prominently management team required to be capable in identifying key members, demand and needs, key markets and marketing agents and planning accordingly, to use the limited resources of cooperatives effectively for producing goods or providing services to achieve the organizational goals and objectives of the union and therefore for satisfying members' need that the cooperatives are established.

Table 11: Actor's roles in the malt barley value chain as perceived by the respondent

		Count	Sub table Total N %	Mean	Standard Deviation
Each actor plays a role in the malt barley value chain of the union	STRONGLY DISAGREE	8	2.4%	4.16	.87
	DISAGREE	11	3.2%		
	NEUTRAL	25	7.4%		
	AGREE	169	49.7%		
	STRONGLY AGREE	127	37.4%		
Members joined the cooperative due to the cooperatives provide better price	STRONGLY DISAGREE	87	25.6%	2.13	.91
	DISAGREE	152	44.7%		
	NEUTRAL	78	22.9%		
	AGREE	17	5.0%		
	STRONGLY AGREE	6	1.8%		
Members sell malt barley to the cooperatives	STRONGLY DISAGREE	31	9.1%	2.81	1.16
	DISAGREE	141	41.5%		
	NEUTRAL	63	18.5%		
	AGREE	72	21.2%		
	STRONGLY AGREE	33	9.7%		
Members buy inputs from the cooperatives	STRONGLY DISAGREE	7	2.1%	4.08	.83
	DISAGREE	12	3.5%		

		Count	Sub table Total N %	Mean	Standard Deviation
	NEUTRAL	27	7.9%		
	AGREE	196	57.6%		
	STRONGLY AGREE	98	28.8%		
Members add value to the cooperatives	STRONGLY DISAGREE	34	10.0%	2.76	1.14
	DISAGREE	142	41.8%		
	NEUTRAL	64	18.8%		
	AGREE	72	21.2%		
	STRONGLY AGREE	28	8.2%		
Members face problems related to roles	STRONGLY DISAGREE	6	1.8%	3.97	.86
	DISAGREE	15	4.4%		
	NEUTRAL	51	15.0%		
	AGREE	180	52.9%		
	STRONGLY AGREE	88	25.9%		

Source: Survey result, 2020

The role played by each actor along the chain is important to facilitate effective achievement of activities. In this aspect, respondents were requested whether each actor plays role in the malt barley value chain of the union on item 1of the above table, majority (87.1%) of the farmer respondents confirmed that each actor plays role in the chain with the mean value of 4.16. In addition, all these values, was found from the document that there had always been different important activities which played by each actor along the chain. Data obtained from the Key Informant Interview indicated that there is still negligence with some actor in achieving the stated roles. From this finding one can conclude that actors play roles in the malt barley value chain of the union.

In connection to item 2 of the same table 11, 70.3% of the farmers disagree that the members joined the cooperatives due to the reason that cooperatives provide better price, while 6.8% and 22.9% of the farmers agree and neutral on the same issue respectively. Moreover, the mean value of 2.13 for farmers' respondents showed that there is low level of agreement to this issue. The data collected from the Key Informant also confirmed the

results from the respondents. Hence from this finding one can conclude that the cooperatives didn't provide a better price to buy outputs from farmers.

Concerning members sell malt barley to the cooperatives, only 30.9% of the farmers respondents agreed that members sell malt barley to the cooperatives as indicated in item 3 of table 6. On the contrary, 50.6% and 18.5% of the respondents were disagree and neutral respectively. Besides, the calculated mean value is 2.81 which indicates that there is low level of agreement on members sell malt barley to cooperatives. In supporting the survey, interview conducted with officials of district malt barley marketing cooperatives pointed out that most members of the cooperatives sell malt barley to rural collectors, traders, wholesalers, or processors. From this one can conclude that cooperatives face problem to buy malt barley from their members.

Regarding whether members buy inputs from the cooperatives, majority farmers (86.4%) agree on the statement indicated item 4 of table 11. In addition, the mean value of 4.08 for farmers' respondents showed that there is high level of agreement to this issue. The data collected from the Key Informant also confirmed the results from the respondents. This agrees with the result of the study by Bezabih, (2012) that indicated cooperatives play vital roles such as economic role (enhance production by providing inputs, fertilizer, improved seeds, pesticides, machinery, etc.), creates employment and capacity building for members (social protection (price stabilization, protect members from exploitative pricing) and voicing). Hence from this finding one can conclude that members mostly buy inputs from the cooperatives.

Concerning table 11 of item 5, 51.8% of farmers' respondents didn't agree with members add value to the cooperatives. Only 29.4% of farmers' respondents was agreed to this issue. Moreover, the calculated mean value of less than the moderate agreement (x=3) shows that there is low level of agreement on members add value to the cooperatives. In supporting the survey, interview conducted with officials of district marketing cooperatives confirm the result. Therefore, cooperatives need to work more on this regard to increase the members value adding activities.

The last question farmers' respondents requested about actor's role is regarding the members face problem related to roles, and 78.8% of farmers respondents has shown their agreement that members face problem related to roles. The mean value of farmers respondents is higher than the moderate agreement level (x=3). Data obtained from the Key Informant Interview showed that each actor should improve their level of awareness regarding to their roles. According to a study by Dagnachew and Adissie (2009) cooperatives in the previous regimes were not actively play their roles for different reasons. Similarly, the cooperatives in the study area faced problems in order to achieve their activities properly. From this finding one can conclude that members face problem related to roles.

Table 12: Respondent view on the problems of market issue

		Count	Sub table Total N %	Mean	Standard Deviation
Members have places to sell malt barley product	STRONGLY DISAGREE	11	3.2%	3.49	.94
	DISAGREE	47	13.8%		
	NEUTRAL	72	21.2%		
	AGREE	183	53.8%		
	STRONGLY AGREE	27	7.9%		
Moisture content, protein content, uniformity, size and color are requirements necessary for malt barley marketing	STRONGLY DISAGREE	8	2.4%	4.01	.88
	DISAGREE	14	4.1%		
	NEUTRAL	40	11.8%		
	AGREE	182	53.5%		
	STRONGLY AGREE	96	28.2%		
Members have access to market information for malt barley marketing	STRONGLY DISAGREE	14	4.1%	3.42	.96
	DISAGREE	48	14.1%		
	NEUTRAL	82	24.1%		
	AGREE	172	50.6%		
	STRONGLY AGREE	24	7.1%		
Cooperatives are source of your information on demand, supply and price of other markets	STRONGLY DISAGREE	60	17.6%	2.26	.97
	DISAGREE	192	56.5%		
	NEUTRAL	30	8.8%		

		Count	Sub table Total N %	Mean	Standard Deviation
	AGREE	54	15.9%		
	STRONGLY AGREE	4	1.2%		
Members know the nearby market price before you sold malt barley	STRONGLY DISAGREE	16	4.7%	3.36	.96
	DISAGREE	51	15.0%		
	NEUTRAL	88	25.9%		
	AGREE	166	48.8%		
	STRONGLY AGREE	19	5.6%		
Malt barley price have difference across different markets in your area	STRONGLY DISAGREE	10	2.9%	3.93	.93
	DISAGREE	19	5.6%		
	NEUTRAL	44	12.9%		
	AGREE	179	52.6%		
	STRONGLY AGREE	88	25.9%		
Relative advantage of price is one requirement to sell malt barley	STRONGLY DISAGREE	15	4.4%	3.39	.98
	DISAGREE	56	16.5%		
	NEUTRAL	69	20.3%		
	AGREE	180	52.9%		
	STRONGLY AGREE	20	5.9%		
Members sell malt barley at any time without any problem	STRONGLY DISAGREE	8	2.4%	4.01	.91
	DISAGREE	17	5.0%		
	NEUTRAL	41	12.1%		
	AGREE	173	50.9%		
	STRONGLY AGREE	101	29.7%		
Members face problem with access to market	STRONGLY DISAGREE	28	8.2%	2.74	1.10
	DISAGREE	151	44.4%		
	NEUTRAL	70	20.6%		
	AGREE	64	18.8%		
	STRONGLY AGREE	27	7.9%		

Source: Survey result, 2020

As indicated in table 12, 61.7% of the farmers show their agreement on the statement that members have place to sell malt barley with the calculated mean value of 3.49. However, 17% of farmers' respondents did not accept that members have place to sell their product.

This shows that the respondents agreed that the members have place to sell malt barley product. In relation to the above data, interview with the official of the cooperatives disclosed that farmers sell their malt barley in the respective near market place. From these views one can argued that members have place to sell their product.

Concerning the requirements necessary for malt barley marketing, 81.7% of farmers' respondents agree that moisture content, protein content, uniformity, size and color are basic requirements necessary for malt barley marketing. However, 6.5% of farmers disagree on the same issue. The calculated mean value of 4.01 is greater than the moderate value (x=3). This shows that respondents agreed that moisture content, protein content, uniformity, size and color are the basic requirements necessary for malt barley marketing. Data gathered from the interview with officials of malt barley cooperatives and executives of the union discovered that the above requirements are essential for the malt barley marketing. From this finding one can conclude that that moisture content, protein content, uniformity, size and color are requirements necessary for malt barley marketing.

As can be seen on item 3 of the table 12 above, 57.7% of farmers agreed that members have access to market information for malt barley marketing. The mean value 3.42 of respondents shows that there is high level of agreement on members have access to market information for malt barley marketing. The data collected from the Key Informant also confirmed the results from the respondents. Hence from this finding one can conclude that members have access to market information for malt barley marketing. In relation to the source of information respondents were requested to reflect their views as stated in item 4 of table 12. Accordingly, 74.1% farmers disagreed on the statement. Furthermore, the calculated mean value is found to be less than the moderate value (x=3). This indicates that respondents did not agree on cooperatives are sources of information.

Concerning table 12 of item 5, farmer's respondents confirmed that members know the nearby market price before sold malt barley. About 54.4% of farmers agreed that members know the nearby market price before they sold malt barley. The calculated

mean value of respondents is greater than the moderate value (x=3). In supporting the survey, the key informant interview results with officials support the respondents. Therefore, based on this finding one can conclude that the farmers aware the nearby market price before they sold the malt barley. Regarding the malt barley price difference across different market in the area, as shown in the above table 12 item 6, about 78.5% of farmers has shown their agreement that malt barley price difference across different market in the area. The calculated mean value is greater than the moderate value (x=3). The data collected from the KII also confirmed the results from the respondents. Hence, one can conclude that malt barley price vary across different markets in the area.

Moreover, 58.8% of the farmers agreed that relative advantage of price is one requirement to sell malt barley. However, 20.9% of farmers did not accept the same issue. The calculated mean value is greater than the moderate mean value (x=3). Data obtained from the Key Informant Interview indicated that members of the cooperatives sell malt barley after checking the price advantage in different market in the Kebeles. From this finding one can conclude that price is one of important requirement to sell malt barley. Regarding item 8, majority (80.6%) of farmers agreed that members sell malt barley at any time without any problem with a mean value of 4.01. The data collected from the Key Informant also confirmed the results from the respondents. Hence, one can conclude that members sell malt barley at any time without any problem.

In relation to item 9 of table 12, on the statement members face problem with access to market, 52.6% didn't agree with the issue. However, 26.7% of farmers' respondents agreed that members face problem with access to market. Moreover, the calculated mean value is less than the moderate mean value (x=3). In supporting the survey, the key informant interview results with the officials support the members didn't face any problem with access to the market. Therefore, based on this finding one can conclude that access to market is not the problem that prohibit the effective achievement of the actor's roles in the malt barley value chain.

Table 13: Respondent view on the problems of government policy

		Count	Sub table Total N %	Mean	Standard Deviation
The government assist the cooperatives	STRONGLY DISAGREE	15	4.4%	3.44	.98
	DISAGREE	50	14.7%		
	NEUTRAL	72	21.2%		
	AGREE	177	52.1%		
	STRONGLY AGREE	26	7.6%		
The kebele administrator assist the cooperatives	STRONGLY DISAGREE	8	2.4%	4.08	.89
	DISAGREE	14	4.1%		
	NEUTRAL	31	9.1%		
	AGREE	176	51.8%		
	STRONGLY AGREE	111	32.6%		
An extension agent visits the cooperatives	STRONGLY DISAGREE	19	5.6%	3.37	1.01
	DISAGREE	53	15.6%		
	NEUTRAL	75	22.1%		
	AGREE	169	49.7%		
	STRONGLY AGREE	24	7.1%		
Government assistance in facilitating credit	STRONGLY DISAGREE	26	7.6%	3.01	1.09
	DISAGREE	114	33.5%		
	NEUTRAL	39	11.5%		
	AGREE	154	45.3%		
	STRONGLY AGREE	7	2.1%		
The current policy of government is favorable for cooperative expansion	STRONGLY DISAGREE	18	5.3%	3.38	1.01
	DISAGREE	52	15.3%		
	NEUTRAL	80	23.5%		
	AGREE	164	48.2%		
	STRONGLY AGREE	26	7.6%		
Government policy is one of the problems in the malt barley value chain	STRONGLY DISAGREE	37	10.9%	2.68	1.12
	DISAGREE	148	43.5%		
	NEUTRAL	67	19.7%		
	AGREE	63	18.5%		
	STRONGLY AGREE	25	7.4%		

Source: Survey result, 2020

The government policy is one of the most important issues in the day to day activities of the cooperatives. In this aspect, respondents were requested whether the government assist the cooperatives as indicated on item 1 of the above table and 59.7% of the farmer respondents confirmed that the government assist the cooperatives. However, 19.1% and 21.2% of the farmers' respondents did not agree and neutral to this issue respectively. Moreover, the mean value of the farmers' respondents is 3.44 which indicates that the respondents agreed that the government assist the cooperatives which aligned with the results obtained from KII.

In connection to item 2 of the same table 13, majority (84.4%) of the farmers agree that the Kebele administrator assist the cooperatives, while 6.5% and 9.1% of the farmers disagree and neutral on the same issue respectively. According to the calculated mean value 4.08 showed that respondents agreed to this issue. The data from key informant interview support the respondents' idea on the issues. Concerning an extension agent assist the cooperatives, 56.8% of the farmers' respondents agreed that an extension agent assist the cooperatives as indicated in item 3 of table 13. However, 21.2% of the farmers did not accept the issue. Besides, the calculated mean value is found to be greater than the moderate agreement level (x=3). In supporting the survey, the key informant interview results with the officials support the above stated responses. Thus, based on this finding one can conclude that extension agent assists the cooperatives.

In addition, farmers respondents were requested their opinion whether the government assist in facilitating credit. As a result, 47.4% of farmers' respondents agreed that the government assist in facilitating credit. While, 41.1% and 11.5% of farmers' respondents disagreed and neutral to the same issue respectively. The calculated mean value of 3.01 found to be almost equal to the moderate agreement level (x=3). Data obtained from the Key Informant Interview indicated that the government assistance should be improved in order to increase the exchange of goods along the chain. As a result, the governments have to give great emphasis for the financial ability of the cooperatives.

Regarding whether the current policy of government is favorable for cooperative expansion, 55.8% agree on the statement indicated on item 5 of table 13. However, 20.6% and 23.5% of farmers disagreed and neutral on the same issue respectively. Moreover, the mean value of 3.38 for farmers' respondents shows that there is high level of agreement. Data obtained from the Key Informant Interview indicated that the current policy of government is favorable for cooperative expansion. Concerning table 13 of item 6, farmers' respondents confirmed government policy is not a problem in the malt barley value chain. About 54.4% of farmers disagreed that government policy is one of the problems in the malt barley value chain. However, 25.9% of farmers respondents agreed and 19.7% neutral to the same issue. The calculated mean value of respondents less than the moderate agreement level(x=3). In addition, the key informant interview with officials of the cooperatives confirmed that the government policy is not the major problem in the malt barley value chain.

Table 14: Respondent view on the problems of financial issue

		Count	Sub table Total N %	Mean	Standard Deviation
Cooperatives give credit for the members	STRONGLY DISAGREE	24	7.1%	2.85	1.09
	DISAGREE	135	39.7%		
	NEUTRAL	71	20.9%		
	AGREE	87	25.6%		
	STRONGLY AGREE	23	6.8%		
The credit you get enough for production	STRONGLY DISAGREE	21	6.2%	2.80	1.08
	DISAGREE	151	44.4%		
	NEUTRAL	69	20.3%		
	AGREE	74	21.8%		
	STRONGLY AGREE	25	7.4%		
Faced any problem while wanting to borrow money from financial institution	STRONGLY DISAGREE	26	7.6%	2.87	1.14
	DISAGREE	136	40.0%		
	NEUTRAL	67	19.7%		
	AGREE	78	22.9%		
	STRONGLY AGREE	33	9.7%		

		Count	Sub table Total N %	Mean	Standard Deviation
Financial issue is one problem in the malt barley value chain	STRONGLY DISAGREE	30	8.8%	2.89	1.13
	DISAGREE	120	35.3%		
	NEUTRAL	79	23.2%		
	AGREE	81	23.8%		
	STRONGLY AGREE	30	8.8%		

Source: Survey result, 2020

Finance is one of vital resources for the value adding process of malt barley. In this aspect, respondents were requested whether cooperatives give credit for the members on item 1 of the above table and about 46.8% of farmer respondents did not agree on the issue. However, 32.4% and 20.9% of the farmer agree and neutral on the same issue respectively. Moreover, the calculated mean value of 2.85 found to be low level from the moderate agreement level(x=3). The data obtained from key informant interview with the officials of the union stated that the financial capacity of the cooperative is limited to give credit for the members.

Moreover, 50.6% of the farmers did not agree that the credit they get enough for production. However, 29.2% and 20.3% of the farmers respondents are agreed and neutral on the same issue respectively. The calculated mean value 2.80 found to be low level from the moderate agreement level(x=3). As per the interview result the credit is inadequate for the farmers to produce malt barley. In connection to item 3 of the same table 14, about 47.6% of the farmers disagree that members faced any problem while wanting to borrow money from financial institutions, while 32.6% and 19.7% of the farmers agree and neutral on the same issue respectively. According to the calculated mean value 2.87 showed that respondents disagree to this issue. In supporting the survey results, interview with the executives and officials of the union point out that collateral issue was solved and farmers can now borrow money from financial institutions with their livelihoods as a collateral.

Regarding whether financial issue is one problem in the malt barley value chain, about 44.1% disagree on the statement indicated on item 4 of table 14. However, 32.6% and 23.2% farmers respondents were agreed and neutral on the same issue respectively. Moreover, the mean value of 2.89 for farmers' respondents shows that there is low level of agreement. In addition, the key informant interview with officials of the cooperatives confirmed the result that most of the beer factories and processors arrange pre-financing which minimized the financial problem of malt barley value chain. Thus, one can conclude that the financial issues is not one of the challenges producers faced in the malt barley value chain.

Table 15: Respondent view on the problems of competition issue

		Count	Sub table Total N %	Mean	Standard Deviation
Members compete with others malt barley producers	STRONGLY DISAGREE	15	4.4%	3.43	1.03
	DISAGREE	60	17.6%		
	NEUTRAL	61	17.9%		
	AGREE	171	50.3%		
	STRONGLY AGREE	33	9.7%		
The level of competition is high between actors	STRONGLY DISAGREE	10	2.9%	4.04	.91
	DISAGREE	13	3.8%		
	NEUTRAL	35	10.3%		
	AGREE	179	52.6%		
	STRONGLY AGREE	103	30.3%		
Malt barley selling price different from others your competitors' price	STRONGLY DISAGREE	17	5.0%	3.41	1.00
	DISAGREE	50	14.7%		
	NEUTRAL	76	22.4%		
	AGREE	171	50.3%		
	STRONGLY AGREE	26	7.6%		
The cooperatives create competitive environment for your products in the local market	STRONGLY DISAGREE	28	8.2%	2.88	1.14
	DISAGREE	128	37.6%		
	NEUTRAL	73	21.5%		
	AGREE	80	23.5%		

		Count	Sub table Total N %	Mean	Standard Deviation
	STRONGLY AGREE	31	9.1%		
Competition issue is one of the problems in the malt barley value chain	STRONGLY DISAGREE	13	3.8%	3.41	.97
	DISAGREE	53	15.6%		
	NEUTRAL	81	23.8%		
	AGREE	166	48.8%		
	STRONGLY AGREE	27	7.9%		

Source: Survey result, 2020

As indicated in the above table 15 item 1, about 60% of the farmers agree that members compete with others malt barley producers while, 22% of the farmers disagree on this issue. The mean value of 3.43 showed that there is an agreement on the stated issue. As per the interview with the officials confirmed the members of the coop compete with the nonmembers that sell their product to traders, wholesalers and processors which participate in the malt barley value chain of the district. Moreover, 82.9% of the farmers agreed that the level of competition is high between actors. Besides the mean response were greater than the moderate mean value(x=3) which is 4.04. Therefore, it can be concluded that the level of competition is high among actors. The interview results also support the respondent's opinion on the same issue.

In addition, malt barley producer was requested about their opinion whether malt barley selling price differ from others competitors' price. Consequently, 57.9% of farmers respondents agree that malt barley selling price is different from others competitors' price. However, 19.7% of farmers' respondents did not agree on the same issue. The calculated mean value was greater than the moderate mean value (x=3). Since there are different competitors along the chain the officials asserted that the price of the malt barley is one tool which took the competitive positions.

Regarding item 4 of the above table, about 45.8% of farmers disagreed that the cooperatives create competitive environment for products in the local market with a mean value of 2.88 which is lower than the moderate mean value (x=3). However, 32.6% of the farmers agree to this issue. Hence, cooperatives should work more on creating

competitive environment for malt barley producers. In relation to the last question about competition issue respondents were requested to reflect their views as stated in item 5 of table 15. Accordingly, 56.7% farmers agreed on the statement. However, 19.4% and 23.8% of farmers' respondent disagreed and neutral on the same issue. Furthermore, the calculated mean value is found to be greater than the moderate value (x=3). This indicated that respondents agreed on the statement. In supporting the survey results, interview with the execute officials of the union point out that the increasing demand on malt barley created highly competitive market on the district.

Table 16: Respondent view on the problems of human and physical resources issue

		Count	Sub table Total N %	Mean	Standard Deviation
Malt barley production and processing equipment supply is adequate	STRONGLY DISAGREE	85	25.0%	2.07	.90
	DISAGREE	179	52.6%		
	NEUTRAL	49	14.4%		
	AGREE	20	5.9%		
	STRONGLY AGREE	7	2.1%		
Cooperatives give training for the members	STRONGLY DISAGREE	14	4.1%	3.41	.99
	DISAGREE	54	15.9%		
	NEUTRAL	79	23.2%		
	AGREE	164	48.2%		
	STRONGLY AGREE	29	8.5%		
Members have awareness about cooperative values, definition and principles	STRONGLY DISAGREE	8	2.4%	4.06	.89
	DISAGREE	12	3.5%		
	NEUTRAL	42	12.4%		
	AGREE	168	49.4%		
	STRONGLY AGREE	110	32.4%		
Members have access to mass media (TV, Radio)	STRONGLY DISAGREE	11	3.2%	3.48	.95
	DISAGREE	51	15.0%		
	NEUTRAL	70	20.6%		
	AGREE	180	52.9%		
	STRONGLY AGREE	28	8.2%		

		Count	Sub table Total N %	Mean	Standard Deviation
Members have access to transportation, telephone and electric power	STRONGLY DISAGREE	22	6.5%	2.54	1.01
	DISAGREE	201	59.1%		
	NEUTRAL	46	13.5%		
	AGREE	52	15.3%		
	STRONGLY AGREE	19	5.6%		
Human and physical resources of the cooperative are adequate	STRONGLY DISAGREE	16	4.7%	2.81	1.16
	DISAGREE	181	53.2%		
	NEUTRAL	29	8.5%		
	AGREE	78	22.9%		
	STRONGLY AGREE	36	10.6%		
Human and physical resources are one of the problems in the malt barley value chain	STRONGLY DISAGREE	13	3.8%	3.53	.97
	DISAGREE	46	13.5%		
	NEUTRAL	62	18.2%		
	AGREE	187	55.0%		
	STRONGLY AGREE	32	9.4%		

Source: Survey result, 2020

As shown on the above table 16, respondents are requested about human and physical resource issues and 77.6% of the respondents strongly disagreed on the malt barley production and processing equipment's supply is adequate. Only 8% of the respondents agreed on the same issue. Moreover, the calculated mean value 2.07 is below the moderate level of agreement(x=3). As per the interview with the officials of the cooperatives assert that the malt barley production and processing equipment's supply of the cooperatives is insufficient because the fund the union distributed for each primary cooperative is inadequate to buy equipment's.

Regarding the training given by the cooperatives, 56.7% of the respondents agreed on cooperatives give training for the members and 20% of the respondents disagreed on the same issue. The calculated mean value is greater than the moderate level of agreement(x=3) which is 3.41. The key informant interview result also supports the respondent's response on the above issue. In addition, farmers respondents were

requested on their opinion whether members have awareness about cooperatives value, definition and principles. The result shows that majority (81.8%) of farmers' respondents agreed that members have awareness about cooperatives value, definition and principles. The calculated mean value of 4.06 found to be greater than the moderate agreement level(x=3). In supporting the survey results, KII also point out that majority of members were aware but cooperatives need to suit ways to create awareness for the new members.

Moreover, 61.1% of the farmers agree that members have access to mass media (TV, Radio etc.). However, 18.2% and 20.6% of the farmers disagree and neutral on the same issue respectively. The calculated mean value of 3.48 found to be high from the moderate agreement level (x=3) which shows the respondents agreement on the issue. The key informant interview also confirmed the above responses. In connection to item 5 of the same table 16, about 65.6% of the farmers disagreed that members have access to transportation, telephone and electric power, while 20.9% of the farmers agree on the same issue. According to the calculated mean value of 2.54 respondents disagreed to this issue. As per the interview with the officials of the cooperatives assert that there is low level of infrastructural facilities in the district which greatly impact the day to day operations of the cooperatives.

Regarding whether human and physical resources of the cooperative are adequate, majority of farmers (57.9%) disagree on the statement indicated on item 6 of table 16, while 33.5% of farmers agreed on the same issue. Moreover, the mean value of 2.81 for farmers' respondents shows that there is high level of disagreement. The key informant interview result shows that the working staffs as well as the availability of the recourses are in adequate.

In connection to item 7 of the same table 16, about 64.4% of the farmers agreed that human and physical resources are one of the problems in the malt barley value chain, while 17.3% and 18.2% of the farmers are disagree and neutral on the same issue respectively. According to the calculated mean value of 3.53 respondents agreed to this issue. As per the interview with the officials of the cooperatives, there is low level of infrastructural facilities in the district which greatly impacts the day to day operations of

the cooperatives. This results also agreed with findings of earlier studies by Alema (2008), Dawit (2005), Emana (2009) and Alemayehu (2002), which point out that most of the cooperatives in our country are characterized by; limited institutional capacity, inadequate qualified personnel, low entrepreneurial skill, lack of resources, lack of market information, poor members participation in the different activities. The results in this study are reliable with other similar studies. Therefore, from this result one can conclude that the human and physical resources are one of the problems in the malt barley value chain.

4.4.2. Malt Barley Value Chain Mapping

Value chain mapping enables to envision the flow of the product from conception to end consumer through different actors (McCormick and Schmitz, 2002). It also helps to identify the different actors involved in the malt barley value chain of the GFCU, and to understand their relationships and roles. Malt barley products pass through diverse stages of production, processing, and marketing to deliver to the final consumers.

There are numerous actors involved directly or indirectly in malt barley value chain in the study area. The main actors in the malt barley value chain of GFCU are input supplier, farmer, trader, assembler, processor, distributer, retailer, and consumer. Figure 3 below provides the value chain map of malt barley in the study area.

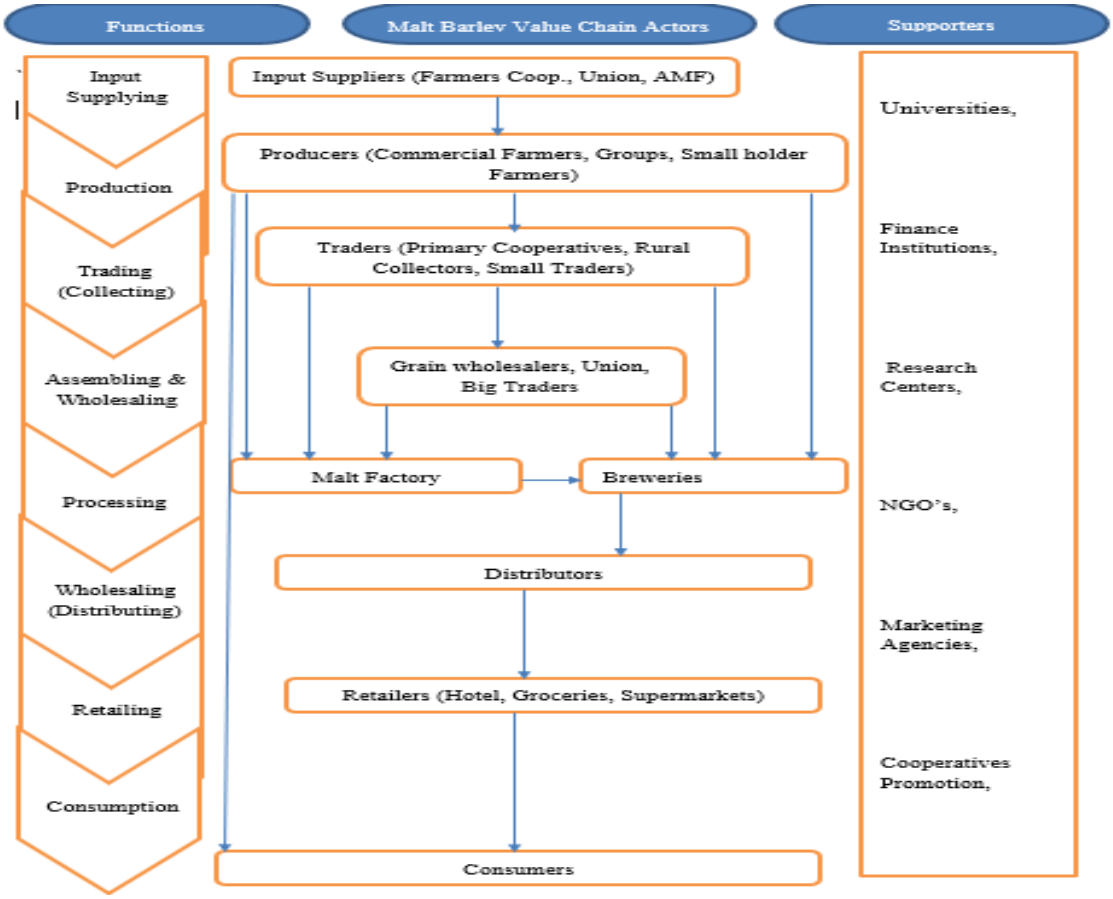

Figure 3. Value chain map for malt barley in the study area

Source: Survey result, 2020

4.4.3. Malt Barley Value Chain Actors, Their Relationship and Roles

Value chain actors contain direct and indirect actors. Direct chain actors are actors which directly participate in the chain for commercial purpose and indirect actors are actors which indirectly contribute for the chain through providing financial and non-financial support. The survey results indicated that the malt barley value chain actors in the GFCU are input supplier, farmer, trader, assembler, processor, distributer, retailer, and consumer. Key actors and their major roles are defined as follows:

Input Suppliers: Currently, the district primary cooperatives, Galama farmer's cooperatives union, Asella malt factory, research centers and breweries are the major input supplier for the farmers of malt barley producers in the area. All such actors are

responsible to provide agricultural inputs including improved seed varieties, fertilizer, herbicide and pesticide, and farm implements which are crucial inputs for the production of malt barley. In the study area seed multiplier farmers are actors responsible for the multiplication of improved seed varieties and sell their seed to cooperatives/union/Asella malt factory and breweries which distribute to the farmers based on agreement.

Farmers/Producers/: Farmers are the main actors who are directly involved in malt barley production activities and achieve major value chain functions starting from farm inputs, preparation of their lands to post-harvest management and marketing of outputs they produced. Major farming and value adding activities which are achieved by malt barley producers are like plowing, sowing, fertilizing, weeding, disease controlling, harvesting and post-harvest handling. Large amount of produced malt barley is sold to primary cooperatives, rural collectors, grain wholesalers, unions, processors (breweries & malt factory) and to final consumers in the same production year during and immediately after the main harvest season.

Traders/Rural Collectors/: Rural collectors are also other actors in the malt barley value chain. These are farmer/part-time traders who collect output from small rural markets and sell to grain wholesalers. They play a vital role, mostly in collecting and transporting grain/output from unreachable or distant markets for re-selling it to wholesalers without considering the quality of malt barley. The value adding activities of rural collectors are including purchasing, assembling and selling to grain wholesalers.

Assemblers/Wholesalers/: Wholesalers are traders who purchase the product in bulk and resale to retailer and consumer. They purchase the out from the producers, collector, cooperatives and store it for some time and resale to another wholesaler, retailers, and consumer. They have better financial capacity to perform storage, transport and communication facilities than small traders found in the district. Nearly all grain wholesalers have a warehouse facility, either owned or rented. They supply malt barley to AMF and breweries in bulk. Grain wholesalers are majorly involved in procuring malt barley from rural collectors and sometimes they buy directly from producers in higher

volume and transport it by truck to processors (Breweries or Asella malt factory) through their brokers/middlemen.

Primary Cooperatives (PC): Cooperatives were established by farmers from different Kebeles. Cooperatives of the study area in addition to follow-up on the performance of barley producers and supplying inputs for households like input, fertilizers, pesticides, herbicides, they also participate in trading major crops cultivated in the study area. Most of the times cooperatives were directly purchase the products from the farmers with a reasonable price because they are from farmers and stands for the farmers and resale to wholesalers and consumers.

Processors: Malt barley processors are the important actors towards improving malt barley quality as well as increasing the volume of domestically produced malt barley which would be distributed (sold) to different brewery companies in the country. The major roles of the malt factories (AMF, Soufflet, Boltmalt) are supplying both toll and direct malts for breweries, providing storage service, effectively control the quality of barley and Providing pre-finance to union/PC/Model farmers for the purchase of agricultural inputs and output collection and also, they provide granted market for the malt barley producers. There are two major processing stages for malt barley; at malt factory and beer factory. Malt factory will transform the raw malt barley into a value-added product called malt. Processors have strict quality standards/parameters/ and malt barley suppliers must to meet these standards. Once malt barley is transformed to malt beer factories will produce the beer and they deliver to final consumers through distributors and retailers. Breweries also play a major role as providing pre-finance to union for the purchase of agricultural inputs and output collection, provide granted market for the malt barley producers, monitor and supervise the primary agricultural cooperatives and unions who work with them, and providing advisory services (contract management, agronomical training, etc.).

Distributors: They are second wholesalers who involved in distributing the value-added product of malt at brewery level to various retailers in different areas within the country.

Most of the distributors have their own truck in order to transport the product/beer to their customers.

Retailers: Retailers (Hotels, cafe and grocery) are traders who are involved in purchasing and retailing beer product to final consumers. They buy the product/beer from the distributors and resell it to ultimate consumers.

Consumers: These are the final and ultimate users of malt barley products in the form of beer or the unprocessed malt barley. Even though, the majority of malt barley reached to ultimate consumers as a processed product still some amounts of raw malt barley go directly to final consumers without value addition.

Galema Farmers Cooperatives Union (GFCU): GFCU is one of marketing cooperatives union established in 2000 in Bekoj'i town, in the Arsi zone. The union has currently 121 multipurpose primary cooperative as a member. These multipurpose primary cooperatives are located in four different woredas and represent 74,917 smallholder farmers in the region. Based on the union annual report 11% of these smallholder farmers are female (GFCU, 2018). Presently, the union accomplishes five major activities, first: purchasing and supplying agricultural inputs based on input demand from primary cooperatives which distributed to the producers; second: grain marketing by creating connection with farmers through primary cooperatives, and sell to processors (malt factories and breweries i.e. Meta Diageo, Heineken, Habesha and other); third: mechanization; fourth: warehousing and transportation services and fifth: training for farmers who are members as well as non-members of cooperatives on good agricultural practice, post-harvest handling, etc.

4.4.4. Malt Barley Value Chain Management Practice in GFCU

From this study, the researcher understood that farmers acquire inputs such as improved seeds, herbicides, pesticides, and technical supports mainly from cooperatives and partly from seed enterprises, district agricultural offices, and private vendors. Then they do land

preparation, sowing, crop plantation and managing crops. Most of the farmers produce their malt barley using traditional way. On the other hand, farmers sell malt barley to various customer-groups such as traders (i.e. big buyers, small traders, and nucleus farmers who undertake petty malt barley trading alongside farming), the seed enterprises, AMF, Breweries, consumers, cooperatives, and even to other farmers for seeds. Currently, majority of farmers sell large amount of their malt barley to traders.

4.4.5. SWOT Analysis of Malt Barley Value Chain Actors

The SWOT analysis presented in Table 17 provides a framework for understanding the controllable and non-controllable factors that future interventions should address for the entire value chain and was extracted from key informant interview, survey results and analysis of value chain constraints. In designing possible interventions, it's suggested that development practitioners and policy makers place emphasis on exploiting the outlined strengths instead of simply addressing weaknesses. Similarly, the opportunities and threats are the external trends that influence the subsector are also analyzed.

Table 17: SWOT Analysis

STRENGTHS (S)	**WEAKNESSES (W)**
- Experience, skill and knowledge of producing malt barley - Organize own land and labor - Finance own activities - Trust - High quality and productivity of malt barley - Application of contract farming - Market stability	- Broker's involvement - Side selling - Limited application of recommended packages/inputs - Price speculation and delivery dalliance of the product - Default in repayment of loans (Pre-Finances) - Limited awareness on cost of production and price (Always look for higher price) - Fragmented and small size of land (Difficult for mechanization) - Lack of strong coordination between actors
OPPORTUNITIES (O)	**THREATS (T)**
- Malt barley varieties improvement - Entrance of new malting companies (International) - Increasing beer production (Demand) - Involvement of professional large farms in malt barley production - Improvement of marketing systems - Support from the Government - Competitive price - Favorable environment for malt barley production	- Climate change and disease occurrences - Increasing price of inputs - Lack of required inputs (Seed and chemicals) - Political instability

4.4.6. Results of Correlations

Table 18: Correlation Analysis

Correlations

		MBVCP	ARSHIP	ROLE	AM	GP	FIN	COMP	HPR
MBVCP	Pearson Correlation	1	.725**	.447**	.533**	.398**	-.010	.388**	.425**
	Sig. (2-tailed)		.000	.000	.000	.000	.849	.000	.000
	N	340	340	340	340	340	340	340	340
ARSHIP	Pearson Correlation	.725**	1	.442**	.618**	.583**	.236**	.639**	.582**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	340	340	340	340	340	340	340	340
ROLE	Pearson Correlation	.447**	.442**	1	.527**	.467**	.585**	.519**	.359**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	340	340	340	340	340	340	340	340
AM	Pearson Correlation	.533**	.618**	.527**	1	.798**	.170**	.727**	.677**
	Sig. (2-tailed)	.000	.000	.000		.000	.002	.000	.000
	N	340	340	340	340	340	340	340	340
GP	Pearson Correlation	.398**	.583**	.467**	.798**	1	.254**	.733**	.639**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	340	340	340	340	340	340	340	340
FIN	Pearson Correlation	-.010	.236**	.585**	.170**	.254**	1	.306**	.071
	Sig. (2-tailed)	.849	.000	.000	.002	.000		.000	.190
	N	340	340	340	340	340	340	340	340
COMP	Pearson Correlation	.388**	.639**	.519**	.727**	.733**	.306**	1	.775**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	340	340	340	340	340	340	340	340
HPR	Pearson Correlation	.425**	.582**	.359**	.677**	.639**	.071	.775**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.190	.000	
	N	340	340	340	340	340	340	340	340

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Survey result, 2020

N.B. Malt Barley Value Chain Performance (MBVCP), Actors Relationship (ARSHIP) Actors Role (ROLE) Access to Market (AM), Government Policy (GP), Financial Issues (FIN), Competition Issues (COMP), Human and Physical Resource Issues (HPR).

From the correlation analysis result on table 18 above, there was strong correlation between malt barley value chain performance and actor's relationship, this indicates that as the actors strongly coordinated through the chain the performance of malt barley value chain will increase since r=0.725 is positive. Hence, there is a strong association between malt barley value chain performance and actor's relationship. In relation to access to

market information on malt barley value chain performance also positive (r=0.533), this points out that malt barley value chain performance increases with increasing of access to market information.

In addition, actor's role, human and physical resource issues, government policy, and competition issues also moderately correlated with the dependent variable of malt barley value chain performance with r=.477, r=0.425, r=0.398, and r= 0.388 respectively. On the contrary, the independent variable financial issue has a negative correlation (almost there is no association) with the dependent variable of malt barley value chain performance with r=-0.010. This result also supported by the KII by stating that currently financial issue is not a major problem for producers as they are getting pre-finance from processors and borrowing from financial institutions with their live animals as a collateral.

Table 19: Weighted Mean and Variables Rank

Variables	N	Mean	Std. Deviation	Rank
COMP	340	3.4335	.65531	1
ARSHIP	340	3.4067	.64376	2
AM	340	3.4020	.52652	3
GP	340	3.3255	.57801	4
ROLE	340	3.3172	.55608	5
HPR	340	3.1298	.56668	6
Valid N (listwise)	340			

Source: Survey result, 2020

As depicted from the above table competition issues with mean value of 3.4335 strongly affect the performance of malt barley value chain. Actor's relationship, access to market, government policy took the second, third and fourth rank for effect on malt barley value chain performance with mean value of 3.4067, 3.4020, and 3.3255. Actor's role and Human and physical resource issues are ranked fifth and sixth with mean value of 3.3172 and 3.1298 respectively. Therefore, concerned stakeholders have to consider the rank of these variables to take measurements accordingly.

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter covers the summary of major findings, conclusion, recommendations and areas for further research derived from the study. The study intended to analyze determinants of malt barley value chain performance the case of Galema Farmer's Cooperatives Union. The specific objectives of the study include identifying major actor's, elaborating their roles in the value creation activities, examining their relationship, mapping the malt barley value chain in the study area, identifying the key factors that hamper the malt barley value chain in the study area, actors SWOT and overall value chain management practices. Whereas, the data collected from respondents were analyzed, interpreted and major findings are summarized and presented. Finally, the data obtained via interviews has been analyzed qualitatively.

5.1. Summary of Findings

The study conducted based on both primary and secondary data sources. The primary data were generated from farmers using questionnaires. The primary data was collected from 348 producers randomly selected from five primary cooperatives (Arabi, Handura Digelu, Shalo Jigesa, Wucale, and Sena Boru) in the Digelu Tijo district. Also, Key Informant Interview and secondary data were used. The data were analyzed by using descriptive statistics and correlation analysis. Accordingly, actor's relationship, actor's role, access to market, government policy, competition issues, and human & physical resource issues on performance of value chain analysis of malt barley were found to be 0.725 at a level of significance.000 (.000<0.01), 0.447 at a level of significance.000 (.000<0.01), 0.533 at a level of significance .000(.000<0.01), 0.398 at a level of significance .001(.001<0.01), 0.388 at a level of significance .001(.001<0.05) and 0.425 at a level of significance .001(.001<0.05) respectively. Thus, these shows that performance of value chain analysis of malt barley dimensions (actor's relationship, actor's roles, access to market, government policy, competition issues, and human & physical resource issues) are positively and significantly correlated with performance of

value chain analysis of malt barley. On contrary, financial issues is negatively correlated and there is insignificant association with performance of value chain analysis of malt barley.

5.2. Conclusions

The Ethiopian brewing sector is growing at a very fast rate compared to the malt barley/malt sector. The country puts special emphasis and move toward linking agriculture and industry through an import substitution and industrialization process. Ethiopia is one of the countries where malt barley can be grown perfectly and there is ample land and smallholders who can sufficiently produce malt barley for the industry. The country also wants to save FOREX in all direction by all means.

One can conclude that relationship between actors in the chain positively affects the malt barley value chain of the union based on the respondents and interview result. Concerning each actor exchange information and knowledge regularly, it is possible to conclude that each actor exchange information and knowledge regularly. Moreover, regarding relationship is one of the problems in the malt barley value chain; respondents and interview result with officials of the cooperatives agreed to the issue. Pertaining to nature of participation of members in different meetings and activities of the cooperatives; one can conclude that the malt barley marketing cooperatives need to insist the members to actively participate in different meetings and activities of the cooperatives.

Regarding role played by each actor, one can conclude that actors play roles in the malt barley value chain of the union. In addition, based on farmers responses and key informant interview result it can be concluded that members joined the cooperatives not due to the cooperatives provide better price. Also, one can conclude that members did not sell malt barley to the cooperatives. The data collected from respondents and key informant interview confirmed the cooperatives have inadequate resources that limit from affording important equipment's. On the contrary, it can be concluded that members buy inputs from the cooperatives. Concerning members face problems related to roles the

replied responses from respondents and key informant interview enables to conclude members face problem related to roles.

Pertaining to members has place to sell malt barley; one can conclude that members have place to sell malt barley based on respondents and interview results. From the finding one can also conclude that that moisture content, protein content, uniformity, size and color are major requirements necessary for malt barley marketing. In relation to members face problem with access to market; based on the finding from replied responses of respondents and key informant interview result it can be concluded that access to market is not one of the problems that prohibit the effective achievement of the actor's roles in the malt barley value chain.

In addition, based on the replied responses of respondents and key informant interview one can conclude that Kebele administrator, extension agent and government assist the cooperatives. Regarding government policy, it can be concluded that government policy is not the problems that constrained the activities of the cooperatives in support with respondents and interview results. Moreover, it can also be concluded that financial ability of the cooperative is limited to give credit for the members in line with farmers and KII responses. Regarding financial issue is one of the problems in the malt barley value chain; it can be concluded that financial issue is not a problem that members face in the malt barley value chain with supporting results of respondents and interview.

Concerning members compete with others malt barley producers; it is possible to conclude that the level of competition is high between actors in support of respondents and interview results. In relation to competition issue is one of the problems in the malt barley value chain; one can conclude that competition issue is one of the problems in the malt barley value chain in line with replied responses. In addition, malt barley production and processing equipment's supply is inadequate in support with respondents and key informant interview results. From the respondents replied by farmers and key informant interview responses results one can conclude that human and physical resources are one of the problems in the malt barley value chain.

The result of Pearson correlation analysis of this study seems to indicate that actor's relationship, actors' roles, access to market, government policy, competition issues, and human & physical issues have a positive and significant effect on performance of value chain analysis of malt barley. The relative importance of actor's relationship is high than other independent variables. Therefore, the implication is that actors should be closely work and coordinate in managing all aspects of their performance of malt barley value chain.

5.3. Recommendations

The findings of this study enabled us to make the following recommendations for policy makers, development actor's and researchers who involved in promoting malt barley value chain in the study area.

All stakeholders that directly and indirectly participate along the malt barley value chain are responsible for the integrated operations. Since, the association between actor's relationship and malt barley value chain performance is very strong the fast flow of information and knowledge between actors in the chain facilitates the day to day value adding activities. Therefore, all malt barley value chain actors should have to exchange information and knowledge regularly.

The role of each actor along the value chain is essential for effective achievements of the chain activities. Therefore, the cooperatives have to encourage their members through providing different incentive mechanisms for the produced goods in the market. This facilitates the supply of quality malt barley along the chain without any interruption. In addition, the cooperatives should create conducive environments for the member farmers to buy different agricultural inputs at a low cost in order to improve the malt barley production.

In addition, the malt barley cooperatives in different kebeles of the district have their own nearby market to sell their outputs. Hence, these rural markets in different kebeles should

have to be expanded in order to maximize free flow of differentiated products and participate farmers along the chain. Furthermore, all actors should consider other essential requirements necessary for malt barley marketing than the replied requirements. Especially the primary malt barley marketing cooperatives are expected to provide different means of transportation for the members to actively participate in the market.

Moreover, the government, extension agent, and even kebele administrator should increase their support for the primary cooperatives and unions. Since, the government currently improved its policy on the sector cooperatives should use this as advantage to improve the performance of the malt barley value chain. Also, cooperatives have to facilitate credit facilities for their members and as much as possible they need to create their own bank to build their financial abilities. Especially the chain participants have to play their own effort in order to improve their operations.

Furthermore, the competition level with each actor has to be increase to take the competitive advantage and benefited from the profit through it. The malt barley production and processing equipment's supply of the cooperatives is inadequate for the operations. Since, the cooperatives are controlled by GFCU the union should provide adequate modern processing machines that play great role in the value adding process of malt barley. Also, the cooperatives have to hire experts in order to increase the quality of malt barley beginning from input supply and production. This will decrease the cost of final out put before it reaches to the final consumers. Due to this, cooperatives can minimize unnecessary costs which incurred during the production time that will improve the living and wellbeing of their members.

Finally, different institutions in the study area should improve the human and physical issues for instance NGO's, processors (AMF & Breweries), research centers and universities should provide support and new means of approaching the malt barley. Cooperatives in the area and the government is also expected to improve the infrastructural facilities of the study area. All actors should take an active role in managing all aspects of malt barley value chain.

5.4. Suggestions for further study

Since this study is confined to determinants of malt barley value chain performance of only in one of farmers cooperatives union of the country, it might not be sufficient to infer generalizations based on its findings. Hence, interested researchers in the field could take up this issue and investigate it further in another farmers cooperatives union to see the practices of other unions to reach at general conclusion. Furthermore, though GFCU is operating in four districts with 121 multipurpose primary cooperatives, this study is restricted to Digelu Tijo district. Thus, the researcher recommends further studies to include remaining multipurpose primary cooperatives and districts. Moreover, this study is conducted only for malt barley; hence, further research can be studied by including other cereals to the value chain analysis. Moreover, this research was conducted only with a few aspects of value chain, hence further research is needed by using other aspects of VCA which is not included in this study.

REFERENCES

Abebe, and Haile Gabriel. (1998). The Supply Responsiveness of Peasant Agriculture in Ethiopia: Some Macro econometric Results from Cereals Production. *Ethiopian Journal of Economics*. Vol. 7, Issue 2 pp. 1-23.

Adams, J., Khan, K. T. A., Raeside, R. & White, D. (2007). Research methods for graduate business and social science students. London: Sage.

Addis Fortune, (2014). Import solution as malt factory faces barley shortage. Retrieved on 18-12-2019. http://addisfortune.net/articles/import-solution-as-malt-factory-faces-barley-shortage/

Addisu, Bezabeh, Ali. (2018). Malt barley commercialization through contract farming scheme: A systematic review of experiences and prospects in Ethiopia. African Journal of Agricultural Research. Vol. 13(53), pp. 2957-2971.

Agriterra. (2014). Annual Report on Same Goal, Sharper Focus, Farmers Fighting Poverty, Addis Ababa, Ethiopia.

Alema Woldemariam, (2008). Analysis of the role of cooperatives in agricultural input and output marketing in southern Zone of Tigray. Mekelle, Ethiopia.

Alemayehu Z., (2002). "Co-operatives in Ethiopia:Past Experiences and FutureTrends"in Self-help Initiatives in Ethiopia: Prospects and Challenges, Redie, A. and Hinrichsen, I.2002.

Alemu. D., Kelemu, K., Lakew, B. (2014). Trends and prospects of malt barley value chains in Ethiopia. Addis Ababa, Ethiopia.

Alemu, D., Lakew, B., Kelemu, K., Bezabih, A. (2015). Increasing the Income of Malt Barley Farmers in Ethiopia through More Effective Cooperative Management. Self Help Africa Consultants Report. Addis Ababa.

Amare, B., Bekele, H., Tafa, J., Adamu, Z., Tamene, M., Haile, D., Firehiwot, G., Girma, F., Wubishet, A., Mengistu, B., Tilahun, B., Hiwot, S. (2016). Prescaling- up of

malt barley technologies in Bale and West Arsi zones, Southeastern Oromia, Ethiopia: The experience of public-private partnership. Scientific Journal of Crop Science 5(3):73-89.

AMF (Asela Malt Factory). (2017). Annual Report. 2009 EFY Annual Plan Performance Disclosure Journal.

Anandajayasekeram, P., and Berhanu Gebremedhin. (2009). Integrating innovation systems perspective and value chain analysis in agricultural research for development: implications and challenges. Improving Productivity and Market Success (IPMS) of Ethiopian farmers project working paper 16. ILRI (International Livestock Research Institute), Nairobi, Kenya.

Anteneh, A., Muradian, R., and Ruben, R. (2011). Factors Affecting Coffee Farmers Market Outlet Choice. The Case of Sidama Zone, Ethiopia. Centre for International Development Issues Nijmegen, Radboud University, the Netherlands.

Asfaw, Z. (2000). An ethno botanical study of barley in the central highlands of Ethiopia. *Biologisches Zentralblatt*, 109(1), pp.51-62.

ATA (Agricultural Transformation Agency). (2016). Annual Report in Ethiopia. Innovations to help our country grow.

Ayano, T. (2012). Field visit report Assela and Shashemene 'Cooperatives 4 change'.

Babbie, E. (1979). The practice of social research (2nd ed.). Belmont, CA: Wadsworth Publishing Company, Inc.

Bammann, H. (2007). Participatory Value Chain Analysis for Improved Farmer Incomes, Employment Opportunities and Food Security. Pacific Economic Bulletin, 22, 113-125.

Berhanu, B., Fekadu, A., & Berhane, L. (2005). Food barley in Ethiopia. pp 53–82, in: S. Grando and H. Gomez Macpherson (eds.). Food barley: Importance, use and local knowledge. Proceedings of the International Workshop on Food Barley

Improvement, 14–17 January 2002, Hammamet, Tunisia. ICARDA, Aleppo, Syria.

Bernard, T., and Spielman, D.J. (2009). Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia. Food policy, 34(1), pp.60-69.

Bernard, T., Spielman, D.J., Tafesse A., Gabre-Madhin, E. (2010). Cooperatives for staple crop marketing: evidence from Ethiopia IFPRI Research Report 166. International Food Policy Research Institute: Washington, DC.

Bernard, T., Taffesse, S. A., & Gabre-Madhin, E. (2008). Impact of cooperatives on smallholders' commercialization behavior: evidence from Ethiopia. *Agricultural Economics, 39*, 147–161.

Beyenech, Yilma. (2017). Value Chain Analysis of Coffee, The Case of Yirgacheffe Coffee Farmers Cooperatives Union (YCFCU), Ethiopia.

Bezabih Emana. (2012). Cooperative Movement in Ethiopia: Workshop on perspectives for Cooperatives in Eastern Africa October 2-3, Uganda.

Bonus, H. (1986). The cooperative association as a business enterprise: a study in the economics of transactions. Journal of Institutional and Theoretical Economics 142, 310-39.

Ceccarelli, S.; Grando, S. (1999). Barley landraces from the fertile crescent a lesson for plant breeders. Genes in the field: on farm conservation of crop diversity. Washington (EUA). 1999. p. 51-76.

Center for Cooperatives. (2004). *Working together for stronger cooperatives. University of Wisconsin, Madison, U.S.A. Available at: www. Wis. Edu/uwcc. (Accessed: 23 Dec. 2019).*

Chopra, S. and Meindl, P. (2001) Supply Chain Management: Strategy, Planning and Operation. Upper Saddle River, NJ; Prentice Hall.

CSA (Central Statistical Agency). (2018). Agricultural sample survey: area and production of major crops, meher season. Central Statistical Agency, Vol. I. Addis Ababa, Ethiopia.

CSA (Central Statistical Agency). (2014). Agricultural sample survey: area and production of major crops, meher season. Central Statistical Agency, Vol. I. Addis Ababa, Ethiopia.

Dagnachew Asrat (LL.B.) & Addissie Shiferaw (LL.B.) (2009). Law of Public Enterprises and Cooperatives; Unpublished teaching material.

Dawit Alemu, (2005). The status and challenges of agricultural marketing in Ethiopia, Melkassa Agricultural Research Center, EARO Paper presented at a panel discussion organized by the Ethiopian Association of Agricultural Professionals (EAAP), Addis Ababa, Ethiopia.

Delelegne, A. (2016). Agricultural Co-Operatives in Ethiopia: Evolution, Functions and Impact. Journal of International Development.

Develtere, P., I. Pollet, and F. Wanyama. (2008). Cooperating out of poverty: The renaissance of the African cooperative movement. Geneva, Switzerland: International Labor Organization.

Dorward, A., J. Kydd, J.Morrison, & I. Urey. (2004). A policy agenda for pro-poor agricultural growth. World Development 32(1): 73-89.

Eaton, C. and A.W. Shepherd. (2001). Contract Farming – Partnership for growth. Rome. FAO Agricultural Services Bulletin.

Emana, B. (2009). Cooperatives: A Path to Economic and Social Empowerment in Ethiopia, Coop AFRICA Working Paper No. 9, ILO Office for Kenya, Somalia, Tanzania and Uganda, Dar es Salaam.

Engdawork, D. (1995). Agricultural producer cooperatives: some lessons of experience from Ethiopia. Geo Journal 36 (4): 353– 360.

FAO (Food and Agriculture Organization). (2014). Food Balance Sheets. FAOSTAT. Rome. (http://faostat3.fao.org/download/FB/FBS/E). (Accessed on 23 Dec. 2019).

FAO (Food and Agricultural Organization). (2007). Agro-Industrial Supply Chain Management: Concepts and Applications. Agricultural Management, Marketing and Finance Occasional Paper. Food and Agriculture Organization, Rome, Italy.

FCA (Federal Cooperatives Agency). (2019). Cooperatives Statistical Data (Till July 07 / 2019). http://www.fca.gov.et/#. (Accessed on 23 Dec. 2019).

Francesconi, GN. (2009). Cooperation for competition: linking Ethiopian farmers to markets. PhD Dissertation, Development Economics Group, Wageningen University; the Netherlands.

G. Marczyk, D. DeMatteo, and D. Festinger. (2005). Essentials of Research Design and Methodology. John Wiley & Sons, Inc.,

Gamst, F. (1969). The Qemant: A Pagan-Hebraic Peasantry of Ethiopia. Chicago: Holt, Rinehart and Winston.

Ganeshan, R., Harrison, T., P. (1995). An introduction to supply chain management, Department of Management Science and Information System, Peen State University.

Gereffi, G., Humphrey, J. and Kaplinsky, R. (2001). Introduction: Globalization, value chains and development. IDS bulletin, 32(3), pp.1-8.

Gereffi, G. (1995). Global Production Systems and Third World Development in: B. Stallings (ed.), Global Change, Regional Response: The New International Context of Development, New York, Cambridge University Press, pp.100-142.

Getnet, K. and Anullo, T. (2012). Agricultural cooperatives and rural livelihoods: Evidence from Ethiopia. Annals of Public and Cooperative Economics, 83(2), pp.181-198.

GFCU (Galema Farmer's Cooperatives Union). (2018). Annual Report.

Habtu. (2008). Consultline: Operations for growing a new channel in Amhara region. Organization for Rehabilitation and Development in Amhara.

Hailu, Gebre. and Joop, van, Leur (eds). (1996). Barley Research in Ethiopia: Past Work and Future prospects. Proceedings of the First Barley Research Review Workshop, 16-19 October 1993, Addis Abeba: IAR/ICARDA. Addis Abeba, Ethiopia.

Heineken, N.V. (2013). Heineken launches 4 year barley program in Ethiopia together with Dutch and Ethiopian Government. Retrieved from http://eucord.org.

Hellin, J. and Meijer, M. (2006). *Guidelines for value chain analysis. Not published.*

Hendrikse, G. and J. Bijman. (2002). Ownership Structure in Agri-food Chains: The Marketing Cooperative. American Journal of Agricultural Economics 84, No. 1, 104-119.

ILO (International Labor Organization). (2007). An Operational Guide to Local Value Chain Development. An ILO Advocacy Guidebook.

International Cooperatives Alliance (ICA). (2019). What is Cooperative https://www.ica.coop/en/cooperatives/. (Accessed on 23 Dec. 2019).

Kaleb, Shibeshi. (2008). Distributional Issues in Cereal Value Chains, the Case of Wheat Market in Arsi. An MSc Thesis Presented to the School of Graduate Studies of Addis Ababa University. 70p.

Kaplinsky, R. and Morris, M. (2002). *A Handbook for Value Chain Research*: Prepared for the IDRC, Institute for Development Studies, Brighton, UK.

Kaplinsky, R. and Morris, M. (2001). *A handbook for value chain research. IDRC* (International Development Research Centre), Ottawa, Canada.

KARC (Kulumsa Agricultural Research Center). (2013). Malt Barley Value Chain: Constraints and Opportunities for Enhancing Production and Productivity: The

case of Arsi and West Arsi highlands, Ethiopia. Ethiopian Institute of Agricultural Research.

Karthikeyan, M. (2015). Effectiveness of Cooperatives in Coffee Value Chain: An Analysis in Sasiga District of Oromia Region, Ethiopia. In the National Conference on Cooperative Development in Ethiopia.

Kindness, H., and Gordon, A. (2001). Agricultural marketing in developing countries: The role of NGOs and CBOs. Policy Series No. 13. Social and Economic Development Department, Natural Resources Institute, University of Greenwich.

Kodama, Y. (2007). New role of cooperatives in Ethiopia: the case of Ethiopian coffee farmers.

Kothari. (1990). Research Methodology: *Methods and Techniques (2nd ed.*). London, Pitman Publishers.

Krishnaswami O.R. and Kulandaiswamy V. (2000). Cooperation Concept and Theory. Arudra Academy Publisher.Tamilnadu. India.

Krishnaswami, O.R. and Kulandaiswamy, V. (1992). *Theory of cooperation: An in-depth analysis. Shanma Publications.*

Legesse, G., Debebe, S., and Alemu, T. (2007). Assessing the comparative advantage of malt barley production in Ethiopia. Application of a Policy Analysis Matrix. In African Crop Science Conference Proceedings, 8 (1), pp. 1227-1230.

Lemma, T. (2008). Growth without structure: the coopratives movement in Ethiopia. In Cooperating out of poverty: the renaissance of the African cooperative movement, P Develtere, F. Wanyama (eds). ILO: Geneva.

Markelova, H., Meinzen, Dick, R., Hellin, J., and Dohrn, S. (2009). Collective action for smallholder market access. Food policy, 34(1), pp.1-7.

McCormick, Dorothy., and Hubert, Schmitz. (2002). Manual for Value Chain Research on Homeworkers in the Garment Industry Brighton

MoFED (Ministry of Finance and Economic Development). (2006). Ethiopia: Building on progress. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) 2005-2010. Volume I: Main Text, Addis Ababa.

Monitor Group. (2012). The Business Case for Investing in a Malting Plant in Ethiopia. USAID.

Muhe, K., and Assefa, A. (2011). Diversity and Agronomic Potential of Barley (Hordeum vulgare L.) Landraces in Variable Production System, Ethiopia. World Journal of Agricultural Sciences 7 (5): 599-603.

Mulatu, B., and Grando, S. (eds). (2011). Barley Research and Development in Ethiopia. Proceedings of the 2nd National Barley Research and Development Review Workshop. 28-30 November 2006, HARC, Holetta, Ethiopia. ICARDA, PO Box 5466, Aleppo, Syria. pp xiv + 391.

Nick, P. (2014). Optimize buyer-seller relationships between malt barley smallholder farmers and multipurpose primary cooperatives in the Arsi and West-Arsi zone, Oromia region, Ethiopia. MSc Thesis. Wageningen University & Research Center, Social Sciences Group.

Novkovic, S. (2008). Defining the co-operative difference. The Journal of Socio-Economics, 37(6), pp.2168-2177.

Porter, M. (1985). Competitive advantage: creating and sustaining superior performance. The Free Press, New York.

Rahmato, D. (2002). Civil society organizations in Ethiopia. In Ethiopia: The challenge of democracy from below, ed. B. Zewde and S. Pausewang. Stockholm, Sweden, and Addis Ababa, Ethiopia: Nordiska Afrkainstitute and Forum for Social Studies.

Rangaswamy, R. (1995). *A text book of agricultural statistics*. New Age International.

Ratner, B. (2009). The correlation coefficient: Its values range between +1/−1, or do they?. J Target Meas Anal Mark 17, 139–142. https://doi.org/10.1057/jt.2009.5

Rashid, S., Gashaw, A., Solomon, L., James, W., Leulsegged, k., and Nicholas M. (2014). Barley value chain in Ethiopia. Research for Ethiopia's Agriculture Policy (REAP): analytical support for the Agricultural Transformation Agency (ATA).

Samuel, Feyissa., and Tarekegn, Garomsa. (2011). Narrowing Trade Deficit Through Increased Import Substitution. Produced and distributed by the Addis Ababa Chamber of Commerce and Sectoral Associations with financial support from the Swedish Agency for International Development Cooperation, Sida.

Sarantakos, S. (1998). Varieties of social research. In: Social Research. Palgrave, London.

Schipmann, CH. (2006). Value chains for a better integration of smallholders to trade; the case of chilli in Ghana. Master Thesis, Humboldt-University, Berlin, Germany.

Schmitz, H. (2005). *Value chain analysis for policy-makers and practitioners*. International Labour Organization.

Shahidur, Rashid. (2015). The Barley Value Chain in Ethiopia, International Food Policy Research Institute (IFPRI) Washington DC. Research for Ethiopia's agriculture policy (REAP): Analytical Support for the Agricultural Transformation Agency (ATA).

Shewayrga, H., Sopade, P. A., Jordan, D. R., & Godwin, I. D. (2012). ''Characterisation of grain quality in diverse sorghum germplasm using a Rapid Visco-Analyzer and near infrared reflectance spectroscopy''. Journal of the Science of Food and Agriculture, 92 (7): 1402–1410, ISSN: 1097-0010, DOI: 10.1002/jsfa.4714.

Shewayrga, H., Sopade, P.A. (2011). Ethnobotany, diverse food uses, claimed health benefits and implications on conservation of barley landraces in North Eastern Ethiopia highlands. J Ethnobiology Ethnomedicine 7, 19 (2011) doi:10.1186/1746-4269-7-19.

SNV. (2013). Malt Barley Business Cluster: Sector Overview. PowerPoint presentation 30 April 2013. Agriterra document.

Taffesse, A.S., P. Dorosh, and S. Asrat. (2011). Crop Production in Ethiopia: Regional Patterns and Trends. IFPRI Ethiopia Strategy Support Program II Working Paper 16.

Tarekegn, Garomsa. (2016). The Role of Smallholder Farmers in the Import Substitution and Industrialization of Ethiopia: The Case of Malt Barley Producers in Arsi and Bale Areas, Ethiopia.

Tefera, A. (2012). Ethiopia Grand and feed annual report. USDA Foreign Agricultural Service.

Tefera, DA., Bijman, J., Slingerland, M. (2016). Smallholder integration into the changing value chains: a study of emerging malt barley industry in Ethiopia IBM Working Paper 2016-01. Wageningen University: Wageningen.

UNIDO (United Nations Industrial Development Organization). (2009). agro-value chain analysis and development. The United Nations Industrial Development Organization Vienna. staff working paper.

USAID (United States Agency for International Development). (2014). Agricultural Growth Program- Agribusiness and Market Development (AGP-AMDe). Addis Ababa, Ethiopia.

USAID (United States of America Agency for International Development). (2008). A Comparative Case Study of High-Value Vegetable Value Chains in Nepal. Guided Case Studies in Value Chain Development for Conflict-Affected Environments, Washington DC, USA.

Veerakumaran, G. (2007). Ethiopian Cooperative Movement—An Explorative Study. Mekele University, Department of cooperatives: Mekele, Ethiopia.

Watabaji, M. D. (2016). Value Chain Structure, Integration and Performance: The Malt barley Value Chain in Ethiopia. Doctoral dissertation, Ghent University.

Weldeyohanis, S., Negash, and Mitiku, F. (2017). Value Chain Analysis of Malt Barley (Hordeumvulgarel.): A Way Out for Agricultural Commercialization? The Case

of Lemu Bilbilo District, Oromia Region, Ethiopia, Journal of Economics and Sustainable Development, (online) Vol.8, No.13,Available at: /https://iiste.org/Journals/index.php/JEDS/search/advancedResults/ (Accessed in Nov. 2019).

Westlake, M. (2005). Addressing Marketing and Processing Constraints that Inhabit Agrifood Exports: A guide for Policy Analysts and Planners. FAO Agricultural Service Bulletin 160. Food and Agricultural Organization of the United Nations, Rome.

Woldeamlak, Bewket. (2009). Rainfall variability and crop production in Ethiopia Case study in the Amhara region. Unpublished research report. In: Proceedings of the 16th International Conference of Ethiopian Studies, ed. by Svein Ege, Harald Aspen, Birhanu Teferra and Shiferaw Bekele, Trondheim 2009

World, Bank. (2003). Reaching the rural poor. A renewed strategy for rural development.

Yamane, T. (1967). Statistics, an introductory analysis: 2nd edition. New York, Harper and Row.

Appendices

Addis Ababa University

Faculty of Business and Economics

School of commerce

Department of Logistic and Supply Chain Management

Appendix: 1
Survey Questionnaire for Farmers

Dear Respondents

My name is Samuel Girma conducting a thesis entitled Value Chain Analysis of Malt Barley for partial fulfillment of my MA in logistic and supply chain management Addis Ababa university school of commerce. The main purpose of this questionnaire is to collect necessary data for the study on Value Chain Analysis of Malt Barley in Galema Farmer's Cooperatives Union. This questionnaire designed to seek information for purely academic purposes and hence would not affect any one in any case. The information collected through the questionnaire is kept confidential and only used for academic purposes, and thereby, to come up with some workable solutions to overcome the known challenges and difficulties related to malt barley value chain. In this regard I kindly request your time to provide me with reliable information so that the findings of this study will meet the intended outcome. I strongly assure you for the confidential treatment of your answers. I would like to thank your voluntary participation for the success of my research study.

General guideline:

- Please put a "√" mark or "X" for those questions that you agree with.
- Give your short and precise answers for those followed by blank spaces.

Questionnaire developed for Farmer's Survey

Instruction for Enumerators

- Start with warmly greeting farmers according to the culture of the area
- Introduce yourself, your organization (from where you come) and objective of your meeting with him.

- Tell the farmer that information collected for this study will be kept strictly confidential.

While the data collected will be used for research purposes, information that could identify you or your household will never be publicly released in any research report or publication and will not be shared with any other government or international institution.

- Tell him also he has the right to ask questions at any point before the interview, during

the interview, or after the interview is completed.

- Write important information below the page margin
- Before going to ask questions please identify ambiguous questions and be it clear for you from the survey supervisor.

Name of District: **Digelu Tijo**

Name of PC: _____

Name of household head (respondent's name): _____

Contact Address (Mobile Number): _____

Name of enumerator: _____ Signature_____

Questionnaire number: _____ Date of data collection: _____/_____/_____

Contact Address (Mobile Number) _____

Demographic and Socio-economic characteristics

1. Sex of household head: 1. [ ] Male 0. [ ] Female

2. Age: _____ years

3. Marital status of household head: 1. [ ] Single 2. [ ] Married 3. [ ] Divorce 4. [ ] Widowed

4. Religion: 1. Christian 2. [ ] Muslim 3. [ ] Wakeffata 4. [ ] Protestant 5. [ ] Others_____

5. Family size of the household: _____ (in number)

6. Educational level of household head: 1. [ ] Illiterate 2. [ ] Read & Write 3. [ ] Primary (1-4) grade 4. [ ] Junior (5-8) grade 5. [ ] Secondary (9-10) 6. [ ] Preparatory (11-12) grade 7. [ ] Above grade 12

1. **Malt Barley Value Chain Performance: -** The following questions are about how malt barley value chain performance of Galema Farmers Cooperatives Union in general looks like. Please read each statement carefully and show the extent of your agreement on the statements by putting a tick mark (√) in the boxes against each rating scale of choice. The rating represents your level of agreement as follows: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

S.N.	Descriptions	1	2	3	4	5
1	The overall malt barley value chain performance is well and above industry average					
2	In general, malt barley value chain performance is excellent					
3	We are outstanding at performing our value chain activities					

2. **Actors Relationship**: -The following questions are related to actor's relationship in the GFCU malt barley value chain. Please read each statement carefully and show the extent of your agreement on the statements by putting a tick mark (√) in the boxes against each rating scale of choice. The rating represents your level of agreement as follows: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

S.N.	Actors Relationship	1	2	3	4	5
1	The relationship between actors in the malt barley value chain is good					
2	Each actor regularly exchanges information and knowledge with					

	each other					
3	Information about market requirements and developments, equipment and input factors for production, loans and technical assistance and training are kind of information do you get from each other					
4	Relationship is one of the problems in the malt barley value chain					
5	Members attend on meetings of malt barley marketing cooperatives regularly					
6	Members attend on the planning & implementation activities of the cooperatives regularly					
7	Members attend on fund raising and decision-making activities of the cooperatives					

3. **Actors Roles:** - The following questions are related to the roles of each actor along the malt barley value chain. Please read each statement carefully and show the extent of your agreement on the statements by putting a tick mark (√) in the boxes against each rating scale of choice. The rating represents your level of agreement as follows: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

S.N.	**Role**	**1**	**2**	**3**	**4**	**5**
1	Each actor plays a role in the malt barley value chain of the union					
2	Members joined the cooperative due to the cooperatives provide better price					
3	Members sell malt barley to the cooperatives					
4	Members buy inputs from the cooperatives					
5	Members add value to the cooperatives					
6	Members face problems related to roles					

4. **GFCU Challenge: -** The following set of statements relates to the perceptions on the major challenges encountered by GFCU. The following statements refer to opinion on whether GFCU face challenges to grow and sustain. Please read each statement carefully and show the extent of your agreement on the statements by putting a tick mark (√) in the boxes against each rating scale of choice. The rating represents your level of agreement as follows: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

S.N.	Items	1	2	3	4	5
1	**Access to market**					
	1.1 Members have places to sell malt barley product					
	1.2 Moisture content, protein content, uniformity, size and color are requirements necessary for malt barley marketing					
	1.3 Members have access to market information for malt barley marketing					
	1.4 Cooperatives are source of your information on demand, supply and price of other markets					
	1.5 Members know the nearby market price before you sold malt barley					
	1.6 Malt barley price have difference across different markets in your area					
	1.7 Relative advantage of price is one requirement to sell malt barley					
	1.8 Members sell malt barley at any time without any problem					
	1.9 Members face problem with access to market					
2	**Government policy**					
	2.1 The government assist the cooperatives					
	2.2 The kebele administrator assist the cooperatives					
	2.3 An extension agent visits the cooperatives					
	2.4 Government assistance in facilitating credit					

	2.5 The current policy of government is favorable for cooperative expansion					
	2.6 Government policy is one of the problems in the malt barley value chain					
3	**Finance**					
	3.1 Cooperatives give credit for the members					
	3.2 The credit you get enough for production					
	3.3 Faced any problem while wanting to borrow money from financial institution					
	3.4 Financial issue is one problem in the malt barley value chain					
4	**Competition**					
	4.1 Members compete with others malt barley producers					
	4.2 The level of competition is high between actors					
	4.3 Malt barley selling price different from others your competitors' price					
	4.4 The cooperatives create competitive environment for your products in the local market					
	4.5 Competition issue is one of the problems in the malt barley value chain					
5	**Human and physical resources**					
	5.1 Malt barley production and processing equipment supply is adequate					
	5.2 Cooperatives give training for the members					
	5.3 Members have awareness about cooperative values, definition and principles					
	5.4 Members have access to mass media (TV, Radio)					
	5.5 Members have access to transportation, telephone and electric power					
	5.6 Human and physical resources of the cooperative are adequate					

	5.7 Human and physical resources are one of the problems in the malt barley value chain					

THANK YOU!!!

Appendix 2

Interview Questions

II. Interview with officials of cooperatives, unions, collectors, wholesalers, and processors

1. Who are the actors involved in the malt barley value chain of the union in the district?
2. How are the actors coordinated along the chain?
3. What are the roles of each actor take part in value adding process of malt barley?
4. What are the strengths of malt barley value chain actors?
5. What are the weaknesses of malt barley value chain actor's?
6. What are the opportunities for malt barley value chain actors?
7. What are the threats for malt barley value chain actors?
8. What are problems related to market, government policy, finance, competition and human and physical resources?
9. What is your suggestion to solve the above problems?
10. What is the overall malt barley value chain management practice?

Yuunivarsiitii Addis-Ababaatti

Fakaaltii Bizinasii fi Ekonomiksii

Mana Barnoota Komeersii

Kutaa loojistiikii fi Qabiinsa Supplaay Cheenii

Appeendeeksii: 1

Gaafilee Qonnaan Bulaaf Dhiyaatu

Kabajamoo gaafatamaa gaafilee kana deebistu

Maqaan koo Saamu'eel Girmaan jedhama. Sassaabbii gaafilee ittiin guuttata barnoota digirii lammaffaa ykn maastarsii ''Art in Logistics and Supply Chain Management'' fi mata-dureen isaa Xiinxalli adeemsa funca duudhaa Garbuu Biqilaa Yuuniyeenii Qonnaan bultoota Gaalamaa keessatti raawwatamuun wal-qabateedha.

Kaayyoon gaaficha kanaa ittiin guuttata barnoota digirii lammaffaa ykn maastarsii ''Art in Logistics and Supply Chain Management yuuniyeenii Gaalamaa keessatti raawwatamu ta'a.

Gaafileen kun qorannoo akkaadaamii kan ta'ee fi rakkoolee fi laafina funca duudhaa Garbuu biqilaa keessatti qunnaman kallattii furmaataa kaa'un akka ittiin hojjatamuudha.

Gaafilee kanaaf yeroo, qulqullinaa, akkasumas iccitiin deebii kanaa kan eeggame akka ta'u abdiin qaba.

Dhumarratti heyyamamaa taatanii gaaffileef deebii qorannoo ittiin guuttata digirii lammaffaa kanaaf gumaacha taasiftaniif galnni koo guddaadha.

Ajaja walii-galaa

- Gaafilee walii galte irratti mallattoo ''√'' yookan ''X'' kaa'i
- Deebii gabaabaafi sirri ta'e kanneen bakka duwwaan itti aanu guuti.

Gaafilee qonnaan bulaaf qophaa'e

Ajaja gaafii gaafataa

- Akka aadaa nannoo isaatti nagaa ho'aa ta'een eegali
- Of, jaarmiyaa irraa dhufte, kaayyoo ittiin wali-geessan ibsiif
- Gaafileen qonnoon bulaan irraa funaannamu kun kan qorannoo fi qaamotii birootiif dabarsamee kan hin kennamne, akkasumas iccitii cimaadhan akka qabamu itti himi.
- Gafilee yoo qabaate gaafii dura, yeroo gaafatamaa jiru, akkasumas gaafii booda akka gaafachuuf mirga qabu itti himi.
- Odeeffannoo faayidaa qaban waraqaa garjalaatti bareessi.
- Gaffiin sii hin galle yoo jiraate, gaafii osoo hin jalqabin dura ''supparvaayizara sarvee''gaggeessurraa qulqulleeffadhu.

Maqaa Aanaa – Digaluuf Xiijoo

Maqaa waldaa_____

Maqaa abbaa warraa/nama gaafii deebisu_____

Lakk. Moobayilii_____

Maqaa gaafataa_____Mallattoo_____

Baay'ina gaafilee_____, guyyaa ragaan itti guurrame _____/_____/_____

Lakk. Moobayilii_____

Haala qabeenya fi teessoo gaafatamaa

1. Saala abbaa/haadha/ manaa 1. Dhiira 2. Dubartii
2. Umriin isaa/ishee_____
3. Haala fuudhaa heeruma abbaa/haadha/ manaa
    1. Kan hinfuune/heerumne 2. fuudhe/heerumte 3. kan hiike/hiikte 4. kan abban warraa jalaa du'e
4. Amantaa **1**. Kiristaana/ortoodoksii, **2**. Musliima **3**. Waaqeffataa **4**. Porotestaantii/pheenxee
5. Baay'ina maatii lakkoofsan_____

6. Haala sadarkaa barnootaa abbaa/haadha/ warraa

1. [ ] hin baranne, 2. [ ] barreessuf dubbisuu kan danda'u/dandeessu 3. [ ] sadarkaa 1^{ffaa} (1-4), 4. [ ] sadarkaa jiddu-gala (5-8), 5. [ ] Sadarkaa 2^{ffaa} (9-10), 6. [ ] qoppaayina (11-12), 7. [ ] kutaa 12 ol.

2. Raawwii funca-duudhaa garbuu biqilaa gaafileen itti aanan yuuniyeenii waldaa qonnaan bultoota Gaalamaa, fuunca duudhaa garbuu biqilaa irratti walii-galatti maal akka fakkatan kan ofkeessaa qabuudha. Gaafilee armaan gadii mallattoo (√) kan fayyadamuun;

   (5=faarattin walii-gala, 4=walii nan gala, 3=bilisa/neutral/ 2=walii hin galu 1=gonkumaa walii hin aglu) jechuun guuti.

Lakk.	**Ibsaituu**	**1**	**2**	**3**	**4**	**5**
1	Raawwin fuunca duudhaa garbuu biqilaa gaari fi indaastirootaf gahaadhaa oli					
2	Akka walii-galaatti raawwiin fuunca duudhaa garbuu biqilaa baay'ee gaaridha.					
3	Fuunca duudhaan garbuu biqilaa sochiin isaa haala addaa ta'e irra jira.					

3. Walitti-dhufeenya qaamota adda addaa/actors' relationship/

Gaafileen itti aanan yuuniyeenii waldaa qonnaan bultoota Gaalamaa, fuunca duudhaa garbuu biqilaa irratti qaban kan wal-qabatuudha. Gaafilee armaan gadii mallattoo (√) kan fayyadamuun;

(5=faarattin walii-gala, 4=walii nan gala, 3=bilisa/neutral/ 2=walii hin galu 1=gonkumaa walii hin aglu) jechuun guuti.

Lakk.	**Walitti dhufeenya qaamota adda addaa/actors' relationship/**	**1**	**2**	**3**	**4**	**5**
1	Haalli walitti dhufeenya qaamota adda addaa/actors'					

	relationship/fuunca duudhaa garbuu biqilaa gaaridha					
2	Qaamotiin kun/actors/ odeeffannoo fi beekumtii yeroo hunda wali-jijjiiru					
3	Qaamotiin kun /actors/ odeefannoo gabaaf galtee ta'u meeshaaleef calla-guddistuu hojii qonnaaf ta'u, liqii, gargaarsa ogummaa, leenjii fi kkf qaamota kanarraa ni argattu.					
4	Walitti-dhiyeenyi dhabamuun rakkoo fuunca duudhaa gabaa garbuu biqilaa keessaa isa tokkodha					
5	Miseensonni yeroo hundaa waltajjii garbuu biqilaa irratti ni hirmaatu					
6	Miseensonni karoora fi raawwii hojii waldayichaa irratti yeroo hundaa ni hirmaatu					
7	Miseensonni maddi qarshii argamsiisu fi murteewwan hojii waldaa adda addaa irratti ni hirmaatu					

4. Gahee qooda fudhattoota /qaamota adda addaa /actors' role/

Gaafileen armaan gadii gahee taatonni adda addaa funcaa duudhaa garbuu biqilaa keessatti qaban yoo ta'u. Gaafilee dhiyaataniif mallattoo (√) iddoowwan kenname irratti (5=faarattin/ciminaanan walii-gala, 4=walii nan gala, 3=bilisa/neutral/ 2=walii hin galu 1=gonkumaa walii hin aglu) guuti

Lakk.	**Gahee/role/**	**1**	**2**	**3**	**4**	**5**
1	Qooda fudhattooni hundinuu funca duudhaa garbuu biqilaa keessatti gahee isaanii ni bahu					
2	Miseensi waldaalee, waan miseensa waldaa ta'aniif, gatii fooyya'aan waan kennamuufi					
3	Miseensonni garbuu waldaa isaanititti ni gurguru					
4	Miseensonni calla-guddistuu waldaa irraa ni bitatu					
5	Miseensonni sona duudhaa waldaa ni dabalu					

6	Miseensota rakkoon gahee isaanitiin wal-qabate isaan ni muudata					

5. Rakkoolewwan yuuniyeenicha qunnamuu danda'an

Jechoonni armaan gadii, yaada rakkoolee hudhaa yuuniyeenichi akka barbaadetti guddachuufi itti fufiinsa isaatiif gufuu ta'uu danda'an jedhamanii yaadaman yoo ta'u.

Haalua Kanaan gaafileen armaan gaditti dhiyaataniif mallattoo (√) iddoowwan kenname irratti.

(5=faarattin walii-gala, 4=walii nan gala, 3=bilisa/neutral/ 2=walii hin galu 1=gonkumaa walii hin aglu) jechuun guuti.

Lakk.	**Iyitamii/ Items**	**1**	**2**	**3**	**4**	**5**
1	**Carraa gabaa/access to market**					
	1.1. Miseensonni iddoo omisha garbuu itti gurguratan ni qabu					
	1.2. Jiidhinsi, qabiyyeen porotiinii, walfakkii, hangaa fi bifti ulagaalee garbuu biqilaa gabaa barbaachisuudha					
	1.3. Miseensonni carraa odeeffannoo gabaaa garbuu ni qabu					
	1.4. Waldaan madda odeeffannoo fedhii fi dhiyeessii gatii gabaa birootiis					
	1.5. Miseensonni garbuu biqilaa gurguruun dura nannoo isaanii irraa ni beeku					
	1.6. Gatiin garbuu biqilaa agbaa naannawa kee keessatti garaagarummaa ni qaba					
	1.7. Carraan gatiin hinkomachiifne/relative price advantage/ ulaaagaa gurgurtaa garbuu biqilaa barbaachisan keessaa isa tokko					

	1.8. Miseensonni garbuu biqilaa rakkoo tokko malee yeroo barbaadanitti gurgurachuu ni danda'u					
	1.9. Miseensonni carraa gabaa argachuu irratti rakkoon ni qunnama					
2	**Poolisii mootummaa/government policy**					
	2.1. Mootumman waldaa ni deeggara					
	2.2. Bulchiinsi gandaa waldaaf deegarsa ni kenna					
	2.3. Hojjataan misoomaa waldaa ni daawwata/deegara					
	2.4. Mootummaan waldaaf haal liqii ni mijeessa					
	2.5. Haalli yeroo/poolisiin mootummaa/ikisteenshinii waldaatiif mijaawadha					
	2.6. Poolisiin mootummaa qbate rakkoolee funca-dhhdhaa garbuu keessaa isa tokko					
3	**Faayinaansii/ finance**					
	3.1. Waldaan miseensota isaatiif liqii ni kenna					
	3.2. Liqiin kennamuuf hojiif gahaadha					
	3.3. Liqii argachuuf qaamota faayinaansii adda addaa iraa rakoon isaan qunnamu hin jiru					
	3.4. Fayinaansii funca-duudhaa garbuu biqilaa keessatti rakoo isa tokkoodha.					
4	**Dorgommii gabaa /competition**					
	4.1. Miseensonni garee garbuu biqilaa oomishu biroo waliin ni dorgomu					
	4.2. Sadarkaan dorgommii qooda fudhattota gidduu jiru bay'ee guddaadha					
	4.3. Gurgurtaan gatii garbuu biqilaa dorgomtoota gidduu jiru garaagarummaa qaba					
	4.4. Waldaan miseensota isaatiif haala mijataa gabaa nannawaatti ni uuma					
	4.5. Waa'en dorgommii rakkoo funca-duudhaa garbuu					

	biqilaa keessaa isa tokkoodha					
5	**Humna namaafi qabeenya dhaabbataaa /human &physical resource/**					
	5.1. Meeshaaleen garbuun omishanii fi ittiin qulqulleessan gahaatu jira					
	5.2. Waldaan miseensota isaatiif leenjii ni kenna					
	5.3. Meseensonni waaldayichaa duudhaa, hiikkoo fi seerota waldayichaa ni beeku					
	5.4. Miseensonni waldayichaa carraa midiyaalee adda addaa (Televizhinii, Raadiyoo) argachuu ni qabu					
	5.5. Miseensonni waldayichaa carraa geejjibaa/tiraanispoortii/, telephoonii fi humna ibsaa/electric power/ argachuu ni qabu					
	5.6. Waldaan humna namaa fi qabeenya dhaabbataa gahaa qaba					
	5.7. Hanqinni humna namaa fi qabeenyaa rakkoo funca-dhdhaa garbuu biqilaa keessaa isa tokko					

Galatoomaa!!!

Appendeeksii 2

Gaafii fi deebii

II. Gaffi fi deebii itti gaafatamtoota waldaa, yuuniyeenii, kan midhaan sassaaban, warra jimlaa gurguranii fi warriin sona itti dabalan /processors/ godhan

1. Aanaa kana keessatti qooda fudhattoonni funca-duudhaa garbuu biqilaa eenyu fa'a?
2. Qooda fudhattoota cancalaa /chain/kana eenyutu qindeessa?
3. Gaheen qooda-fudhattota sona dabaluu funca-duudhaa garbuu biqilaa irratti qaban maali?
4. Ciminni qooda fudhattoonni funca-duudhaa garbuu biqilaa irratti qaban maali?
5. Laafinni qooda fudhattoonni funca-duudhaa garbuu biqilaa irratti qaban maali?
6. Carraa gaarii qooda fudhattoonni funca-duudhaa garbuu biqilaa qaban maali?
7. Wantoonni qooda fudhattoota funca-duudhaa garbuu biqilaatiif sodaa ta'an maali?
8. Rakkooleen gabaan, poolisii mootummatiin, faayinaansii, dorgommii, humna namaa fi qabeenya dhaabbataa wal-qabatan maal fa'a?
9. Rakoolee armaan olitti tuqaman furuuf yaanni ati qabdu maali?
10. Akka walii-galaatti haali /shaakalli/qabiinsa /management practice/ funca-duudhaa garbuu biqilaa maal fakkaata?

Picture of malt barley plantation and management in the study area.

Source: GFCU