



**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**ANALYSIS OF BREAD WHEAT MARKETING CHAINS: A
CASE STUDY OF GOZAMIN WOREDA IN EAST GOJJAM
ZONE, AMHARA REGIONAL STATE, ETHIOPIA.**

**BY
ABIOT WONDIE**

**FEBRUARY
2015**

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**A Thesis Submitted to School of Graduate Studies of St. Mary's
University in Partial Fulfillment of the Requirement of Masters of
Science in Agricultural Economics**

**February 2015
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St.Mary's University

February 2015

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a University advisor.

Advisor

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Addis Ababa

February 2015

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ACRONYMS

ACSI	Amhara Credit and Saving Institute
ADLI	Agricultural Led Industrialization
BLUE	Best Linear Unbiased Estimator
BoRD	Bureau of Rural Development
CC	Contingency Coefficient
CLR	Classical Linear Regression
CSA	Central Statistics Authority
DA	Development Agent
EGTE	Ethiopian Grain Trade Enterprise
EPAR	Evans School Policy Analysis and Research
ESE	Ethiopian Seed Enterprise
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoE	Government Organization
KB	Kronker Basset
M4P	Market for the Poor
MT	Metric Tone
NGO	Non Governmental Organization
OLS	Ordinary List Square
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PRA	Participatory Rural Appraisal
RMA	Rapid Market Appraisal
SCP	Structure Conduct Performance
SDPRP	Sustainable Development and Poverty Reduction Plan
SPSS	Statistical Package for Social Science
TLU	Tropical Livestock Unit
VIF	Variance Inflation Factor

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ABSTRACT

This case study was conducted in Gozamin Woreda, Amhara regional state of Ethiopia during the 2013/2014 cropping season. The aims of the research was to identify wheat marketing chains and examine the performance of actors in the chains; to analyze the determinants of wheat supply to the market in the study areas and to identify the constraints encountered in bread wheat production and marketing. One hundred twenty (120) smallholder farm households and 20 traders were taken for this study. A semi-structured questionnaire based interview was applied to collect the data. Statistical computer software programs were used to analyze the data. Descriptive statistics and OLS regression models were used as analytical tools. This particular study revealed that 40% of the total wheat production in the sample area was supplied to the market. The measures of market concentration indicated that, wheat market structure in the study area is fairly competitive; however the existence of barriers to market entry, and the constraints facing farmers and traders had a negative impact on the performance of the wheat marketing system. The major barriers to entry into grain trade in the study area were lack of working capital and absence of stores. The major determinant factors affecting marketed supply of wheat was estimated by ordinary least square regression model. Among the variables included in the analysis, 6 variables that found significantly affecting marketed supply of wheat were number of oxen owned, amount of yield, and land size of wheat, family size, access to extension service and presence of active family labor. The main grain marketing constraints for traders are insufficient infrastructure, absence of store, theft, poor access to credit and absence of trust between traders. The possible recommendations forwarded are increasing production and productivity of wheat through facilitating for farmers to own oxen and other improved ploughing tools, supporting formal access to credit for traders and producers, improving the quality of extension system and Promoting family planning.

CHAPTER 1: INTRODUCTION

1.1 Background

The prime role that agriculture plays in a country's political, economic and social stability makes measures of agricultural production extremely sensitive (CSA, 2012). The rate of agricultural growth in Ethiopia, in turn, depends on the speed with which the current subsistence oriented production system is transformed into a market orientated production system (Birhanu *et al.*, 2006).

Ethiopia's agriculture is complex, involving substantial variations in crops grown across the country's different regions and ecologies. Four major cereals (teff, wheat, maize, sorghum and barley) are the core of Ethiopia's agriculture and food economy, accounting for about three-quarters of total area cultivated, 29 percent of agricultural GDP in 2005/06 (14 percent of total GDP) and 64 percent of calories consumed (Alemayehue *et al.*, 2011). In Ethiopia, cereals covered about 78.17% of the total grain cultivated area of about 9 million hectares and the total production is about 196 million quintal in 2012/13 production season (CSA, 2012).

There has been a substantial growth in cereals, in terms of area cultivated, yields and production since 2000, but yields are still low by international standards and overall production is highly susceptible to weather shocks, particularly droughts. Thus, both raising production levels and reducing its variability are essential aspects of improving food security in Ethiopia, both to help ensure adequate food availability, as well as to increase household incomes (Alemayehue *et al.*, 2011).

Cereal production and marketing are the means of livelihood for millions of households in Ethiopia. It is the single largest sub-sector within Ethiopia's agriculture, far exceeding all others in terms of its share in rural employment, agricultural land use, calorie intake, and contribution to national income (Shahdur, 2010).

The nature of grain markets in Ethiopia is expressed with a large number of wholesalers, retailers, farmer-traders, truckers and commission agents with variable purchasing, storage, transporting capacities and market shares. Hence, not all these participants are equally active in all markets (Birhanu *et al.*, 2003). In order to improve the marketing system linked with the markets, the role of market-actors, market channels and the existing constraints and opportunities along the chain need to be identified (Amare and Dawit, 2013).

Ethiopia is the second largest wheat producer in sub-Saharan Africa, after South Africa. Although most of the wheat grown in Ethiopia is bread wheat, there is some durum wheat which is often grown mixed with bread wheat (Demeke and Marcantonio, 2013). Among cereals, wheat is the major one next to teff and maize both in terms of area coverage and level of production. Accordingly, the importance of wheat in the grain market is also very important. In recent years, following the rapid expansion of agro-industries especially those that use durum as an input like the pasta and macaroni factories, the market for durum has shown considerable increase. This study focused on the bread wheat marketing chain analysis based a case study at *Gozamin Woreda*. The study critically examined the production potential of bread wheat, the marketing agents, marketing margins and market infrastructures.

1.2. Statement of the Problem

The government of Ethiopia (GoE) places heavy emphasis on cereals in almost of all of its development strategy documents. The Agricultural Development Led Industrialization (ADLI), the Sustainable Development and Poverty Reduction Plan (SDPRP), the Sustainable Development to End Poverty (PASDEP) all highlight the importance of cereals in overall economic development (Shahdur, 2010).

Wheat production in Ethiopia has significantly increased over the past 20 years. Although estimates varied across data sources, all of the reviewed sources supported the same overall trends (Kahtrine *et al.*, 2012).

Despite the increase in production; most cereals are internationally non-tradable. In other word, domestic prices fall between the import and export parity prices, and hence cereals are neither exportable nor importable (Shahdur, 2010).

The government has played an active role in wheat markets, such as making large investments in extension programs and adopting protectionist policies to ensure government control of all commercial grain imports. Despite these efforts, Ethiopia is expected to face a growing supply deficit in the absence of increased domestic productivity and/or changes to government policy (Kahtrine *et al.*, 2012).

Demeke and Marcantonio 2013 indicated the low and declining level of production and productivity transformed the country into a net importer of wheat. Furthermore, the rapidly increasing population in conjunction with changing consumption pattern did not allow the country to meet the growing demand for food. As a result, the level of wheat self sufficiency at the national level in Ethiopia is estimated at only 55 per cent, necessitating importation to fill the gap.

The nature of grain markets in Ethiopia is expressed with a large number of marketing agents with variable purchasing, storage, transporting capacities and market shares. Hence, not all these participants are equally active in all markets. However, margins and transaction costs remained high, and weak private sector capacity, inadequate market institutions and poor infrastructure remained fundamental problems in the marketing system (Gebremedhin, 2003).

Besides, the marketing system in the country and specifically in the study woreda highly characterized by many marketing agents resulted in high transaction cost and consumer price. There is a need to employ a market chain approach to fully understand and resolve the problem of wheat marketing system in the study area. Yet there is no as such study which tries to look into the whole spectrum of marketing chain of wheat and determinants of its supply in *Gozamin Woreda*. This makes the undertaking of wheat market chain analysis in the *Woreda* imperative.

This study is designed to address the prevailing information gap on the subject and contribute to proper understanding of the challenges and assist in developing improved market development strategies to benefit of smallholder farmers, traders, and other market participants.

1.3. Objectives of the Study

The general objective is to analyze the market chains of bread wheat in the study area. The specific objectives of the study are:

1. To identify bread wheat market chain and examine the performance of actors in the chain
2. To identify the determinant factors that affect marketed supply of bread wheat
3. To identify the constraints encountered in bread wheat production and marketing

1.4. Research Questions

The study answered the following questions:

1. What are the determinant factors that affect bread wheat supply?
2. How are different actors involved in bread wheat production and marketing performing?
3. What constraints do farmers and traders encounter to supply bread wheat to the market?

1.5. Significance of the Study

This study focused on the determinants of bread wheat supply, market performance between actors and identifying opportunities and constrains of bread wheat production and marketing in *Gozamin Woreda*. The information is expected to assist market participants to understand the supply potential. The study can also serve as an additional source to conduct detailed studies by identifying the research agenda.

1.6. Scope and Limitations of the Study

This study was conducted in only Gozamin Woreda of Amhara regional state. In addition, the shortage of logistics and budgets made the researcher unable to consider additional sample of bread wheat producing Kebeles and other neighboring markets found in and out of the study area.

1.7. Organization of the Paper

The thesis is organized into five chapters. The first chapter deals with the introduction, chapter two reviews the theoretical and empirical works related to the study, Chapter three discusses about the research methodology selected for the study. In Chapter 4, both descriptive and econometric results are presented and discussed in detail and Chapter 5 summarizes the main findings of the study and draws conclusion and appropriate recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1. Theoretical Review of Literature

2.1.1. Market and Marketing Concepts

Kotler and Armstrong (2004) marketing defined as a social and managerial process by which individuals and groups obtain what they want and need through creating and exchanging products and value with others. Modern definition considers market as an area for organizing and facilitating business activities and for answering the basic economic questions. As stated in John Burnett (2008) the American society of management defined Marketing as the process of planning and executing the conception pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual (customer) and organizational objectives.

The chartered institute of marketing (2009) defined marketing as a management process responsible for identifying, anticipating and satisfying customer requirements profitably. In addition it highlighted that marketing is sometimes wrongly defined within the narrow context of advertising or selling, but this is not the whole story. Marketing is a key management discipline that enables that enables the producer's goods and services to interpret customer wants, needs and desires and match or exceed them in delivery to their target customers.

Market definition has taken different meaning along its evolutionary development process; from merely product oriented to market oriented definition. In an economy dominated by scarcity, the focus of the business is often to produce and supply goods through maximum use of technical capability (Crawford, 1997). Ramin and Ali (2011) described market is not necessarily a geographical location. Products and services are purchased over the phone, through mail and electronic mail, as well as online through the internet thus it is arrangement between a seller and a buyer in which the seller agrees to supply the goods or the service and the buyer agrees to pay the price.

According to IFAD (2003) Markets are where, as producers, they buy their agricultural inputs and sell their products; and where, as consumers, they use their income from the sale of crops, or from their non-agricultural activities, to buy their food requirements and consumption goods.

2.1.2 Agricultural Market and Marketing

Agricultural market is institutions in which exchange of agricultural produce or service takes place or a system where buyers and sellers interact to buy sell agricultural produce. Agricultural market can be a physical place where goods and services are exchanged (Birhanu *et al.*, 2012).

Agricultural marketing is part and percale of marketing that undertakes various activities. It involves in moving agricultural outputs from their area of productions to the end users. Moreover, as Tejinder (2011) indicate, agricultural marketing perform various interconnected functions starting from planning of production, growing, harvesting, grading, packaging, transportation, storage processing, distributions, advertizing and sales all together.

2.1.3. Market Chains versus Value Chains

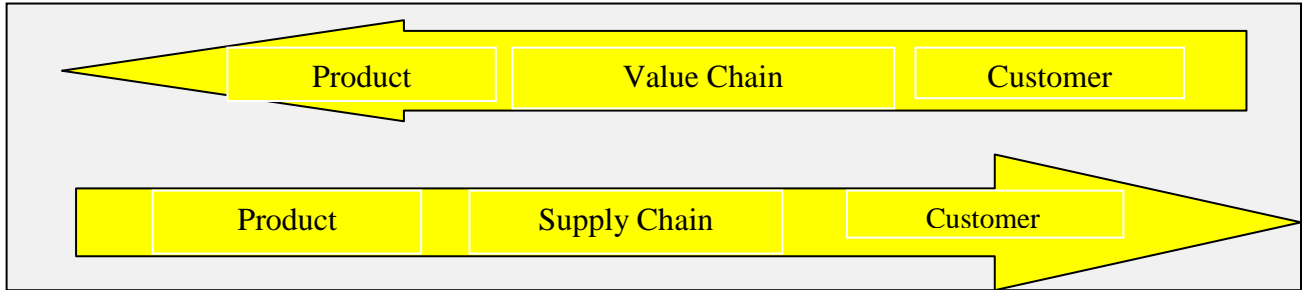
According to Hobbs *et al.*, (2000) a value chain is differentiated from a production/supply chain because participants in the value chain have a long-term strategic vision, disposed to work together, oriented by demand and not by supply, shared commitment to control product quality and have a high level of confidence in one another that allows greater security in business and facilitates the development of common goals and objectives. Value chains focus more on innovation and quality product development, increase system efficiency and developing differentiated product.

Whereas, a supply chain is an alliance, such as a collection of agricultural producers consolidating supply, which would be considered a horizontal alliance because the value added is less to the product.

In value chain first start with the end-consumer requirements and then build proactive and knowledge-based relationships as well as infrastructures to deliver maximum value. However, a supply chain and a value chain are complementary views of an extended enterprise.

It is enabling the flows of products and services in one direction, and of value as represented by demand and cash flow in the other (Feller *et al.*, 2004).

Figure 1 Comparison of a Value Chain with a Supply Chain



Source: Adapted from The following table illustrates also how a traditional supply chain differs from a value chain approach.

Table 1 Difference between supply chain and value chain

	Supply chain	Value chain
Communication (Information sharing)	Little or none	Extensive
Value focus	Cost/price	Value/quality
Product	Commodity	Differentiated
Relationship	Supply push	Demand pull
Organizational structure	Independent	Interdependent
Philosophy	Self optimization, enhancing efficiency	Chain optimization

Source: Adapted from Toma & Bouma Management Consultants. November 1998. Value Chains as a Strategy. Agriculture and Food Council. Edmonton, Alberta, Canada.

2.1.4. Agricultural Value Chains

According to Kula *et al.*,(2006) Value chains encompass the full range of activities and services required to bring a product or service from its conception to sale in its final markets whether local, national, regional or global. Value chains include input suppliers, producers, processors and buyers. They are supported by a range of technical, business and financial service providers. Value chains have both structural and dynamic components. The structure of the value chain influences the dynamics of firm behavior and these dynamics influence how well the value chain performs.

The value chain describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use(Kalpinsky and Morris 2001).

The activities that comprise a value chain may be contained with a single firm or may embrace many firms. They can be limited to a single country or stretch across national boundaries The typical value chains consists of all the firms and individual and their actives involved in input supply, production, assembly, processing, wholesaling, retailing ,and utilization with export included as another stage for commodities that are destined for export (Birhanu *et al.*, 2012).

Jorg and Stamer (2007) defined value chain as the sequence of activities involved in transforming raw materials into a product that is acquired by the final customer. It includes business activities from the generation of raw materials, to transforming them into intermediate products, to manufacturing the final product. It includes business transactions, but also transactions between companies and governments (e.g. the bureaucracy involved in trans-border trade), and transactions between companies and supporting institutions in areas like finance, training, research and development, metrology and certification, and others.

The broad approach of defining value chain looks at the complex range of activities implemented by various actors (primary producers, processors, and traders, service providers) to bring a raw material through a chain to the sale of the final product (Jorg and Stammer, 2007).

The key players in the chain of activities that connect food and agriculture are the farmer, (or other 'producers' such as fishermen), intermediaries, the food processors, and the consumer. In Practice they each see the agricultural/food marketing system from a perspective of self-interest and these interests are sometimes in conflict (Crawford, 2006).

2.1.5. Marketing Channels

The term channel is derived from the Latin word canals, which means canal. The marketing channel can be viewed as large canal or pipeline through which products, their ownership, communication, financing and payment, and accompanying risk flow to the consumer (Backman and Davidson, 1962). Formally, a marketing channel is a business structure of interdependent organization that reaches from the point of product origin to consumer with purpose of moving products to their final consumption destination (Kotler and Armstrong, 2003).

Marketing channel is particular path through which commodity pass from producers to consumers. On the other hand defining the route through which a commodity passes from producers to consumers, nothing in the market channel concepts value addition also value may still be generated. Supply chain is Market channels through which a product moves until reaching the end user or final consumer (Birhanu *et al.*, 2012).

2.2. Empirical Review of Literature

2.2.1 Cereal Production in Ethiopia

Cereals were grown on 73.4 percent of the total area cultivated, by a total of 11.2 million farmers. Together, these holders produce a yearly average of 12 million tonnes of cereals, which is 68 percent of total agricultural production.

The Four major cereals are teff, wheat, maize, sorghum and barley. Teff accounts for 28 percent of total cereal area, while maize stands for 27 percent of total annual cereal production (Alemayehue *et al.*, 2012).

In the study woreda also four major cereals took the lion share interims of area coverage and production. Measured in terms of contributions to total cereal production, maize, wheat, teff, sorghum and barley are the most important cereal crops in that order. However, the relative importance of the crops changes slightly when compared in terms of their contribution to total cereal area covered due to differences in productivity.

Grain production in Ethiopia can be classified into two cropping seasons: the main rain season and the short rain season. The main rain production season takes place during June–December, while the small rain production season takes place during March–June. The small rain season accounts for about 10% of total annual grain production in the country. Wheat, maize, barley and teff are the cereal crops grown during the small rain season, while haricot beans, lentils and chickpea are the pulse crops grown during the main rain season. The proportion of production accounted for by the small rain season is much lower than the proportion of area covered by the grain crops, perhaps because of the erratic and unreliable nature of the small rains that affects productivity (Birhanu and dirk, 2008).

Wheat production in Ethiopia has significantly increased over the past 20 years. Production has increased from 890,000 metric tonnes (MT) in the 1991/92 marketing year to a high of 3,113,000 MT in 2009/10; production in 2012/13 is expected to reach similarly high levels. The area harvested with wheat has increased at a slower rate than production, by reflecting an increase in estimated yields (Kathryn *et al.*, 2012).

Cereal crops are produced in greater volume compared to the other crops because they are the principal staple crops and export commodities at times of bumper harvest in the country.

Between the months of September 2001 and August 2002 it was learned that 242,794 quintals of cereals worth 106,028,521 Birr was exported from Ethiopia to various countries (Alemayehue *et al.*, 2012).

Cereals are grown in almost all regions of Ethiopia with notable variation in the extent of areas planted and the volume of production obtained. This variation is seemingly caused by a shift in choice of crops by the holders and difference in weather conditions (CSA, 2012).

2.2.2 Grain Marketing in Ethiopia

Agricultural input and output marketing in Ethiopia plays an active and critical role in economic development. Any improvement in the agricultural marketing system is a means of stimulating agricultural and economic development at national and regional level. The structure of Ethiopian cereal markets has undergone dramatic changes throughout the past several decades. To a large extent, these shifts mirror the underlying ideological positions of successive governments, from the feudalistic system of the 1950s and 1960s to the pervasive state interventions under the Derg regime to an extended period of major investments in road and telecommunications infrastructure, accompanied by considerable liberalization of markets, under the EPDRF government (Wolday, 1994).

The Ethiopian grain market was liberalized in early 1990s. Accordingly, strategies for both growth and poverty reduction have placed a heavy emphasis on cereal production and marketing. The Agricultural Development Led Industrialization (ADLI) strategy, the Sustainable Development and Poverty Reduction Plan (SDPRP), and the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) all highlight the importance of cereals in Ethiopia's overall economic development. As part of these strategies, the Government of Ethiopia (GoE) has undertaken substantial market reforms, accelerated investments in road and communication networks and established institutions that can enhance the efficiency of the market channel (Shahdur, 2010).

Ethiopia has a subsistence economy where smallholder farmers produce for direct household consumption. The proportion of food grain production, which is marketed, is relatively small. Of the total annual grain production in 1995/96, only 28 percent or 26.4 million quintals was marketed (Gebemeskel *et al.*, 1998).

Marketed grain varies from region to region and sales of grain are concentrated between December and May. The largest sales of maize, wheat, teff, barley, and sorghum are observed during January. The main reasons for selling grain in the market included the need to buy food (33.4 percent), purchase modern inputs (17.8 percent), avoid storage losses (12.0 percent), pay loans (11.8 percent), pay taxes (11.5 percent), and cover wedding expenses (5.1 percent) (Wolday, 1997).

On average, wheat is produced by about 64% of the households on about 27% of total cultivated area. A household sold about 600 kg of wheat for a sales value of about ETB 978. The second most important market for wheat producers is markets in PA (where about 20% of producers sold wheat), followed by district town markets, where about 13% of producers sold wheat. Markets outside district and regional markets are not important for wheat producers (Birhanu, 2008). Commercial grain supplies come from sales produced by small farmers and from private commercial farmers, state farmers, import, and food aid. As indicated earlier, because farmers produce grain for household consumption, only 28 percent of grain produced is marketed. Grain is sold through village collectors, brokers, agents wholesalers, the EGTE, and retailers to the final domestic consumer's (Wolday, 1994).

2.2.3. Grain Marketing Structure of Ethiopia

The structure of food grain marketing systems should be evaluated in terms of the degree of market concentration, barriers to entry (licensing procedure, lack of capital and know-how, and policy barriers), and the degree of transparency (Wolday, 1994). Wolday's study for the Shashemene market indicated that four of the first four big traders had 35 percent market share.

In the Ethiopian context, these trade concentration measures suggest weak competition and a potentially skewed market structure where large traders may be to influence price.

2.3. Conceptual Framework of the Study

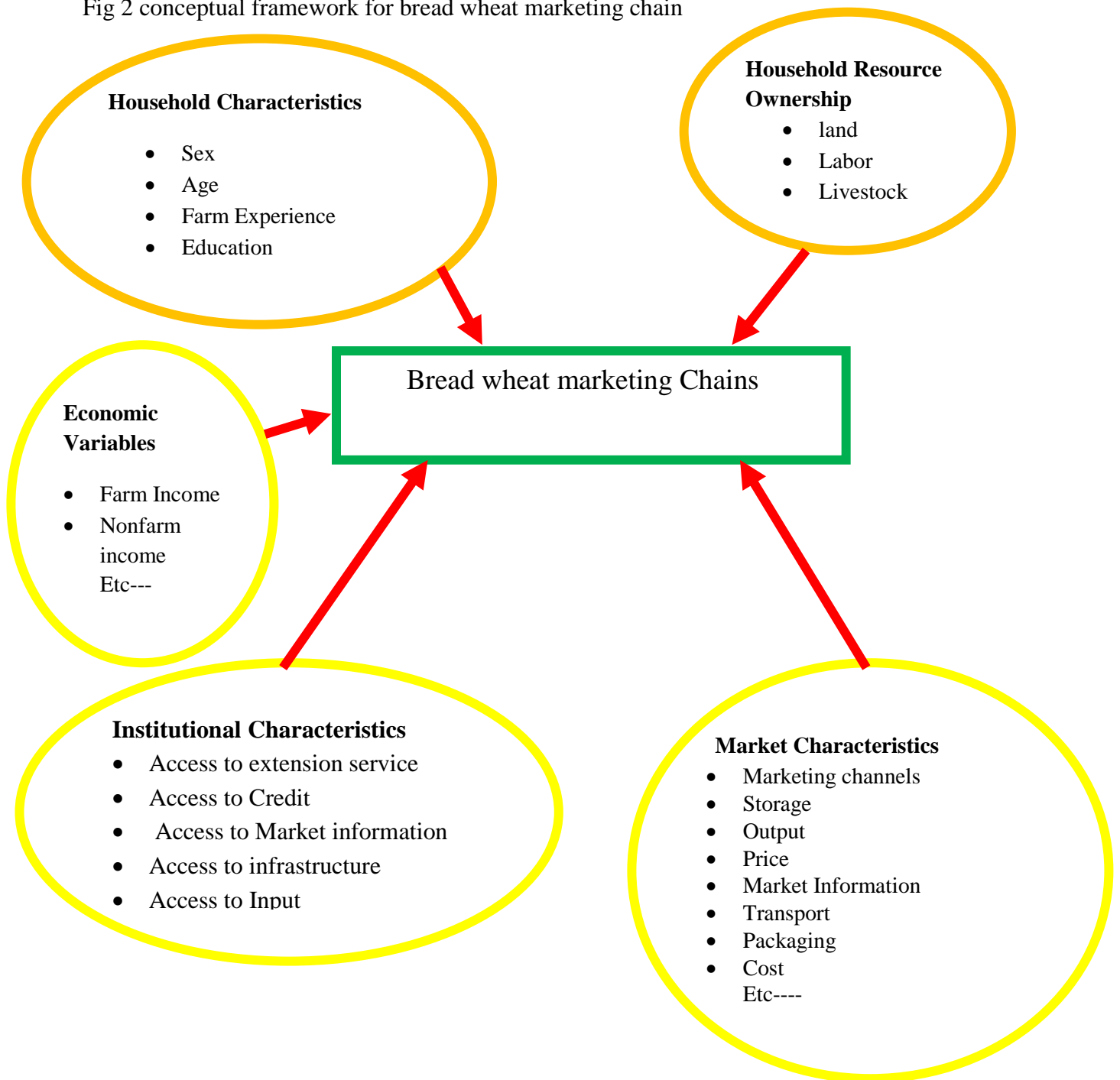
Market orientation of households is conceptualized as incorporating both production and marketing decisions because commercial transformation of subsistence agriculture is basically a shift from 'sell surplus of what you produce' to 'produce what you intend to sell' (Birhanu and dirk, 2008). Several factors affect market orientation of households by affecting the conditions of commodity supply and demand, factor and output prices, and marketing costs and risks faced by producers, traders and other market actors (Pender, 2006).

Market participants are all the people involved in producing (farmers), buying (traders), processing (processors), selling (traders) and consuming (consumers) the goods. Several market intermediaries are involved in the process of the transformation of the agricultural product from point of production to consumption (Birhanu *et al.*, 2012). As Birhanu and Dirk (2008) pointed out that, at the community level, the proportion of households producing teff is positively explained by agricultural labor wage rate, cultivated land per household, ownership of traction power and availability of credit, while it is negatively explained by the proportion of female-headed households in community, and availability of market information service. All the above variables except availability of market information service have the expected signs.

Wolday (1994) also noted that, marketed supply of agricultural product could be affected by different factors including the size of land holding, the output level, family size, market access, price, inputs, formal education, oxen number, accesses to extension and credit services, distance to market, time of selling, access to labor and age. Another study by (Kathryn *et al.*, 2012) identified the factors that have significant association with the proportion of crop sold at the household level. Number of dependants in the household, household labor supply, and ownership of cultivated land number of equines owned rainfall and household age greater than 36 are positively associated with household participation and household size, access to credit in the past year, and household age less than 36 have negative association with household participation in selling crops.

Thus, this conceptual framework presented in figure 2 below shows the most important variables to influence marketed supply of bread wheat in the study area.

Fig 2 conceptual framework for bread wheat marketing chain



CHAPTER 3: RESEARCH METHODOLOGY

3.1. Description of the Study Area

The study was conducted in *Gozamin Woreda* East *Gojjam* Administrative zone, *Amhara* regional state during the 2013/14 cropping season. *Gozamin Woreda* is located about 300 kms North West of Addis Ababa on the way from *Addis Ababa* to *Bahirdar*. According to CSA 2007, the population of the *Woreda* is about 132,883 with 66,348 male and 66,535 female. Totally, the *Woreda* Population is indigenous. The *Woreda* is made up of rural areas, and it is divided in to twenty six *Kebeles*. The *Woreda* is administered by its councils and has Agricultural and Rural Development Office at *Woreda* level and in each *Kebele* agricultural offices established. The *Woreda's* population livelihood depends on mainly in crop, livestock and other nonfarm activities.

The main crops grown are dominantly wheat and teff but other likes pulses, maize sorghum. The *Woreda* also is home to head of cattle including cross-bred, small ruminants and equines, which are about 109,891 TLU. The average altitude of the *Woreda* is 2200 meters above sea level. The upper parts are characterized by steep slopes with plateau where as the lower part is less steep (*Woreda* Environmental Protection and Land administration office, 2000). Farming in *Gozamin Woreda* is a common and traditional activity which is conducted in plots by using traditional production system. Cereal crops are the common products produced by farmers. There are 15 multipurpose cooperatives established and operational in grain marketing.

Fig 3 Map of the study area

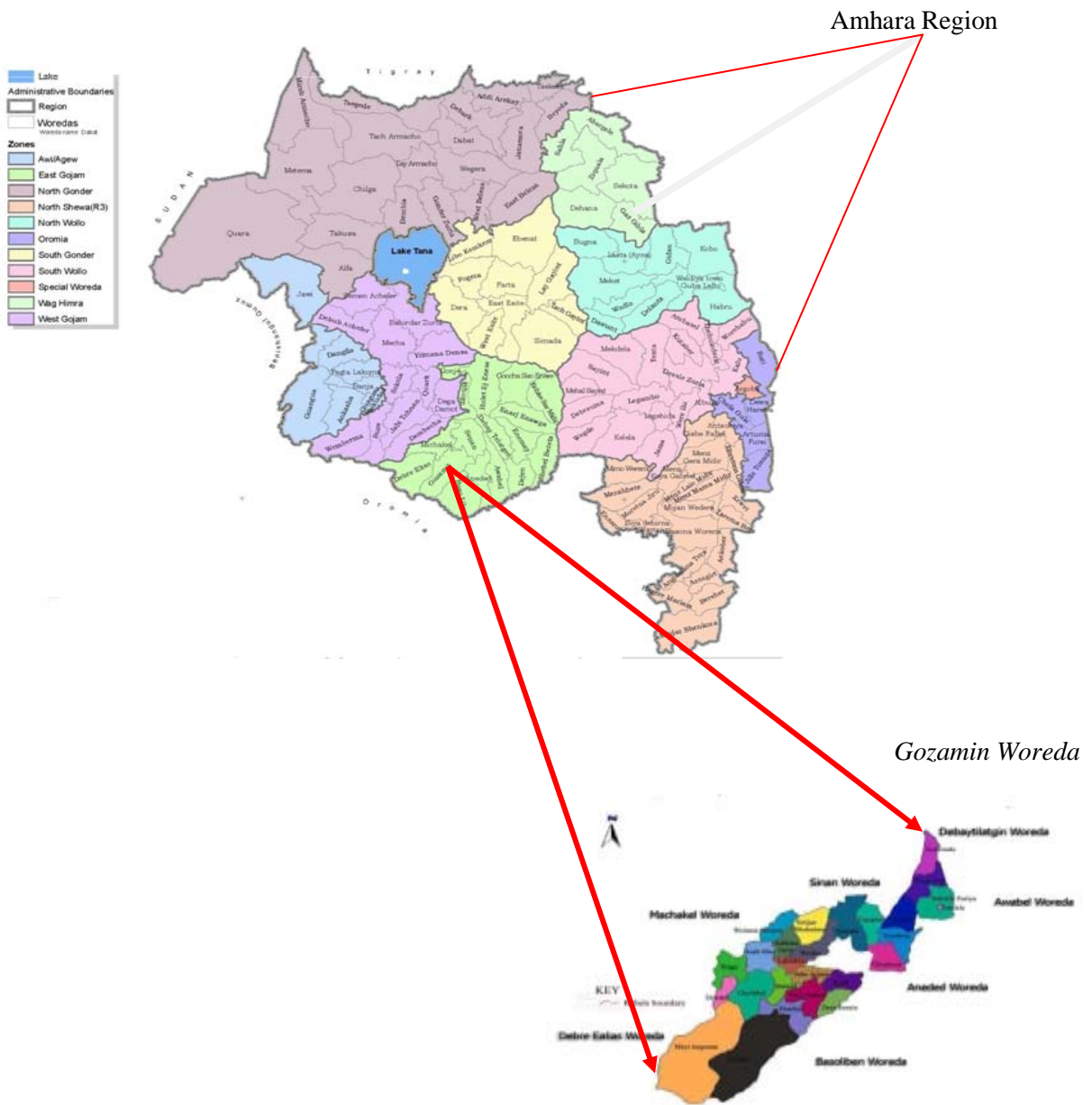


Figure 3: Map of the study area

Table 2 Type of crops grown in Gozamin *Woreda*

No	Crop type	Area	Production in quintal
1	Wheat	10,584	418,392
2	Teff	10,263	227,868
3	Maize	7,180	363,145
4	Barley	3,350	68,404
5	Sorghum	427	8,663
5	Engedo (Oat)	1,873	120,000
6	Noug	819	6,121
7	Linseed	244	1,714
8	Sesame	5,227	41,816
9	Bean	2,153	48,270
10	Haricot Bean	318	5,786
11	Soya bean	50	900
12	Chickpea	5	90
13	Grass pea	5	90

Source: *Gozamin Woreda* office of agriculture 2014

Production of grains in the *Woreda* is practiced in a traditional way by plowing with a pair of oxen. Production of wheat is a rain-fed with only one harvest in a year. In the study district crop production is major economic activity followed by animal production. The dominant crops grown are wheat, teff, maize, sorghum and barely. Cereals took the lion share interims of production and area coverage. Among the cereals bread wheat is the first in production and coverage followed by teff maize, barley and sorghum respectively. Wheat and teff are the major crops produced for market supply.

Table 3 No of livestock's in *Gozamin Woreda*

N.O	Livestock type	Number
1	Oxen	51625
2	Cow	44826
3	Bull	20194
4	Heifer	19912
5	Calf	24868
6	sheep	86429
7	Goat	10158
8	Horse	13508
9	Donkey	16073
10	Mule	191
11	Poultry	73186
12	Bee hive	8490

Source: *Gozamin Woreda* office of agriculture 2014

In the study area, there is huge number of livestock's. The number of livestock's is considered as measure of wealth. During the study the oxen ownership is found statistically significant with the marketed supply of wheat.

3.2 Data Collection

This study was based on primary and secondary data. The primary data was collected from small-scale farmers of three purposively selected Kebele administrations, assemblers, traders, primary cooperatives and *Gozamin* Cooperatives Union. In addition to these, different government offices having direct as well as indirect relation with wheat production and marketing were also contacted. Semi-structured questionnaires and personal interviews were used to collect the data. Focus group discussions (FGDs) that involved key informants were the other method of data collection. Finally, the researcher used direct observations as a method.

The secondary data was collected from Central Statistical Authority (CSA), Woreda Office of Agriculture, primary and secondary cooperatives reports that are involved in wheat marketing, *Gozamin* Woreda office of Agriculture reports, different published and unpublished reports, bulletins, and websites.

3.3. Study Design

Cross-sectional type of study was carried out to analyze wheat market chain. A semi-structured survey questionnaire was used to collect data. Econometrical model was specified and used to analyze different parameters on the data obtained from primary data source in the study area.

3.4. Sampling Procedure and Sample Size

Multistage sampling procedure was used to select farm households who are producing wheat for this study. During the first stage, the study Region *Amhara* was selected purposively based on wheat production potential. During the second stage, one *Woreda* from East *Gojjam* administrative Zone which is *Gozamin* was selected based on the wheat production potential of the area among other *Woredas*. During the third stage, three potential wheat producing *Kebeles* were selected purposively from others. During fourth stage, using the sample frame of the sampled *Kebeles*, list of sample farmers for interview were selected. From each kebele based on proportions to the population sample households were selected using systematic random sampling to have 120 household for survey in *Gozamin Woreda* taking into consideration the time and budget constraint.

Table 4 Sample size of farmers

N.O	Name of Woreda	Name of sample Kebeles	No of HHs	No of sample farmers taken
1	Gozamin	Wonka	537	41
2		Addisena Gulit	495	38
3		Leklekita	523	40
Total			1555	120

Source: *Gozamin Woreda* office of agriculture 2014

In addition, to capture the actual practice and behavior of traders, the study was conducted for traders from *Debremarkos*, *Chertekel* and *Fendika* towns. A list of 95 registered wholesalers and retailers were collected from the office of revenue and 46 other non licensed traders there were identified. From the total 141 traders, a sample of 20 bread wheat traders (6 collectors, 8 retailers and 8 wholesalers) were randomly selected from the three markets.

3.5. Data Analysis

Descriptive statistics and econometric model were employed to analyze the data collected from wheat producing farmers and traders.

3.5.1 Descriptive Analysis

For the study, statistical soft ware was used to analyze the descriptive statistics and the tools used for descriptive data analysis were percentage, mean, and standard deviation. In addition map was used to visualize wheat marketing chain and tables to compare the socio-economic, institutional and marketing characteristics of the wheat producers and traders of the study area.

3.5.2. Econometric model

In this study, Linear Ordinary Least Squares Regression Econometric Model was fitted to generate information about determinants of wheat supply. Following Gujarati (2003) as stated in Kindie the OLS regression is specified as: $Y = f(\text{price, inputs, formal education, sesame area, oxen number, accesses to extension and credit services, distance to market, time of selling, lagged price, membership in local organization, foreign language and yield})$. Based on the literatures, wheat supply model to be estimated for this study takes the following form.

$$Y_i = \alpha_i + \beta_i X_i + U_i \dots\dots\dots 1$$

Where: Y_i = the value of the dependant variable (the quantity of wheat supplied to the Market)

α_i = Intercept

β_i = Coefficient of i^{th} explanatory variable

X_i = Vector of explanatory variables

U_i = disturbance term

Econometric model specification of wheat supply function in matrix notation is the following.

$$Y = \beta'X + U \text{-----} 2$$

Where: Y = quantity of seed wheat supplied to market

X = a vector of explanatory variables

β' = a vector of estimated coefficient of the explanatory variables u_i = disturbance term

When some of the assumptions of the Classical Linear Regression (CLR) model are violated, the parameter estimates of the above model may not be Best Linear Unbiased Estimator (BLUE). Thus, it is important to check the presence of multicollinearity among the variables that affect supply of wheat in the study area.

Test for multicollinearity: One of the assumptions of CLR model is that there is no exact linear relationship between the independent variable and that there are at least many observations as the dependant variable. If either of this is violated it is impossible to estimate OLS and the estimating procedure simply breakdown. The presence of multicollinearity makes it difficult to separate the individual effects of the collinear variables (Gujerati, 2003). According to Gujerati (2003) the presence of multicollinearity can be detected using VIF (variance inflation factor).

$$VIF = \frac{1}{(1-R^2)} \text{-----} 3$$

Where R^2 = is the multiple correlation coefficient between independent variables. The larger the value of VIF_j , the more “troublesome” or collinear the variable X_j **as a rule of thumb**, if the VIF of a variable exceeds 10, which will happen if R^2_j exceeds 0.90, that variable is said be highly collinear. When the variables to be investigated are discrete in nature contingency coefficient is used. Where If CC is greater than 0.75 the variables are said to be collinear.

Definitions of variables

The major identified variables that affect the supply of wheat to the market for farmers produce were:

1. Dependent variables

Quantity supplied to the market: It is continuous dependent variable indicates the amount of wheat supplied by the household to the market in the year measured in terms of quintal.

2. Independent variables

- 1. Amount of yield of wheat:** This is a continuous variable and it refers to the amount of wheat that household would obtain in terms of quintal in the study area during the study period. It is assumed that, the larger the amount of wheat the farm household produce, the more would be the tendency to market his produce. The study conducted by Astewel, (2010) indicated that the quantity of rice produced has highly affected market participation positively which is the higher the output, the higher is the farmer willing to participate in the market.
- 2. Contacts with Extension workers:** This is a dummy variable with a value of 1 if the members have contact to extension workers in the areas and zero otherwise. It is assumed that as members' farmers have more contacts with extension workers, the better would be the information about market, and use of agricultural inputs which in turn increases their marketed surplus to the society. Astewel, (2010) in his study found that extension contact with extension agents is positively and significantly Influence to the probability of selling rice. Another study conducted by kindie, (2007) found that extension service did not significantly affected marketed supply of wheat in Metema *Woreda* this may be attributed to absence of quality extension service from extension agents.
- 3. Educational level of household:** It is continuous variable and indicates the number of years that the farmers attend formal education. It is a dummy variable taking values 1 if the household attended any formal education and 0 otherwise.

This is due to the fact that, a farmer with good knowledge can adopt better practices than illiterates that would increase marketed supply.

- 4. Farm size:** This is a continuous variables and it refers to the total areas of farm land that members hold in terms of hectares. It is assumed that as the total area of farmland the producer hold are larger, the higher would be to use inputs and sell their produce to the markets. Thus, it is assumed that, this variable would have positive influence on households' wheat marketing.
- 5. Active family labor:** This is a continuous variable representing the availability of economically active labor force in the household (male and female). It is expected to take positive coefficients explaining an increase in economically active labor force to increase the farmer's participation in the crop farming.
- 6. Family size of the household:** The assumption here is that as the family size become larger, the smaller would be remained to be marketed. This variable is a continuous variable and it refers total numbers of family that the Household have. This variable will have negative relationship with the amount of wheat supplied to the market.
- 7. Sex of household:** This shows the members biological characteristics. It is dummy variables, male score one and zero for female. The logic is that male headed households will have more chances of participation in wheat production and marketing.
- 8. Age of the household head:** It is a continuous variable and measured in years. Age is a proxy measure of farming experience of household. Aged of households is believed to be wise in resource use, and it is expected to have a positive effect on wheat supplied to the market. On the other hand, older households may also be reluctant to take up new technologies, hence negatively affecting wheat production.
- 9. Off farm Participation:** It is a dummy variable that takes a value of one if the household head participates in off-farm employment opportunity and zero otherwise. Participation in off farm activities expected to correlate with marketed supply of wheat negatively. The logic is that farmers participated in off farm activities will get additional income to finance for purchasing factory consumables which reduce the amount of wheat sold to purchase consumables.

10. Farm experience: This variable is the number of years a household practiced wheat production and is a continuous variable. A household with better experience in wheat farming is expected to produce more amount of wheat than one with only less experience and, as a result, is expected to supply more amount of wheat to market. Therefore, experience in wheat production is expected to have positive relation with marketed supply of wheat.

11. Number of Oxen owned: This is a continuous variable that has been measured by taking into consideration the number of oxen owned by the head of the household and expected to affects the marketed supply of wheat positively. This is because those farmers who have their own oxen can reduce their cost of production and can plough extra land through renting and as a result, able to produce more wheat supplied for the market. Kindie (2007) found that the number of oxen owned by the household affected the marketed supply of sesame and cotton respectively in Metema woreda.

3.5.3. Evaluation of S, C and P of Bread wheat market

The model examines the causal relationships between marketing structure, conduct, and performance, and is usually referred to as the structure, conduct, performance (S-C-P) model. In agricultural economics, the most frequently used model for evaluating market performance is based on the industrial organization model. Wolday (1994), Rehima (2005), and Astewel (2010) used this model to evaluate food grain market in Alaba Siraro district, pepper marketing in Alaba and Silti zone and rice marketing chain in Fogera wereda respectively. The study used S-C-P model to evaluate grain market.

3.5.3.1 Measures of Market Concentration and Performance

Market concentration: Is defined as the number and size of distribution of sellers and buyers in the market. Concentration is expected to play a significant role in determining the behavior of market within an industry as it affects the interdependence of action among firms.

The greater the degree of concentration, the greater is the possibility of noncompetitive behavior, such as collusion, existing in the market (Pomeroy and Trinidad, 1995).

The common measure of market concentration is the **Concentration ratio(C)**.

Concentration ratio is one of the commonly used measures of market power, which in other words, refers to the number and relative size of distribution of buyers or sellers in a market. Concentration ratio measures the percent of traded volume accounted for by given number of participant's is designated by the formula:

$$C = \sum_{i=1}^r s_i \quad t= 1, 2, 3, \dots, 3$$

Where: C = concentration ratio,

S_i = the percentage market share of i^{th} firm, and r = the number of large firms for which the ratio is going to be calculated. Kholms and Uhl (1985) suggested that as a rule of thumb, a four enterprise concentration ratio of 50 percent or more is indicative of a strong oligopolistic industry; of 33-50 percent ratio denotes a weak oligopoly, and less than that is a concentrated industry. A list of traders for the study was taken from the woreda office of trade and industry and office of revenue. Based on the daily sales estimates of traders, A four firm's concentration ratio was calculated to check whether there is competition between traders or not.

5.5.3.2 Market Performance

Market performance refers to the impact of structure and conduct as measured in terms of variables such as prices, costs, and volume of output (Pomeroy and Trinidad, 1995). Analysis of the level of marketing margins and their cost components could help to evaluate the impact of the structure and conduct characteristics on market performance.

Estimates of the marketing margin are the best tools to analyze performance of market. Marketing margin will be calculated taking the difference between producers and retail prices. The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price to consumers' price.

Mathematically, producers' share can be expressed as:

$$PS = \frac{Px}{Py} = 1 - \frac{MM}{Pr} \text{-----} 4$$

Where: PS= producers share

Px =Producer's price of wheat

Pr = price of retail price

MM = marketing margin

Calculating the total marketing margin will be done by the following formula

$$TGMM = \frac{\text{Consumers price} - \text{farmer's price}}{\text{Consumers Price}} \times 100 \text{-----} 5$$

Where TGMM – Total gross marketing margin

$$GMM_p = \frac{\text{Price paid by consumer} - \text{Marketing gross margin}}{\text{Price paid by Consumer}} \times 100 \text{-----} 6$$

Where GMM_p - Producers participation

Net Marketing Margin (NMM) is the percentage over the final price earned by the Intermediary as his/her net income once his/her marketing costs were deducted.

$$NMM = \frac{\text{Gross margin} - \text{marketing Costs}}{\text{End Buyer Price (Consumer Price)}} \times 100 \text{-----} 7$$

Where NMM- Net marketing margin

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1. Socioeconomic Characteristics

4.1.1 Household Characteristics

The demographic characteristics of farmers defined in terms of sex, religion, marital status, education level, age, and family size of household head as depicted on Table 5. In the study area, from the total surveyed 120 household heads 110 (91.7 %) of them were males and the rest 10 (8.3 %) were females. Regarding religion, all the surveyed households were the followers of orthodox Christian.

Table 5 Household characteristics of households in % and mean

		Frequency (N)	Percent
Sex	Male	110	91.7
	Female	10	8.3
Religion	Orthodox	120	100
Marital Status	Married	108	90
	Divorced	7	5.8
	Widowed	5	4.2
Education level	Uneducated	26	21.7
	Read and Write	55	45.8
	Elementary	24	20
	Secondary Education	15	12.5
Family size	Mean	6.3 (1.887)	
Age	Mean	47.11 (8)	

N=120, Figure in the Parentheses shows standard deviation

Source: Own survey, 2014

With regard to marital status of the sample households, 108 (90%) were married, 5 of the respondents (4.2%) were divorced and the rest 5 (4.2%) were widowed. All the surveyed female households were either divorced or widowed.

Better educational background of farmers is believed to have positive impact on their readiness to accept new ideas, innovations and technology than uneducated ones. In this regard from the sampled households, 26 (21.7%) were uneducated, 55(45.8%) of them were able to read and write, 24(20%) of the surveyed households attended elementary education and the rest 15(12.5%) attended secondary education. with respect to the family size of the sampled households; the average family size was 6.3. The average age of the sample households of the *Woreda* was 47. The result showed that wheat production and marketing performed by economically active group. The age group between 15 and 60 years are considered as economically active age group in many findings (Melaku, 2005).

4.1.2 Farm Experience

The farming experience in the *woreda* varies among respondents. The average year of farming experience for total sample households were 15.23 years with a standard deviation of 8.56 and minimum of 2 and maximum 58 years.

4.1.3 Nonfarm Participation and Income

In addition to the income incurred from farming activities, there is high supplementary cash demand from nonfarm activities to cover household expenses such as education, clothing, social contributions (EDIR), tax, purchasing of cattle, cost of health service, and other emergency needs. To spend for these expenses, the households residing in the *Woreda* participated in nonfarm activities like petty trading, grain trade, animal trade, labor selling and other handicrafts.

Out of the total sample households 35(29.2%) were involved in nonfarm activities. The average annual income earned from the respondents who participated in nonfarm activities was 5516.67 Birr. The minimum annual income earned from nonfarm activities was Birr 2000 and the maximum was Birr 15000.

4.1.4. Livestock Ownership

As an integral part of the mixed farming system, livestock production plays great role for the household income source in the study area. It meets urgent financial need, dietary requirements; draft power, energy source, organic fertilizer and a means of transport. In addition, in the study *Woreda*, the number of cattle owned or herd is a measure of wealth. The livestock species found in the study area were cattle, shoats, donkey, horse, poultry and bee colony.

To assess the livestock holding of each household the livestock number was converted to tropical livestock unit (TLU). Conversion factors used were based on Gryseels (1998). Based on the study the average livestock holding was 7.87 TLU.

4.1.5. Farm Characteristics

4.1.5.1. Average Farm Size and Land Allocated for Crops by Sample Households

As indicated in Table 6 on average 0.59 hectares of land was allocated for wheat production followed by 0.56 hectare for Teff and 0.37 hectares for maize. The average land holding size of the sampled households is 1.66 hectares.

Table 6 Average Land allocated for crops by sample households in hectares

Land allocated	Mean (Ha)	STD
Teff	0.59	0.22119
Wheat	0.56	0.20198
Maize	0.37	0.1856 22
Oat (Engedo)	0.41	0.24474
Guaya	0.22	0.06250
Line seed	0.28	0.14562
Noug	0.39	0.22396

Source: own Survey 2014

The average land allocated for Grass pea was 0.22 whereas Line seed and *Noug* hold an average land size of 0.28 and 0.39 ha, respectively.

4.1.5.2. Type of Crops Grown in the Woreda

The *Woreda*'s economic activity mainly depends on production of grains and rearing of animals. The name of the *Woreda* comes after the Amharic name *Guzam* which means producer. Production of grains in the *Woreda* is practiced in a traditional way by plowing with a pair of oxen. Production of wheat in the study area is a rain-fed with only one harvest in a year.

Table 7 Crops grown by sample households in percentage

Type of crop	Frequency	Percentage
Wheat	120	100
Teff	120	100
Maize	107	89.2
Grass pea	4	3.3
Linseed	7	5.8
Oat(Engedo)	43	35.8
Noug	5	4.2

Source: Own survey 2014

4.1.5.3. Perception on Fertility of land

The study assessed farmers' perception and experience of land fertility, 3% of them perceived their land with good fertility status, 88% moderate while 9 % with poor fertility status (Table 8). This implies that most of the farmers in the study area have moderate land fertility status. If the fertilizer applied with the necessary recommendation, it is a good opportunity to increase production and productivity which intern increases yield surplus to be supplied to the market.

Table 8 Perception of farmers to their land fertility

		Percentage
Land fertility	Fertile	2.5
	Medium	88.3
	Not Fertile	7.5
	Degraded	1.7

Source: Own survey 2014

4.1.6. Bread Wheat Produced and Sold

The amount of land allocated for wheat cultivation is a decisive factor for bread wheat production and the amount sold to the market. As indicated in Table 9, the total area of land cultivated by sample households for wheat production was 65.5 hectares. The average land allocated for bread wheat production was 0.56 hectares. Besides, the maximum and minimum amount of land allocated for wheat production was 1.00 and 0.25 hectares, respectively. The total amount of bread wheat production by sample households was 2414 quintals and the average yield obtained was 20.12 quintals.

Table 9 bread wheat produced and sold to the market by sample households

Wheat	Total	Mean
Land allocated for bread wheat	65.5	0.56
Bread wheat produced in quintal	2414	20.12
Bread wheat sold in quintal	959.8	8.42

N= 120

Source: Own survey 2014

From the total 2,414 quintals of bread wheat production, 959.8 quintals which is 40% of the total produce sold at the farm gate, to the cooperatives and market. The average bread wheat marketed was 8.42 quintals with a standard deviation of 7.06.

Regarding storage, the farmers in the *Woreda* practiced storing of bread wheat for different purposes. The majority of farmers, during the discussion, stated that they practiced storage of bread wheat for their motive of expecting high price in the future. There is a trend that the price of bread wheat is low during the harvesting time and increases after a couple of months since the harvest.

During the study it was found that about 60.4 % of them store for expecting high price and 39.6% of the respondents store for saving purpose. The average month of storage in the *Woreda* was 9.6 months with a standard deviation of 4.66. The major storage systems practiced in the *Woreda* were filling the produce in to leather made storage structure called '*Akumada*' the structure is made from leather processed traditionally, plastic made sack and '*Gota*' it is a traditional cylinder like storage structure which is made of mud, straw and cow dung by members of the families locally at home.

4.1.7. Institutional Characteristics

Institutional services are required and vital to increase agricultural productivity and enable farmers adopt new technology, increase production and provide timely information. Extension services, input availability and access to credit are among the institutional services which support farmers in boosting productivity and production.

4.1.7.1. Access to Extension Services

Access to frequent extension services and frequent follow up by DAs helps farmers easily adopt new technologies and implement new practices. From the total sampled households, 98.3% of them had extension contact with the development agent at their farm sites and farmer training centers.

Table 10 Access to extension service in %

	Frequency	Percent
Extension contact (Yes)%	118	98.3
Duration of extension contact		
Weekly	8	6.7
Once in two weeks	22	18.3
Monthly	31	25.8
Twice in a year	35	29.2
Once in a year	7	5.8
At any time	15	12.5

Source: Own survey 2014

The duration of contact differs from farmers to farmers and sub *Kebele* to sub *Kebele*. During the focus group discussion, the respondents stated that development agents had frequent contacts mostly with rich farmers and farmers living around their vicinity. Frequency of extension contact decreases for farmers residing far from development agent's office and farmers training centers. Categorically, 6.7% contacted weekly, 18.3 % once in two weeks, 25.8 % contacted monthly, 29.2 % contacted twice in a year, 5.8% contacted once in a year and the rest 12.5 % contacted at any time. The result revealed that the majority of farmers had contact twice in a year with development agents. Even if there is extension contact from the DAs and *Woreda* offices the quality of extension service provided is limited.

4.1.7.2. Access to Credit

Access to credit is very important element for farmers to finance the purchase of agricultural inputs and technologies from different sources for improving production and productivity. Farmers with access to credit can minimize their financial constraints and buy inputs more readily than those with no access to credit.

Thus, it is expected that access to credit increase the production of agricultural crops. Farmers in the study area access credit from formal and informal sources. The most common formal credit service providers in the *Woreda* were ACSI in cash and Cooperatives which provides inputs like fertilizers, improved seeds and chemicals in kind. The informal ones are *Equb* and lending from relatives and traders.

From the total respondents, 24% of households accessed credit from different sources. The minimum credit disbursed for farmers was birr 600 and the maximum was birr 8000. The average amount of credit disbursed was birr 3288.52 with a standard deviation of 2553.18. As depicted in the table 11, 8.3% households accessed credit from ACSI in cash, 3.3% accessed improved seed in-kind credit from east Africa productivity program and 12.5% accessed fertilizer credit from multipurpose cooperatives.

Table 11 Farmers access to credit during the 2013/14 cropping season

	Mean	Percentage
Credit Access (Yes)		24.2
Amount of credit taken	3288.52	
Credit source		
ACSI		8.3
Cooperatives		12.5
EAAPP		3.3
Why Didn't access credit	Not Available	25.3
	Not Easily accessible	71.4
	High interest rate	3.2

The figure in the parenthesis shows the standard deviation

Source: Own survey 2014

From the total sampled households about 75.8% of them didn't accessed credit. They have asked about their reasons of not accessing credit and their reasons for not accessing credit was from the total respondents who didn't access credit about 25.2% of the respondents stated that even if they demand credit, the credit is not accessible because of the requirement of group collateral by ACSI. Individual credit is not available for famers unless they organized in group.

The borrowers must be organized in group to access credit and if one of the group members failed to pay the credit, the group members forced to pay the defaulted credit.

4.1.7.3. Access to Improved Input

Access to improved input would help to increase production and productivity of wheat and other crops. In the study *Woreda*, farmers stated that they are using inputs like commercial fertilizers (DAP and Urea), improved and local seeds. As depicted in Table 12, all of the respondents used DAP and 93% of them used urea in addition to DAP to produce wheat.

The average amount of DAP and Urea applied by sampled respondents for wheat production was 115.42 and 57.08 kgs respectively. Regarding seed application, 80.2% of the respondents used local seeds with an average application rate of 73.2 kilograms and about 42.5% of the households used improved seeds like Pica flora (*Kekeba*), *Danf*e, *Hidasie* and *Digalo* from cooperatives and *Woreda* office of agriculture.

Table 12 the extent input use by farmers during 2013/14 cropping seasons

	Percentage	Mean
DAP (Yes)	120	
Amount in kg		115.42
Urea (Yes)	93	
Amount in kg		57.08
Local seed (yes)	80.2	
Amount in Kg		73.2
Improved seed (Yes)	42.5	
Amount in Kg		101.62

Source: Own survey 2014

4.1.7.4. Access to Market and Market Information

Market information is mostly said to be more perishable than the commodity itself. Access to timely and accurate market information is the basic element not only in sesame but also other commodity marketing (Kindie, 2007). The amount of marketed surplus primarily depends on access to market information and the willingness and ability of farmers to use the information.

The role of market information in decision making process is to reduce risks and uncertainties related to market and enable farm households to make the right decision in sales and price of the product produced and inputs used in the production process.

Access to market information is extremely limited in the Ethiopian grain market. At the producer level, farmers have very limited information on price prevailing even in nearby markets (Wolday, 1994). It is assumed that producers and traders with access to market information can make better decision on how much to produce and sold to the market.

Table 13 Farmers' access to market information during the 2013/14 cropping seasons

		Percentage
Access to market information (Yes) %		74.2
Source of market information	Farmers	75.3
	Traders	34.5
	Development Agents	16.4
	Kebele administration	4.5
	Woreda	2.2
	Radio	13.7

Source: Own survey

As depicted in Table 13, 74.2% of the respondents have accessed market information and the rest did not access it. The majority of farmers which was 75.3 % of the sampled respondents have accessed market information from their neighbors, 34.5% have accessed from traders and the rest from development agents, *Kebele* administration, and *Woreda* and through radio respectively.

4.2. Analysis of Bread Wheat Market Structure, Conduct and Performance

4.2.1. Bread Wheat Market Participants

In *Gozamin Woreda*, different market actors participated in bread wheat market chain. Based on the information obtained through focus group discussions and personal interview with traders, the major actors involved in bread wheat market chain were producers, Collectors, cooperatives, wholesalers, retailers, *Gozamin* union , brokers and consumers who buys the product finally for consumption.

Producers: Producers are marketing agents who participated in production of bread wheat for consumption and market. The producers harvest bread wheat produce and transported it to their home by using pack animals like donkeys or carrying it by personal back using *Kirchat* which is a packing material made from bamboo and cow dung and also by using sacks made from plastic.

In the study area during the discussion, respondents stated that they sell bread wheat for purchasing of fertilizer and other factory product like salt, soap, sugar etc... Mostly farmers prefer to sell directly to consumers by using a local scaling material called *Sahanie* and 70 *Sahanie* is equivalent with 1 quintals.

Farmers prefer to sell directly to wholesalers or retailers because they did not trust the local assemblers to sell at the farm gate or at their locality. The reason is that they assumed that they will be cheated in the price.

Collectors: These marketing actors were usually found in rural areas or at different market centers Chetekel, Fendika and Debremarkos towns in the *Woreda*.

They collect the wheat produce from farmers at the farm gate or the market centers and sell it to the consumers in other markets, to wholesalers or retailers. They usually prefer to buy it by using local weighing equipment. Collectors have two types of local purchasing equipment (Sahanie). The size of the buying equipment is bigger than the selling and their profit margin usually comes from the difference of the two.

Wholesalers: These are licensed traders mostly reside in the *Woreda* town *Gozamin* but few in *Chertekel* town and none in *Fendika* town. Wholesalers have stores and may or may not move from one market to another to buy and resale bread wheat. Some wholesalers in the study area directly collect bread wheat from the farmers in the market and others buy from retailers or assemblers and sold directly to the consumer at Bahirdar and Addis Ababa markets through brokers.

Retailers: Are licensed traders found in most markets. During the discussion, it was observed that the role given to the retailers is unclear. In the study *Woreda*, retailers directly purchased wheat produce and directly sold it to the consumers. Some of them sold it to Addis Ababa market through brokers. During the study it was found that retailers are doing the same activity with the wholesalers.

Brokers: Are agents or middlemen who facilitate trades (buying and selling) between farmers, traders and consumers. Brokers did not have a role in physical handling of products. In the study *Woreda* brokers were not found in any of the markets but wholesalers and retailers had contact with brokers residing in Addis Ababa. Retailers and wholesalers sent marketed wheat to brokers through the mutual trust built between them. The brokers sold the product on behalf of them and send the money back to the wholesalers or retailers after sale. During the discussion, it was stated that there was few cheating observed though it is a rare case. Mostly, broker's received 10 Birr per quintal from the service they delivered.

Multipurpose Cooperatives: These are primary cooperative organizations established by member farmers through purchasing of shares. Multipurpose cooperatives serve the members through supplying agricultural inputs and technologies and selling farmers produce.

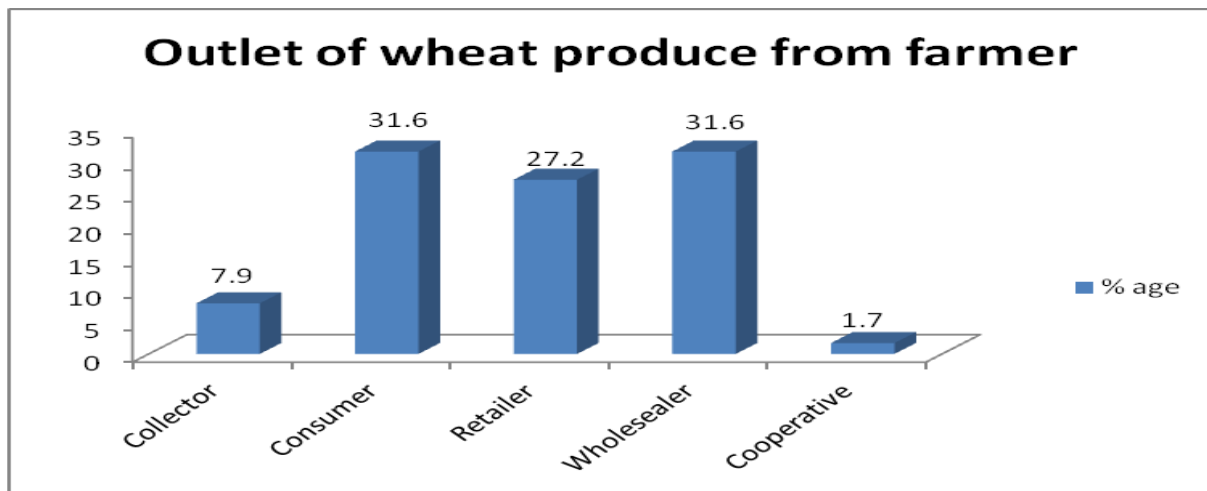
In the study *Woreda*, the role of multipurpose cooperatives in buying and selling of wheat produce from members was insignificant. During the discussion with farmers, they stated that the price offered by multipurpose cooperatives is lower than the actual market price because the price was fixed by the *Gozamin* cooperative union to primary cooperatives and sent to all member multipurpose cooperatives to be a purchasing price.

Thus multipurpose cooperatives forced to stick on the price. The price was not updated timely also it was stated that the communication between multipurpose cooperatives and *Gozamin* union was very loose.

Gozamin Cooperative Union: Is a secondary cooperative established by member cooperatives. The union sets purchasing price to its member cooperatives and collects the product from the cooperatives on cash basis. The price of buying was fixed by the decision of union boards but due to less frequent meeting performed by the union board members; the purchasing price is not updated timely. The price of selling was fixed by the union board committee and sold through external bidding to any of licensed traders.

4.2.2. Outlet of Bread Wheat Produces from Farmers

Fig 4 Outlet of bread wheat produces from farmers



Source: Own survey 2014

As indicated in the above Figure, 7.9% of the produce sold to the collector, 31.6% sold directly to the consumer, 27.2 sold to the retailer, 31.6 to the wholesaler and the rest 1.7% to multipurpose cooperatives.

4.2.3. Bread Wheat Marketing Channels

According to Cotler and Armstrong 2003, marketing channels are sets of interdependent organizations that help make a product or service available for use or consumption by the consumer or business user and the role of marketing intermediaries is to transform the assortments of products made by producers into the assortments wanted by consumers. Marketing channel of bread wheat in the study woreda is the sequence where Bread wheat passes from producers to consumers.

According to Gozamin woreda office of agriculture report, during the Meher 2013/14 cropping season, the estimated bread wheat produced was 418,392 quintals. Out of the total production market bread wheat was 167,356 Quintals. Bread wheat market channels in the study area constructed based on the data collected from the three sample markets.

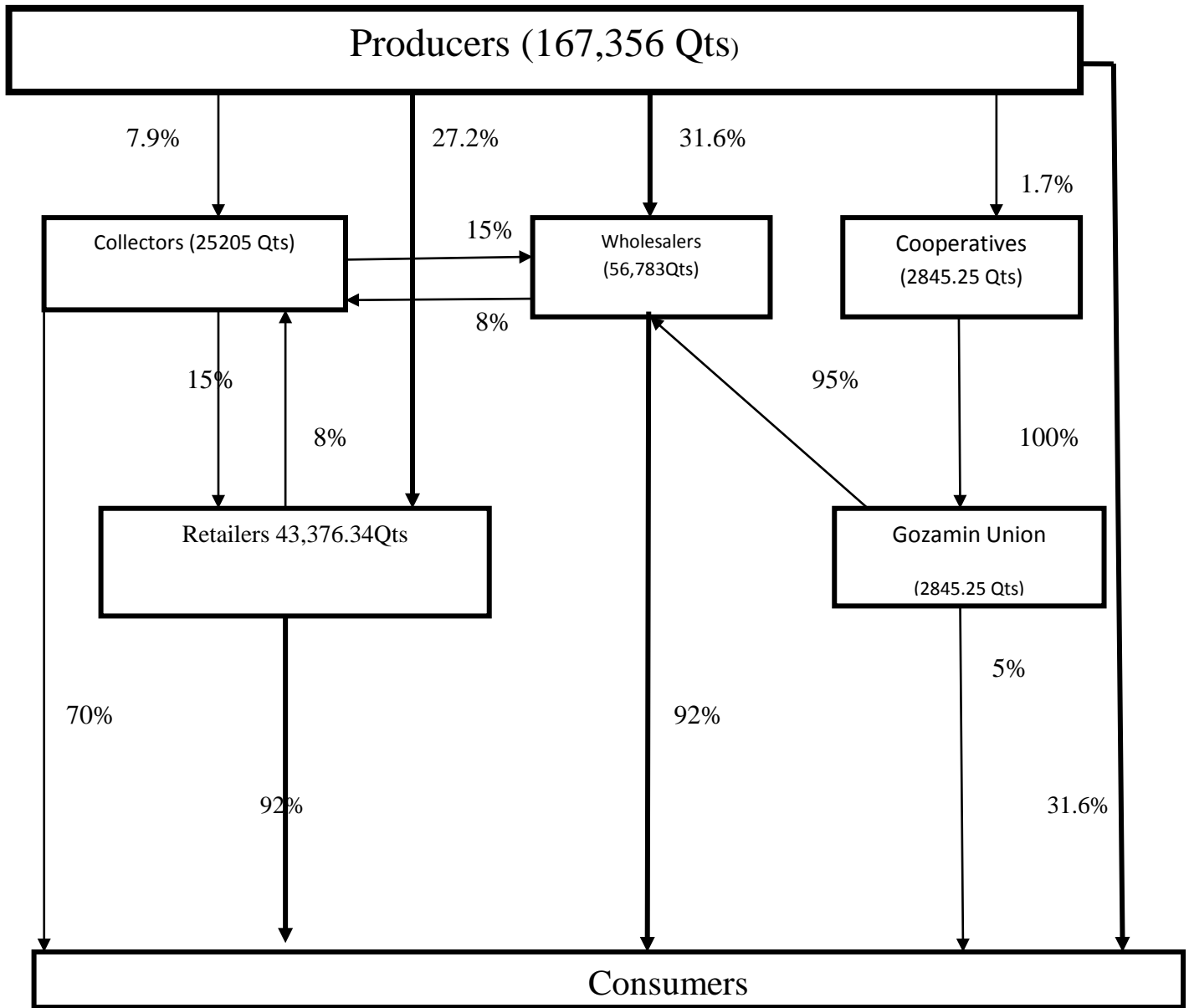
The actual marketing channel is more complicated, but the main marketing channels of the wheat markets in terms of quantity flow from producer to consumer through different intermediaries are:

1. Farmers —————> consumers
2. Farmers —————> Collectors —————> wholesalers —————> Consumers
3. Farmers —————> Cooperatives —————> Union —————> wholesalers —————> Consumers
4. Farmers —————> Cooperatives —————> Union —————> Consumers
5. Farmers —————> Retailers —————> Consumers
6. Farmers —————> Wholesalers —————> Consumers
7. Farmers —————> Wholesaler —————> Collector —————> Consumer
8. Farmers —————> Collectors —————> Wholesalers —————> Consumers
9. Farmers —————> Collectors —————> Retailers —————> Consumers
10. Farmers —————> Retailers —————> Collectors —————> Consumers

The Commodity bread wheat in the woreda passed through 10 different channels to reach to the ultimate costumers in the woreda and outside.

As depicted in the above the main receivers of bread wheat from the farmers were consumers, Collectors, Wholesalers, Cooperatives and retailers who received the estimate percentage of 31.6,7.9, 31.6,1.7 and 27.2 respectively. Computation was made based on the volume of bread wheat flown in the marketing channels. Accordingly, channel 1 carry on largest followed by channel 6 on volume of 52,884 Qt and 48,653 Qt of bread wheat in that order.

Fig 5 Bread Wheat Marketing Channel



Source: Own survey 2014

4.2.4 Bread Wheat Marketing Conduct

4.2.4.1 Demographic Characteristics of Traders

The demographic characteristic of traders expressed in terms of age, religion sex, marital status and education level indicated in Table 14.

Table 14 Demographic characteristics of traders

		Mean	Percent
Sex	Male		100
	Female		
Age		39.8 (11.31)	
Religion	Orthodox		100
Marital status	Single		35
	Married		65
Educational Status	Read and Write		30
	Elementary		50
	High school		15
	Higher education		5
Family Size		4.65 (2.18)	
Trade experience		5.9 (4.15)	

Source: Own survey 2014

The figure in the parenthesis shows standard deviation

As depicted in Table 14, all the surveyed traders were male. This result revealed that the participation of females in grain trading is minimal. In terms of age, the maximum age was 55 and the minimum was 23 years. The average age of sample trader's was 39.8 years with a standard deviation of 11.31. Age is an important factor for acquiring skills on how to attract customers and undertake profitable business. Regarding the marital status of the respondents, about 35% were single and 65 % were married.

15% of the traders were able to read and write, 30% of the respondents attended primary education, 15% high school education and the rest 5% completed higher education. The result showed that younger traders were better in educational status than older ones. The average family size of traders was 4.6 with a standard deviation of 2.1. The trade experience of farmers varied from 15 years to 1 year. The average trading experience of sample traders was 5.9 years with a standard deviation of 4.15. The study found that as the experience in trading increases the capital amount for wheat trade operation was also increases.

4.2.4.2. Resource Ownership of Traders

As indicated in Table 15 below, 85% traders had stores and 15 % of the respondents replied that they did not have stores. During the study, it was identified that all collectors did not have stores. As a result, they buy wheat from the market and immediately sold it by adding some profit margin to the retailers, wholesalers or consumers.

Table 15 Asset of traders

		Percent
Store	Yes	85
	No	15
Weighing balance	(yes)	100
Mobile	(Yes)	100
Car	(No)	100

Source: own survey 2014

The figure in the parenthesis shows the standard deviation

4.2.4.3 Financial Capital

As depicted in Table 16, the minimum initial working capital of traders was Birr 600 and the maximum initial working capital was Birr 230,000. The average initial working capital was Birr 42,090 with a standard deviation of 8, 1171.59.

One can observe from the figure that there was progress in the current working capital. The minimum current capital reached Birr 6,000 and the maximum working capital reached Birr 720,000 and the average current working capital was Birr 218,500 with a standard deviation of 288961.38.

The working capital to start and extend bread wheat trading was accessed from different sources. About 15% of the respondents stated that they raised their working capital from their own sources and 85% of the traders accessed their working capital to start and extend their business from ACSI and banks like Abay and Dashen. There is variability in interest rate among banks and microfinance institution. The interest rate is higher for ACSI which was 18% and lower from banks which was 12-13%.

Table 16 Source of working capital absorbed by traders during the 2013/14 cropping season

	Mean	Percentage
Initial working capital (Birr)	42090	
Current working capital	218500	
Source of working capital		
Own source		15
Credit		85
Repayment schedule		
Monthly		52.9
Semi Annually		23.5
Yearly		23.5
Interest rate	12 18	14.47

Source: Own survey 2014

Regarding the repayment schedule, about 52.9% of the respondents stated that their repayment schedule was monthly, 23.5% semi-annually and 23.5% yearly. The repayment schedule for ACSI was relatively shorter as compared to banks.

4.2.5. Structure of Wheat Marketing

The structure of the marketing system should be evaluated in terms of the degree of market concentration, barrier and the degree of transparency (Pender *et al.*, 2004). In this study the structure of bread wheat market is characterized using the following indicators: market concentration and entry conditions.

Market concentration: is defined as the number and size of distribution of sellers and buyers in the market. Concentration is expected to play a significant role in determining the behavior of market within an industry as it affects the interdependence of action among firms. The greater the degree of concentration, the greater is the possibility of noncompetitive behavior, such as collusion, existing in the market (Pomeroy and Trinidad, 1995).

The common measure of market concentration is the **Concentration ratio(C)**. Concentration ratio is one of the commonly used measures of market power, which in other words, refers to the number and relative size of distribution of buyers or sellers in a market. Concentration ratio measures the per cent of traded volume accounted for by given number of participants and is designated by the formula:

$$C = \sum_{i=1}^r s_i \quad t= 1, 2, 3, \dots, r$$

Where: C = concentration ratio

S_i = the percentage market share of i^{th} firm, and r = the number of large firms for which the ratio is going to be calculated. Khol and Uhl (1985) suggested that as a rule of thumb, a four enterprise concentration ratio of 50 percent or more is indicative of a strong oligopolistic industry; of 33-50 percent ratio denotes a weak oligopoly, and less than that is a concentrated industry.

The degree of market concentration was estimated for licensed traders from *Debremarkos* town. The list of licensed traders was taken from *Debremarkos Woreda* office of revenue. The degree of market concentration was computed by using their daily sale of traders and the concentration index by top four sample traders is 19 % which was found to be below being a noncompetitive market.

The largest four wheat traders purchased annually 19 % of the total volume of wheat purchased by other traders. This result revealed the market is concentrated which means there is competition between traders. The result was similar with the findings of G/meskel *et al.*, (1998) in which he stated that at the local market level, for most markets and crops the CR4 is less than 33%.

4.2.6. Barriers to Market Entry

Licensing Procedure: - In the study Woreda all wholesalers and retailers had trading license. Cooperatives that were registered by the Cooperative Office also had the mandate to perform wheat trading activity.

Table 17 license procedures in bread wheat marketing during the 2013/14 cropping seasons

	Mean	Percent
Did you have license (Yes)		85
License procedure		
Easy		85
Complicated		15
License fee	231.53	

Source: own survey 2014

Collectors in the nearby farmer’s village and collectors who were trading by using local weighing material at rural area did not have trading license but they undertake trading activities by paying 3 Birr sales tax per quintal to the government.

As depicted in Table 17, 85% of traders had trading license and the rest 15% did not. During the informal discussion, the traders stated that the license procedure to enter into grain trade was not as such complicated. About 85 % of the respondents stated that the licensing procedure to get wheat trading license was not complicated and 15% replied that the procedure was complicated. In terms of license fee, the average fee paid for accessing trading license was Birr 231.53.

There was a rule set by the *Woreda* trade and industry office to restrict traders who were trading without having license traders, specially collectors were performing trading without having trading license.

From both results we can generalize that getting trading license and the payment required for getting wheat trading license was not complicated and thus licensing procedure was not a barrier to enter in to wheat trading.

Table 18 Major trade barriers identified during the survey

	Percent
Lack of capital	65
Absence of store	35

Source: own survey 2014

Store: As depicted in Table 18, 35% of the respondents stated that absence of store was an entry barrier. To get the trading license having store is mandatory. From the surveyed traders almost all collectors and assemblers stated that they were unable to get trading license because of absence of getting store. In *Debreworkos* town renting or buying store demands huge capital and thus having store was a barrier to enter in to wheat trade.

Capital: Lack of capital is the major problem in grain marketing. It is the real barrier to enter into the grain markets. Lack of working capital was reported to be an important barrier to entry thereby resulting in imperfection of food grain (Wolday, 1994). Likewise from the surveyed traders 65% reported that the barrier of entry to grain market was shortage of capital. The finding was in line with Amare and Dawit (2013) in which initial capital was an entry barrier to enter in pepper trading. Capital is needed to rent or construct stores, start or extend bread wheat trading. Thus shortage of capital was the major barrier of enter in to bread wheat or grain marketing.

4.2.7. Traders Purchasing and Selling Strategy

Traders in the study areas respond to changes in local supply and demand in deciding where to buy and sell grains. A large percentage of traders focus their marketing strategies on their permanent market which was stores. Major suppliers of wheat in the study areas were farmers.

Table 19 Time of operation of wheat purchase in the study area during the 2013/14 cropping year.

	Percent
When did you prefer to buy wheat	
Year round	50
When purchasing price is low and supply is high	50

Source: Own survey 2014

As depicted in Table 19, about 50% of the sampled traders stated that they prefer to operate the business in year round and about 50% of the sampled traders prefer to buy at the time of harvesting that means when the purchasing price was low and high supply. Especially traders who have huge store prefer to buy more bread wheat produce during harvesting time and hoard it in their stores to sell it at a higher price during supply scarcity. Wholesalers and retailers used brokers and commission agents for selling grains outside of the *Woreda*. According to the survey, intermediaries are important for saving time to the traders, for buying at lower prices and to get higher quality grains.

As depicted in Table 20 below, about 60% of bread wheat traders perceived that their buying price is the same as their competitors and the rest 40% perceived that their buying price was higher than their competitors.

Table 20 Perception of Traders Price Setting in %

	Percentage
Perception of Price setting	
The same	60
Higher	40

Source: Own survey 2014

The main reasons for fixing high price as compared to other neighboring traders were to buy more produce by attracting suppliers with a higher price.

4.2.8 Analysis of Marketing Performance

Marketing performance of bread wheat markets were analyzed by estimating the marketing margin and marketing costs for key market actors involved in wheat market chain.

4.2.8.1 Marketing Margin

Marketing Margin- In a commodity subsystem approach, the institutional analysis is based on the identification of the marketing channels. When there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and by comparing them with the final price to the consumer. The consumer price is then the base or the common denominator for all marketing margins. Comparing the total gross marketing margin is always related to the final price or the price paid by the end consumer and then expressed as a percentage (Mendoza, 1995).

The margin covers costs involved in transferring produce from one stage to the next and provides a reasonable return to those doing the marketing. The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price to consumers' price. It can be interpreted as a cost of providing a mix of marketing services (Scarborough and kydd, 1992).

Therefore, bread wheat marketing margins were analyzed based on the average sale price of different marketing agents in the marketing channels of producers, assemblers, wholesalers and retailers.

Table 21 Average marketing cost for traders

Costs	Collectors	Wholesalers	Retailers
Sack	9	10	9.5
Loading	6	6	6
Unloading	5	5	5
Car	10	50	50
Brokerage		10	10
Electricity		1	0.5
Telephone	1	1	1
Total	31	83	82

Own competition 2014

By taking the average sales price of different participants in the bread wheat market chain (Producers, Collectors, Wholesalers and retailers), the marketing margin of bread wheat was calculated as follows.

Table 22 Average selling price, marketing and production cost, profit and % gross margin

Market Agents	Selling price	Marketing cost	Gross Profit
Producers	720	335	365
Collectors	775	31	24
Wholesalers	885	83	27
Retailers	884	82	26

Source: Own competition 2014

TGMM= 19%

$GMM_p = 100\% - TGMM = 81\%$

$GMM_C = 5\%$

$GMM_W = 7\%$

$GMM_R = 7\%$

The result indicated that the total gross marketing margin of bread wheat as it passes through all the channels was 19%. Besides, the gross marketing margin of producers was 81%, Collectors was 5%, and wholesalers were 7% and retailers 7%. From the above result, we can generalize that the share of profit per quintal of bread wheat is the largest for producer which means the producer is more benefited than other marketing actors.

4.2.8.2. Profitability of bread wheat production

During the profitability analysis of bread wheat, production costs and revenues are included in the analysis. As indicated in the table below the total cost incurred from 1 hectare of land is birr 13,400 and the average cost for producing 1 quintal of bread wheat is birr 335. The average revenue obtained from producing bread wheat from 1 hectare of land is birr 32,000 and the average profit obtained from 1 quintal of bread wheat is birr 385 after settling all production costs.

Table 23 Cost structures and profitability of bread wheat of sample farmers (Birr/Ha)

Lists of Expenses	Cost in Birr
Land clearing	150
Plowing	1500
Seed	800
Fertilizer	4000
Sawing	100
Weeding/herbicides	400
Harvesting/collection	400
Threshing	400
Sack	2000
Land rent	2000
Oxen rent	2400
Transportation	800
Total cost	14950
Cost from 1 quintal	373
Revenue from 1 hectare of wheat	32000
Profit from 1quintal of bread wheat	365

Source: Own Survey 2014

4.3 Determinants of Bread Wheat Marketed Supply

In the study area, the major crops grown and sold to the market were wheat and Teff. From the total wheat produced, about 40 % of it sold to the market. OLS regression model was employed to identify factors determining market supply of bread wheat. Several variables were hypothesized to influence the marketed supply of wheat by sampled producers. For the parameter estimates to be efficient, assumptions of Classical Linear Regression (CLR) model should hold true. Hence, multicollinearity detection test were performed using appropriate test statistics. Thus, prior to running the OLS regression model, all the hypothesized explanatory variables were checked for the existence of multicollinearity problem. The study used Variance inflation factor (VIF) to investigate the degree of multicollinearity among continuous explanatory variables and contingency coefficient (CC) among discrete (dummy) variables. A statistical package was employed to compute the VIF and CC values. The result of values of VIF ranges from 1.091 and 4.250. Likewise, the values of CC ranged from 0.382 to 0.57. Hence, multicollinearity was not a serious problem for both continuous and discrete variables.

Several variables were hypothesized to influence the volume of market supply of wheat by sampled producers. However, from the hypothesized variables, only five variables found significantly affecting marketed supply of bread wheat in the *Woreda*. These variables are oxen ownership by sample households at 1% significant level, land size of wheat at 1% significant level, household size at 1% significant level, active family labor at 5% significant level, amount of wheat produced at 1% significant level and access to extension contact at 10% significance level.

Number of oxen (OXEN):- Oxen owned by household has a positive correlation with the amount of wheat supplied to the market. This implies that an increase in number of oxen significantly increases marketed supply of wheat. An increase in one ox positively increases farm level marketed supply of wheat by 0.67 quintals, keeping other factors constant at 1% significance level. Kindie (2007) also found that number of oxen owned by household significantly and positively affected farm level marketed supply of sesame in Metema District.

Land size allocated for wheat (LANDSIZE):- land size is also positively correlated with the market supply of wheat. An increase in the size of land of wheat by 1 hectare positively increases marketed supply of wheat by 11.21 quintals keeping other factors constant at 1% significance level. Similarly Kindie (2007) indicated that the area of land allocated for sesame production in Metema District significantly and positively affected farm level marketed supply of sesame.

Active family labor (ACTIVEFAM): Presence of active family labor within the household is positively and significantly affects the amount of wheat supplied to the market. Wheat production is a labor intensive activity therefore, presence of active family labor enables to produce more and intern increase the amount of wheat supplied to the market keeping other factors constant at 1 % significance level.

Household size (FAMISIZE): Household size negatively affects the amount of wheat supplied to the market. The more the number of families in the household the more they consume the wheat product and decrease the amount of wheat supplied to the market. The result showed that an increase in one family member decreases the amount of wheat supplied to the market by 0.9 quintals keeping other factors constant at 1% significance level.

Quantity produced (QUANPRO): Amount of wheat produced is also affects the marketed supply of wheat. Quantity of wheat produced was found to influence the volume of wheat supplied to the market positively and significantly at less than 1% probability level. A positive coefficient implies that an increase in quantity of wheat produced increases volume of marketed supply of wheat by farmers. It indicates that households who produce more quantity of wheat had also supplied more to the market. The result shows that a one quintal increase in the wheat production results in 0.68 quintal increase in the volume of marketed supply of wheat by keeping other factors constant at 1% significance level. The result is also similar with the previous studies conducted by Rehima (2006), Kindie (2007) and Bosena (2008) who found that the amount of grain, red pepper, sesame, and cotton respectively, produced by household affected marketed supply of each of the commodities significantly and positively.

Access to extension service (EXTNCON): Access to frequent extension service is positively and significantly related to the amount of wheat supplied to the market at 10% significance level keeping other factors constant. Farmer's access to extension service increased the ability of farmers to acquire important basic agricultural skills and information which in turn increases amount of production and wheat supplied to the market. This result is similar with Mamo and Degnet (2012) who found agricultural extension services in the form of visit of farmers by extension officers tended to increase the probability of selling directly to consumers in livestock market channel choice of farmers in Ethiopia.

Table 24 OLS estimation result of determinants of bread wheat marketed supply

Variables	Coefficient	Standard Error	t-ratio	P – value
(Constant)	-3.925	4.883	-0.804	0.423
SEX	-1.401	1.183	-1.184	0.239
AGE	-0.027	0.51	-0.532	0.596
EDUCATION	0.477	0.384	1.245	0.216
OFFPARTI	0.259	0.741	0.350	0.727
OXEN	0.635	0.225	2.824	0.006***
FAMISIZE	-0.993	0.313	-3.169	0.002***
LANDSIZE	10.813	2.920	3.703	0.000***
ACTIVEFAM	0.614	0.289	2.126	0.036 **
QUANPRO	0.686	0.65	10.482	0.000***
FARMEXPR	0.054	0.050	1.089	0.279
EXTNCON	4.736	2.503	1.892	0.061*

Dependent Variable Amount wheat sold in Quintal.

N = 120

R² = 0.775 Adj. R² = 0.748

Source: own survey 2014.

*Note: ***, ** and * shows the value significant at 1% and 5% and 10% respectively.*

4.4. Major Production and Marketing Constraints

The objective of this section is to highlight some of the more critical problems facing the farmers and traders and to better understand the relative importance of the problems. The major production and marketing problems flagged by the respondents were shortage of land, fertilizer supply, chemical and seed supply, occurrence of diseases, credit shortage, theft, transport, infrastructure, absence of store and absence of trust between traders.

4.4.1. Production Constraints

Higher fertilizer price and delayed delivery: Application of fertilizer plays an important role for farmers to increase production and productivity; however price escalation of fertilizer together with limited access to credit has forced farmers to use lower quantity of fertilizer. Besides, untimely delivery of fertilizer by multipurpose cooperatives was also causing a serious challenge to the farmers. This resulted in lowering yield and marketed surplus. About 81 % of the respondents stated their major production problem was high fertilizer price and delayed delivery.

Limited credit access: Availability of credit is the major source of cash for farmers to finance for agricultural inputs needed to increase production and marketed surplus of wheat. However, only few of the respondents stated they had accessed to credit from formal sources. Because of financial constraint, farmers were forced to use input below the recommended rate that would impact the amount produced and marketed surplus.

Prevalence of crop diseases: Prevalence of disease was one of the production problems encountered by farmers in the study area. Occurrence of rust was the major problem stated in the study area because of prolonged rain. About 68.2 % of the respondents stated their major production problem was occurrence of diseases specially wheat rust.

Seed supply: Farmers in the study area access local wheat seed from their own source and through exchange from other farmers. Improved wheat seeds like Pica flora (Kekeba), Danfie, Hidasie by east Africa agricultural productivity program, Shorima, Huluka and Digalo by Amhara region research institute were supplied to wheat producers in the *Woreda*.

During the discussion with farmers they complaining that there was delay in time of delivery for improved wheat seeds by the *Woreda* and in some cases there was germination problem. About 43.3 % of the respondents stated that their major production constraint was related to improved seed supply.

Shortage of farm land: Access to sufficient land is very crucial for more wheat production and marketed surplus. During the discussion with respondents, they stated that they were constraining with shortage of land. Some were complaining that the government took their land and re distributed to others. The farmers who lost their land through the government land re distribution program were named as “Birocrat”. They produce wheat through renting extra land from other farmers which is called “Yekul” in which the producer and the land renter shared the produce equally. About 20 % of the respondents in the *Woreda* stated that their major production constraint was shortage of farm land.

4.4.2 Marketing Constraints

Transport problem: Access to transport is an important factor for marketed surplus. In the study *Woreda* farmers took their produce to the market by using pack animals and their backs using *Kirchat* particularly for females. Absence of pack animals constraints the amount of bread wheat supplied to the market. About 18 % of the respondents stated that the major marketing problem was absence of transport facilities from their home to the market.

Scaling problem: Farmers in the *Woreda* practiced selling of their produce using a local scaling material called *Sahanie*. Traders especially collectors used to buy and sell grain by using such local scaling material. They had two types of local scaling material one is bigger and the other is the smaller and the usually bought with the bigger one from farmers and sold it to the consumer or other traders with the smaller one. As depicted in table 25 below, about 74 % of the respondents stated that their major marketing problem was related to scaling.

Table 25 Rank of production and marketing problem of bread wheat producers in percent

Main production and marketing problems	Percentage
Production Problems	
Fertilizer Supply	81
Occurrence of diseases	68.2
Chemical supply	54
Seed supply	43.3
Credit shortage	28.7
Lack of oxen	21
Land shortage	20
Marketing Problems	
Scaling	74
Theft	43
Transport	18

Source: Own survey 2014

4.4.3 Traders' Marketing Constraints

The major marketing problems sample traders faced in the study area were infrastructure, storage problem, theft and access to credit. As depicted in the table 24, about 63% of the traders reported that their major marketing problem was infrastructure problem specially road, 35% of the traders stated that absence of storage in towns constraints to get license from the *Woreda* to expand their business, about 42% of the respondents stated that theft was their major problem and 47% of the respondents stated that getting credit to implement bread wheat trading was a challenge. Banks demand collateral in fixed assets to lend money for the traders.

Because of absence of fixed capital to be used as collateral, banks refused to lend money. 27% of the traders stated that their major marketing problem was absence of trust between traders.

Fig 26 Rank of wheat marketing constraints for traders

	Percentage
Access to credit	47
Storage problem	35
Absence of trust	27
Infrastructure	63
Theft	42

Source: Own survey 2014

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary and Conclusion

The study was conducted in *Gozamin Woreda* located at 300 kilometers far from Addis ababa and 260 kilometers far from the regional town of *Bahirdar*. The *Woreda* was selected purposely based on the wheat production potential from other neighboring *Woredas*. The major crops grown are wheat, teff, maize and sorghum. In terms of area coverage, wheat takes the lion share followed by teff.

The study was conducted to analyze the market chains of bread wheat and the specific objectives were to identify bread wheat market chain and examine the performance of actors in the chain and analyze the determinant factors that affect wheat supply to the market in the study area. The study was based on primary data from farmers and traders; and secondary data from Woreda Office of Agriculture, Revenue and Trade, *Gozamin* Cooperative Union and CSA. A total of 120 farmers and 20 traders were interviewed. The study employed descriptive statistics and order least econometric model to analyze the data collected from producers and traders. To analyze the data, Statistical software package and Microsoft office excel were applied. The main findings of this research are summarized as follows:

In the study *Woreda*, the minimum family size of a household was 3 and the maximum size was with 13 family members. An average family size of the household was 6 and was greater than the national average of 5 per household. Regarding wheat farming experience, the minimum was 2 years and the maximum was 58 years and the average farming experience was 15.

In addition to engagement in farming activities, the study revealed that 29.2% of the respondents were involved in nonfarm activities. The average annual income earned from the respondents who participated in nonfarm activities was 5516.67 Birr. The income earned from nonfarm activities usually used to cover household expenses such as education, clothing, social contributions (EDIR), tax, purchasing of cattle, cost of health service, and other emergency needs. The major nonfarm activities, in which the respondents participating were: petty trading, grain trade, animal trade, labor selling and handcrafts.

This particular study revealed that about 40% of bread wheat produced was supplied to the market. 74.2 % of the respondents had access to market information and their major sources of information were neighboring farmers. The study also identified the main marketing agents through whom wheat was channeled from producer to final consumers. The main agents were producers, assemblers, retailers, cooperatives, consumers, unions and. Farmers produce outlet result indicated that bread wheat producers supplied 7.9 % their produce to collector, 31.6% directly to consumer, 27.2% to retailer, 31.6% to wholesaler and 1.7% to multipurpose cooperatives. The Marketing margin analysis result indicated that the total gross marketing margin of producers, collectors, wholesalers and retailers was 81%,5%,7% and 7% respectively and the share of profit per quintal of wheat is the largest for producer.

The level of market concentrations (CR4) for total bread wheat traders was found to be below being a noncompetitive market. The largest four bread wheat traders purchased annually 19 % of the total volume of wheat purchased by other traders. This result revealed that the market is concentrated. The result was similar with the findings of G/meskel et al (1998) in which he stated that at the local market level, for most markets and crops the CR4 is less than 33%.

The results of econometric model identified the determinants of different variables on marketed supply of bread wheat in the study area. A total of eleven explanatory variables were included in the model. Of the total 11 included variables, six of them had shown significant relationship with marketed supply of bread wheat at 10, 5 and 1 % significance level. Accordingly, number of oxen owned, land size of wheat, number of active family labor, quantity of wheat produced, access to extension contact were found to have positive and significant influence where as number of families with in the household showed significant and negative influence on the marketed supply of bread wheat. This may be attributed to the larger the family size will lead to the more consumption at home and, the smaller bread wheat would be remained to be marketed.

Bread wheat marketing has been characterized by different production and marketing constraints. The major production constraints identified by this particular study were: High cost of fertilizer and delayed delivery, less quality and delayed delivery of seed supply including chemicals, land

shortage, occurrence of diseases specially wheat rust, land shortage, credit shortage from formal sources and lack of oxen.

Besides, theft, transport problem especially road, scaling problem were among the major farmers marketing problems and inadequate infrastructure, absence of store, theft, access to credit and absence of trust between traders were some of marketing problems faced by traders.

5.2. Recommendations

Based on the findings of the study, the following recommendations were made:

1. Increasing production and productivity of wheat: Quantity of bread wheat produced is one of the determinant factors that affect volume of bread wheat supplied to the market positively. Therefore, policy proposed should focus on increasing production and productivity of the sector.

2. Facilitating for farmers to own oxen or other improved ploughing tools: The numbers of oxen owned by household heads are directly proportional to the marketed supply of grain. Ownership of oxen is a major input for bread wheat production and the number of oxen owned by the household was found to be a significant factor that positively affected marketed supply of wheat in the *Woreda*. Hence, it is very useful to help the farmers to own oxen or any other improved ploughing tools for improving production and productivity.

3. Supporting formal access to credit for traders and producers: Access to financial services, will help producers to finance for producing sufficient amount of wheat produce. It also prevents farmers from selling immediately after harvest, when the selling price is relatively low. More ever, limited access to credit for traders will constrain the volume of purchasing. Improving access to credit for farmers and traders should therefore be a priority for improving bread wheat market performance.

4. Improving the quality and delivery of extension system: Access to extension service is significantly and positively affects the marketed supply of wheat.

Improving the quality of extension service, strengthening efficient and area specific extension systems, supporting DAs by giving continuous capacity building support to acquire the necessary skills and promoting demand driven extension services will improve volume of wheat production and in turn the amount of wheat supplied to the market.

5. Promoting family planning: The result revealed that the number of families with in the household is significantly and negatively affecting the marketed supply of wheat to the market. Therefore strengthening promotion of family planning will minimize the proportion of wheat consumed at home and increase the marketed supply of wheat.

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APPENDICES

Table 1 Conversion of Livestock number to Tropical Livestock Unit (TLU)

Livestock Type	TLU
Oxen/Bulls	1.1
Cows	0.8
Heifer	0.5
Calves	0.2
Sheep	0.09
Goats	0.09
Donkeys	0.36
Horses	0.80
Mules	0.80

Source: Gryseels, G. 1988.

Table 2 Contingency Coefficient for Independent Discrete Variables

Independent variable	CC
Off Farm	0.382
Ext Contact	0.438
Education	0.57
Sex	0.387
Off farm participation	0.382

Source: Own survey

Table 3. Variance inflation factor for continuous independent variables

Independent variable	Tolerance	VIF
Number of Oxen	0.544	1.839
Age	0.917	1.091
HH size	0.336	2.976
Active Family labor	0.331	3.023
Wheat Produced	0.235	4.250
Land Size of wheat	0.295	3.389

Source: Own survey

Formal Survey Questionnaire On Analysis Of Wheat Marketing Chains

General information

1. Date of data collection -----
2. Name of the enumerator -----
3. District -----
4. Name of kebele-----
5. Village -----
6. Code -----

Section I. Socio-Economic Characteristics

1. Name of household head: _____
2. Sex of household head: 1=Male, 2=Female
3. Marital status: 1=Single, 2=Married, 3= Divorced, 4=Widowed
4. Religion: 1=Orthodox, 2= Muslim, 3=Protestant, 4=Other (Specify) _____
5. Age of household head (in years) _____
6. Educational status of the household head (tick)

Illiterate		Secondary (7-12)	
Read and write		Higher education (above 12)	
Elementary (1-6)		Others (Specify)	

7. Family size:

Description		Male	female
1	Members between 15 and 60 years old		
2	Members less than 15 years old		
3	Members more than 60 years old		
4	Dependents in the household		
5	Full-time farm workers in the household		
6	Part-time worker in the household		
Total household size			

8. Distance of residence from the nearest market center: -----Km
9. Distance of residence to the nearest development center: ----- km
10. Distance to all weather roads: -----km

11. Main occupation: 1. Crop production 2. Livestock production 3. Off farm 4. Both 5. other (specify)

12. Did you or your family members participate in non-farming activities? 1. Yes 2. No

13. If yes, what is the number of family members worked in non farming activities? -----

14. If yes how much do you earn from off farm income per year -----

14. Specify the type of nonfarm activity they are engaged in?

1. Petty trading 2. Handicrafts 3. Daily laborer 4. (Specify) -----

15. How long have you practiced production of wheat? ----- Years.

16. How much do you earn annually from off –farm income in other birr -----

17. Are you a member of any cooperative? 1. Yes 2. No

If your answer for Q.17 is yes, what is the name of the cooperative _____?

18. What type of support did you receive from the cooperative -----?

Section II. Economic Characteristics of the Households

1. Do you have your own land for cropping and pasture? 1=Yes, 2=No

2. If yes, how much is your total farm land size in (kert): _____

3. Slope of your land: 1=Plain 2=Hilly 3=Steep

4. How do you perceive the quality or fertility of your land?

1=Fertile, 2=Medium Fertile, 3=Less Fertile, 4=Over used, 5=Poor

5. Major crops the household is growing during 2013/14 cropping season

Crops	Area (kert ¹)	Yield (quintal /kert)	Total production (quintal)	Amount sold in quintal	Income earned from sales
1. Teff					
2. Wheat					
3. Maize					
4. Sorghum					
5. Chickpea (Shimbra)					
6. Lentils (Misir)					
7. Grass pea (Guya)					
8. Fenugreek (Abish)					
9. Linseed (Teleba)					
10. Oats (Aja)					
11. Other (specify)					

¹Kert = 0.25 ha

6. Total grazing land: -----ha.
7. Total irrigable land: ----- ha.
8. Do you have livestock? 1. Yes 2. No
9. If your answer for **Q.8** is Yes, livestock Number: Oxen/bulls -----, Cows/heifers ---, Calves - -----, Goats -----, Sheep -----, Donkeys -----, Horses-----, Mules-----, Chickens-----, Bee hives-----, others -----.
10. Do you have your own transportation facilities? 1. Yes 2. No
11. If your answer for **Q. 10** is yes, what type? 1. Vehicle 2. Pack animals 3. Cart
12. Inputs used for cereal production during 2013/14 cropping season and sources

	Seed				Fertilizer				Pesticide (L)		From (Source)
	Local (kg)	Birr	Improved	Birr	Dap (kg)	Birr	Urea (kg)	Birr	Amount	Birr	
Wheat											
Teff											
Maize											
Sorghum											
Others (specify)											
From: 1. Market 2. Office of Agriculture 3. Own source 4. Cooperatives 5. NGO 6. Other specify											

13. What type of problems you encounter with the use of improved seeds (Multiple responses are possible). 1. There is germination problem 2. Unknown origin 3. Low quality
 4. High price 5. Others (specify)
14. Do you get inputs at the right time? 1. Yes 2. No
15. If your answer for **Q.14** is No, what are the reasons? 1. Unavailability 2. Far distance
 3. Others (specify) -----
15. Do you always get inputs in the right quantities? 1. Yes 2. No
16. If your answer for **Q.15** is No, why? (Multiple responses is possible) 1. Not available
 2. I am not sure of the benefit 3. Too expensive 4. Cash shortage 5. Others
 (Specify) _____
17. Have you encountered problems in accessing inputs? 1. Yes 2. No
20. If your answer is yes, what are the problems? (*Multiple responses are possible)

1. Unavailability
2. Shortage of supply
3. Costly
4. Remoteness of input selling site
5. Others (specify)

21. How did you solve these problems? -----

Access to Services

1. Did you have extension contact in relation to wheat production in the 2013/14 cropping season? 1= Yes 2=No
2. If yes, how often the extension agent contacted you?
 1. Weekly
 2. Once in two week
 3. Monthly
 4. Twice in the year
 5. Once in a year
 6. Any time when I ask them
3. What was the extension advice on? -----
5. Did you take credit in 2013/14 cropping season? 1 =Yes 2=No
6. If yes, how much did you take? -----Birr
7. For what purpose did you take the credit?
 1. Fertilizer
 2. Seed for wheat
 3. To purchase animals (oxen)
 4. To rent in land for food wheat prods
 5. To pay tax
 6. To purchase food wheat
 7. Other (specify) -----
8. If the answer for Q. 7 is no, what is the reason?
 1. I didn't need credit
 2. Interest rate on credit is too high
 3. Not available on time
 4. Others (specify)
9. From whom did you get credit?
 1. Relative
 2. Traders
 3. Bank
 4. NGO
 5. Microfinance institution
 6. Cooperative
 7. Friends
 7. Other specify

III. Marketing Aspect

1. Did you sell wheat before? 1. Yes 2. No
2. If your answer for Q.1 is No, why you did not sell? _____

3. If your answer for Q.1 is yes, how much and to whom did you sell your wheat product during 2013/14 cropping season? (*Write the codes and multiple results if possible)

Amount produced (qt)	Amount sold (qt)	*To whom use code	Where did you sale (use code)*	Terms of sale 1. Cash 2. Credit 3. Both	Amount unsold (stock) Qt
		<u>To whom you sale</u> 1. Collectors 2. Consumers 3. Retailers 4. Wholesalers 5. Institutions (hotels, Universities, etc) 6. Cooperatives 7. Exporters 8. Processers 9. Brokers 10. Others (specify)	<u>Where did you sale</u> 1.Farm gate 2.Market center 3. Retailing myself 4. Others (specify)		

4. When did you sell wheat in -----year?
5. How did you sale your produce in 2013/14 cropping season?
 1 Direct to the purchaser 2. Through commission man to the purchaser 3. Through broker 4.other (specify) -----
6. Did you face difficulty in finding buyers when you wanted to sell? 1= yes 2= No

7. If yes, it is due to
1. Inaccessibility of market
 2. Low price offer
 3. Lack of information
 4. Other (specify) -----
8. Who sets your selling price for Wheat in 2013/14 cropping season?
1. Yourself
 2. Buyers
 3. Set by demand and Supply
 4. Negotiations
 5. Others (specify)
10. When did you get the money after your sale?
1. as soon as you sold
 2. After some hours
 3. Other days after sale
 4. Other (specify) -----
11. Do buyers prefer your Wheat products? 1. Yes 2. No
12. If your answer is No, what interventions are needed to improve quantity and quality of wheat production to attract better prices? _____
12. How did you transport wheat -----from farm to home?
1. Head/back loading
 2. Animal's cart
 3. Pack animal
 4. Other (specify) -----
13. How did you transport wheat -----from home to market?
1. Head /back loading
 2. Animal's cart
 3. Vehicle
 4. Pack animal
 5. Other (specify) -----
14. Do you have marketing information on last year (year) wheat marketing? 1. Yes 2. No
15. If your answer is yes, from whom did you get the market information?
1. Traders
 2. DAs
 3. Kebele administration
 4. Woreda experts
 5. Radio
 6. Brokers
 7. Others (Specify) -----
16. How do you feel about the relevancy of the market information -----?
17. Did you store wheat? 1=Yes 2 =No
18. If yes, how long did you store it? _____ Months
19. If you stored, what was the motive behind store?
1. Expecting high price
 2. Saving purpose
 3. Lack of market demand
 4. Other (Specify)
20. If you expected a better price, did you sell at what you expected? 1=Yes 2 =No
21. How did you store the wheat? -----
22. Was there any change in the quantity (weight) and quality of the stored wheat?

1. Quality decrease, quantity weight remained the same
2. Both quality and quantity (Weight) decreased
3. Quality remained the same, quantity (weight) decreased
4. No Change in quality and quantity (weight)

23. How much is wheat production loss per quintal in percent -----

24. What was your packaging material when you sold? -----

25. Do you have any value addition on your wheat products? 1. Yes 2. No

26. If your answer is yes, what are those value adding activities -----?

27. How is the price trend of wheat during the past 5 years?

1. Increasing
2. Decreasing
3. Remaining the same

28. If increasing why? -----

29. If decreasing why? -----

30. Indicate the cost for wheat production /Hectare

Lists of Expenses	Cost in Birr
Land clearing	
Plowing	
Seed	
Fertilizer	
Sowing	
Weeding/herbicides	
Harvesting/collection	
Threshing & winnowing	
Sack	
Land rent	
Oxen rent	
Transportation	
Loading unloading	
Laborers feed	
Other	
Total cost	
Revenue incurred from 1 hectare of wheat	
Profit from 1 hectare of wheat production	

31. Did you face any problem in wheat production and marketing? 1. Yes 2. No

32. If yes what were the major problems and suggest possible solutions

Problems faced (multiple responses possible)

1. Seed supply
2. Land shortage
3. Occurrence of diseases
4. Fertilizer Supply
5. Chemical supply
6. Credit shortage
7. Lack of oxen
8. Scaling
9. Theft
10. Transport

Suggested solutions

1. -----
2. -----
3. -----
4. -----

Thank you very much for cooperation!

II. Traders Interview Schedule

I. General

1. Name of trader: ----- Age ----- Sex-----
2. Address: Region -----Zone -----Woreda -----Town -----
3. Type of trade: 1. Retailer 2. Wholesaler 3.Collectors 4. Others
4. Marital status 1. Single 2. Married 3. Divorced 4. Widowed
5. Family size: Male ----- Female ----- Total -----
6. Educational level of the respondent -----
7. Position of the respondent in the business: 1. Owner- manager 2. Spouse of owner
3. Employed manager 4.Daughter of the owner 5. Son of the owner
6. Relative to the owner 7. Other (specify) -----
8. How long have you been operating the business? ----- Years
9. Did you trade alone or in partnership? 1. Alone 2.Partnership 3.Other (specify)
10. If partnership, how many are you in the joint venture? -----Persons.
11. Total number of peoples employed in your business: -----
12. What is your main business occupation? -----
13. Do you practice trading activity other than wheat? 1. Yes 2. No
14. If your answer to **Q.13** is yes, what?
15. Number of market days in a week? _____
16. When did you do your business in 2013/14 cropping season cropping season?
1. Year round 3. When purchasing price low high supply)
2. during holidays only 4. Other (specify) -----
17. Did you have any occupation(s) before becoming wheat trader? 1. Yes 2. No
18. If yes, what was it? -----

II. Capital

1. Initial fixed capital when you have started business

Assets	No	Average capacity (Qt)	Total Value
Store			
Mobile			
Telephone land line			
Vehicle personal truck			
Weighing balance			
Others (specify)			

2. What was the amount of your initial working capital when you start this Wheat trade business?

In Birr -----

3. What is the amount of your current working capital? -----Birr.

4. What was your source of working capital? ; 1. Own 2. Loan 3. Gift 4.Share 5. Others
(Specify)

5. If it was loan, from whom did you borrow? 1. Relative/family 2. Private money lenders.

3. Cooperatives 4. Friend 5. Other traders 6. Micro finance institution 7. Bank 8.Others

6. How much was the rate of interest? _____ Birr for formal ----- Birr for informal.

7. What was the reason behind the loan? 1. To extend wheat trading

2. To purchase animals. 3. Others (specify) -----

8. How was the repayment schedule? 1. Monthly 2. Quarterly 3. Semi-annually

4. Yearly 5. At the time of getting money 5. Others (specify)

9. From which market do you often prefer to buy?

10. Why do you prefer this market? 1. Better quality 2. High supply 3.Shortest distance

4. Others (specify)

11. Are all your purchasing centers accessible to vehicles? 1. Yes 2. No.

III. Marketing

1. Did you pay tax for the wheat you sell? 1. Yes 2. No

2. Is wheat trading in your locality needs a trading license?

1. Yes 2. No 3. Not mandatory

3. If yes, how do you see the procedure to get the license?

1. Complicated 2. Easy

4. Did you have wheat trade license? 1. Yes 2. No

5. How much did you pay for wheat trade license? _____Birr

6. Indicate your average cost incurred per quintal for major wheat in the trading process in 2013/14 cropping season?

Marketing cost type	Cost /Qt in Birr
Purchased price of wheat	
Labor employed to fill sack	
Loading	
Unloading	
Transport - Vehicle - Cart - Head/back load	
Storage cost	
License fee	
Tax and fee	
Wage for permanent employee	
Storage loss	
Electricity	
Telephone expense	
Others (specify)	
Total costs	
Selling price of wheat	
Purchased from 1. Producer 2. Urban assembler 3. Farmer collector 4. Whole seller 5. Retailer 6. Cooperatives 7. Others(specify)	

11. Who were your major buyers in 2013/14 cropping season?

- | | | |
|-----------------------|--------------|------------------------|
| 1. Wholesalers | 2. Retailers | 3. Urban assembler |
| 4. Millers/processors | 5. Consumers | 6. Gov't organizations |
| 7. Other (specify) | | |

12. Who were your major suppliers in 2013/14 cropping season?

- | | | |
|-----------------------|--------------|------------------------|
| 1. Wholesalers | 2. Retailers | 3. Urban assemblers |
| 4. Village collectors | 5. Farmers | 6. Gov't organizations |
| 7. Other (specify) | | |

13. On average, how many markets did you visit in a week in 2013/14 cropping season? Markets

14. Was the price of the same grains the same on the same day in a marketing center in 2013/14 cropping season? 1. Yes 2. No

15. How is your usual purchasing price compared to your competitors?
 1. Higher 2. Lower 3. The same
16. If higher in Q. 15 what was the reason?
 1. To attract more supplier 4. To get better quality wheat
 2. To buy more quantity 5. Others (specify)
 3. To kick out your competitor from the market
17. How was the price of wheat in 2013/2014 compared to the previous year?
 1. Increased 2. Decreased 3. No change
18. If increased why? -----
19. If decreased why? -----
20. Are there restrictions imposed on unlicensed traders? 1. Yes 2. No
21. Did you get market information? 1. Yes 2. No
22. If your answer is yes from where did you get market information?
 1. Other traders 2.Cooperatives 3.Through Telephone 4. Personal observation 5.Radio
 6. Brokers 7. Others (specify) -----
22. What was the major problem to enter grain trade?
 1. License 2.Lack of capital 3. Government policy 4. Other (specify)
23. Are there problems facing in wheat marketing? 1. Yes 2. No
24. If yes what are the major wheat marketing problems.
1. Infrastructure
 2. Shortage of supply
 3. Storage problem
 4. Theft
 5. Information Flow
 6. Capital Shortage
 7. Access to credit
 8. Lack of demand
 9. Too much competition with licensed traders
 10. Farmers reluctance to sell due to lower price
 11. Telephone expense

12. Other specify

25. Suggest solutions to overcome the problem

1. -----

2. -----

3. -----

4. -----

Thank you for cooperation!

