



# Market Chain Analysis of Red Pepper: The Case of Abeshge District, Guragie Zone, South Ethiopia

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**Abstract:** The study was conducted at Abeshege Woreda to analyze the market chain of red pepper. The area is known for its surplus production of agricultural commodities. However, market chain of agricultural crops in general and red pepper in particular is not well understood. The study has duly focused on the structure and conduct, market participants and performance of red pepper markets. The data were generated by structured questionnaire, focus group discussions, key informant interviews and field observation. This was augmented by secondary data collected from the BoARD, Woreda marketing agency reports and websites. Quantity of pepper passed through different marketing agents from farmers to consumers. The Farmers-Collectors-Wholesalers-Processors-Consumers channel carried the largest volume, which is 35.7% of the total volume followed by Farmers-Wholesalers-Processors-Consumers channel which carried about 27.6% of the total red pepper marketed. Structure of pepper market indicates four-firm Concentration Ratio (CR4), that is, the share of the largest four traders in the total volume of pepper purchased. The four largest traders handled 35.32% of the total volume of purchased pepper. This suggested that the pepper market in Abeshege Woreda shows a weak oligopolistic market. In relation to the conduct of pepper market, pricing mechanism of the farmers indicated that 13.29% of farmers set their selling price. Cheating was very common in pepper marketing by manipulating weighing scale and adulteration. Regarding payment strategy, about 74.68% of sample farmers sold their product on cash. Traders took a total of 61.3% out of the total profit margin. Red pepper producers added 38.7% of the total value of red pepper in the Woreda. The Total Gross Marketing Margin is highest in Farmers- processors- Consumers (62.1%) followed by Farmers-Retailer –processors- Consumers (55.4%). Therefore, the development of pepper producers' bargaining power through cooperatives is the best measure that should target at reducing the oligopolistic market structure and increases pepper production in the Woreda pepper markets.

**Keywords:** Actors, Marketing Cost, Marketing Margin, Red Pepper

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## 1. Introduction

### 1.1. Background

Pepper is the world's second important vegetable ranking after tomatoes and it is the most produced type of spice flavoring and color to food while providing essential vitamins and minerals. The nutritional value of hot pepper merits special attention. It is a rich source of vitamin A and E. Both hot and sweet peppers contain more vitamin C to

prevent flu colds than any other vegetable crop [1]. The color and flavor extracts from pepper are used in both the food and feed industries, e.g., ginger beer, hot sauces and poultry feed. In some countries, the shoot tips are cooked as herb or as vegetable [2].

In addition to having major role in Ethiopians daily dish it also plays an important role in the national economy. It is a crop of high value in both domestic and export markets.

Since it is a commercial and industrial crop, it generates employment to urban and rural workers. The main processed product, oleoresin, is exported to different countries and the spiced ground is supplied to local market. Oleoresin that is used for food coloring is extracted from red pepper for export purpose. The deep red colored cultivars have a very high processing demand in the country [3].

Recognition of critical role of markets in economic development led to sweeping market reforms across a number of developing countries. In spite of these reforms, symptoms of poorly functioning markets in much of Sub-Saharan Africa are evident in the segmentation of markets, low investment in the market infrastructure, the persistence of high margins and the limited progression towards more complex arrangements [4].

In developing country farmers are not getting the right share of consumer price because of excessive margin mainly because of inefficient and costly transport. Besides transport problems, majorities of agricultural products in Ethiopia are small holder produces, and are not producing and selling their produce and agricultural inputs in an organized manner so that some of their benefit may transfer to the middlemen. Despite the ecological advantage, horticultural production in the country is very much limited. [5] indicated that vegetable crops are produced in the country through commercial and small farmers. However, the benefit producers receive is by far lower. Besides, the per capita consumption of horticultural products is probably the lowest in Africa.

Pepper is widely cultivated in different regions of Ethiopia. The Ethiopian Export Promotion Agency [3] has carried out a Spice Potential Market Study in Amhara, Oromiya and SNNPRS, and it identified that the land coverage for pepper in the three regions. The total production of pepper in the country for the year 2013/2014 Ethiopian main cropping season (Meher) was estimated at 2.8 million quintals. On average 72% of pepper production is for market in SNNPRS [6]. The share of the region in the total production of red pepper in the country constitutes 64%, followed by Amahara region, which produces about 25% of the total production in the country [6]. In 2013/2014 production year the total cultivated land and production in the region was 61,069 hectare and 1, 580,066 quintal respectively [6]. The total amount of crop produced in 2014/2015 production year was 2860 hectare and 51,480 quintals in the study *Woreda*.

### 1.2. Statement of the Problem

Red Pepper is a major spice and vegetable crop produced by the majority of farmers in SNNPRS, Oromia, and Amhara regions [3]. Despite the significance of pepper in Ethiopian economy and current income generating capacity of pepper for the smallholder producers as compared to its magnificent potential in the country it has not been given due attention. Red pepper in SNNPRS is produced for both consumption and market. In rural areas red pepper is highly consumed not only in regular dishes but in other ceremonial events.

In SNNPRS, the production of pepper is constrained by

variable seasonal conditions. As a result, the variation in its supply on rural and urban market is considerable. Besides, storage facilities, transportation, linkages with traders; quality controlling mechanisms, market information and price settings are weak in the region and need to be further investigated. Hence, to benefit producers and other marketing agents involved in the production and marketing of red pepper there is a need to have a well-developed infrastructure to keep the product until it reaches the final consumer. Producers face so many interlinked problems such as poor market information and infrastructural problems (storage, transport and processing). Furthermore, the demand side is also highly characterized by skyrocketing price of paper for consumers. So far how and why the consumer price has been skyrocketed and whether the producers benefit from the progressively increasing price of pepper were hardly studied. This study, therefore, was initiated with the purpose of investigating the pepper market chains and factors affecting red pepper supply to the market in Abeshge. The findings from this study are believed to be helpful in reducing the information gap on red pepper and contributing to work better understanding on improved strategies for reorienting marketing system for the benefit of smallholder farmers, traders, and other market participants.

### 1.3. Objective of the Study

The major objective of the study was to investigate red pepper market chain in Abeshge district. The specific objectives were:

- To identify the actors and their functions in the market chains of red pepper originated from Abeshge District.
- To map the marketing channels of red pepper

### 1.4. Research Questions

The following research questions were addressed in this study.

- Who are the actors in the market chain of red pepper and what roles (functions) do they play in the market chain?
- What do the market channel of red pepper look like?

### 1.5. Scope and Limitation of the Study

The study focused on the market chain analysis of red pepper in Abeshge *Woreda* and major Zonal intermediate markets. The study concentrated on Abeshge *Woreda* kebeles where red pepper is produced. The major market participants (producers, intermediaries and consumers) supporting institutions were assessed thoroughly in relation to the different marketing mix in the production and marketing of red pepper (marketing channels, market direction, price formulation and, buying and selling strategies, storage, transport, information and finance). The study also focused mainly on the kebeles (Walga, Borer, Dargie, and NachaQulit). These kebeles are purposively selected based on their relative importance for pepper production. Hence the study didn't incorporate all markets in the Zone that were

considered as the source of supply. Due to shortage of budget, and logistics, the researcher as not cover all pepper producing kebles, all pepper markets found in the study areas and neighboring *woredas* and also Addis Ababa terminal market (Merkato). The fact that the study will depend on cross-sectional/one time visit data is also a limitation for this study

### 1.6. Significance of the Study

Analyzing the challenges in pepper marketing would indicate the gaps to improve pepper production and marketing and benefit policy makers and implementers in the area to fill the gaps. In addition to this it will also help to make appropriate marketing decisions by the producers, consumers, traders, investors, and others. The study is also used to suggest strategies for smooth integration among production and marketing by referring to root causes for supply and marketing problems starting from production till the consumption of the product. The other benefit that were anticipated is that its significance as a source material for further studies, which could be a major input to formulate appropriate marketing policies. The document also would serve as reference for researchers to embark upon similar or

related work in other parts of the country as it generate new information about value chain on the study area and the study include input price and output price, drought and diseases as determinant of red pepper supply for that particular area which are not incorporated by other studies like [7] and [8]. In addition to this red pepper price currently increase more than previous time so study on market chain of red pepper today is important to identify whether producers gets the right share or not.

## 2. Research Methodology

### 2.1. Description of the Study Area

This study was conducted in four rural *kebeles* (Lowest administrative units in Ethiopia) in Abeshge *woreda* which is known for its red pepper production. Abeshge is one of the *woredas* in the Southern Nations, Nationalities, and Peoples' Region of Ethiopia. Part of the Gurage Zone, Abeshge is bordered on the south by the Wabe River which separates it from Cheha district, on the west and north by the Oromia Region, and on the east by Kebena district.

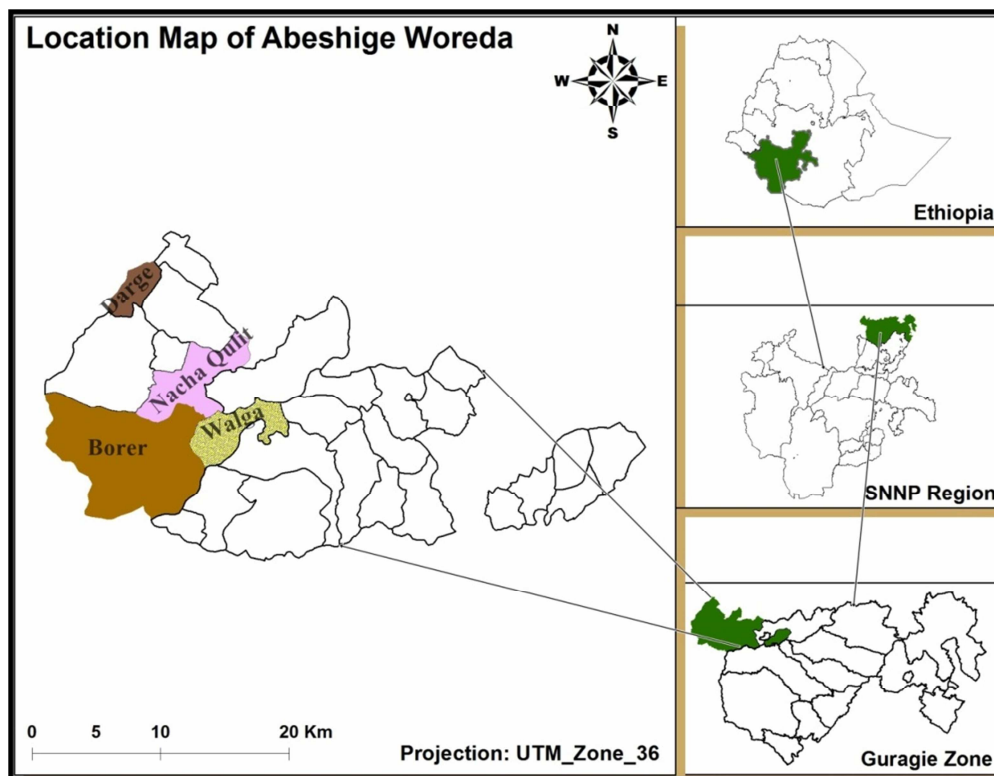


Figure 1. Map of the study area.

### 2.2. Sampling Strategy and Methods of Data Collection

#### 2.2.1. Study Site and Sample Households Selection

In this study a multi-stage sampling technique was used to select red pepper producers. The district has two urban and 26 rural *Kebeles*. In the first stage four major red peppers producing *Kebeles* were selected purposively based on its potential for red pepper production and marketing. In the

second stage among the households that exist in the four *Kebeles* red pepper producers were selected using random sampling technique. Accordingly, the sample size for this study was based on the rule of thumb  $N \geq 50 + 8m$ ; where 'N' is sample size and 'm' is the number of explanatory variables ( $X_i$ ) where  $i=1, 2, \dots, 11$  [9]. Hence, 160 respondents from four *Kebeles* of Abeshge *woreda* were selected and interviewed.

**Table 1.** Sample size distribution of producers with respect to the sample Kebeles comparably.

Sr. No.	Name of Kebele (PAs)	No of HH	Respondent Distrib.
1	Borer	393	35
4	Dargie	395	36
3	NechaKulit	744	68
2	Walga	229	21
	Total	1761	160

The trader surveys were conducted on market in urban

**Table 2.** Sample size distribution of traders with respect to the markets identified.

Name of Kebeles/address	Traders Sample				Sub Total
	Wholesaler	Retailer	Collector	Processor	
AA	3	0	0	0	3
Dargie	1	0	2	4	7
Walga	1	0	2	4	7
Weliso	2	0	0	0	2
Wolkite	0	2	2	4	8
Sub – total	7	2	6	12	

Therefore, in this study an attempt was made to select representative sample whenever possible using cluster sampling by incorporating licensed and un-licensed traders, and to include respondents from each of the following categories: wholesalers, collector retailer and processor. The total number of traders interviewed was 27 (7 wholesalers, 2 retailers, 6 collectors and 12 processors). To interview traders an independent check list was prepared and used. Sample size of pepper traders and processors is indicated in Table 2.

### 2.2.2. Methods of Data Collection

In this study, both the primary and secondary data were used. The primary data were collected through a household survey, focus group discussions, key informant interviews and field observations. The primary data were collected from red pepper producers (farmers), traders and consumers using mainly structured questionnaire. With regards to the farmers, the primary data was collected on socioeconomic characteristics of households, pricing mechanism, pricing strategy, and factors affecting red pepper market supply. Moreover, the primary data about traders (wholesalers, retailers, collectors and processors) on buying and selling strategies, source of market information, socioeconomics characteristics and other related data were collected.

To generate relevant secondary data on red pepper production and marketing, data was collected from different published and unpublished sources such as government institutions; the Bureau of Agriculture and Rural Development (BoARD), *Woreda* marketing agency reports and websites were referred. To facilitate the collection of both primary and secondary data, preliminary information about the study area were obtained from the Bureau of Agriculture and Rural Development (BoARD) to find important information for questionnaire development and to select sample Kebeles.

#### A. Focus Group discussion (FGD)

Representatives of communities who have good experience in red pepper production, trading, processing and consuming were selected to discuss specific issues related to

areas/ towns in which a good sample of pepper traders existed. On the basis of flow of pepper, three markets (Wolkite, Walga, and Dargie) were selected, which are the main pepper marketing sites in the study areas. An additional criterion used to select survey sites was the availability of secondary price data for some of the markets. Due to the absence of reliable information on the population of traders in these areas, cluster sampling technique was conducted in the selected markets.

the purpose of the study and members were shared their background, opinion and experience on the issues under study. The main purpose of FGD in this study was to supplement the data obtained during the main survey. Two separate FGDs that each contains 12 members were held in Walga and Dargie kebles on January 2016. The discussion was facilitated by the researcher together with the BoARD expert.

#### B. Key informant interviews selection

Key informants were selected from each *kebles*. The key informants are persons who lived in the community for a long time and have well knowledgeable about pepper production, its contribution to household income generation and marketing in the area. The purpose of key informant interview was to obtain their views, opinions and suggestions about marketing channels and value addition process. Selections of key informants were done by interviewing farmers in the *kebles* with the help of development agents, *keble* leaders and enumerators. For this purpose key informants were selected from each *kebele* and a one-to-one interview was conducted with the selected key informants.

#### C. Household survey

Based on the information obtained from field observation and key informant interview structured questionnaire was developed. The data upon which this study based was collected through a structured questionnaire administered face to face with the household head. Four enumerators who have good experience and well familiarized with the study *kebles* were selected. Before the actual data collection was undertaken, a pre-testing of the questionnaire was conducted in order to amend and adjust questions that couldn't specifically address the point in question and provide the required answers. The role of enumerators was to encourage farmers to voluntarily respond and give actual information during the interview. The role of the researcher in the process was facilitation and supervision.

### 2.2.3. Method of Data Analysis

In this study two types of data analysis methods were used.

These include descriptive statistics and econometric analysis.

#### *Descriptive statistics analysis*

Descriptive statistics like mean, standard deviation, ratio, frequency and percentiles were used in order to explain and interpret the data obtained from sampled households and trader's socio-economic characteristics, structure, conduct and performance of red pepper markets. The collected raw data were analyzed by applying the Micro-soft Office Excel and the Statistical Package for social Science (SPSS) version 23.

### **3. Result and Discussion**

#### *Market Structure, Conduct, and Performance of Red Pepper*

In this section the findings from the analysis of red peppers market structure, market conduct and market performance is presented and discussed. The section is comprised of three subsections. In the first sub section the nature of red pepper marketing structure is presented. The second sub section is about the market conduct of red pepper. The last sub section deals with the performance of red peppers markets.

#### **3.1. Market Structure of Red pepper**

In this sub section the structure of red pepper market is presented and discussed with respect to the types of actors and their functions in the chain, the marketing channel of red pepper, the degree of market transparency and the degree of market concentration.

##### **3.1.1. Actors and Their Functions in Red Pepper Market Chain Pattern**

The analysis of the market chain of red pepper in the study area indicated the involvement of diverse actors who are participated either directly or indirectly in the production to consumption system of the red pepper. These include producers, local collectors, wholesalers, retailers, processors and final consumers of the product. According to [10], the direct actors are those involved in commercial activities in the chain (input suppliers, producers, traders, consumers). Whereas the indirect actors are those that provide financial or non-financial support services for the actors in the chain such as credit agencies, business service providers, NGOs, cooperatives, researchers and extension agents.

##### *A. Primary Actors (Direct Actors)*

The primary actors in red pepper chain in Abshige *Woreda* identified as red pepper producer (farmers), local collectors, wholesalers, retailers, processors and final consumers of the product.

**Producers (Farmers).** Red pepper farmers are the primary actors as well as the first stage actors in the chain who perform most of the market chain functions right from farm inputs preparation on their farms or procurement of the inputs from other sources to post harvest handling and marketing. The major market chain functions that red pepper farmers perform include ploughing, planting, fertilization, irrigating, weeding, pest/disease controlling, harvesting and post-harvest handling.

With respect to marketing, the red pepper producers had several options to sell their product, selling directly or selling through broker to collector (rural collector) and regional wholesalers. They transport red pepper to the nearest markets (village market) themselves, either carrying by themselves or using donkeys either using pack animals, or animal driven carts, or else medium-size Isuzu trucks. Alternatively, they sell to village collector known as "farmer traders" who assemble red pepper from large number of farmers. Farmers also sell their products directly to regional wholesalers in regional markets. Some of the farmers in the sample also sell their red pepper to the consumers in the regional market.

**Village markets** are markets which are closest to farmers' resident, having less marketing facilities such as road, electricity, potable water etc. Farmers sell smaller quantity of red pepper on such markets. Whereas regional markets are big markets that are found in the *woreda* town (Wolkite, Walga and Dargie) where, most of surplus pepper products are transacted.

**Local Collectors.** Local Collectors/rural assemblers are farmers or part-time traders in the chain who buy small quantity of red pepper from farmers in village markets during slack period for the purpose of reselling it to consumers or regional wholesalers in either in rural or regional market. They use their financial resources and their local knowledge to buy red pepper from the surrounding area and they play important role by identifying the areas of surplus so that it can sold in deficit areas. They often receive cash from wholesalers after or before sell. Generally, they perform physical (assembling and storing) and facilitating function (sorting) of red pepper for their loyal customers.

**Wholesalers.** Wholesalers are traders who buy large quantities of goods and resells to retailers than selling directly to the ultimate customers. They are the major actors in the marketing channels. These actors are located in the middle upper part of the market chain and they have somewhat strong financial as well as management-know how in all aspects of the business activity in comparison with other actors. The wholesalers are either licensed or not, and buy red pepper from producers and local collectors. Commodities bought from different sources put together in one place (store) and sorted to make the products to be in similar grades so that uniformity of the products at each grade to be attained. Moreover, the graded commodities are supplied to the terminal markets (Wolkite, Weliso and Addis Ababa) where there is deficit and high demand for the red pepper. In this terminal markets, the wholesalers sell the red pepper either directly or through commission agents to the different buyers in most cases retailers and processors. This means that the whole sellers generally participate in marketing of red pepper and perform physical (place utility) and facilitating functions (financing).

**Retailers.** Retailers as direct market actors of red pepper are located at the end of marketing chain, directly servicing the last actors (ultimate consumers) in the production to consumption system. They perform numerous marketing

functions such as buying, processing, storing, selling and other functions related to marketing. Based on their geographic location, retailers are classified as rural and urban retailers. Rural retailers are market actors in the final link of the market chain and reside on the *woreda* town. They buy the red pepper from farmers' customer directly or through broker in the market and on their purchasing and selling places (like verandahs) on the days other than the market days. Urban Retailers are retailers that sells commodity to end users (consumers and processors). They reside in the terminal market and buy the product either from wholesalers or urban assemblers or rural retailers. Terminal market retailers are characterized by owning shops on which buying and reselling functions are undertaken. In addition to buying and selling, urban red pepper retailers particularly at Wolkite/Weliso often provide processing and grinding services to consumers as they own millers and processors.

**Processors.** These include millers, and '*Balitina*' shops that buy red pepper and add values for selling. Particularly, millers are owners of red pepper mills and process the pepper. Usually they buy low quality pepper at low price directly from rural and urban wholesalers and process the pepper by miller and resell their processed product to consumers or retailers. They are also known for using low quality spices while processing the pepper. In addition to this, they provide grinding services to '*Balitina*' shops, wholesalers, and consumers. '*Balitina*' shops play major role in pepper trading and processing. There are 2 well known '*Balitina*' shops that in Wolkite. They buy whole red pepper from rural and urban wholesalers. They process using different ingredients/spices and sell the pepper to consumers and retailers in Wolkite. Some of '*Balitina*' shops have agents in other parts of the country and sell through these agents for domestic consumption.

**Consumers.** Consumers are the direct actors in the chain. They are the final stage actors or players in the red pepper value chain/in the production to consumption system of red pepper that purchases the products from producer, collector, retailers or processors for consumption. This means that they are market actors who purchase either raw red pepper or processed red pepper for their own consumption directly from the producers and or they have many alternatives as they are the final destination of the products. About three types of red pepper consumers were identified: households, restaurants and institutions which give services such as higher education institutions, hospitals, etc. Households' level consumers are employees, and urban and rural dwellers who purchase and consume red peppers and they purchase red pepper directly from producers, retailers and wholesalers though most of the consumers purchase from retailers. Farmers also make important segment of the rural consumers since they consume part of their produces. Institutions

purchase the product from wholesalers who have the capacity to supply regularly based on contractual agreements. Therefore, they have many options to purchase red pepper and product from the harvesters, local collectors (broker), wholesalers, retailers and processors.

#### *B. Supporting actors*

The supporting actors are those who provide supportive services for the actors in the production to consumption system of red pepper. The services provided by them include training and extension, information, financial, licensing and research services. According to [11], access to information or knowledge, technology and finance determines the state of success of market chain actors. Accordingly, in the study area, BoARD, primary cooperatives, Banks, Omo micro finance and Wolkite University are main supporting actors who play a central role in the provision of such services.

**Training and Extension Services:** BoARD office in collaboration with other institutions has been providing different trainings to the market chain actors of red pepper in the *Woreda*.

**Licensing service:** *Wereda* office of Custom and Revenue (WOCR) was the main body responsible for giving license for red pepper traders (wholesalers) and collecting revenue through taxation in the *Wereda*. Though there is no any fixed taxing system, on average wholesalers are expecting to pay 350 birr per Isuzu track.

#### **3.1.2. Marketing Channels of Red Pepper**

A marketing channel is businesses structure of interdependent organizations that originates from the point of product origin to the consumer with the purpose of moving products to their final consumption destination [11]. The analysis of marketing channels is intended to know the alternative routes the product follow from the point of origin to final destination. Eight (8) main alternative channels were identified for red pepper marketing. The main marketing channels identified from the point of production to the final consumer through different intermediaries were:

##### Channel-I: Farmers→Consumers (5859 kg)

This is a channel in which the farmers sell the red pepper they produced directly to consumers. The result in Figure 2 shows that in this channel a total of about 5859 kg red pepper is transacted/marketed. This comprises 2.4% of the total volume of red pepper transacted in the chain. However, this amount is the least one and makes the channel the least in terms of the volume of pepper transacted. As a result the channel stands as the least (8<sup>th</sup>) marketing channels in terms of volume. This could be due to different constraints (e.g. Access to market information, distance from market place, transportation problems, and rural collector's intervention) that the farmers encounter at the time of marketing their produce.

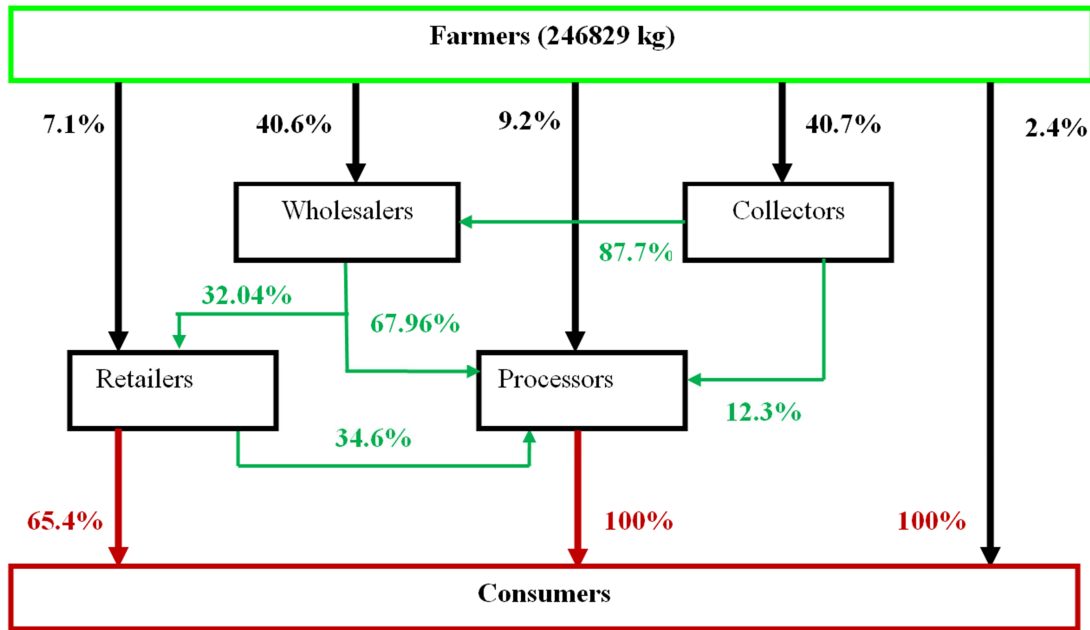


Figure 2. Market Chain Pattern of red pepper originated from Abeshge district, Gurage Zone.

Channel-II: Farmers → Processors → Consumers (22582 kg)

This channel is the channel in which farmers sell the red pepper they produced to the processors and the processors after adding some amount of value to consumers. In this channel a total of 22582 kg red pepper (Figure 2) is transacted and this account for 9.1% of total volume of red peppers transacted/marketed in the study area during the survey period. As a result the channel was found to be the 4<sup>th</sup> most important channel in terms of volume.

Channel-III: Farmers → Retailers→ Consumers (11464 kg)

The channel in which, retailers buy red pepper directly from farmers and they in turn sell the red pepper directly to the consumers. In this case the raw red pepper is sold to consumers by the retailers without any processing is carried out. In this channel about 11464 kg (Figure 2) of red pepper is sold. This accounts for 4.6% of the total red peppers marketed during the survey period. This channels stands as the 6<sup>th</sup> important channel in the study area in terms of volume transacted.

Channel-IV: Farmers → Retailer → processors → Consumers (6058 kg)

This channel is the channel in which farmers sell the red pepper they produced to the retailer and the retailers sell without any value addition to the processors; processors resell it by adding some amount of value to consumers. In this channel a total of 6058 kg red pepper (Figure 2) is transacted and this account for 2.5% of total volume of red peppers transacted/marketed in the study area during the survey period. As a result the channel was found to be the 7<sup>th</sup> most important channel in terms of volume.

Channel-V: Farmers → Collectors → Processors → Consumers (12405 kg)

This channel is the channel in which farmers sell the red pepper they produced to the collectors and they sell without any value addition to the processors; processors resell it by

adding some amount of value to consumers. In this channel a total of 12405 kg red pepper (Figure 2) is transacted and this account for 5% of total volume of red peppers transacted/marketed in the study area during the survey period. As a result the channel was found to be the 5<sup>th</sup> most important channel in terms of volume.

Channel-VI: Farmers → Wholesalers → Processors → Consumers (68163 kg)

This is the channel in which wholesalers buy red pepper directly from farmers and they in turn sell the red pepper directly to the processors. In this case the raw red pepper is sold to consumers by the processors after value addition processing is carried out. In this channel about 68163 kg (Figure 2) of red pepper is sold. This accounts for 27.6% of the total red peppers marketed during the survey period. This channels stands as the 2<sup>nd</sup> important channel in the study area in terms of volume transacted.

Channel-VII: Farmers → Wholesalers → Retailers → Consumers (32135 kg)

This is the channel in which wholesalers buy red pepper directly from farmers and they in turn sell the red pepper directly to the retailers. In this case the raw red pepper is sold to consumers by both the retailer and Wholesalers without value addition process. In this channel about 32135 kg (Figure 2) of red pepper is sold. This accounts for 13% of the total red peppers marketed during the survey period. This channels stands as the 3<sup>rd</sup> important channel in the study area in terms of volume transacted.

Channel-VIII: Farmers → Collectors → Wholesalers → Processors→ Consumers (88163 kg)

This channel is the channel in which farmers sell the red pepper they produced to the collectors and the collectors sell without any value addition to the wholesalers and wholesalers resell it to the processors without value addition process. In turn the processors sell it by adding some amount

of value to consumers. In this channel a total of 88163 kg red pepper (Figure 2) is transacted and this account for 35.7% of total volume of red peppers transacted/marketed in the study area during the survey period. As a result the channel was found to be the 1<sup>st</sup> most important channel in terms of volume.

The comparison made among the channels with respect to the volume of the red pepper that was transacted through each channel shows that the Farmers-Collectors-Wholesalers-Processors-Consumers channel was the channel in which the largest volume (i.e. 88163 kg) of red pepper was transacted. This comprises about 36 percent of the total volume of red pepper transacted. This is followed by Farmers-Wholesalers-Processors-Consumers channel in which a total volume of 68163 kg of red pepper is transacted. This amounts to about 28 percent of the total amount marketed (Figure 2). In contrast, the farmer/producer - consumer channel is the one that accounts for only 2.4% of the total volume of red pepper transacted in the chain. As a result the channel stands as the least (8<sup>th</sup>) marketing channels in terms of volume.

### 3.1.3. The Degree of Market Concentration

According to [12] market concentration, the portion of the industry sales made by the largest firms, is another source of imperfect competition. Successful competitors frequently eliminate their rivals or discourage new firms entry, contributing to more concentrated markets. In general, the

higher the level of market concentration, the less perfectly competitive the market is. The concentration ratio is expressed in terms of CR<sub>x</sub>, which stands for the percentage of the market sector controlled by the biggest X firms. Four firms (CR<sub>4</sub>) concentration ratio is the most typical concentration ratio for judging the market structure [12]. A CR<sub>4</sub> of over 50% is generally considered as strong oligopoly; CR<sub>4</sub> between 33% and 50% is generally considered a weak oligopoly and a CR<sub>4</sub> of less than 33% is no oligopoly at all rather competitive nature of market.

In this study the analysis of the degree of market concentration was carried out for all sampled traders in the study area. It was measured by the percentage share of volume of red pepper purchased by the largest four traders annually. This is therefore, as a rule of thumb suggested by the above authors the four traders' concentration ratio represents for all red pepper traders across the study area.

The result in table 3 shows that, the concentration ratio (CR<sub>4</sub>) of the four largest traders for red pepper is found to be 35.32 percent. Therefore, according to [12], red pepper market is characterized by weak oligopoly market structure which is relatively less concentrated traders/ or suppliers/or sellers indicating that the market structure is a relatively a competitive one. This means that no single trader or a group of few traders have as such a big impact on marketing of red pepper.

Table 3. Concentration ratio of big-4 traders of red pepper.

Number of Trader (A)	Cumulative Frequency (B)	% of Traders (C)	Cumulative % of Trader (D=B/27)	Quantity purchased (in No) (E)	Total Quantity Purchased (F=A*E)	% Share of Purchase (G=F/246829)	% Cumulative Purchase
1	1	3.70	3.70	23901	23901	9.92	9.92
1	2	3.70	7.40	22233	22233	9.23	19.15
1	3	3.70	11.11	20693	20693	8.59	27.73
1	4	3.70	14.81	18287	18287	7.59	35.32
1	5	3.70	18.51	17469	17469	7.25	42.57
1	6	3.70	22.22	15881	15881	6.59	49.16
1	7	3.70	25.92	15079	15079	6.26	55.42
1	8	3.70	29.63	14783	14783	6.13	61.55
1	9	3.70	33.33	14357	14357	5.96	67.51
1	10	3.70	37.03	12191	12191	5.06	72.57
1	11	3.70	40.74	10667	10667	4.43	77.00
1	12	3.70	44.44	9464	9464	3.93	80.93
2	14	7.41	51.85	7619	15238	6.32	87.25
1	15	3.70	55.55	6256	6256	2.60	89.84
1	16	3.70	59.26	4716	4716	1.96	91.80
1	17	3.70	62.96	3208	3208	1.33	93.13
1	18	3.70	66.66	2823	2823	1.17	94.30
2	20	7.41	74.07	2727	5454	2.26	96.57
1	21	3.70	77.77	2085	2085	0.87	97.43
1	22	3.70	81.48	1925	1925	0.80	98.23
1	23	3.70	85.18	1460	1460	0.61	98.84
1	24	3.70	88.89	1043	1043	0.43	99.27
1	25	3.70	92.59	954	954	0.40	99.67
1	26	3.70	96.29	481	481	0.20	99.87
1	27	3.70	100.00	322	322	0.13	100.00
		100.00			240970	100	

Source: Own computation from survey result, 2015



### 3.2. Market Conduct of Red Pepper

Market conduct is a pattern of behavior which enterprises follow in adopting or adjusting to the market in which they sell or buy; in other words the strategies of the actors operating in the market. It is a systematic way to distinguish indications of unfair price setting practices and the conditions under which practices are likely to prevail. Market conduct refers to the patterns of behavior that firms follow in adopting or adjusting to the markets in which they sell or buy [13]. In this study, market conduct of red pepper is analyzed in terms of the pricing setting strategy and payment mechanisms.

#### 3.2.1. Pricing Mechanism

The result in table 4 shows that about 57% of the red pepper producers/harvesters responded that they sold the red pepper for the price given by buyers. The remaining 30 percent of them, however, reported that they sold the red pepper by the price set by both parties based on negotiation. On the other hand, about 13 percent of the red pepper producers reported that they sold the product by the price set by sellers themselves. This shows the price setting manner of red pepper market in the study area is dominated as the price determined by “few-buyers”. This indicates that the selling price is not based on the demand and supply interaction, and this leads to a non-competitive nature of red pepper market structure. This result also corroborates with the result of the market concentration in the previous section that indicates the weak oligopoly market structure (35.32%). The implication is that if this is not checked in time it might lead to a strong oligopoly market. The fact the price of red pepper is skyrocketing from time to time is also a good indication of this.

**Table 4.** Price setting mechanisms of red pepper in the study area.

Description	Red pepper	
	No of Resp. (N=158)	Percent (%)
Settled by Sellers	21	13.29
Settled by Buyers	90	56.96
By negotiation b/n buyer & seller	47	29.75

Source: Own survey (2015)

Based on market observation, the price setting trend in the study area indicates that the price is set by traders based on the information from Addis Ababa market before a day of the market, and nobody would violate the practice. Before one day time market price information of Addis Ababa market and after so many discussions among collectors, one of the wholesalers selects to set the price. The person then announces this price to the sellers who wait the price setting around pepper collection points. No other traders permit to pay above the price the whole sellers already set. In this case even if the farmers refuse to sell their pepper, nobody can buy above the set price. Also no other traders would buy the pepper that other traders refuse to buy from farmers due to low price offer. Therefore, most of the farmers are forced to sell at whatever price given by wholesalers. But rural collectors have information about current price from Addis

Ababa wholesales before they collect pepper from farmers on every market day. Thus, they would not incur loss.

#### 3.2.2. Payment Strategy

With regard to the payment strategy, the household survey result in table 5 depicted that about 74.68% of sample farmers sold their product on cash and the remaining 25.32% of sample respondents sold their product but received the money in another day after the red pepper is sold. Mostly payment was made at a spot and in future red pepper markets because of that purchasing of red pepper done with credit by collectors and hence actual payment may be completed after the red pepper was transferred for respective customer; whereas when the products were sold directly by the processors hand to hand payment was used. The current finding was in agreement with red pepper payment strategy of farmers in Alaba and Silte woreda (Rehima, 2007).

**Table 5.** Payment mechanisms of red pepper and product marketing.

Description	Bamboo pole marketing	
	No of Resp. (N=158)	Percent (%)
As soon as marketing takes place	118	74.68
Other day after marketing	40	25.32

Source: Own survey (2015)

With respect to market conduct it is not only the price setting strategy and the payment mechanisms but also misconducts both from traders and producers were identified. This is especially in relation with weighing the product. The results from both the household's survey and FGDs and KIIs indicated that during the marketing of the red pepper both traders and farmers cheat each other. This cheating from the side of the traders is by their attempt to minimize the volume/weight of the product during weighing, which was the major activity they usually do taking the advantage of the knowledge of farmers. On the other hand, farmers cheat traders by watering red pepper and adding other foreign materials so as to increase the volume/weight of the pepper that had a great impact on the quality of the product. A farmer may use different methods of checking the weighing scale before selling. The mechanism may be checking one's weigh and comparing it at different weighing scales (or some weighing red pepper on different weighing scales). However, traders manipulate the weighing scale and all traders seem to talking the same language, cheating a minimum of 5 kg per qt. If the farmer refuses to sell, traders start to discuss on kilogram instead of price with farmers and with the intermediation of collectors.

### 3.3. Market Performance of Red Pepper

Market performance can be evaluated by analyzing costs and margins of marketing agents in different channels. A commonly used measure of system performance is the marketing margin or price spread. Margin or spread can be useful descriptive statistics if it used to show how the consumer's price is divided among participants at different

levels of marketing system [14].

**3.3.1. Marketing Costs and Benefit Shares of Actors in Red Pepper Market Chain**

The result in Table 6 shows different types of marketing cost related to the transaction of red pepper by collectors, wholesalers, retailers and processor. It also shows the benefit share of each marketing actors. The arrangement of marketing cost revealed that farmers cost is the highest cost from the other actors. This is due to the higher cost of inputs used by red pepper farmers for production. Thus, the cost of input is the highest amount followed by processors cost and wholesalers cost.

A red pepper market chain actor adds value to the product as the product passes from one actor to another. In a way, the actors add value on the product through improving the

quality by sorting, removing dusts and other trashes, packing and time utility. Trader’s profit margin shows that it is more than two fold of that of farmers. That means, traders took a total of 61.3% out of the total profit margin; off which 1.91% and 38.22% was simply by buying from the farmers and selling to consumers and changing the form of the product respectively. Specifically, among traders, processors profit margin constitutes the highest share (38.22%) followed by wholesalers (12.33%). While farmers, doing all the work of producing red pepper and bearing the associated risks, took 38.7% of the profit margin. This impliedly, red pepper producers added 38.7% of the total value of red pepper in the *woreda*; whereas, collectors, wholesalers, retailer, processors are responsible for 1.91%, 12.33% and 8.84%, and 38.22% respectively.

*Table 6. Red pepper marketing costs and benefit shares of actors (per Kg).*

Description	Actors					Horizontal Sum
	Farmers	Collectors	Wholesalers	Retailors	Processors	
Purchase price	0.0	63.7	75.0	50.0	42.5	231.1
Total Mktg Cost	12.02	0.25	1.91	0.72	7.95	22.85
Sale Price	74.55	67.0	96.8	65.0	112.17	415.55
Market Margin	74.55	3.33	21.83	15.00	69.71	184.43
% share of margin	40.4	1.8	11.8	8.1	37.8	100.00
Profit Margin	62.53	3.08	19.92	14.28	61.76	161.57
% share of profit	38.70	1.91	12.33	8.84	38.22	100.00

Marketing margins of red pepper in the nine channels for each group of market players are given in table 7. The GMMf, GMMcl, GMMws, GMMrand GMMpc stands for gross marketing margins of farmers, collectors, wholesalers,

retailers and processors respectively. Whereas the NMMf, NMMcl, NMMws, NMMr and NMMpc refers the net marketing margins of farmers, collectors, wholesalers, retailers and processors per each channel respectively.

*Table 7. Actors’ marketing margins per each channels of red pepper.*

Marketing Margins (%)	Ch-I	Ch-II	Ch-III	Ch-IV	Ch-V	Ch-VI	Ch-VII	Ch-VIII
GMMF	100.00	37.85	76.92	44.58	56.76	66.86	75.76	56.76
GMMcl					2.97			2.97
GMMws						19.47	22.05	26.60
GMMr			23.08	13.37			2.2	
GMMpc		62.1		42.05	40.27	13.67		13.67
NMMcl					2.75			2.75
NMMws						17.76	20.12	24.89
NMMrt			21.97	12.73			0.26	
NMMpc		55.06		34.96	33.18	6.58		6.58

The Total Gross Marketing Margins (TGMM), which is the total consumer price left for different actors, is the highest in channel-II (62.1%) followed by channel-IV (55.4%). Farmers, without considering the first channel which farmers directly sold to the consumer, have got the highest gross marketing in channel-III (76.92) and VII (75.76%) followed by processors in channel-II (62.1%). This is because in one way as the number of middle men’s between farmers and the ultimate consumers were small the share of farmers increases, in the other way the middle men’s between the two ends were not processors the share of farmers also increases. This similar with the general truth that as the number of middlemen between the two ends increases the share of farmers’ decrease. However in this study, the numbers of middlemen in channel-IV and VI are equally two; the farmer’s share of consumers’ price is considerably

different having a value of lower (44.58) and higher (66.86), respectively. This is because of the activities performed by the last actors in the marketing channels; which means the last actor (processors) in channel-IV adds more form value and hence incurs more cost on the product before it gets on the hands of ultimate consumers. This gives processors to be beneficial in taking more share of consumers’ price of red pepper. This proves that red pepper marketing is more advantageous when it sold adding form utility.

Actors’ profit margin (NMM), which also shows actors’ value addition per channel, was somewhat high in channel-II as processors directly purchase from producer and sell it to the end users, consumers; followed by processors in channel IV which accounts for 34.96% of consumers’ price.

The combined red pepper market structure and performance analysis result proves that the channel that

stands first in terms of marketing much volumes of red pepper was the ones that couldn't secure maximum benefit for the farmer's in-terms of marketing margin (profit). Channel-VIII was the first important channel in marketing vast quantities of red pepper, but it doesn't result maximum farmers' margin; rather, without considering channel-I (producers directly sell to consumer), the 6<sup>th</sup> important channel (channel-III) in marketing much quantities results the highest farmers' benefit.

#### 4. Conclusions

In support of stimulating growth, economic development, food security and alleviating poverty, the analysis of the market chain performance of red peppers plays an important role in an ongoing or future red pepper production and supply development plan. This study was conducted at Abshige district to analyze the chain of red pepper. The finding shows that red pepper production in Abeshge district is carried out by different actors via different channels. The volume of red pepper transacted in each channels varies. The quantity of pepper passed through different marketing agents from farmers to consumers. However, the Farmers-Collectors-Wholesalers-Processors-Consumers channel stands first in terms of the volume red pepper transacted (35.7%), followed by Farmers-Wholesalers-Processors-Consumers channel (27.6%). On the other hand, red pepper producers added 38.7% of the total value of red pepper in the *woreda*. Whereas: collectors, wholesalers, retailers, and processors are responsible for 1.91%, 12.33% and 8.84%, and 38.22% respectively. The Total Gross Marketing Margins is highest in channel-II (62.1%) followed by channel-IV (55.4%). Actors' profit margin which shows actors' value addition per channel is higher in channel-II followed by processors in channel IV which accounts for 34.96% of consumers' price. This shows that the markets are operating quite profitable.

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