

**JIMMA UNIVERSITY**



**ASSESSMENT OF THE MARKET INFORMATION AMONG  
VEGETABLE PRODUCERS: THE CASE OF SOME SELECTED  
WOREDAS OF JIMMA ZONE OROMIA REGIONAL STATE**

**COLLEGE OF LAW AND GOVERNANCE**

**DEPARTMENT OF GOVERNANCE AND DEVELOPMENT STUDIES**

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**JULY, 2021**

**JIMMA, ETHIOPIA**

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**A THESIS SUBMITTED TO COLLEGE OF LAW AND GOVERNANCE  
DEPARTMENT OF GOVERNANCE AND DEVELOPMENT STUDIES IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS OF DEGREE OF MASTERS OF ARTS IN  
DEVELOPMENT MANAGEMENT**

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## CERTIFICATE

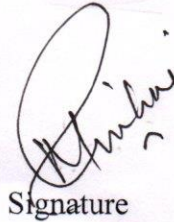
This is to certify that the thesis entitled “*Assessing the Market Information among the Vegetable Producers: The Case Study Jimma Zone, Selected Woredas, Oromia Regional State*” submitted in partial fulfillment of the requirements for the Degree of Master of Arts with Specialization in Development Management to the Graduate Program of Department of Governance and Development Studies which has been carried out by Fayisa Dinku under our supervision. Therefore, we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the Department.

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Date

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Prof. Muluget Alam      07/07/2021



Co-Advisor's Name

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Damena Telesse      08/07/2021



## DECLARATION

I undersigned to declare that this thesis entitled “*Assessment of the Market Information among the Vegetable Producers: The Case of some Selected Woredas Jimma Zone Oromia Regional State*” is my original work and that all relevant sources used in the thesis have been duly acknowledged and it has not been submitted partially or fully by any other person for an award of any degree in any other university or academic institution.

Researcher's Name	Date	Signature
<u>FAYISA DINKU</u>	<u>6/8/2021</u>	<u></u>





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## Abbreviations and Acronyms

<b>2SLS</b>	Two stages least squares
<b>AIV</b>	Agricultural information value
<b>AMIC</b>	Agricultural marketing information center
<b>APMC</b>	Agriculture produces marketing committee
<b>AMIS</b>	Agricultural market information services
<b>CELAC</b>	Collecting and Exchange of Local Agricultural Content
<b>EHDA</b>	Ethiopia Horticulture Development Agency
<b>EHPEA</b>	Ethiopian Horticulture Producers and Exporters Association
<b>EIA</b>	Ethiopian information Agency
<b>ERCA</b>	Ethiopian Revenue and Custom Authority
<b>FAOSTA</b>	Food and Agricultural Organization Statistics Training Agency
<b>GVC</b>	Global Value Chain
<b>ICT</b>	Information communication technology
<b>KACE</b>	Kenya agriculture commodity exchange
<b>MIPAD</b>	Market Information Platform for Agro dealers
<b>MIS</b>	Market Information System
<b>OMA</b>	Agricultural Market Observatory in Mali
<b>RATIN</b>	Regional Agriculture Trade Intelligence Network
<b>SIMA</b>	Agricultural marketing information system
<b>SMS</b>	Short message service
<b>T2M</b>	Time to Market
<b>USD</b>	United states dollar
<b>VMIS</b>	Vegetable marketing information system
<b>WAP</b>	Wireless Application Protocol

## **Abstract**

*This study was conducted on assessing the market information among the vegetable producers in some Selected woredas of Jimma zone. To attain the objectives of the study, a descriptive survey design was applied; the study was carried out through a mixed approach in which both quantitative and qualitative data were concurrently analyzed. The three districts were identified on the basis of the top in vegetable production and the population of this study encompasses vegetable (Tomatoes, Potatoes, and Cabbage) producers, development agents, and agricultural bureau of (Gomma, Manna, and Kersa) woredas. In order to find the study participants, a multi-stage sampling was applied. From the total population of 378 vegetable producers, 194 sample size was determined by using the standard probability sampling formula and proportionality. To collect the desired data, instruments like questionnaires, interviews, and FGDs were applied. An attempt has been made to identify the various patterns of awareness, sources, utilization, and its benefits, constraint, and expectations to agricultural marketing information among the vegetable producers. The data analysis tools used were frequency, percentages, and multiple regression.*

*From the findings of the research study, it was revealed that the degree of awareness on prices in local markets placed the I Rank (first) followed by arrivals in local markets, arrivals, and prices in reference markets (III Rank). From among the variables of challenges, availability of transportation, economic level of the households, level of education, lack of training and awareness, interference of traders, distance from the center, fluctuation of vegetable prices, and accessibility of technology were seen as the high challenges faced by the households of these sample woredas (districts). There was a strong relationship between vegetable producer's awareness of agricultural market information and vegetable producer's practices and utilization of market information with  $r=0.848$ . Finally, the researcher recommended that agriculture and trade offices should facilitate conditions in which households apply market information to sell their vegetables at reference markets. The households should be provided awareness about market information, in which households are going to use their mobile phones and other accessibility to be well informed about market information in order to sell their products at reference market with better price.*

### **Keywords:**

*Agricultural market information, Accessibility of market, Local market, Market information, market, Reference Market and Vegetable producers.*



# Chapter One

## 1. Introduction

Agricultural market information systems are a set of integrated and coordinated processes and tools to collect and deliver agricultural marketing information and services to farmers, traders, food processors, government functionaries, and others that may be benefited from current market information. Agricultural market information is developed to increase the transparency of markets by providing current price information to smallholder farmers who were historically unable to obtain market prices because of their isolated rural locations and lack of contact with actors in other components of their product value chains (Subervie, D. 2011). The market information system provides these farmers with access to relevant prices information especially costs of products and market places to level the playing field between farmers and market intermediaries who traditionally had been able to take advantage of farmers usually because of lack of knowledge about the market value of their produce (Kizito A., 2011)

So, access to information is an important input for making agricultural decisions in producing, marketing, and finance and has historically been very costly in Africa. Farmers who want to sell their products have to search for the right price, the right buyers, the right standards, and grades of products, which involve high costs. Farmers need to travel frequently; repeated loading and unloading to show case their products to buyers and brokers. Farmers in Ethiopia sell produce to traders either in their villages or in distant markets which entails substantial transportation and labor costs. The village markets are characterized by asymmetric information in which traders are more informed than farmers about the prices in the central or regional markets (Tadesse, and Shively, 2013).

Access to current prices and price trend information supports commercial decisions –making, allowing farmers to choose preferred markets to sell their goods, negotiate more effectively with intermediaries, and in some cases, choose which crops to plant or grow and how long to store their crops until prices increase (Tollens E., 2011).

Besides the searching cost for price information from the central market, farmers have to incur substantial searching costs to compare prices of different buyers in the local market. Price also varies within days and

weeks which forces farmers to search for information every time they want to sell their products. Excessive market searching cost causes smallholders to produce a very limited range of goods and services.

In the extreme case, it leads to households producing only for home consumption. It also constraints them to apply low levels of external input and become less responsive to make changes (Holden, and Shiferaw, 2001). In Ethiopian cases, markets are not perfect or competitive; in this case, prices become endogenous. Farm households have to make a calculated decision on where to sell, when to sell, how much to sell, and whom to sell in order to receive the highest price possible to maximize their revenue.

The central point of the above-mentioned idea, in general, is how market information is essential for farmers in producing and selling their goods, unless households who are actively engaged in producing goods are well informed, it is impossible to be profitable for the producers. For instance, some households are enriched on information on how to sell, for whom to sell, and decision on prices of the products, but still some other farmers are unable to be well informed about the market, due to lack of information or may get the distorted information from agents or brokers. This may result in the farmers under profitable; rather brokers and agents may more profitable than the owners of the products. In addition, the farmers may force to use the local markets due to far from the market information on their goods.

Jimma zone has about, 22 woredas, in which almost all woredas are well known by the vegetables and fruits production .As far as the information taken from Jimma zone agriculture and trade office indicated that, there is no fixed place in which vegetables and fruits are sells in Jimma zone including the zone town, rather there is petty traders that are sells on the street. Fruits and vegetables in Jimma zone are tomatoes, potatoes, bananas, papaya, mango, cabbages, avocado and oranges. Within the group of vegetables mostly potatoes, tomatoes, onions, peppers and cabbages are sold. Main fruit and vegetable markets in Jimma zone, Jimma town around Bishishe and the so called Atakilt Tera, and most probably, fruits and vegetables are sells near by the road. These markets have a variety of clients: wholesalers, retailers and consumers are sourcing their fruit and vegetables from these markets. Households sell mostly vegetables and wide range of fruits (like banana, orange, avocado, pineapple and papaya). Some traders have their own shop and storage place. A lot of traders are selling their produce at the messy pathways of the market. Fruit and vegetables are also sold at some supermarkets in some areas of Jimma town but to a very limited extent. Fruits and vegetables are not sold in any processed manner (*Sources: Jimma Zone, Agriculture and Trade Office*)



Therefore, Jimma zone vegetable producers are also not free from the above market information problems, and that is why the researcher was motivated to conduct this research to investigate the problems pertaining to market information among the vegetable producers with the case study of selected woredas of Jimma zone, Oromia Regional State.

## **1.2 Statement of the Problems**

In most developing countries, including Ethiopia, market information is public goods service provided by the government department. These services generally, involve the regular collection of commodity prices and supply conditions from major market centers by government staff (Gallagher, K.2003). This information is sent to a centralized data processing center, typically housed in the ministry of agriculture or trade, where it is collected before being disseminated back to a range of clients. The dissemination of prices and market news is achieved through various media options such as radio, newspapers, internet, email, mobile phone, and notice boards to farmers, traders, government officials, policy makers, development agencies, and others, including consumers (Adenuga, *et al*, 2013).

Poor access to markets and marketing information has left rural farmers exploited by other players in the chain. Rural farmers often don't know the prices of their produces at distant markets. And due to poor road infrastructure and financial constraints, they often cannot transport their produce to distant markets. Traders and middlemen visit the farmers at their homes and local markets and make purchases there. In most cases, farmers negotiate based on the prices proposed by the traders or middlemen. Traders and middlemen often cheat farmers by taking advantage of their lack of knowledge of market prices, poverty, and weak bargaining power arising from illiteracy and low social status (Lightfoot and Scheuermeier,2007).

A study conducted by Chalwe (2011) on Zambia small holder's bean producers and identified the factors their choices of market channels and the choice of marketing channel was directly influenced by the price of beans. As a study conducted by Mawazo M. and Magesa(2016) on linking rural farmers to market using information communication technology, he found that how farmers should be linked with markets through technology such as website, mobile, Facebook, and YouTube.

There has been a little investigation by the researchers about market information of households among the vegetable producers in Ethiopia, specifically in Jimma Zone, Oromia Regional State. Most studies are

conducted on market chain analysis. However, as the market is the most important agent for the economy of the countries, information about prices that are related to demand and supply, and questions for whom to sell and how to sell are directly affected by market information delivered to the vegetable producers. Therefore, this shows that how much to investigate study on market information is very important to reduce unfair profitability between vegetable producers and agents or traders.

A study conducted by Mengesha Yayo (2016) on market systems analysis of vegetables and fruits in Amhara regional state, Raya Kobo, and Harbu woreda, confirmed that market system analysis of vegetables and fruits were determined by the current price, distance from the main road, farmers experiences, and age. In addition, a study conducted by (Getachew Tadesse and Godfrey Bahigwa, 2014) on mobile phones and farmers' marketing decisions in Ethiopia, found out that the number of farmers who use mobile to get market information is very small.

In addition, a study conducted by Bezabih (2008) on the horticulture value chain in East of Ethiopia, and identified chain constraints, and also a study conducted by Almaz, *etal.*(2018) on constraints of vegetables in Ethiopia and found out that onion and potato value chain is complicated by different problems

When the researcher come to the Jimma zone, as far as the researcher tried to review previous studies, there was hardly any study conducted on the area of market information among vegetable producers, except a study conducted on market chain analysis. To mention an instance, a study conducted by Ayelech Tadesse (2011) on market chain analysis of fruits and vegetables in Jimma zone, Gomma woreda, she found out that outlet market information to farmers on fruits and vegetables are to be provided on accurate time.

Therefore, this shows that most studies that had been conducted at the national level previously focused on market chain analysis, information delivery means (mobile), and factors that determine the market supply such as lack of infrastructure, distance from the main road, and farmer's experiences were studied. Most of them were focused on market chain analysis on both fruits and vegetables, farmers market participation, and decisions but without studying the market information, market chain analysis, and how farmers are going to participate in the market decision, and these by themselves have no guarantee for the farmers to be profitable and therefore all the above-stated studies did not focus on market information, and this study filled the gap by conducting a study on assessment of market information among the households of

vegetable producers. At the same time, this research is one of the current issues in the efforts of boosting the economy of Ethiopia by integrating the producers with market-based information.

Therefore, most studies were conducted on the market system, the market chain uses of mobile phone on market access and out let preference of households, but this current study filled up the market information, access, practices, challenges, and awareness of the vegetable producers about market information and the linkage between the market information and the prices of the vegetables were addressed in this study.

As an inspiration to conduct study on market information , rural farmers (households) are bringing their goods and services to the market and sell it for the urban traders, but they sell it by cheap or discounted, with less profitability, which is not balanced with their effort and devotion they spend to produce vegetables (Tomatoes, Potatoes and Cabbage) . In contrast, traders buy the products with cheap prices and re -sell it with expensive prices so that the urban merchants are more beneficiaries than those farmers who produced the goods. Therefore, market information may be one of the causes for all such benefit imbalance exists among traders and farmers of vegetable producers.

Therefore, this study has conducted the assessing the market information among households of vegetable producers, in case of some selected woredas, Jimma zone Oromia Regional State to meet the objectives of this study, the following questions were raised :

## **1.3 Objectives of the study**

### **1.3.1 General Objective**

The main objective of this study was to assess the market information among the vegetable producers with the case study of selected woredas of Jimma zone, Oromia Regional State.

### **1.3.2 Specific Objectives**

The specific objectives of this study are:

- To examine how vegetable producers are get an access of market information in the selected woredas.
- To identify the challenges /constraints vegetable producers face to get market information in the study area.

- To identify whether vegetable producers are aware about market information in the study area
- To investigate the extent vegetable producers are practicing and utilizing market information to sell their vegetables in the selected district.

## **1.4 Basic Research Questions**

Here are the research questions that this study would be able to answer.

- How the vegetable producers are get access of market information in the selected woreda?
- What are the challenges /constraints vegetable producers face to get market information in the study area?
- What is the level of degree of awareness of vegetable producers about market information in the study area?
- To what extent vegetable producers are practicing and utilizing the market information to sell their vegetables in the selected district?

## **1.5 Significance of the study**

This study would be able to give benefits for vegetable producers, for the agricultural office of the selected woredas, and the agriculture and trade office of these selected woredas. This study may lead the vegetable producers to participate in the market and being profitable. Once they are aware of the essentiality of market information, and get accessibility on the condition of the market, especially about the prices of their goods, they may store their goods and stay until the price will increase. Therefore, the findings of this study expected that vegetable producers of this area may increase their income, and the study may add some better living conditions of the farmers as well as improve the daily life of the producers.

Next, this study may help the agricultural sectors agricultural and trade office of the selected woreda by providing some first-hand information on how the agricultural offices are going to disseminated market information for the households and inform them when and how they bring their products to the market based on the market equation of demand of the consumers. As the knowledge generation, this study may help the policy makers, who are concern on the marketing system of vegetables and the study is important so as helps as the spring board for the economy of these selected woredas.

Finally, this study may be helpful for those who are engaged in agricultural policy-making on how they will be included in the issue of the market information during policy formulation. Therefore, the findings may serve as the springboard for policy makers and researchers who are interested to conduct further research on a similar title.

## **1.6 Delimitation of the Study**

This study was delimited to assess the market information among the vegetable producers of some selected woredas of Jimma Zone, Oromia Regional State. Specifically, this study would be delimited on Gomma, Manna, and Kersa woredas specifically focused on three kinds of vegetables (Tomatoes, Potatoes, and Cabbage).

The study also delimited by its conceptual framework that, independent variables that influence market information such as (Mobile phone, Radio, TV, Social Media, SMS and agents (traders and brokers), Facebook, and other internet-related market information was given due attention. Dependent variables (information of vegetable prices) and intermediate variables (providers of market information or agents) would be the focus and concern of this study. Finally, this study was also delimited by its methodology in which the researcher applied a descriptive research design with a mixed approach of the study. Finally, the duration of data collection of this research would be from January 2021-June, 2021 G.C

## **1.7 Limitation of the study**

Even though, all challenges and limitations encountered were overcome by the researcher, by going to the study area many times and kept the restriction of the Covid-19 epidemic diseases, keeping the distancing, using small numbers of people with specific areas and repeatedly distributed the questions many times. So that this study was completed, here are some of the most difficult limitations. First of all, it was too difficult to find out all identified district respondents to get the desired data. So, this resulted as the researcher went there many times. The other challenge was related to Covid - 19 pandemic diseases, so as it was impossible to find data from the vegetable and this also cost the researcher to visit the sites repeatedly and kept the restriction of the Covid -19 that made the participants distancing. The other limitation was due to limited periods of time, this study was conducted on few vegetables (Tomatoes, Potatoes, and Cabbages) as a sample of the vegetables, as well as only three woredas, were identified, this may also challenge the conclusion of this study.



The last challenge was the time gap between expected data collection time and the harvesting period of vegetables. Therefore, to overcome this, the researcher was forced to wait until the harvesting time and these vegetables were ready to sell at market.

## **1.8 Organization of the Study**

This research is composed of five chapters. The first chapter included the introduction, statement of the problem, basic research questions, significance, delimitation, and definitions of operational words. Chapter two is about the theoretical, empirical, and conceptual framework of the study. Chapter three is all about methodology, that constituted topics and sub topics such as the description of the study area, research design, approach of the study, sources of data, the population of the study, sampling technique and sample size, data collection instruments, validity and reliability of the instruments, data collection procedures, methods of data analysis, and ethical consideration of the study. The fourth chapter includes the discussion and analysis of data, and the last chapter is the major finding, conclusions, and recommendations of the study.

## **1.9 Operational Definitions of keywords**

Here are the contextual definitions of some words that the researcher applied in this study.

**Market:** By market, the researcher uses it to explain about exchanges of goods and services in which both supply and demand are existing. There is a reaction between buyers and sellers in which both are mutually benefited from their buying and selling agreement.

**Market information:** It is about the information in which the prices of goods and services are carried in the market. Market information is the disseminated information about the whole concern of market to the farmers on what to produce, for whom to sell and the decided the prices of the vegetables

**Households:** are farmers who are living in a specific area and engaged in agricultural activities and, those who are really on agricultural income as the livelihood of their family.

**Agents:** are individuals who are engaged as actors between farmers and traders, and those who get the cost benefits from both vegetable producers and traders to make contracts on both sides.

## **CHAPTER TWO**

### **2. REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

This section presents about the conceptual review literature, in which the researcher defines certain concepts that are used in the study, theoretical literature review ( theories, experiences and policies ) that are apply in the market information , the empirical literature review ( about studies conducted on market information in Africa and also goes to Ethiopia ) and finally, this section includes about the conceptual frame work ,in which the researcher show the independent and dependent variables .

#### **2.2 Conceptual Review Literature**

##### **2.2.1 The Concept of Market Information**

Market information as commodity price data linked where possible with market demand conditions. In its simplest form, the provision of spot prices aims to assist farmers in being able to monitor market conditions and make better decisions on where to sell their produce and negotiate for improved prices rather than being compliant price takers. Similarly, rural and traveling traders, who have less access to market information than their urban counterparts, also use market information services to assist in their decision-making and identification of spatial marketing opportunities.

According to Shepherd (1997), market information comes in two main formats: public dissemination of prevailing market prices and conditions, and provision of price trend analysis for specific commodities. Public provision of market information aims to reduce the asymmetry of information in the market place. The rationale is based on the premise that in all exchange relationships there are forces of market power at play, and the individual or group with most information tends to set prices. More equal access to market information encourages arbitrage leading to greater uniformity in prices of a given commodity within a specific supply chain or country at a given time. The fundamental role of market information is therefore to encourage more efficient spatial and temporal arbitrage. The service also, however, provides a channel for educating farmers about market trends, which assists in raising their level of engagement with the marketplace, a primary goal in those countries, where governments are seeking to increase the level of commercialization of the smallholder sector.

### **2.2.2 The concept of Vegetables**

Horticulture is a branch of agriculture concerned with producing fruits, vegetables, flowers, and ornamental plants. The word is derived from Latin Hortus and culture, meaning garden culture (A.T Zelenka, 1985). The fruits are mainly tropical and sub-tropical ones and the major ones are bananas, oranges, papayas, grapes, mandarins, avocados, strawberries, and others. The major vegetables include potatoes, tomatoes, guava, onion, shallots, pumpkins, green beans, bobby beans, and all sorts of leafy vegetables.

The vegetable is the designation given to that group of horticultural plants grown for human consumption either for their roots, tubers, shoots, stems, leaves, flower buds, flowers, fruit, or Fruits and vegetables are usually lucrative compared to staple crops. Due to its added high value and income generation potential and a relative lack of economies of scale (compared to grain production and livestock), their production could be attractive. The production of fruits and vegetables has a comparative advantage particularly under the condition where arable land is scarce, labor is abundant and the market is accessible. This is the prevailing situation in many countries of south and south east Asia where the size of land holding is the lowest in the world and transportation infrastructure has shown dramatic improvements (FAOSTA T, 2004)

### **2.2.3 Market Information System**

The vegetable marketing information system (VMIS) can be defined as the method of generating information on time to assist farmers to take appropriate decisions for selling their produces at the appropriate time (Awasthi, 2007). Based upon these information farmers, traders, government officials, consumers, and concerned stakeholders can perform their activities effectively and efficiently, boosting the competitive vegetable market.

One of the most useful tasks of market information service is forecasting future demand to guide farmers in their production planning. The national market information system disseminates the price information through mass media (newspaper, radio, television, internet, etc.); but it is not clear how this information is useful to farmers. As farmers are interested mainly in prices of local markets where they sell their produces; hence market information system needs to be decentralized especially in remote areas where wide regional price differences occur.

Most Asian countries operate a market information service focused on promoting efficient marketing and raising farm incomes, however, the form it takes varies according to the level of economic development,

and state of agriculture in the range of subsistence to commercial farming. In countries like Indonesia, Japan, Korea, Thailand, agricultural market information is a national government service receiving regular government funding.

#### **2.2.4 The Role of Markets**

Correct decision-making and planning depend on reliable information on variable market conditions, which are expressed by changing prices. Advocates of free-market economies consider price flexibility in a positive light in that it reflects both supply and demand and seasonality in production and provides producers with incentives to adapt their production to market requirements. However, one of the preconditions for a market economy is that correct information on market conditions must be available and, within reason, accessible to all. Markets should provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated. Markets should provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated (Haerah,*etal.*, 1997)

#### **2.2.5 Market Information and Farmers**

Farmers often have limited outlets for their products and are often bound by traditional trading relationships, which may include an element of credit provision by the trader. Opportunities for most farmers to take advantage of spatial arbitrage possibilities are therefore restricted. Such opportunities are further hindered by the small quantities produced by most (Helder, *etal.*1994)

While there may be few spatial arbitrage opportunities for small farmers, it cannot be concluded that market information is of little value to them. Indeed, while the arbitrage opportunities may provide much of the theoretical justification for the provision of market information, the reality is that traders often already have accurate and widespread information networks and the introduction of an official MIS may add little to arbitrage possibilities (Holtzman, J.S. *etal*,1993). However, the practical benefits to farmers are often much greater than the arbitrage possibilities for traders which can, theoretically, result from MIS. At the simplest level, the availability of market information can enable farmers to check on the prices they receive, vis-à-vis the prevailing market prices. This is the case in Indonesia, where horticultural market prices are broadcast daily for all major production areas. If farmers receive prices lower than those broadcast they may, for example, conclude that they should seek out other traders in the future, negotiate more forcefully

or try to improve the quality and presentation of their produce. Broadcast prices are also used as a starting point in negotiations with traders (Lutz C.1994)

Information on market conditions may change farmers' marketing strategies. While, individually, farmers may be unable to take advantage of spatial arbitrage possibilities, collectively they may be able to organize transport to more distant and profitable markets. Group marketing by farmers is not, of course, without its problems and while offering some attractions has not been widely taken up in practice. Improved availability of information may, however, encourage more group marketing initiatives (Schubert, B. *etal.*1988)

Market information can facilitate optimal decision-making based on market incentives. A lack of information will hamper the farmer in taking decisions concerning the crop and the quantity to produce and concerning the best time to produce to maximize returns. Information on price fluctuations will also give insights into the risks associated with producing different crops. Consequently, better information should lead to higher profitability although, for most small farmers, information services will have to be supplemented by extension services that are able to assist them to interpret price data. Lack of information is an entry barrier to both trade and production. Where farmers have had access to information they are able to move beyond subsistence production. Shifts in cropping patterns to higher-value produce have also been noted, especially in vegetable production (Lutz C.1994)

### **2.2.6 The Development of market information system**

The market information system developed during two primary phases. The first generation of market information appeared in the United States during the 1920s to support price transparency and fight market concentration in the agro-industry. These systems were replicated in Europe during the 1930s but were not extended to Africa and other developing regions until the wave of market liberalization in the 1980s when most governments in the region stopped fixing prices through central marketing boards. This market information benefited from the work done to established famine warning systems, which also gathered market prices and information on staples in Africa. To mention examples of the first generation market information the Agricultural Market Observatory in Mali (OMA).The agricultural marketing information center in Zambia (AMIC),and the Agricultural marketing information system of Mozambique (SIMA) are some among the first market information generation.

The rise in accessibility of new information and communication technologies in Africa such as internet-based applications, and mobile phones led to the emergence of second-generation market information systems in the 2000s. In second-generation MIS, market prices were integrated with other mobile agriculture information tools to provide additional information, including agricultural extension advice, input price information, weather forecasts, and trading platforms to match producers with buyers. These systems tended to be created and led by the private sector, or farmers' or traders' associations rather than governments, and they at least attempt to achieve financial sustainability by charging user fees, permitting advertising, and/or providing fee-based additional services. Examples of second-generation MIS include Esoko (formerly known as Trade Net, which is based in Ghana and now active in 16 countries), Info trade (Uganda), and the Regional Agriculture Trade Intelligence Network or RATIN (based in Kenya but operating throughout East Africa).

Several systems use free and open-source software, while others program their own systems or license third-party platforms. For instance, the AMITSA network for agriculture input market information currently uses a software platform from Image-AD called M Farms (not to be confused with MFarm in Kenya) for price collection and dissemination as well as profile management for agro-dealers across the region. Specifically, they are using M Farms' Market Information Platform for Agro dealers (MIPAD) module. Some MIS is the result of a complex integration of various systems. In addition to its use of the M Farms platform, AMITSA, for example, uses the KENTICO content management system to manage its website to incorporate information from M Farms, publications, catalogs, directories, news, events, blogs, and other sources. AMITSA also uses Microsoft Reporting Services to manage agro-input statistics on the same website and takes advantage of Facebook and Twitter as additional channels to reach its audience. In addition to price dissemination by SMS, most MIS also distribute information via radio, internet, newspaper, and television. Again, this widespread diffusion increases accessibility for all market stakeholders.

### **2.2.7 Linking Smallholder Farmers to Markets**

Due to a lack of connectivity to more lucrative markets at regional, national, or international levels, most smallholder farmers who practice subsistence farming largely depend on local markets or the farm gate to sell their produce. In some areas, traditional marketing channels operate and there are no clear links between farmers, processors, retailers, consumers, and others. Also, farmers lack access to reliable and cost-efficient inputs such as extension advice, mechanization services, seeds, fertilizers, and credit. In

reality, the agriculture value chain is too long and inefficient. This leads to weak incentives and low investments and productivity. As a result, smallholders' income remains low and poverty is endemic.

But how can these smallholders emerge from this poverty trap? Torero (2011) proposed that one way is to link “farms to markets” by improving physical infrastructure such as information technology that connects smallholders to markets and reducing transaction costs and minimizing risk. In supporting the proposal, Prakash (2008) and Rapusas (2008) insisted on using technology and information to establish linkage between farmers, producers, and markets. This study explored the use of information technologies (specifically agriculture market

## **2.2. 8 Agricultural Market Information Services**

Agricultural market information services (AMISs) are a set of integrated and co-ordinated processes and tools to collect and deliver agricultural and/or livestock market information and services to farmers, traders, food processors, government functionaries and others that may benefit from current market data (Zoltner and Steffen, 2013). AMISs increase the transparency of markets by providing current market information to smallholder farmers.

Market access encourages farmers to act directly to the marketplace, improve their productivity, choose better marketing and delivery channels, promote their products, and influence prices (Van Crowder, 1997). The informed farmer may choose which crops to plant or how long to store their produce until prices increase. Market access also enables traders to decide how to price goods and where to sell them. Eventually, this increases the income of farmers, improves their bargaining power, and reduces information asymmetry (Svensson and Yanagisawa, 2009), shifting the share of income toward smallholder farmers (Zoltner and Steffen, 2013).

AMIS initiatives may change the way traders do their business and may also transform the farming habits of rural citizens (Payne, 2011). AMISs can carry additional information such as agricultural extension advice, weather forecasts, and prices for agriculture-related inputs.

These AMISs are accessible over the internet and even on mobile phones. In addition, AMISs (e.g., KACE) distribute information via radio, newspaper, and television. Some AMISs (e.g., AMITSA) take advantage of social networks such as Facebook and Twitter to reach their audience. Again, this widespread diffusion

increases accessibility for all market stakeholders. AMISs have not been very successful in many developing countries.

### **2.2. 9 Provision of Market Information Services**

The provision of agricultural marketing information aims to increase the efficiency of agricultural markets and contribute towards overcoming issues of market failure. This helps farmers to monitor market conditions and make better decisions on where to sell their produce; it also helps them to negotiate for improved prices. Similarly, traders use market information in their decision-making and identification of marketing opportunities. This review has used the first three services (out of five) provided by any AMIS as proposed by Donner (2009), which are: mediated agricultural extension, market information and virtual marketplaces.

### **2.2. 10 The Role of Agricultural Extension to Transmission of Information**

Agricultural extension – the practice of gathering, developing and sharing knowledge about farming and rural livelihoods with rural populations – is a decades-old and common activity (Donner, 2009). It has traditionally been defined as the delivery of information and technologies to farmers (Ponniah *et al.*, 2008). This is based on the idea that ‘modern’ knowledge and information are transferred through extension agents to recipient farmers. The purpose is to help farmers increase their production. The recent training and visit (T&V) approach operating in more than 40 developing countries provides continuous feedback from farmers to extension agents (Ponniah *et al.*, 2008).

Extension agents physically visit farmers and engage in knowledge and technology transfer. It emphasizes the dissemination of unsophisticated, low-cost, improved practices and it teaches farmers to make the best use of available resources. The T&V approach also uses the technology of radio and TVs thus allowing for rapid and low-cost dissemination of agricultural knowledge (Donner, 2009). As the number of extension workers is decreasing, Aina (2007) encouraged the integration of ICTs in delivering extension services. A number of AMISs are currently delivering this service over the internet or mobile phones. Esoko1 has established call centers in Ghana where farmers call and get rich and detailed advisory agricultural advice. Using push technology, the Collecting and Exchange of Local Agricultural Content (CELAC) 2 project in Uganda maintains a database of farmers in 15 districts to whom it regularly distributes agricultural information via SMS, phone calls and phone conferencing.



## **2.3 Theoretical Literature Review**

Different circumstances involved in the demand and supply of agricultural products, and the unique product characteristics require a different theory for analyzing agricultural marketing problems (Johan,1988).The major and most commonly used theories are functional, institutional and commodity theories .

### **2.3.1 Functional theories**

Functional theory to study marketing is to break up the whole marketing process into specialized activities performed in accomplishing the marketing process (Kohls and Uhl, 1985). The theory helps to evaluate marketing costs for similar marketing middlemen and/or different commodities and costs and benefits of marketing functions (Kohls Uhl, 1985;and Andargachew, 1990).The widely accepted functions are: exchange (buying and selling), physical (processing, storage, packing, labeling and transportation), and facilitating (standardizing, financing, risk bearing, promoting and market information). The exchange function involves pricing, buying and selling which is a transfer of title between exchanging parties.

### **2.3.2 Institutional Theories**

This theory focuses on the description and analysis of different organizations engaged in marketing (producers, wholesalers, agents, retailers, etc) and pays special attention to the operations and problems of each type of marketing institution. The institutional analysis is based on the identification of the major marketing channels and it considers the analysis of marketing costs and margins (Mendoza, 1995). An institutional approach for the marketing of agricultural product should be instrumental in solving the three basic marketing problems, namely consumers' demand for agricultural products, the price system that reflects these demands back to producers and the methods or practices used in exchanging title and getting the physical product from producers to consumers in the form they require, at the time and place desired (Johan, 1988).

### **2.3.2 Commodity Theories**

In a commodity theory, a specific commodity or groups of commodities are taken and the functions and institutions involved in the marketing process are analyzed (Kohls and Uhl, 1985). This approach is said to be the most practical as it helps to locate specific marketing problems of each commodity and

improvement measures. The theory follows the commodity along the path between producer and consumer and is concerned with describing what is done and how the commodity could be handled more efficiently (Purcell, 1979).

### **2.3.3 Experiences of African countries in Market information**

Access to recent and updated market information in developing countries is low and inadequate. A number of factors have been attributed to this failure including high illiteracy level, high cost in terms of time and resources needed lack of regular reliable information, isolation from the required infrastructure and an enabling policy environment. ICTs have emerged as a tool to bridge the information divide between rural farmers and the global community.

In developed countries, there is some evidence of usage of the latest ICTs to link suppliers and users of agricultural information services, including marketing information (Van Crowder, 1997). The developing world has now joined the race and there are initiatives in almost every country to ensure rural farmers are linked to markets and buyers. There are a number of initiatives to link small-scale farmers to markets and marketing information. Although there are a number of applications providing this service in sub-Saharan Africa, Esoko and Manobi are two prominent and successful ones and are discussed below.

Esoko provides an internet platform to enable farmers to get market information and trade using mobile phones and web pages. Esoko focuses on agricultural value chains in order to improve the transparency of markets and the operational efficiency of organizations.

It collects and provides content such as prices, bids and offers, weather and agricultural tips to which users can subscribe. The company offers three tiers of services: (1) price alerts via SMS; (2) the option for users (e.g., a livestock association) to relay information on prices, transport, input availability and more via SMS; and (3) the option for users to develop management information systems for their operations.

Farmers subscribed to Esoko receive a package of weekly advisory services consisting of current market prices, matching bids and offers, weather forecasts, and news and tips. Through Esoko, farmers can negotiate better prices, choose different markets or time their sales better. Esoko allows business companies to profile thousands of individuals, group them, and then send important messages to them. With Esoko, government agencies can track market prices, production data, commodity quantities and field activities, all

in real-time. Esoko also offers trade-related website options for customers. Compiled from (African Business, 2009; Payne, 2011).

Manobi, a private for-profit company based in Senegal, has developed a range of mobile and web-based applications focused on improving weaknesses in agricultural value chains. Time to Market (T2M) application enables farmers to check market prices on their mobile phones via SMS, WAP, MMS, or mobile internet. The ITU (2010) mid-term review reported that Manobi provides access to price data on various crops collected from different markets across the country. Manobi personnel use mobile phones to send the price data to the Manobi database using the Wireless Application Protocol (WAP). Manobi operates in Mali, Ivory Coast, and Niger (Payne, 2011)

### **2.3.4 Status of Vegetables Production and Marketing in Ethiopia**

Ethiopia's diversified agro-climatic condition makes it suitable for the production of a broad range of fruits, vegetables and herbs. The wide range of altitude, ranging from below sea level to over 3000m above sea level, gives it a wide range of agro ecological diversity ranging from humid tropics to alpine climates, where most types of vegetable crops can be successfully grown. Holders living near urban centers largely practice vegetable farming. Most vegetables are not commonly practiced by the rural private peasant holders; hence the small volume of production recorded is well evidenced by the survey results (CSA, 2015).

Commercial production of horticultural crops, including vegetables, has also been increasing in recent years because of the expansion of state farms (e.g. Ethiopian Horticulture Development Corporation) and increasing private investment in the sector by national and international entrepreneurs (EHDA, 2012). Vegetable production is practiced both under rained and irrigation systems. The irrigated vegetable production system is increasing because of increasing commercial farms and the development of small-scale irrigation schemes (Baredo, 2013; cited in Bezabih *et al.*, 2014). Ethiopia has a variety of vegetable crops grown in different agro-ecological zones by small farmers, mainly as a source of income as well as food. The production of vegetables varies from cultivating a few plants in the backyards, for home consumption, to large-scale production for the domestic and home markets. Increasing productivity is crucial to enhance production in general and export volume in particular.

Production of fresh vegetables, fruits, and herbs is a priority. Seasons of production are compatible with many neighboring countries and much of the land is suitable for organic certification. The export

performance of the sector had been limited to a very small volume to neighboring countries and the European market. However, the export status is changing as more modern farms and processing enterprises are expanding. A huge effort is being carried out by the Ethiopian Horticulture Producers and Exporters Association (EHPEA) to link smallholders with the export market through an out-growers' scheme. Understanding its immense role in the economic growth of the country, the government is currently giving attention to the export sector. In the Growth and Transformation Plan of Ethiopia/ 2010/11- 2014/15/, exports of goods are expected to grow by 36.6% in 2010/11 and with an annual average growth rate of 28.4% in the remaining period. Ethiopia has a real potential for the production of fruit and vegetable which can be competitive in the international market and earn foreign exchange that could contribute much to the development of the sector (FDRE, 2010).

Fresh and processed fruits and vegetables have a large domestic market in Ethiopia, significantly higher than the exported volumes. The size of the Ethiopian population is currently estimated at 117,736,619 million(<https://www.worldometers.info/>). This is a strong indication of the existence of large potential demand for fresh fruit and vegetable crops in the country. The other customer of Ethiopian fresh fruits and vegetables is processing plants, i.e., wineries, tomato processing plants and vegetable canning factories which require grapevine, tomato and various types of vegetables for processing (EIA, 2012).

According to Digafe (2013), the foreign exchange earnings from fruit and vegetable products have been consistently low, particularly, up until 2000/01. In 2005/06, the volume of export of vegetables was 26.3 million kilograms. In 2010/11, however, it reached 54.8 million kilograms recording a 108.2 percent increment. The foreign exchange earnings, which was USD 11.1 million in 2005/06, is also surged up by 147.5 percent to reach USD 27.5 million in 2010/11.

In the year 2007/08 and 2008/09, Ethiopia's supply of vegetables to the international market reduced drastically. Indeed, the decline in the volume of export is directly reflected in the foreign exchange earnings of the country. As a result, earnings reduced from 14.3 million USD in 2006/07 to 9.6 and 8.9 million USD in 2007/08 and 2008/09 respectively. However, after 2008/09, the volume of vegetable export recovered and increased sharply by an annual growth rate of 91.8 and 42.8 percent in 2009/10 and 2010/11, respectively. In 2012/13, Ethiopia exported 220,213 tons of vegetables and generated USD 438 million (ERCA, 2013).

## 2. 4. Empirical Literature Review

A number of studies employed the value chain approach to agricultural commodities. As described by Dolan *et al.* (1999), Horticulture Global Value Chain (GVC) has been dominated by large retailers that have adopted competitive strategies year-round supply. A dramatic change in the marketing channels is seen which shifted from wholesale markets to tightly-knit supply chains. Production moved away from small-holders to large firms, many of which are owned by exporters. Within the horticulture GVC, producers who are also exporters directly deal with importers, and importers, in turn, deal directly with retailers/supermarkets. Directly owned units firms are able to exert greater control over production processes and are better able to comply with quality, environmental and social standards.

Bezabih (2008) conducted a study on the horticultural value chain in Eastern parts of Ethiopia identified constraints on the chain. The study identified the major marketing constraints such as a huge number of middlemen in the marketing system, lack of markets to absorb the production, lack of marketing institutions safeguarding farmers' interest, low price for the products, rights over their marketable produces, imperfect pricing system, lack of coordination among producers to increase their bargaining power, lack of transparency in market information communications and poor product handling and packaging.

Almaz *et al.* (2014) used a value chain approach to study on constraints of vegetables in Ethiopia from the perspective of gender.

The finding of the study indicates that the onion and tomato value chain is complicated by substantial problems including; low yield, lack of production and marketing skill, lack of capital, adulteration (poor quality of seed), lack of market information, brokers hindering fairness price, unable to have good vegetable marketing policy, the problem of rural road access, storage problem, improper shading and lack of demand. The productivity level of onion and tomato in the study area is below its potential. Female-headed producers had low yield compared to their male counterparts. The study recommended giving due attention needed for vegetable marketing and production in any ongoing and future vegetable development plan.

According to Bezabih's and Mengistu's (2011) study on potato value chain analysis in Tigray and SNNP region indicate that production of potato is both for seed as well as consumption. The major potato value chain actors include input (seed, fertilizer, fungicide, farm implement) suppliers, producers, wholesalers, brokers, retailers, and consumers. The study also, stated that the potato value chain is constrained by a

shortage of improved and quality seed, low yield, low irrigation facility, poor disease control, less targeted to seed production, perishability, storage facility, low skill in post-harvest management, lack of storage facility, lack of processing facilities, low skill and technology for processing, brokers interference in the market and traders suppressing of potato price differences.

A vegetable value chain study conducted in Habro and Kombolcha Woredas by Abraham (2013) identified different problems on the chain. The major constraints hindering the development of the vegetable value chain are lack of modern input supply, high postharvest losses, the limited power of price setting, the problem of supply shortage, lack of storage facility, problem in information flow, low product quality, lack of support from concerned bodies, high monopolistic power of wholesalers, high travel distance of export to Somalia, lack of processing and long-chain condition of the market.

Pandey *et al.* (2013) conducted a study on an economic study of marketed Surplus of chickpea in Rewa District of Madhya Pradesh using cross-sectional data by adopted multiple linear regression. The studies came up with the finding that yield/ha, size of family, production of chickpea, size of holding and income from other sources variables are significantly affected on marketed surplus. In related studies, by Adenuga *et al.* (2013) on marketing efficiency and determinants of marketable surplus in vegetable production in Kwara State, Nigeria. This study indicated that the marketable surplus was found to be about (60%) of the total vegetable production. Household size, spoilage at the farm level, education of the household head, and farming experience were the significant determinants of marketable surplus in vegetable production in the study area.

According to Moti (2007), horticulture could be a way out for the agricultural commercialization of small-scale farmers with relatively better agricultural resource potential.

If small-scale farm households have to move towards the production of horticultural crops for agricultural commercialization, factors influencing household decisions behavior in resource use should be studied. It reported that diversifying the export base towards non-traditional agricultural commodities, as horticulture is important. He added linking small-scale farm household horticultural production with export could help both in reducing export earning instability and enhancing farm household income.

Mahilet (2013) applied two stages least squares (2SLS) regression model to analyze the determinants of the marketable surplus of households malt barley. Accordingly, the study found out that the marketable supply of malt barley was significantly affected by the output of malt barley, selling price, market information and distance to the market. Berhanu *et al.* (2014) conducted a study on factors affecting milk market participation and volume of supply in Ethiopia adopted Heckman's two-stage selection models. This study pointed out that milk yield per day, dairy farming experiences and numbers of members in the household significantly affected the volume of milk supply.

A number of studies have been done that have revealed both institutional and technical factors influencing marketing channel choice decisions. Riziki *et al.* (2015) conducted a study on determinants of the choice of marketing outlets for African indigenous vegetables among the Agro-Pastoral Maasai of Narok and Kajiado counties of Kenya and adopted a multinomial logistic regression model. This study pointed out that the quantity of AIVs sold, agricultural market distance, sex, education level, household size, levels of value addition, farming experience in agro-pastoralism, off-farm income and marketing costs are the main factors that influence the choice of marketing outlet by the agro-pastoral.

Chalwe (2011) aiming at understanding Zambian smallholder bean producers and the factors that influence their choice of marketing channels by adopted a probit model. Results from the probit model indicated that the choice of marketing channel was directly influenced by the price of beans, scale of operation (as measured by the number of beans harvested, and quantity sold), distance to the market, farming mechanization used, and livestock ownership. On the other hand probit results for decision to sell indicated that price, mechanization and farmers age significantly affected farmer's decision to sell. Meaning that price was very important in stimulating both selling decisions and channel selection. Mukiyama *et al.* (2014) used multinomial logistic regression to assess factors influencing vegetable farmer's choice of marketing channel in Khon Kaen, Thailand. The study pointed out that three main marketing channels for vegetables were 1) collector, 2) direct retailing, and 3) farmers' cooperative. Factors such as gender, income, experience, group membership, vegetable land size, soil conservation practice, and type of pesticide used were found to significantly affect the farmers' choices of marketing channels.

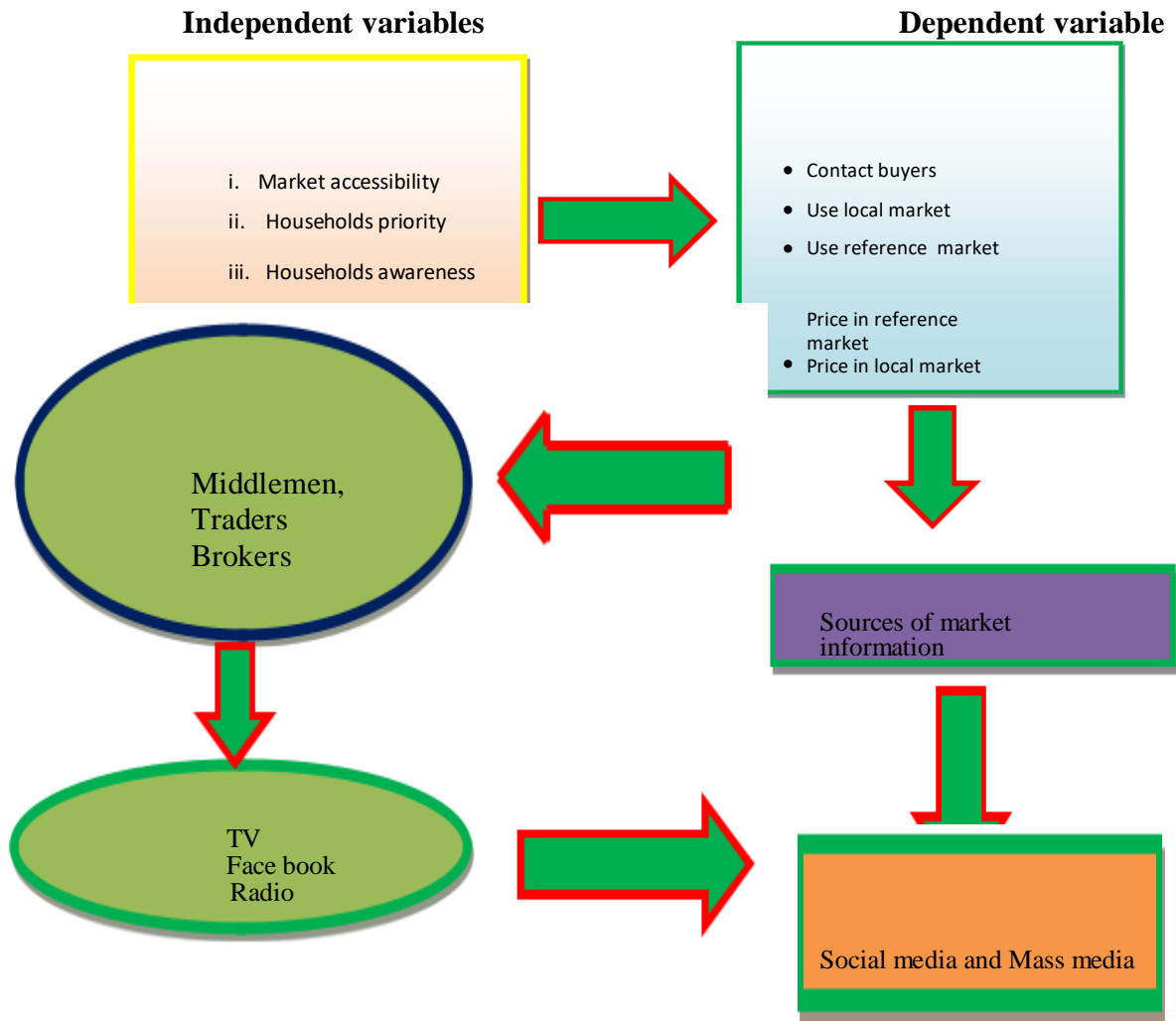
According to Nyaupane and Gillespie (2010), farmers choose a market outlet considering its convenience and economic profitability. Farmers will therefore choose the channel that is most convenient and that offers the highest returns. The survey results of the factors influencing producers' marketing decisions in the Louisiana Crawfish Industry showed that most farmers choose wholesale markets compared to selling

directly to consumers, retailers, and producers. Farmers have a choice of whether to sell through direct or indirect marketing channels. Demographics farm characteristics (farm size and diversification) and premarket characteristics had significant influences on market outlet choice.

Bai *et al.* (2006) conducted a study on consumer choice of retail food store formats in Qingdao, China. The study used a multivariate probit model with four categories of retail food store formats (wet markets, small grocery stores, super markets, and hypermarkets) in Qingdao and the study indicates that the new hypermarkets are substitutes for supermarkets, but they do not compete extensively with wet markets and small grocery stores. Hailemariam *et al.* (2012) identified that the probability and extent of adoption of sustainable agricultural practices are influenced by social capital in the form of membership of rural institutions, credit constraint, spouse education, asset ownership, distance to markets, mode of transportation, rainfall and plot-level disturbances, the number of relatives and traders known by the farmer inside and outside his village, the farmers' belief in government support during crop failure, and confidence in the skill of extension agents. The study uses descriptive research design in which data was analyzed through multiple regression that assess the market information in some selected woreda jimma zone , Oromia Regional State .



## 2.5 Conceptual Framework of the Study



**Sources :** ( Market information services, 2010)

Figure 1: Model Relationship between Independent, Intermediate, and Dependent Variables

## CHAPTER THREE

### 3. METHODOLOGY OF THE STUDY

#### 3.1 Description of the Study Area

Geographically, Jimma Zone is located 346 Kms far from the capital city Addis Ababa to South West of Ethiopia. It is one of the 18 zones in the Oromia region. It has twenty-two woredas. Its astronomical location is 7° 4' North Latitude and 36° 5' East Longitude. The major cash products in the zone are coffee, fruits, and vegetables (avocado, Banana, mango, cabbage, tomato, orange) and cereal crops such as sorghum, maize, and Teff (**Source:** Jimma Zone Agricultural Office, 2021).

This represents 23.2% of the Region's output and 11.8% of national output. Based on the 2007 Census conducted by the CSA, Jimma has a population density of 159.69. While 137,668 or 11.31% are urban inhabitants, a further 858 or 0.03% are pastoralists. The three largest ethnic groups reported in Jimma are the Oromo (87.6%), the Amhara (4.05%), and the Yem (3.12%); all other ethnic groups made up 5.23% of the population. Afan Oromo is spoken as a first language by 90.43% and 5.33% spoke Amharic; the remaining 4.24% spoke all other primary languages reported. The majority of the inhabitants are Muslim, with 85.65% of the population having reported they practiced that belief, while 11.18% of the population practiced Ethiopian Orthodox Christianity and 2.97% professed Protestantism (**Source:** Jimma Zone Administration Office, 2021).

Therefore, this research was conducted on three woredas of Jimma zones namely, Gomma woreda, and Manna woreda and Kersa where Tomatoes, Potatoes and Cabbage are the main means of livelihood of the society.

#### **Gomma woreda**

Gomma is one of the known vegetables growing woreda, among 21 woredas of Jimma Zone. It is located 397 km Southwest of Addis Ababa and about 50 km west of Jimma town (ORG, 2003). Its area is 1,230.2 km<sup>2</sup> (ARDO, 2008). The annual rainfall varies between 800-2000 mm, while the mean minimum and maximum annual temperatures of the woreda vary between 7<sup>0</sup>C-12<sup>0</sup>C

and 25<sup>0</sup>C-30<sup>0</sup>C, respectively (ARDO, 2008). Based on 15 years weather data obtained from Gomma woreda, the average annual rainfall is 1524 mm.

Altitudinal range of the woreda is between 1387-2870 masl (IPMS, 2007). The three dominant soil types in the woreda are Eutric Vertisols, Humic Alfisols and Humic Nitosols. Nitosols are the most abundant covering about 90% of the woreda, which is dark reddish brown in color, slightly acidic and suitable for coffee production (IPMS, 2007). Agro-ecologically, this woreda is divided into 8% high land (Dega), 88 %, intermediate high land (Weyina Dega) and 4% low land (Kolla) (IPMS, 2007).

### **Manna woreda**

Manna is one of the major coffee producing woredas in Jimma zone, which is located at 368 km South west of Addis Ababa and 18 km west of Jimma town. The total area of the woreda is

478.98 km<sup>2</sup> (47,898 ha) of which 12% is highland, 65% intermediate highland and 23% lowland with altitudinal ranges between 1470–2610 masl. (ARDO,2008). The mean minimum and maximum temperatures are 13.0<sup>0</sup>C and 24.8<sup>0</sup>C, respectively (ARDO, 2008). Based on long term (15 years) weather data obtained from the nearby JARC meteorological station, the average annual rainfall is 1523 mm. Distric Nitosols and Orthic Acrisols are the dominant soil types with slightly acidic PH, which is suitable for vegetable production found in Manna woreda (ORG,2003).

### **Kersa woreda**

Kersa woreda is a woreda in Jimma zone of the Oromia Region of Ethiopia .Its bordered on the south by dedo , on South west by Seka Chokorsa, on the west by manna , on the north by Limmu Kosa , on the north east by Tiro Afeta , and on the south east by Omo Nada. Kersa is one of the major vegetable generating woredas in Jimma zone, which is located at 421 km from Addis Ababa and 17 km from east of Jimma town. Location of the district astronomical (absolute) location lies between 7<sup>0</sup> 50′ -8<sup>0</sup> 36′N latitude and 36<sup>0</sup> 44′ -37<sup>0</sup> 29′E longitudinal glides. The total area of the woreda is 1354 km<sup>2</sup>. The altitude ranges between 1450–1950 masl (ARDO, 2008).

The mean minimum and maximum temperatures are 10<sup>0</sup>C and 25<sup>0</sup>C, respectively (ARDO, 2008). Based on long term (15 years) weather data obtained from the nearby JARC meteorological station, the average annual rainfall is 1200 mm up to 2000 mm. The climates of the woreda are 65% woina dega, 25% dega and 10% kola. The district (woreda) fall on under the tertiary volcanic of mekdela trap a serious group that makes it conducive for farming activities. Chromic and Pellic vertisols, Orthic Acrisols and Distric Nitosols are the major soil types with found in the woreda, which have a good agricultural potential and is suitable for coffee production found in the woreda (ORG, 2003).

**Figure 3.1 Location Map of Jimma zone**



(Sources: Jimma zone administration office, 2021)

### **3.2 Design of the Study**

The research design of this study was a descriptive survey design. The descriptive research design is appropriate for this study because the descriptive research design describes a population, situation, or phenomenon that is being studied.

This research design focuses on answering the how, what, when, and where questions of a research problem, rather than the why research questions. Therefore, this study was conducted on assessment of market information of vegetable producers, which particularly focuses on population so as descriptive research design is appropriate to meet the objective of this study.

### **3.3 Approach of the Study**

This study was conducted through a mixed approach that includes both qualitative and quantitative approaches of the study. The researcher would be able to use a mixed approach, which is a concurrent type of approach. The quantitative approach uses the survey in collecting data from a wide area by selecting a representative sample of a large population. Besides, the qualitative approach would be employed so as to obtain detailed descriptions of the phenomenon such as direct quotations capturing people's personal perspectives through an in-depth interview. For instance, if information cannot be obtained through the quantitative method can be effective in obtaining such information through a qualitative approach. Therefore, in this study, a mixed approach was employed so as to collect extensive data and would be used to confirm findings from different data sources through triangulated data instruments and consequently to draw valid general conclusions.

### **3.4. Types and Sources of Data**

In order to generate relevant data for this study, the researcher was used both primary and secondary data. Thus, the data were gathered from both sources of primary data and sources of secondary data. The primary sources of data for this study were collected from the vegetable producers, agriculture and trade office and stake holders through questionnaire, structured interviews, and FGDs. Secondary data were obtained from published and unpublished materials such as books, internets, documents, journals, articles, manuals and reports.

The sources of data that were applied in this study were both primary and secondary sources of data. The primary data was reliable and obtain from the households (vegetable producers) agricultural and trade at zone office and woredas were considered as the main sources of this study. The secondary sources of data would be collected from the trade office, agriculture office, and the reports generated from other stakeholders of the selected woredas.

### **3.5 Population of the study**

By target population, it is the entire group of people to which a researcher intends the results of a study to apply. Therefore, the population of this study was households (vegetable producers), agricultural and trade offices of at zone and woreda level as well as stakeholders from selected woredas.

### **3.6 Sampling Techniques and Sample Size**

The sampling techniques that the researcher applied are multi-stage sampling. Therefore, in the first stage, the purposive sampling technique was applied to select the woreda. The three woredas Gomma, Manna, and Kersa woredas were selected for the purpose of this study. These woredas were selected on the basis of top or high vegetables and fruits producers' areas. As far as the information taken from Jimma Agricultural office indicated that, these woredas are more engaged in vegetables and fruits production than other woredas of the Jimma zone. At the second stage, the top kebeles out of the selected woredas of vegetable producers were selected. These kebeles were identified on the basis of those kebeles that are well known by vegetable production than others. Therefore, from the above three mentioned woredas, two kebeles from each woreda were taken as a sample.

Finally, from each six selected kebeles, key households that are prominently engaged in vegetable production were selected proportionally. At the third stage, the sampling procedure is employed in selecting a representative sample of households for the study from the targeted household's population which is determined by using Yamane's probability sampling calculation formula (Yamane, 1967).

$$\text{i.e.: } n = N / (1 + N * (e)^2)$$

Where, **n** is sample size

$N$  is population size

$e$  is alpha value

The process of this study may intend to establish a confidence interval at 95% and alpha value at 0.05 and whose t-value is estimated at 1.96. This implication is to accept the error of the study to appear at 5% due to the variation errors from sampling elements instead of the population elements. Therefore, the population sizes of the key selected six kebeles from the three woredas in this study area are (378).

Therefore,  $n = N/(1+N*(e)^2)$   $n = 378/1+378*(0.05)^2 = 378/1+378*(.0025) = 378/1.945=194$

**Table 1: The proportional distribution of the sample size**

No	Name of woredas selected	Name of kebeles selected	Key households of each kebele	Probability proportional to size(PPS)
1	Gomma	Choche	71	36
		Bashasha	62	32
2	Kersa	Toli Karsu	58	30
		Kake	56	29
3	Manna	Haro	67	34
		Buture Gabisa	64	33
<b>Total</b>	3	6	<b>N: 378</b>	<b>n: 194</b>

*Sources: (Agricultural Bureau of Each Selected Woredas, 2021)*

### 3.7 Data Collection Instruments

#### 3.7.1 Questionnaire

The questionnaire was distributed to the selected sample size households of each kebeles. The questionnaire included both open and closed-ended questions that were ultimately focused on the assessment of market information among vegetable producers of the selected woredas.

The questionnaire was designed with (1) always, (2) often, (3) sometimes, and (4) rarely (5) never types of the questions, because this study ultimately focused on assessing the degree of awareness of vegetable producers on market information. The questionnaire was grouped into six sections, the first section was about the demographic features of the households or participants, the second section contained questions about how do the households get accessibility to market information, the third section was focused on challenges vegetable producers were faced to get market information, the fourth section was focused on the awareness of households on market information, the fifth section was about practices and utilization of market information of households, and the last section was about the types of market information vegetable producers are given priority to sell their vegetables.

### **3.7.2 Key Informants Interview (KII)**

Key informants interview was also taken as one of the data collection instruments of this study. The question was the structured type of interview that would be fixed with the time and conditions of the interviewee. Key informants were stakeholders from each of six identified kebeles namely DA, Agricultural and Trade Office from woredas.

Therefore, from 6 identified kebeles, 4 key informants were selected on the basis of those stakeholders, who are more responsible for the market information. Therefore, certain open-ended questions were asked each stake holders about market information of these kebeles, how households get accessibility of market information, means of market information delivery and its significance, challenges households are facing in order to get market information, awareness of the vegetable producers on market information and how the house holds practiced market information.

### **3.7.3 Focus Group Discussion (FGD)**

Focus group discussion was the third data collection instrument need to apply in this study. The focus group discussion was taken from among the households selected from each woreda. Therefore, FGD was conducted and would be comprised of two groups of elders who were selected purposively based on their high experience in vegetable production and active in seeking market information. Therefore, for focus group discussion, 4 individuals were taken from 6 kebeles were involved as focus group discussion.



The main focus while conducting the FGDs would be to discuss on the market information related questions such as how households get accessibility of market information, awareness of households on market information, means of delivery of market information, challenges vegetable producers are faced in searching market information and the practices of market information by vegetable producers.

**Table 1: Summarized form of data collection tools:**

No.	Participants of study	Total number of participants	Data collection methods and number of participants		Sampling techniques
			Interview	FGD	
1	Stake holders	16	4	4	Simple random and purposive
2	Agriculture and trade office	2	2	2	Purposive
Total		18	6	6	Purposive

**Source:** Field survey, 2021

The participants who were involved in this study as key informant interview and focus group discussion were asked in one particular place at Jimma zone agriculture and trade office ,in which they were called up on to discuss on agricultural issues of their respective woredas. The individuals were also taken on the bases of those top vegetable producers among the selected woredas .Therefore, the researcher facilitated a condition in which all participants were found at specific time and place and monitored the discussion and collect their responses

### **3.8 Procedures of Data collection**

First, the researcher has received a letter of support from the department of governance and development studies which was also taken to the Jimma Zone Agricultural office. While showing the letter to higher officials, the researcher explained the very purpose of the research undertaking. Consequently, based on the permission from the zone agricultural office, the researcher was moved directly to sample woredas of Jima zone, Gomma, Manna, and Kersa which their respective kebeles were chosen as a sample. The letter of support from the University as well as the zone was presented to the Woredas which was followed by a visit to sample

selected kebeles from each woreda. The purpose of this research was made clear to the respondents and, consequently, questionnaires were distributed and, eventually, collected by the researcher himself.

### **3.9 Validity and Reliability of the Instruments**

#### **3.9.1 Pilot Test**

Before the final questionnaires were administered, pilot testing was conducted in one woreda (Seka Chokorsa woreda), which was not included in the sample study. This helped the researcher to ensure that the respondents understand what the questionnaire wants to address and how it met with the objectives as well as in order to check whether or not the items contained in the instruments would be able to help the researcher to gather relevant information, to identify and eliminate problems in collecting data from the target population. The 10 draft questionnaires were distributed to kebeles of Seka Chokorsa Woreda, which were selected purposively on the basis of the second high experiences of vegetable producers of woredas. Then, the questionnaires filled and returned. The reliability and validity of items were measured by using Cronbach's alpha method with the help of SPSS version 23. If the coefficient alpha value ranges from 0, no reliability and if it ranges from 1, its perfect reliability and If the coefficient alpha value of instruments measured between 0.7-0.79, it is considered as "acceptable" reliability, the values from 0.80-0.89 indicate "good reliability", and above 0.90 represent "excellent" reliability (Munning & Munro, 2006). The obtained test result was above 0.917. Then as the result indicated it would be a good indication of the internal consistency of items. That is the instrument would be found to be reliable as statistical literature recommend a test result of 0.75 (75% reliability) and above as reliable. Therefore, the instrument test of this study was 0.917.

#### **3.9.2 Validity of the Data**

To be sure of the face validity, the main advisor and co-advisor provided their comments. The participants of the pilot test would also be first informed about the objectives and how to fill, evaluate and give feedback on the relevance of the contents, item length, clarity of items, and layout of the questionnaire. Based on their reflections, the instruments were improved before they were administered to the main participants of the study.

Moreover, to verify the content validity of the instrument, the questionnaire with a sufficient number (194) copies of items addressing all objectives of the study were administered to selected kebeles participants, and then, these (194) copies would be collected with a high return rate. Triangulation of data gathering tools was executed by using a structured interview. Information sources were also multi-faceted by using varieties of respondents (DA, Woreda, and zone Agricultural and trade offices were included). Finally, after the necessary improvement was made, the questionnaires would be duplicated and distributed with necessary orientations by the researcher to be filled by respondents. Then interview and focus group discussion analysis were also being carried out at the same time.

**Table: 2 Reliability Statistics**

Item	Cronbach's Alpha	N of Items
Sources of agricultural market information	.743	10
Constraints vegetable producers face	.877	11
Vegetable producers awareness	.776	7
Vegetable producer's practices	.908	11
Priority of farmers on market information	.743	9
Over all	.917	48

**Sources : (The result of SPSS )**

### **3.10 Methods of Data Analysis**

Once the raw data was collected through questionnaire, key informants interview, and focus group discussion, the collected data were coded, tabulated, and feed into SPSS Software version 23 applications to break down the data into meaningful information. Therefore, the qualitative

data was analyzed, presented, and interpreted through narration or non-numerical ways. The quantitative data were analyzed, presented, and interpreted through tables and graphs.

The quantitative data was analyzed through percentage, frequency, correlation, ANOVA and multiple regression analysis would be used to analyze the quantitative data and finally analyzed the magnitude of the relationship between the independent and dependent variables.

### **3.11 Ethical Consideration of the Study**

During this research, the researcher was promised to keep the participants' identities confidential, tell them the overall purpose of the research, and request the informant's full consent to use the given information. Therefore, the researcher would be informed of the purpose of this study, and how the study was conducted for academic and try to find the possible solution for the existed problems that vegetable producers are facing in getting accessible market information to sell their products.

## **CHAPTER FOUR**

### **4. RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter presents the results and discussions of vegetable producer's market information on potato, tomatoes, and cabbages production and analysis. These results are obtained by applying a number of analytical techniques using primary as well as secondary data for defining the production and marketing environment of selected vegetables. The chapter is organized into the following four sections. The first section includes the description and analysis of the socio-demographic features of the respondents. Section two, detail analysis was employed to describe the market information of the vegetable producers, awareness, practices, and utilization, and challenges vegetable producers are faced. Section three discusses the analysis of data obtained from both quantitative and qualitative were made in this section and section four discusses the correlation result of the data by comparing the identified variables. Therefore, a total of 194 questionnaires were distributed to all sites. Of the entire questionnaire distributed to respondents, 187 were filled and returned properly and the rest 7 questionnaires were the unreturned responses. Therefore, the data discussed in each section of this thesis report is a discussion response of 187 (n) respondents.

## 4.2 Socio Demography Characteristics of Respondents

This table is presents about the gender, age, marital status, experiences of the participants and the educational level of the respondents are briefly discussed.

**Table 1: Socio Demographic Variables**

Variables		Frequency	Percent %
Gender	Male	132	71%
	Female	55	29%
	Total	187	100
Age in years	20-30	28	15%
	31-40	37	20%
	41-50	49	26%
	51-60	43	23%
	Above 60	30	16%
	Total	187	100
Marital	Married	128	68%
	Single	36	19%
	Divorced	7	4%
	Windowed	16	9%
	Total	187	100
Yearworked	1-5years	28	15%
	6-11years	46	25%
	12-17years	72	38%
	18-23years	38	20%
	Above 23 years	3	2%
	Total	187	100
Education	None educated	34	18%
	Write and read	40	21%
	Primary school	35	19%
	Secondary school	31	17%
	Certificate and diploma	41	22%
	Bachelor Degree	6	3%
	Total	187	100

**Sources : ( Own Survey, 2021)**

As table '1' depicted that 132(71%) and 55(29%) were male and female respondents respectively. This indicated that most vegetable producers of these selected sites are male. Because, female were not encouraged to cultivate the vegetables in the study area .

With regard to age, 28(15%) are found between 20-30 age groups, 37 (20%) of the respondent were found between 31-40 age group, 49(26%) of the respondents were found between 41-50 age groups, 43(23%) and 30(16%) of the participants were found between 51-60 and above 60 age groups respectively. So, the majority of the vegetable producers were found at a young, which is the productive age level. With the concern to marital status, 128(68%) of the respondents were married, 36 (19%) of them were still single, and the rest 16(9%) and 7(4%) of the participants were widowed and divorced respectively. This tells us that most vegetable producers are married who have family and also the numbers of families influence the economy of the households so vegetable producers are forced to sell their products at the local market due to lack of market accessibility.

Concerning the experience, 72(39%) of the vegetable producers have 12-17 years' experience, 46(25%) of them have 6-11 years' experience in vegetable production, 38(20%) of them have 18-23 and 28(15%) have 1-5 years' experience in vegetable production respectively.

Finally, as the information concerned about respondents educational background confirms that 34(18%) of the participants are non-educated, 40(21%) of them were those who can write and read, 55(29%) of the respondents were finished primary school, 31(17%) of them were secondary school, 21(11%) and 6(3%) of the participants of the study were certificates and bachelor degree holders respectively. Therefore, as we can see from vegetable producer's educational background, most of them are under the primary school, and this also influence farmers to get market information of the vegetables.

### 4.3 Sources of Agricultural Market Information

This table elaborates about the sources or access from where the vegetable producers are getting market information.

**Table 2: Accessibility or sources of agricultural market information of households (n=187)**

Accessibility	Never	Rarely	Sometimes	Often	Always
Producers get current market prices of vegetables	47(25%)	62(33%)	23(12%)	41(22%)	14(8%)
Development agents (DA) help vegetable producers to get information about the market price of products	31(17%)	57(31%)	45(24%)	30(16%)	24(13%)
Households are getting market information from middle men, traders and agents	59(32%)	41(22%)	26(14%)	42(23%)	19(10%)
Vegetable producers use, Phone, Radio, Social Media, TV, and SMS to get accessibility of market information of vegetable prices.	39(21%)	76(41%)	28(15%)	15(8%)	29(16%)
The market information disseminated by middlemen, traders, and agents is distorted that gets households to sell their products at the local market.	8(4%)	27(14%)	19(10%)	78(42%)	55(29%)
Vegetable producers have accessible by market information	48(26%)	64(34%)	40(21%)	13(7%)	22(12%)
Lack of market information influence the income of the vegetable producers	15(8%)	16(9%)	28(15%)	77(41%)	51(27%)
The house holds get the information from the display boards in APMC	54(29%)	83(44%)	22(12%)	11(6%)	17(9%)
Through contact over other markets by Phone	42(23%)	55(29%)	51(27%)	24(13%)	15(8%)
Local government publication and announcement	33(18%)	40(21%)	54(29%)	40(21%)	20(11%)

Sources: (Own Survey, 2021)



As table '2' depicted that participants replied producers rarely 62(33) and never 47(25%) get the current market price information of vegetables, vegetable producers did not get support from DA as the participants replied rarely 57(31%), never 31(17%) and sometimes 45(24%) supported by development agent (DA) about market prices with mean value , as the source of information ,households never 59(32%) and rarely 41(22%) get market information through middlemen, traders, and agents .The data obtained also show that vegetable producers rarely 76(41%) and never (39%) use Phone, Radio, Social media, SMS, and TV to find market information , the data confirm that market information disseminated by middle men, traders, agents, brokers, and other beneficiary groups is always 55(29%) and often 78(42%) distorted ,vegetable producers rarely 64 (34%) and 48( 36%) never accessible with market information . The respondents replied that lack of market information often 77(41%) and always 51(27%) influence the income of the vegetable producers and the probability households get market information through display boards in APMC is also rare 83(44%) and 54(29%) replied never .The situation in which the vegetable producers use a phone to contact the other market in order to find the market price information also rare 55(29%) and 42(23%) never and the local government publication and announcements, households sometimes 54(29%), rare and often 40(21% ) and never 33( 18%) respectively informed the households about the daily market information .

This implies vegetable producers have not got accessibility to agricultural market information so that producers couldn't get current market prices of vegetables, and the DA didn't help vegetable producers to get market information. The data also confirm that households were unable to use phone radio, social media, SMS, and TV to get accessibility to market information. The data also revealed that information disseminated by middlemen, traders, and agents was distorted, and poor accessibility of market information also influences the economic level of the households.

The data also depicted that market information didn't deliver to households by agriculture produce marketing committee through display boards as well as the local government publication did not help the producers in the district

In addition to the quantitative data, qualitative data obtained through interviewee and FGD also confirm that vegetable producers were not accessible of market information, rather most interviewee and FGD participants revealed that as the vegetable producers were sold their vegetables at the local market with low price due to lack of accessibility of market information.

They also added that nobody was responsible to deliver the market information on vegetables; even they stated that as they do not use phone, SMS, TV, Radio and other means to get information about the vegetable price. Therefore, both quantitative and qualitative data all together confirm that, as the producers blindly sold their products, in the production area, on-street and local market, which resulted in the influence of the economy of the household. The result of the interviewee and FGD also underlined that the vegetable producers had been cheated by distorted market information disseminated by brokers, middlemen, traders, and other bodies' interference to be share profit from their products.

These notions of accessibilities of market information of the vegetable producers are approved by a study conducted by (Zoltner and Steffen, 2013) correct decision-making and planning depend on reliable information on variable market conditions, which are expressed by changing prices. Advocates of free-market economies consider price flexibility in a positive light in that it reflects both supply and demand and seasonality in production and provides producers with incentives to adapt their production to market requirements. However, one of the preconditions for a market economy is that correct information on market conditions must be available and, within reason, accessible to all.

Markets should provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated. Price differences over time and between market locations should correspond to the marketing (transaction) costs incurred, notably those for storage and transport. Prices are the result of the functioning of the market and are determined by supply and demand which, in turn are influenced by costs of production, the costs of marketing, and by consumer preferences, among other things. Prices act as signals for the allocation of productive resources in the agricultural sector. This is not, however, a straightforward process in many districts, where market conditions for agricultural commodities change as a result of seasonal production, where infrastructure (roads, telecommunications, and the physical markets) is underdeveloped, and where liberalized marketing systems are replacing state-controlled systems. These circumstances result in high risks and high marketing costs (Baredo, 2013). This finding can be support by functional theories, (1988), which ultimately focus on the buying and selling of the goods has to related with certain environmental and human factors

#### 4.4 Challenges to get market information

This table briefly explains about the challenges vegetable producers are faced in order to get the market information.

**Table 3: Challenges or constraints vegetables producers face to get market information (n=187)**

<b>Challenges</b>	<b>V.Low</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>	<b>V.High</b>
The interference of middle men in market information	2(1%)	35(19%)	47(25%)	51(27%)	52(19%)
Lack of education of vegetable producers	12(7%)	24(13%)	26(14%)	61(33%)	64(34%)
Lack of training and awareness creation given by development agents , woreda and zone agricultural office	10(5%)	32(17%)	45(24%)	48(26%)	52(28%)
Distance of vegetable producers from market center	13(7%)	25(13%)	43(23%)	60(32%)	46(24%)
Lack of utilization of market information system delivery (Radio, TV, Social media, and SMS )	9(5%)	2(1%)	36(19%)	63(34%)	58(33%)
Lack of transportation due to road and other infrastructure problems	18(10%)	3(2%)	41(22%)	50(27%)	75(40%)
Lack of facilities provided for vegetable producers on how to get market information	3(2%)	10(5%)	30(16%)	86(46%)	58(31%)
Lack of internet accessibility to use technological advancement of market information	23(12%)	4(2%)	32(17%)	79(42%)	49(26%)
The information is not available in time	0(0%)	25(13%)	46(25%)	50(27%)	66(35%)
The price fluctuation of vegetables at market.	20(11%)	5(3%)	47(25%)	63(34%)	52(28%)
Economic level of the vegetable producers	32(17%)	10(5%)	49(26%)	53(28%)	43(23%)

**Sources: (Own Survey, 2021)**

As table '3' confirm that respondents were asked about the challenges vegetable producers are faced to get market information, here after they replied that as the interference of the middle men is very high 52(28%),51(27%) high, and 47(25%) medium ,lack of education of vegetable producers, 64(34%) very high and 61(33%) high, and therefore the result also seen as the other most difficult challenges ,lack of training and awareness creation given to households was find to be the constraints, 52(28%) and 48(26%) were replied very high and high respectively, as well as 45(24%) of them replied medium ,distance from the local market to reference market also identified as the challenges that, 60( 32%) and 46(24%) were said high and very high respectively , this result also confirm how the distance from center challenged the vegetable producers .

On another side, the market information delivery system (Radio, TV, Social Media, Phone and SMS) that need to applied by households, 63(34%) and 58(31%) and 36(19%) were replied, high, very high and medium respectively, lack of transportation and problems of infrastructure,75(40%) replied very high,50(27%) said high and 41(22%) said some times. This revealed that transportation is seen as the most difficulty vegetable producers have been facing, as well as the households didn't provide the market information that most respondents 86(46%) replied high and 58( 31%) of them replied very high, this result also depicted that transportation is seen as one of the challenges households faced .

The internet access to use technological advancement is also identified as the challenges by the most 79 (42%) responded high,49(26%) replied very high and the rest 32(17%) said medium, the availability of information in time is very high with 66(35%), high 50(27%) and 46(25%) of the respondents were replied medium respectively, with regard to the price fluctuation of vegetable, 63(34%) of the participants replied v high, 52(28%) said very high and the rest 47(25%) replied medium and it is also taken as the challenges, the economic background of the vegetable producers, 53(28%) responded high,49(26%) of them replied medium and the rest 43(25%) of them replied very high, this also found as the most challenges vegetable producers are face to find out the market information.

As the quantitative data revealed that vegetable producers have many challenges to found out the market information. As data show that, the most challenges identified were, the interference of middlemen, the educational background of households, lack of training given by DA.

The other challenges were related to the physical environment (distance from center, lack of transportation) due to the road and other infrastructure facilities were the most identified difficulties vegetable producers were faced.

Further, table '3' implies as vegetable producers have influenced by the accessibility to use technological advancement, the fluctuation of the price of vegetables as well as the economic level of the households was identified as the most challenged and constrained vegetable producer of this area were facing.

In addition to the questionnaire, participants were also asked through interview and FGD about the challenges vegetable producers were faced to found out market information, and the result obtained from interviewee and FGD also confirm that vegetable producers challenged by lack of education, lack of training, and awareness creation, distance, lack of transportation as well as the poor facilities given for vegetable producers on how to react with market information was identified as the challenges that hinder the households to get market information.

Interviewee and FGD participants also added that vegetable producers were unable to use Radio, TV, SMS, and other technology born market information delivery to found out information about the price of their vegetables. This resulted that, households were limited to use the local market and forced to sell their vegetables at low prices.

This notion is also confirmed by a study conducted by Torero (2011)market information can facilitate optimal decision-making based on market incentives. Lack of market information will hamper the farmer in taking decisions concerning the crop and the quantity to produce and concerning the best time to produce to maximize returns. Information on price fluctuations will also give insights into the risks associated with producing different crops. Consequently, better information should lead to higher profitability although, for most small farmers, information services will have to be supplemented by extension services that are able to assist them to interpret price data. Lack of information is an entry barrier to both trade and production. Where farmers have had access to information they are able to move beyond subsistence production. Shifts in cropping patterns to higher-value produce have also been noted, especially in vegetable production (Mawazo M. Magarsa, 2016).

This finding can also be supported by institutional theories, (1995) that focus on the whole sellers, agents, traders, who play a special role in market information.

Price information would be much more useful if it were accompanied by a range of other information regarding, for example, quantities available at the market or in major producing areas, supply-demand trends, and problems with transport, such as road blockages. In Sri Lanka, the MIS started reporting on the number of trucks arriving at the wholesale market. However, it must be recognized that it is better to provide no information than inaccurate or misleading information. For example, without the sort of sophisticated reporting system that exists in South African wholesale markets, it would be very difficult for a private MIS to report accurately on quantities arriving at markets. Secondly, information collected from retail markets may not be of much use to the bulk of consumers. In a city of 10 million people, for example, there will be a large number of retail markets. Prices in these markets will vary according to the distance of the market from the source of supply (usually the wholesale market) and according to the quality standards in the particular market which will, in turn, be determined by the purchasing power of the neighborhoods. Moreover, many consumers do not buy at retail markets but make their purchases at local shops, which have different pricing structures to those of markets. Under these circumstances, it is difficult to see how an MIS could broadcast useful prices for consumers, who would be far more likely to obtain information by comparing prices among local retailers than by listening to the radio.

#### 4.5 Awareness of Agricultural Market Information

This table presents awareness of vegetable producers about the market information, from where the households are aware of the market information.

**Table 4: Vegetable producer's awareness of agricultural market information (n=187)**

Degree of awareness	Never	Rarely	Sometimes	Often	Always
Arrivals in local market	1(5%)	34(18%)	50(27%)	55(29%)	47(25%)
Arrivals reference market	47(25%)	72(39%)	30(16%)	22(12%)	16(9%)
Prices in local market	4(2%)	13(7%)	33(18%)	75(40%)	62(33%)
Price in reference market	50(27%)	62(33%)	45(24%)	13(7%)	17(9%)
Area under crops	0(0%)	25(14%)	46(25%)	63(34%)	53(28%)
Production	53(28%)	58(31%)	46(25%)	20(11%)	10(5%)
Quality/ grade required	38(20%)	45(24%)	52(28%)	37(20%)	15(8%)

**Sources : ( Own Survey, 2021)**

As table '4' revealed that participants were asked about the degree of awareness, most 55(29%) often aware of the arrivals in the local market, 50(27%) were sometimes aware about arrivals in local market, 47(25%) of them were always aware about arrivals in local markets, the result also show that vegetable producers have to use market information, with the concern to arrivals in the local market, the households are well aware, but in contrast with their awareness about reference market majority 72(39%) were rarely aware about reference markets, 47(25%) of them were never aware about reference market information and the rest 30(16%) were sometimes aware, concerning about awareness about the local price, most 75(40%) of the participants were often aware about local price, 62(33%) of them were always aware ,and 33(18%) of them were sometimes aware about price in local market than price in reference market price , with regard to questions about reference market price , most 62(33%) of the respondents were rarely aware, 50(27%) of them were never aware and the rest 45(24%) of the participants were sometimes aware of reference market price, so that this revealed that there is low awareness of price in the reference market.

With the regard to the area under the crops, the majority 63(34%) of the asked respondents were rarely aware of the area under crops, 53(28%) of them were never aware, and 46(25%) of the participants were sometimes aware of the area under crops, however, with their production awareness, most (58%) of the participants were rarely aware, 53(28%) never aware, and 46(25%) of the respondents were aware of production ,which is found in a better situation in this regard, likewise the awareness on quality /grade required less aware that majority 52(28%) of the respondents were sometimes aware of quality or grade required, 45(24%) of them were rarely aware and 38(20%) were never aware of quality or grade required, which depicted that households are not aware about quality required from their vegetable .

This signaled that vegetable producers were more aware of arrivals in local markets than arrival in reference markets. With regard to price, households were more aware of price in local markets than the price in reference markets. Producers were also aware more about information about area under crops and production than quality/grade required.

In addition to the result of data were taken from quantitative, the data obtained from interviewee and FGD also confirm that most vegetable producers were more aware of arrival in the local market, price in the local market, the area under crops, and information types that related with production. In contrast, some interviewee and FGD revealed that producers were not aware of arrival in the reference market, price in the reference market, and quality and grade required in the study area.

Therefore, as the interviewee and FGD results show that most vegetable producers went to the local market physically and accustomed to selling their products at the local market with local market price, and under area crops, or either on the street that determined by the middlemen, who are interfering in the price decision of the products.

This notion is also supported by a study conducted by (Zoltner and Steffen, 2011) a market information service is seen as providing transparency, i.e. a full awareness of all parties of prevailing market prices and other relevant information. This, in turn, can contribute to arbitrage, i.e. the act of buying at a lower price and selling at a higher price. In theory, when a marketing system functions efficiently prices at different markets are influenced by arbitrage activities of traders, i.e. spatial arbitrage takes place. Traders take advantage of price differences until these differences decrease to the level of transaction costs. Temporal arbitrage is the storing of products in order to take advantage of expected higher prices later in the season or, in some cases, in subsequent years. The finding of this is also supported by the commodity theories, (1985) that there should be the relation between the producers and consumers, the direct contact through arrival at reference market is important for vegetable producers.



## 4.6 The Practice and Utilization of Market Information

This table presents about the practices and utilization, how the vegetable producers are implement the market information to sell their vegetables

**Table 5: Vegetable producer's practices and utilization of market information (n=187)**

Practices of market information	Never	Rarely	Someti mes	Often	Always
Vegetable producers are deliberately uses market information before get their vegetable to market	42(23%)	76(41%)	32(17%)	23(12%)	14(8%)
Decision about what to produce, for whom to sell, where to sell and when to sell of vegetable are determined by market information of the households.	43(23%)	63(34%)	46(25%)	27(14%)	8(4%)
Vegetable producers are directly getting consumers through market information	50(27%)	56(30%)	46(25%)	20(11%)	15(8%)
Vegetable producers households are use local markets due to lack of market information.	11(6%)	32(17%)	52(28%)	45(24%)	47(25%)
Vegetable producers are accustomed to sell their products on street and in the producing area	1(5%)	34(18%)	50(27%)	55(29%)	47(25%)
Households have used central market to sell their vegetables	47(25%)	72(39%)	29(16%)	23(12%)	16(9%)
Technological advancement for accessibility of market information are facilitated for vegetable producers and effectively practiced in the area	52(28%)	75(40%)	33(18%)	13(7%)	14(8%)
Utilization of market information by farmers enhanced appropriately	50(27%)	62(33%)	44(24%)	13(7%)	18(10%)
The essence of good market information that should provide commercially useful information on a timely basis.	43(23%)	63(34%)	46(25%)	27(14%)	8(4%)
Farmers use market information to reduce transaction ( costs of selling the produce ) by reducing risks	50(27%)	56(30%)	46(25%)	22(19%)	13(7%)
Households utilize market information to decide on selling decision, storage decision and pre-selling decision over their vegetables	42(23%)	76(41%)	32(17%)	25(13%)	12(6%)

**Sources :( Own Survey, 2021)**

As table '5' also depicted those respondents were also asked whether vegetable producers practice and utilize the market information, the response indicated that the vegetable producers are rarely 76(41%) and 42(23%) of them never use it, and the rest 32(17%) sometimes use market information before getting their products to the market, and this confirm that vegetable producers did not use market information before getting their vegetables to the market, respondents were also asked about whether they considered market information to decide for whom to sell, when to sell, where to sell and other related decisions, majority 63(34%) of them were never considered it, 46(25%) of the respondent sometimes considered market information, 43(23%) of the participants never considered market information to decide in all these WH questions of markets . The vegetable producers are rarely 56(30%) get directly consumers, 50(27%) of them never get consumers directly, and 46(25%) of them replied as they sometimes got consumers directly, so as most households 52(28%) of them were always use local market, 47(25%) of them often used local market, 45(24%) replied as they were sometimes using local market due to lack of market information. The results assure that vegetable producers were use local markets due to absence of market information.

Further vegetable producers were accustomed to sells their vegetables at the local market on the street that majority 55(29%) of the asked respondents were often accustomed to sell their vegetables at the local market,50(27%) of them were sometimes accustomed to use it, and 47(25%) of the respondent s were accustomed to use local market, in contrast, households rarely 72(39%) use central market,47(25%) of them never used central market, and 29(16%) of the asked respondents sometimes use central markets to sell their vegetables. With the regard to the facilities provided to vegetable producers to use technological advancement, most 75(40%) of the participants were rarely get an opportunity, 52(28%) never get an opportunity to use technological advancement, and the rest 33(18%) of them sometimes get an opportunities to use technological advancement to get market information, which also confirm as lack of opportunities of technology is seen as the other most challenge vegetable producers were faced.

As table '5'also depicted that 62(33%) and 50(27%) of the respondents were responded rarely and never respectively, and 44(24%) of them replied sometimes. Questions about the essence of good market useful on a time basis, 63(34%) and 43(23%) of the asked respondents said rarely

and never, as well as 46(25%) of them were replied sometimes, and this also assure that market information was not essence on time.

Further, with the questions related to how vegetable producers use market information to reduce transaction and reducing risk, majority 56(30%) of the respondents rarely utilize it, 50(27%) of them were never used, and 46(25%) of the respondents sometimes used market information to reduce transaction and risk respectively.

Finally, respondents reacted with questions about households utilize market information to decide on selling decisions, storage, and pre-selling decision over their vegetables, most 76(41%) of the participants replied rarely use market information for such decisions, 42(23%) of them never use it, and 32(17%) of the respondents said as they sometimes used market information on selling, storage, and pre-selling decision. The market information to decide selling, storage, and pre-selling decision, and the result show that households decided on pre-selling without market information.

As table '5' implies that producers did not use market information before getting their vegetables to market, farmers were not considered questions about what to produce, for whom to sell, where to sell, and when to sell their vegetables. Therefore, vegetable producers did not directly get the consumers, rather they were deliberate to sells their products at the local market for traders, and accustomed to sell on the street and under the area of crops. The data also show that farmers were unable to use market information to reduce transactions (costs of selling and reduce risks) with the help of technological advancement. Finally, the data obtained under this variable depicted that households were not utilized market information to take place on selling decisions, storage, and pre-selling over their vegetables.

In support of quantitative data, the result obtained from the interviewee and FGD also confirms that vegetable producers were poorly practiced the market information in the study area. The interviewee and FGD added that households are sold their vegetables without an attempt to find out market information, they use to sell their vegetables at the local market, with low prices and they are non-profitable. Therefore, this indicated that vegetable producers of this area didn't practice the market information to find out the better prices of their products.

This notion is also confirmed by a study conducted by Payne (2011) utilization of MIS information by smaller farmers can be enhanced if extension workers are in a position to advise them on how to interpret the prices and seasonal price trends. For example, if the price in the main city is so much, what would be a realistic price close to the farm, after taking into account marketing costs? At a more sophisticated level, extension workers can plot prices over several years and advise farmers when to plant and harvest to take advantage of high-price periods. FAO has, in recent years, developed a set of training materials aimed at extension workers to help them come to grips with marketing matters. Production not related to market requirements has to be avoided and all extension workers require a basic understanding of marketing if they are to provide meaningful advice to growers.

Markets should provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated. Price differences over time and between market locations should correspond to the marketing (transaction) costs incurred, notably those for storage and transport.

It is important that the farmer should be able to sell his or her produce at a convenient stage of the marketing channel. For example, some farmers have the option of selling at the farm gate, of delivering to a local assembly market, of supplying a wholesale market direct or selling directly to retailers, or even to consumers.

However, a maximum value-added for the farmer is not always an optimal solution. This depends on the costs (e.g. transport, risk-bearing, and time) involved when the farmer decides to sell in a market segment closer to the final consumer. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market (Chalwe, 2011)

The above considers the case when information promotes the flow of produce from rural to urban areas. Availability of market information will also encourage spatial arbitrage between two markets, especially in cases where information and transport costs are relatively low. If no trade exists between two markets, both will clear supply and demand at their respective equilibrium prices. When price differences between the two are larger than the transaction costs, trade relations will be developed if there are no controls to inhibit exchange. A new equilibrium price

will be determined for the combined market for the two regions. The level of transaction costs thus influences trade flows and prices in the markets. When transaction costs go down, as a consequence, for example, of the availability of price information, efficiency gains are achieved. The availability of correct price information will lower the traders' cost of information gathering, as well as the risk of sudden unfavorable price changes. Consequently, they will have more opportunities to prevent unprofitable transfers and this should ultimately lead to a reduction in their gross margins.

#### 4.6 Farmer's Needs of Market Information

This table is about priority farmers on market information. According to baseline surveys; market information needs come after information needs on production techniques and input providers. Farmers are mainly interested in markets, farmers are getting more about the type of information they are lacking (see Table6).

**Table 6: Priority of Farmers on Market Information (n=187)**

Types of vegetables	Preference of market information	Rank	High priority	Medium priority	Low priority
Tomatoes	Contacts of buyers	II	90(48%)	88(47%)	9(5%)
	Prices in production areas	I	105(56%)	76(41%)	6(3%)
	Prices in urban markets, and	III	90(48%)	77(41%)	20(11%)
Potatoes	Prices in urban markets	II	89(48%)	85(46%)	13(7%)
	Contacts of buyers for non-collector farmers	I	97(52%)	77(41%)	13(7%)
	Consumers' preferences for non-collectors	III	9(5%)	90(48%)	88(47%)
Cabbages (both)	Prices in urban markets	III	90(48%)	89(47%)	8(4%)
	Contacts of buyers	II	94(50%)	77(41%)	16(9%)
	Prices in production areas	I	104(56%)	76(41%)	7(4%)

**Sources: ( Own Survey, 2021)**

As table 6 shows, participants were also asked about the priority farmers on market information and which types of market information are more given priority and given less priority by considering the three selected vegetables (Tomatoes, Potatoes, and Cabbage (both cabbage)).

Therefore, price in production areas, rank (I) for tomatoes with majority 105(56%) of the respondent were given high priority, 76(41%) of them give medium priority and 6(3%) were give low priority. Contact buyers for Tomatoes are rank (II) with majority 90(48%) give high priority, 88(47%) of the respondents were given medium priority and the rest 9(5%) of the asked participants gave low priority, this also confirm that vegetable producers were not be able to contact buyers in order to sell their vegetable.

Price in urban market for tomatoes priority is rank (III) with majority 90(48%) given high priority, 77(41%) of them were given medium priority, and the rest 20(11%) of them were given low priority.

Contact of buyers for non-collectors farmers for Potatoes rank (I), with majority 97(52%) of the asked participants give high priority, 77(41%) of them were give medium priority and 13(7%) of them give low priority. Price in urban markets, rank (II) as majority 89(47%) give high priority, 85(46%) of them were give medium priority, and 13(7%) of them were given low priority. Consumers preference for non-collectors for potatoes rank (III) with 9(5%) of the respondent give high priority, 90(48%) of them were give medium and 88(47%) of the asked participants gave low priority .This revealed that as households give priority for contact of buyers and for non-collectors farmers for potatoes.

Prices in production areas for cabbage rank, (I) as majority 104(56%) of the respondents give high priority, 76(41%) of them were give medium priority, and 7(4%) of them were given low priority. Contacts of buyers for cabbage rank (II) with majority 94(50%) of the asked respondent were given high priority, 77(41%) of them were given medium priority, and 16(9%) of them responded as they were given low priority , as a result households were accustomed to sell vegetable at local market with price in production areas.

Price in urban markets for cabbage rank (III) with majority 90(48%) respondents give high priority, 89(47%) of the participants were give medium priority and the rest 8(4%) of the given low priority, which also assure the farmers did not give priority for urban markets.

This revealed that farmers in the selected woredas mainly request information on market opportunities such as contacts of buyers in a lower priority; they focus on prices in competing for production areas, on prices in consumer markets, and availability in production areas.

For Tomatoes and potatoes, the priority information requested by the farmers reflects their needs to better understand the demand (prices in local markets for both, with consumers' preferences for potatoes), but also to develop less priority direct links with buyers (contacts of buyers). Collector-farmers (because they are buyers) in cabbages and both farmers are also interested in the market situation in the other production areas.

As interviewee and FGD also confirm that, as most farmers who were engaged in vegetable production were not directly contact the buyers, rather they give high priority for the price under production areas, and forced to sell with the price that the traders decided over their products. The price in which the vegetable producers used to sell their products was also determined with price at local markets, and sometimes they give priority for none-collector farmers. This notion contact buyers and price under production areas were applied in tomatoes and potatoes as a high priority given by mostly vegetable producers.

#### 4.7 Analysis of Correlation among the variables

This table explains about the relationship between the variables. Therefore, the correlation between variables independent variables (priority, access, challenges) and dependent variables (practices and utilization of market information)

**Table 7: Correlation between variables (N=187)**

Variables	1	2	3	4	5
1 Accessibility	1				
2 Priority	,536**	1			
3 Challenge	,361**	,030	1		
4 Practice	,549**	,684**	,394**	1	
5 awareness	,592**	,649**	,482**	,848**	1

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

**Source: (Own survey, 2021)**

As described in table '7' above, there was a strong relationship between vegetable producer's awareness of agricultural market information and vegetable producer's practices and utilization of market information with  $r=0.848$ . There is also a relationship between awareness and priority, accessibility, and challenges with a correlation coefficient of 0.649, 0.592, and 0.482 respectively. In addition, the correlation between practice and priority value of 0.684.

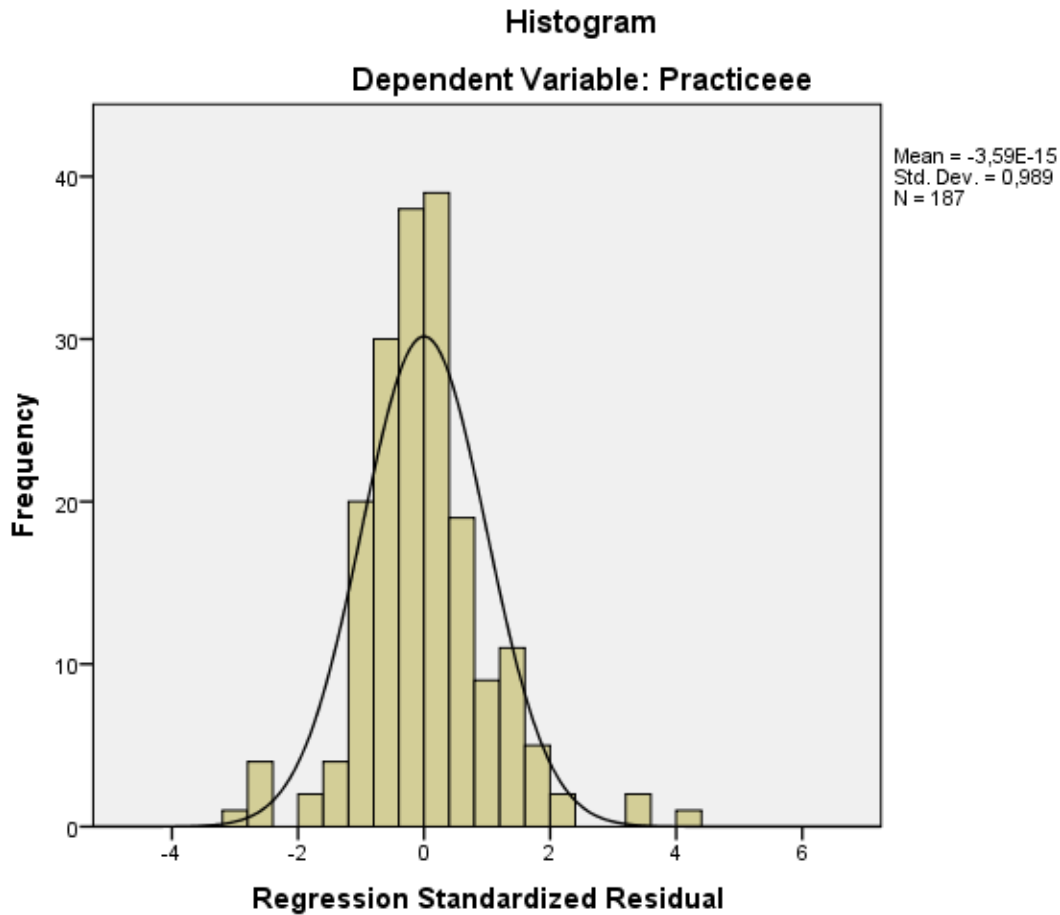
## **Assumption Tests**

Before applying the multiple linear regression analysis to assessing the market information among vegetable producers on practices and utilization of information, some tests were conducted in order to ensure the appropriateness of data analysis as follows:

### **Normality Test**

The researcher used the histogram method of testing the normality of the data. The histogram is bell-shaped which leads to infer that the residuals (disturbance or errors) are normally distributed. The residuals should be normally distributed about the predicted dependent variable score. As shown in figure 2 below, the dependent variable is normally distributed for each value of the independent variables.





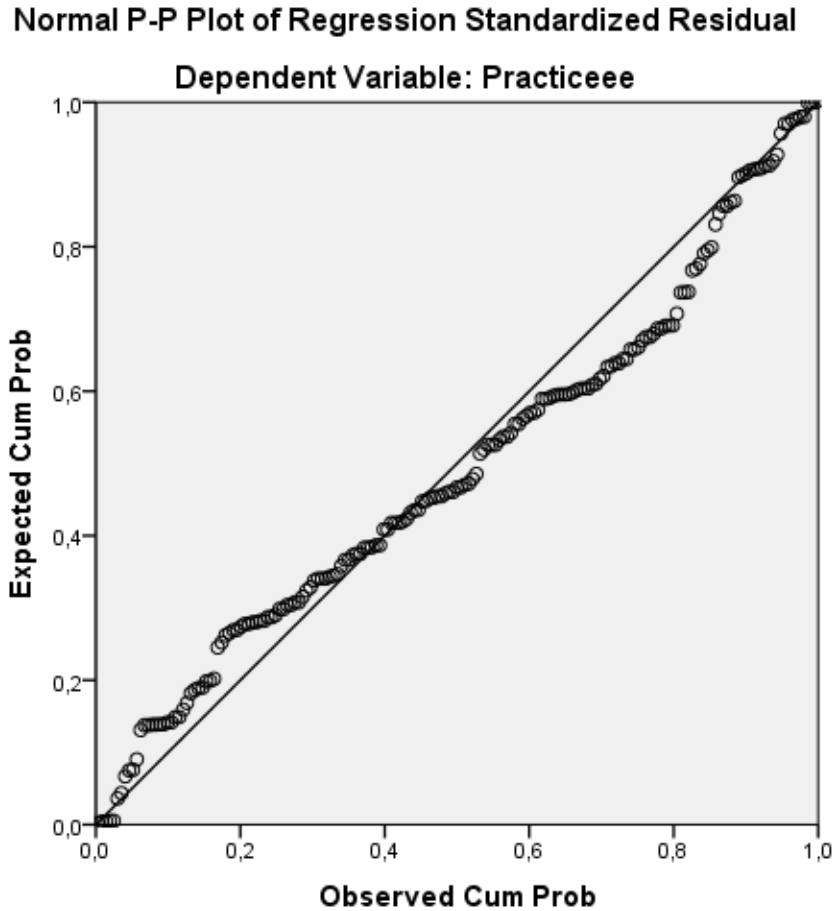
**Figure 2: The regression model assumption of normality in the study**

Sources : ( The result of SPSS )

### **Linearity Test**

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. To determine whether the relationship between the independent variables; accessibility, priority, challenge, and awareness with dependent variable practices and utilization of information is linear; plots of the regression residuals through SPSS software had been used. In the case of linearity, the residuals should have a straight line relationship with predicted dependent variable scores.

As shown in figure '3' below, the change in the dependent variable is more related to the change in the Independent Variables. Therefore, there is no linearity problem on the data for this study and residual follow at a straight line.



**Figure 3:** The regression model assumption of linearity in the study

**Sources:** ( The result of SPSS )

### **Multicollinearity Tests**

Multicollinearity can be checked by correlation matrix and Variance Inflation Factors (VIF). A correlation matrix is used to ensure the correlation between independent variables (explanatory variables) and dependent variable to identify the problem of multicollinearity. On the other hand, a correlation matrix computing a matrix of Pearson’s bivariate correlations among all independent variables and the magnitude of the correlation coefficients. Whereas the Variance Inflation Factors (VIF) of the linear regression indicates the degree that the variances in the regression estimates are increased due to multicollinearity.

From table **8**: below, the Collinearity statistics show Variance Inflation Factors (VIFs) ranged from 1.79 to 2.858 and tolerance values ranged 0.350 to 0.558.

**Table 8: Collinearity Statistics**

Model		Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-,986	,159		-6,222	,000		
	Accessibility	,064	,055	,060	1,182	,239	,529	1,891
	Priority	,563	,125	,250	4,499	,000	,433	2,311
	Challenge	,059	,047	,061	1,244	,215	,558	1,793
	awareness	,859	,086	,619	10,008	,000	,350	2,858

a. Dependent Variable: **Practice**

**Sources:** ( The result of SPSS )

As stated by Field (2005) the Variance Inflation Factors (VIF) of the linear regression indicated the degree that the variances in the regression estimates are increased due to multicollinearity and VIF values higher than 10.0 show as there is a multicollinearity problem. On the other hand, as stated by Pallant (2007) tolerance is a statistical tool that indicates the variability of the specified independent variable from other independent variables in the model and it has no multicollinearity problem if the tolerance is greater than 0.10 values. The results of Tolerance and VIF suggests that multicollinearity is not suspected amongst the independent variables because the values of Variance Inflation Factors (VIF) are below 10.0 while the tolerance values are above 0.10

Thus, from an examination of the information presented in all the three tests (linearity, normality, and multicollinearity tests), the researcher concludes that there is no significant data problem that would lead to say the assumptions of multiple regressions have been violated.

#### 4. 8 Multiple Regression Analysis

Upon the completion of the correlation analysis and different model tests (linearity, normality, multicollinearity), regression analysis was run to find any association between the independent variables (accessibility, priority, challenge, and awareness) and the dependent variable (practices

and utilization of information). According to Hair *et al.* (2007), multiple regression analysis is a form of general linear modeling and is an appropriate statistical technique when examining the relationship between a single dependent variable and several independent variables (predictors).

Table ‘9’ below shows, the ‘R’ value obtained by regression was 0.87 and the Adjusted R square value was 0.751 which means that 75.1% of variations in practices and utilization of information have been explained by the independent variables while only 24.9% was due to other factors.

**Table 9: Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,870 <sup>a</sup>	,756	,751	,38739
a. Predictors: (Constant), awareness, Challenge, Accessibility, Priority				
b. Dependent Variable: Practice				

**Source: ( The result of SPSS )**

The analysis of variance (ANOVA) results of the regression between predictor variables and organizational performance shows that, the probability value of 0.000 ( $p < 0.05$ ) indicates the relationship was highly significant in predicting how accessibility, priority, challenge, and awareness explain practices and utilization of information as shown in table ‘10’ below.

**Table 10: ANOVA Results**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	84,666	4	21,167	141,045	,000 <sup>b</sup>
	Residual	27,313	182	,150		
	Total	111,979	186			
a. Dependent Variable: Practice						
b. Predictors: (Constant), Awareness, Challenge, Accessibility, Priority						

**Source: ( The result of SPSS )**

On the other hand, the P-value can explain the variation in the dependent variable. That is when the P-value is less than 0.05 the independent variables do a good job explaining the variation in the dependent variable.

The Beta Coefficient (B) result shows the strength of the effect of each independent variable to the dependent variable (Practice) as shown in the table ‘11’ below.

**Table 11: Multiple Regression Coefficients Result**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-,986	,159		-6,222	,000	-1,299	-,674
	Accessibility	,064	,055	,060	1,182	,239	-,043	,172
	Priority	,563	,125	,250	4,499	,000	,316	,810
	Challenge	,059	,047	,061	1,244	,215	-,034	,152
	awareness	,859	,086	,619	10,008	,000	,690	1,029

a. Dependent Variable: Practice

**Source: (The result of SPSS)**

The Mathematical Model of multiple regressions below can be used to determine the quantitative association between the variables:

$$Y = -0.986 + 0.064 * \text{Accessibility} + 0.563 * \text{Priority} + 0.059 * \text{Challenge} + 0.0859 * \text{awareness}$$

Where; Y is E(practices and utilization of information) = dependent Variable,

On the other hand, based on the table ‘11’ above, the Beta value (B) of Priority is 0.25 which means that as priority increases by 1% , the practices and utilization of information will increase by 25.0% keeping the other factors constant. Similarly, the Beta value (B) of awareness is 0.619 which implies that as awareness increase by 1 percent, the practices and utilization of information will increase by 61.9% assuming the other variable is held constant. While the accessibility and challenge are not significantly affected the practices and utilization of information at a 5% significance level.

Generally, based on the regression coefficient (B) results, awareness can predict more practices and utilization of information than other Priority keeping other factors constant.

## CHAPTER FIVE

### 5. SUMMARY, CONCLUSION AND RECOMMENDATION.

#### 5.1 Summary of Major Finding

Based on the data obtained from quantitative and qualitative data, the following major finding was forwarded on the bases of variables (accessibility, challenges, awareness, practices, and priority) vegetable producers are reacting with market information:

As the result of this study confirm that it seems that farmers' marketing decisions are not guided by price information rather by other structural problems such as the immediate need for cash, availability of transportation, economic level, lack of training and awareness, interference of traders, distance, accessibility of technology, level of education of households and others. This prompted the researcher to ask whether farmers need information for making marketing decisions. They were specifically asked whether they search for price information before packing their outputs for sale. The result indicated that about 86% of the farmers did not search for market information before selling their produce. This implies that market arbitrage is a challenge that affects the practice of market information among vegetable producers. Farmers only search prices of different local buyers than central markets and different buyers. There is the relationship between awareness and priority, accessibility and challenges with a correlation coefficient of 0.649, 0.592, and 0.482 respectively. In addition, the correlation between practice and priority value of 0.684.

The major sources of market information are producers themselves, price under production areas, farmers got through physically reaching the market area, and traders. Of the farmers who seek market information, close to 84 % search by communication with face-to-face interaction. Such information searching does not improve their bargaining power or provides alternative markets from which they can choose to obtain higher prices. The quantity farmers' supply to the market might be very small and uneconomical to arbitrage between central and local markets. However, vegetable producers only access several local markets to arbitrage their price of vegetables.

Market information can facilitate efficient allocation of productive resources of the vegetable producers, and the market information can bring the bargaining position of farmers with traders can be improved.

Market information reduces transaction costs (i.e. the costs of selling the produce) by reducing risks. Therefore, those farmers with timely and reliable information and the ability to interpret it can decide to which market they should send their produce to maximize returns or, indeed, whether to send their produce to market at all.

Lack of information is an entry barrier to vegetable producers. So, where farmers have had access to information, shifts in cropping patterns to higher-value produce have been noted. In the area of vegetable farming, individuals find it difficult to begin producing vegetables without information, so reducing competition within markets.

By contributing to more efficient marketing, particularly improved spatial distribution, market information should be beneficial for consumers as well as farmers and traders.

The essence of a good market information service is that it should provide commercially useful information on a timely basis. Information produced by an MIS is, however, also useful to predict the price margin of the products.

Market information is also an important component of Early Warning systems for food security as it can assist in identifying areas of possible shortage and can highlight whether prices are above or below normal seasonal trends.

### **Accessibility of Market Information**

As the majority of participants replied producers rarely 62(33) get the current market price information of vegetables and vegetable producers were not get support from development agent as the participants replied rarely 57(31%) accessible.

The data obtained also show that vegetable producers rarely 76(41%) use Phone, Radio, Social media, MS, and TV to find market information the data confirm that market information disseminated by middlemen, traders, agents, brokers, and other beneficiaries groups is always

55(29%) and often 78(42%) distorted so as vegetable producers rarely 64 (34%) accessible of the market information.

The respondents replied that lack of market information often 77(41%) influence the income of the vegetable producers and the probability households get market information through display boards in agriculture produce marketing committee was rare 83(44%) accessible.

The interviewee and FGD also confirm that vegetable producers were not accessible of market information, rather most interviewees and FGD participants revealed that the vegetable producers were sold their vegetables at the local market at low price due to lack of accessibility of market information. The producers blindly sold their products, in the production area, on-street, and local market, which resulted in the influence of the economy of the household. The result of the interviewee and FGD also underlined that the vegetable producers had been cheated by distorted market information disseminated by brokers, middlemen, traders, and other bodies' interference to be share profit from their products.

### **Challenges Vegetable Producers are faced to get Market Information**

The majority of the respondent replied that as the interference of the middlemen is very high 52(28%), lack of education of vegetable producers, and 64(34%) also replied very high, lack of training and awareness creation given to households were also found to be the constraints 64(33%) of the participants replied very high challenges.

The distance from the local market to the reference market was also identified as the challenges that 54(29%) replied high as well as lack of transportation and problems of infrastructure, 75(40%) replied very high challenges.

The market information delivery system (Radio, TV, Social Media, Phone and SMS) that needs to be applied by households, 63(34%) replied very high challenges. The internet access to use technological advancement is also identified as the challenges by the most 79 (42%) responded very high, 49(26%), the availability of information in time is highly 66(35%) very high challenges. With regard to the price fluctuation of vegetables, 63(34%) of the participants replied very high, the economic background of the vegetable producers also seen as one of the challenges with 53(28%) responded high challenge.



The result of the interview and FGD about the challenges vegetable producers were faced to find out market information and the result obtained from interviewee and FGD also confirm that vegetable producer challenged by lack of education, lack of training and awareness creation, distance, lack of transportation as well as the poor facilities given for vegetable producers on how to react with market information was identified as the challenges that hinder the households to get market information. Interviewee and FGD participants also added that vegetable producers were unable to use Radio, TV, SMS, and other technology born market information delivery to find out information about the price of their vegetables. This resulted that, households were limited to use the local market and forced to sell their vegetables at low prices at the local market

### **Awareness of Vegetable Producers about Market Information**

Regarding the degree of awareness, most 55(29%) respondents replied often aware of the arrivals in the local market, but in contrast with their awareness about reference market majority, 72(39%) were rarely aware of reference markets.

Concerning awareness about the local price, most 75(40%) of the participants were often aware of the local price, concerning questions about reference market price, most 62(33%) of the respondents were rarely aware.

With the regard to the area under the crops, the majority 63(34%) of the asked respondents were rarely aware about area under crops, however, with their production awareness, most (58%) of the participants were rarely aware, 53(28%) never aware, likewise, the awareness on quality /grade required less aware that majority 52(28%) of the respondents were sometimes aware of quality or grade required.

This result also confirms with the interviewee and FGD result show that most vegetable producers went to the local market physically and accustomed to sell their products at the local market with local market price and under area crops, or either on the street that determined by the middlemen, who are interfering in the price decision of the products.

Therefore, vegetable producers were more aware of arrivals in local markets than arrival in reference markets. With regard to price, households were more aware of price in local markets

than the price in reference markets. Producers were also aware more about information about area under crops and production than quality/grade required.

### **Practice and utilization of market information**

As most 76(41%) of the respondent indicated that vegetable producers are rarely 76(41%) use market information before getting their products to the market, respondents were also asked about whether they considered market information to decide for whom to sell, when to sell, where to sell and other related decisions, majority 63(34%) of them were never considered it. The vegetable producers are rarely 56(30%) get directly consumers so as most households 52(28%) of them were always use local market in order to sell vegetables.

Further, vegetable producers were accustomed to sells their vegetables at the local market on the street that majority 55(29%) of the asked respondents were often accustomed to sell their vegetables at a local market, in contrast, households rarely 72(39%) use central market, 47(25%) of them never used central market. With the regard to the facilities provided to vegetable producers to use technological advancement, most 75(40%) of the participants rarely got an opportunity to use technological advancement.

Finally, how vegetable producers use market information to reduce transaction and reducing risk, the majority 56(30%) of the respondents rarely utilize it. Finally, respondents reacted with questions about households utilize market information to decide on selling decisions, storage, and pre-selling decision over their vegetables, most 76(41%) of the participants replied rarely use market information for such decisions.

In support of quantitative data, the result obtained from the interviewee and FGD also confirms that vegetable producers were poorly practiced the market information in the study area. The interviewee and FGD added that households are sold their vegetables without an attempt to find out market information, they use to sell their vegetables at the local market, with low prices and they are non-profitable. Therefore, this indicated that vegetable producers of this area didn't practice the market information to find out the better prices of their products.

### **Priority of Farmers on Market Information**

A majority of 105(56%) participants give high priority for price in production areas, rank (I) for tomatoes. Contact of buyers for non-collectors farmers for Potatoes rank (I), with majority 97(52%) of the respondents give high priority. Prices in production areas for cabbage rank, (I) as majority 104(56%) of the respondents give high priority.

There was a strong relationship between vegetable producer's awareness of agricultural market information and vegetable producer's practices and utilization of market information with  $r=0.848$ .

## **5.2 Conclusion of the Study**

Based on the major finding, the following conclusion was drawn:

The market accessibilities of the identified district were seen as poor because vegetable producers of the area did not get market accessibility through phone, Radio, social media, SMS, and TV. The development agent (DA), Agriculture and Trade bureau didn't show their support on how to found out market information. Vegetable producers were not well-advanced with market information through display boards or any other local government announcements and publications. Therefore, due to this and other related reasons, vegetable producers were forced to take distorted market information from the traders, which exposed them to price cheating. They were forced to sell their products at the local market with low prices that in turn made traders more profitable than producers.

As challenges, vegetable producers have faced difficulties, among them, here are the most challenges identified: availability of transportation, economic level of the households, level of education, lack of training and awareness, interference of traders, distance from the center, fluctuation of vegetable prices, and accessibility of technology were seen as the high challenges households are faced.

With the concern to the degree of awareness of vegetable producers about market information, the result shows that producers get awareness through physical arrival in the local market and well aware about local price than reference market and reference prices of the vegetables.

When we see the practices and utilization of the market information by vegetable producers of the study area, the result confirms that as households never considered market information to

decide for whom to sell, when to sell, where to sell, and decided pre-selling decisions over their productions. Households never directly met the consumers; rather they were accustomed to sell their products under production areas, on the street, and deliberately used the local markets.

For Tomatoes and potatoes, the priority information requested by the farmers reflects their needs to better understand the demand (prices in local markets for both, with consumers' preferences for potatoes), but also to they develop less priority direct links with buyers (contacts of buyers)

Finally, there is a relationship between awareness and priority, accessibility and challenges as well as the correlation between practice and priority.

### **5.3 Recommendation of the Study**

Based upon the results and findings of the study, the following policy implications can be suggested for improving the agricultural marketing information system (in Gomma, Manna, and Kersa) districts.

- Development agents, agriculture, and trade bureau of these districts are expected to provide training and awareness creation about how vegetable producers are going to use market information. So, vegetable producers should be provided daily information about price at reference market by agriculture publication market center through display boards and local government announcement and publication.
- The agriculture and trade bureau facilitated the condition in which the households are obtaining market information through Mobile phones, Radio, TV, Social media, and SMS before selling their vegetables at the local market.
- Agriculture and trade bureau of the Jimma zone should find the identified difficulties such as availability of transportation, economic background, educational level, lack of training distance from the center, poor accessibility of technological advancement) should be improved by the support of each district's .
- The development agent (DA) should aware the vegetable producers to use the Mobile phone in order to ask the price of vegetables at reference market than only concentrated on the local market and accustomed to sell their products on street and under production area with cheap prices.

- The agriculture office of Jimma zone should give emphasis on the delivery mechanism of information, so that market information reaches timely to the end-users in this district.
- Proper integration of various agencies for adequate and efficient dissemination of vital agricultural marketing information, so that it will act as a ‘one-stop-solution’ for the needs of the farming community in these selected woredas.
- The agriculture and trade offices of Jimma zone should revitalizing the SMS system in which markets information can be disseminate to the producers.
- The development agent should be delivered fast, reliable and accurate information in a user-friendly manner for utilization by the farmers and other stakeholders in order to facilitate the farmers to decide what and when to make crop and marketing planning, how to cultivate, when and how to harvest, what post-harvest management practices to follow, when, where, how to sell, etc. of the agricultural produce in the study area.
- The development, agriculture and trade office of Jimma zone should create awareness among farmers and other intended beneficiaries on the importance of agricultural market information and its optimum utilization for the overall development of agriculture in the study area is very essential.

#### **5.4 Implication for future studies**

The current study is undertaken on three woredas (Gomma, Manna, and Kersa) woreda of Jimma zone, there is a need for more inquiries to be conducted in other Woreda in the Jimma zone, Oromia region, or in other parts of Ethiopia. Further research can be conducted on the profit share among vegetable producers and traders. Agents (traders) buy the products with cheap prices and re-sell it with expensive prices, so as the urban merchants are more beneficiary than those farmers who produced the goods. So, why not rural farmers are not sell their goods with expensive price or at least with balanced price, and being profitable like what the urban merchants do ?, or why the producers sell the original products with less prices?. As student researcher believe that that market information may be responsible for this market imbalance among traders or agents and farmers of vegetable producers.

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# APPENDICES

## Appendix I

### JIMMA UNIVERSITY

#### COLLEGE OF LAW AND GOVERNANCE

#### DEPARTEMENT OF GOVERNANCE AND DEVLEOPMENT STUDIES

#### QUESTIONNAIRE TO BE FILED BY VEGETABLE PRODUCERS

This survey study will be undertaken by graduates of Jimma University department of governance and development studies in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Development Management This study is entitled on “*Assessing the Market Information Among Vegetable Producers: The Case of Jimma Zone, Oromia Regional State* “.

The purpose of these questionnaires is to collect data on the market information among vegetable producers of Jimma zone, selected woreda vegetable producers. The success of this study entirely depends up on your genuine response. Therefore, I would like to express my felt thanks and respect for your frank, sincere and voluntary contribution to this study. It will be my great responsibility to keep the confidentiality of your response and the information obtained from you will be undoubtedly used only for academic purposes. Please read the instruction of each item carefully to provide your response correctly

➤ No need to write your name.

Thank you in advance for your time and concern!

Sincerely yours.

#### Part I: Demographic Information

*Please mark (✓) in appropriate box to your response.*

1. Gender: 1. Male  2. Female

2. Age in years: 1. 20-30  2. 31-40  3. 41-50  4. 51-60  5. above 60

3. Marital Status: 1. Married  2. Single  3. Divorced  4. Widowed

4. How long have you worked in vegetable production: 1. 1-5years  2. 6-11 years

3. 12 -17years  4. 18 -23 years  5. Above 15 years

5. Level of Education:

1. None educated  2. Write and read  3. Primary school  4. Secondary school   
 5. Certificate  6. Diploma  7. Bachelor Degree

**Instruction -2**

Below are tables that consist of questions that show the role of market information, practices of market information and challenges vegetable producers are facing in getting market information that helps them to sell their products. Each table contains its respective questions with five responses. Please indicate the extent to which each statement represents your experiences about the market information by putting tick mark (√) in one of the boxes against each item. Every response has to be based on your experiences that you have been developing about the market information of the price of vegetables.

The numbers shows:

5=Always                      3=Sometimes              1=Never  
 4=Often                      2=Rarely

***1. Accessibility or sources of agricultural market information of households***

No	Items	5	4	3	2	1
1	Producers get current market prices of vegetables					
2	Development agents (DA) help vegetable producers to get information about the market price of products					
3.	Households are getting market information from middle men, traders and agents					
4.	Vegetable producers use, Phone, Radio, Social Media, and TV to get accessibility of market information of vegetable prices.					

5.	The market information disseminated by middle men , traders and agents are distorted that get households to sell their products at local market					
6	Vegetable producers have accessible by market information					
7	Lack of market information influence the income of the vegetable producers					
8	The house holds get the information from the display boards in APMC					
9	Through contact over other markets by Phone					
10	Local government publication and announcement					

**Open ended questions**

**11 . Do you know about the market price of your vegetable products?**

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**12. Do you know the market price of the vegetables by visiting the market or through other mechanisms?**

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**13. Do you feel that your vegetables are not being sold at profitable prices because of distortion of the price by mediators ?-----**

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**II. Challenges or constraints vegetables producers face to get market information**

NO	Items	5	4	3	2	1
1	The interference of middle men in market information					
2	Lack of education of vegetable producers					
3	Lack of training and awareness creation given by development agents , woreda and zone agricultural office					
4	Distance of vegetable producers from market center					
5	Lack of utilization of market information system delivery (Radio,TV,Social media )					
6.	Lack of transportation due to road and other infrastructure problems					
7	Lack of facilities provided for vegetable producers on how to get market information					
8	Lack of internet accessibility to use technological advancement of market information					
9	The information is not available in time					
10	The price fluctuation of vegetable at market.					
11	Economic level of the vegetable producers					

**Open ended questions**

**12.** What are the other challenges you have facing to get accessibility of the market information?. Specify?.

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**13.** What possible suggestion you indicate to minimize challenges of market information you face?

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### III. Vegetable producers awareness on agricultural market information

Sl. no	Type of Agricultural Market Information (AM)	Degree of Awareness				
		Always	Often	Some times	Rarely	Never
1	Arrivals in local market					
2	Arrivals reference market					
3	Prices in local market					
4	Price in reference market					
5	Area under crops					
6	Production					
7	Quality/ grade required					

### IV Vegetable producer's practices and utilization of market information

No	Items	5	4	3	2	1
1	Vegetable producers are deliberately uses market information before get their vegetable to market					
2	Decision about what to produce, for whom to sell, where to sell and when to sell of vegetable are determined by market information of the households.					
3	Vegetable producers are directly getting consumers through market information					

4	Vegetable producers households are use local markets due to lack of market information.					
5	Vegetable producers are accustomed to sell their products on street and in the producing area					
6	Households have used central market to sell their vegetables					
7	Technological advancement for accessibility of market information are facilitated for vegetable producers and effectively practiced in the area					
8	Utilization of market information by farmers enhanced appropriately					
9	The essence of good market information that should provide commercially useful information on a timely basis.					
10	Farmers use market information to reduce transaction ( costs of selling the produce ) by reducing risks					
11	Households utilize market information to decide on selling decision, storage decision and pre-selling decision over their vegetables					

**Open ended questions**

**11.** Specify the attempt you are doing to use market information to sell your products?

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**12.** What means of market information delivery you use to identify the price of vegetables?

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## VI. Farmer's needs of market information

The following table is about the types of market information that the vegetable producers are able to use and prefer . Therefore, you are kindly ask ranking your types of market information that helps you to be accessible in market information.

### Key:

**3:** High priority **2:** Medium priority **1:** Low priority

**Table 1 : Priority of farmers on market information**

Types of Vegetables	Type of information	3	2	1
Tomato	Contacts of buyers			
	Prices in production areas			
	Prices in urban markets, and Availability in production areas			
Potatoes	Price sin urban markets			
	Contacts of buyers for non-collector farmers, and Prices in production areas for collector-farmers			
	Consumers' preferences for non-collector farmers, and Contacts of buyers for collector-farmers			
Cabbage (both) vegetables	Prices in urban markets			
	Contacts of buyers			
	Prices in production areas			

**Thank You!**

# APPENDICES

## Appendix II

### JIMMA UNIVERSITY

#### COLLEGE OF LAW AND GOVERNANCE

#### DEPARTMENT OF GOVERNANCE AND DEVELOPMENT STUDIES

#### Interview for the agricultural agents

This survey study will be undertaken by graduates of Jimma University department of governance and development studies in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Development Management. This study is entitled “Assessing *the Market Information Among Vegetable Producers: The Case of Jimma Zone, Oromia Regional State* “. The purpose of this interview is to collect data on the market information among vegetable producers of the Jimma zone, selected woreda vegetable producers. The success of this study entirely depends upon your genuine response. Therefore, I would like to express my felt thanks and respect for your frank, sincere and voluntary contribution to this study. It will be my great responsibility to keep the confidentiality of your response and the information obtained from you will be undoubtedly used only for academic purposes. Please read the instruction of each item carefully to provide your response correctly

Thank you in advance for your time and concern!

Sincerely yours.

1. How often do farmers require the market information?, through which means of market information ?. Specify it please.
2. Do farmers be able to use the market information effectively? Or is some sort of market extension services required to them?
3. Do farmers understanding of the price market information delivered ? If not specify

4. How is the perception of the farmers about market information?
5. How is the perception of extension employees about market information?
6. What constraints you as the bureau of agriculture face in the dissemination of market information
7. How is the rural vegetable producers market information coverage?, which means you use , Mobile phone, Radio , TV ?
8. What is your possible suggestion to implement the market information of vegetable producers?
9. Is there any collaboration of your bureau of agriculture with other bureaus like trade to facilitate the market information to the producers?

**Thank you !**

# APPENDICES

## Appendix III

### JIMMA UNIVERSITY

#### COLLEGE OF LAW AND GOVERNANCE

#### DEPARTMENT OF GOVERNANCE AND DEVELOPMENT STUDIES

#### Focus group discussion for the key households

This survey study will be undertaken by graduates of Jimma University department of governance and development studies in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Development Management. This study is entitled “*Assessing the Market Information Among Vegetable Producers: The Case of Jimma Zone, Oromia Regional State*”.

The purpose of this focus group discussion question is to collect data on the market information among vegetable producers of the Jimma zone, selected woreda vegetable producers. The success of this study entirely depends upon your genuine response. Therefore, I would like to express my felt thanks and respect for your frank, sincere and voluntary contribution to this study. It will be my great responsibility to keep the confidentiality of your response and the information obtained from you will be undoubtedly used only for academic purposes. Please read the instruction of each item carefully to provide your response correctly

Thank you in advance for your time and concern!

Sincerely yours.

1. Have you get an accessibility of market information?. If its so, from where you get these information? .Specify .-----  
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**2. How do you sell vegetables?., through middle men , agents and brokers or via your direct contacts of buyers?**

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**3. Which market, local or central market you use to sell your vegetables?, why ?,specify**

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**4. From where you get market information about the price of vegetables?, from woreda agriculture, extension employee ,middle men ,brokers and agents?**

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**5. Do you think market information you obtained from middle men , trades and agents is accurate ? if it is not , specify ?**

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**6.Do woreda agriculture bureau ,extension workers and other concerned body facilitated condition for farmers to get market information?. Specify**

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**7. What challenges you as vegetable producers face to get market information accessibility ?.Specify these challenges?**

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8. Suggest your possible suggestion and recommendation that helps to minimize the problems of market information vegetable producers are facing?

**Thank You!**