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SUPPLY CHAIN ASSESMENT OF SESAME OILSEED

From Humera to Djibouti Port

M.Sc. Thesis

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September 2011
Addis Ababa University

SUPPLY CHAIN ASSESMENT OF SESAME OILSEED

From Humera to Djibouti Port

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**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
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**BY
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Declaration

I declare that the thesis is my original work and has not been presented for a degree in any other university.

Date

This thesis has been submitted for examination with my approval as university advisor.

Advisor

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Abbreviations

E.C.: Ethiopian Calendar

ha: Hectare

CSA: Central Statistics Authority

UK: United Kingdom

SCM: Supply Chain Management

FAO: Food and Agriculture Organization

MoRAD: Ethiopian Ministry of Agriculture and Rural Development

ADIL: Agricultural Development Led Industrialization

FDRE: Federal Democratic Republic of Ethiopia

PKA: Peasant Kebele Administrations

Qt: Quintal

Km: Kilometre

ECX: Ethiopian Commodity Exchange

GRN: Goods Receiving Notice

GIN: Goods Issuing Notice

FOB: Free on Board

MTSE: Maritime Transit Service Enterprise

VAT: Value Added Tax

TIN: Tax Identification Number

Abstract

Ethiopian's sesame oils product demand has been growing in the last couple of years. In order to stay competitive and cope up with the world market, problems on productivity, logistics, quality, infrastructures and others should be given due attention so that the country can use its potential on this sector and bring foreign currency, which will have huge influence for the economic development. Therefore, it is crucial to study the supply chain of sesame from farm to port in order to point out bottlenecks and proposes mitigation measures.

The study was focused mainly on Kafta-Humera woreda where the survey was conducted using questionnaires to gather information from stakeholders such as farmers, retailers, exporters, transistors and ECX officials.

Farmers stated that they are encountered with shortage of capital/lack of loan services, high price of inputs and labor, poor roads, poor network system for information exchange, collision between retailers to deny them fair price.

As to the retailers the main problem that they face were shortage of capital and credit services to purchase sesame, poor quality sesame supplied by farmers, poor network system to exchange information, delay at ECX due to problems of weighbridge and automated system failure costs them expensive transport prices and waste of time and energy and unawareness on how much tax is enforced on them.

Exporters stated that they face problems like forced to pay high transport prices due to delay at ECX, less quality of sesame from anticipated, in accuracy of weighbridge system, poor roads to Port Sudan that impose extra transportation and storage cost, problems of theft and adulteration along route to Djibouti, delay of vehicles at customs branch offices due to automated system failure, delay of vehicles due to improper schedule of vessels and shortage of containers at Djibouti port.

Solutions recommended are improving credit services, building capacity of ECX, improving road, storage and network system conditions, controlling theft and adulteration, containerizing sesame at exporter's warehouse, improving conditions at port are believed to improve the supply chain of sesame.

1. Introduction

1.1 Background

Ethiopia is set to be an example of the few countries in the world which has suitable land provision for all types of agricultural outputs. Sesame oil seed is one of the agricultural main outputs and it has become one of the major items that Ethiopia exports and in return gets foreign currency.

Ethiopia's sesame oils product demand has been growing in last couple of years. Considering this demand the limited production around northern and north western parts of Ethiopia has been dramatically increased. Ethiopia's sesame export data shows from 1995 E.C up to 2000 E.C, that the export has increased by 19.97 % correspondingly the foreign currency income has increased by 41.90 %.

Although Ethiopian's sesame product has been growing following the demand in order to stay competitive and cope with the world market, problems on productivity, quality, infrastructures and others should be given attention so that the country can use its potential on this sector and bring foreign currency which will have huge influence for the economic development.

Conducting sesame supply chain study is believed to provide every detail from collecting the product from the field up to loading on ship for export. In this chain the transportation, the information exchange, the storage and other aspects will be covered. Relatively the study will identify problems on the whole chain which has been encountered until now.

Commented [u1]: Update export amount and foreign currency increment

1.2 Literature review

1.2.1 Background

The sesame oilseeds sector is one of Ethiopia's fastest-growing and important sectors, both in terms of its foreign exchange earnings and as a main source of income for over three million Ethiopians. It is the second largest source of foreign exchange earnings after coffee. Study reports indicate that Ethiopia is among the top-five producers of sesame seed, linseed and niger seed (Wijnands et al. 2008). In addition to these, Ethiopian mustard (rapeseed), castor bean, safflower and jatropha have also become important oilseeds in the country for some years now. The potential for further growth, both in terms of quantity and quality, through improved production techniques and productivity factors is considered to be great.

In the last few years, sesame production and marketing has demonstrated highly significant growth. In 1997 (Kindie, 2007), the total area under sesame production was about 64,000 ha. In nearly ten years' time (up to 2007), the total area of sesame production has increased by more than 200% to about 211,000 ha. The practice of sesame production has also expanded from the traditional regions (Northwest Humera, Wellega and North Gonder) to many new areas, including Benishangul, Illubabor and many other places (CSA, 2006-07). Similarly, the quantity of sesame produced during the same period, which is mainly intended for export, has also increased from 42,000 tonnes (Kindie, 2007) to about 149,000 tonnes (CSA, 2006-07), which is again an increment of over 250%. The potential to increase the area, production and productivity of sesame is still large.

Similarly, there is considerable international market demand for Ethiopian sesame seed, and this is expected to continue increasing. In 1998, the total export of sesame was about 50,000 tonnes, but by 2006 it had exceeded 100,000 tonnes (Wijnands et al. 2008). The increasing international market demand for sesame is not only evident in the rise of export volume but also in new buyers coming to the market. The traditional importers of Ethiopian sesame seed were China, Israel, Turkey and other Middle Eastern countries. These days, while the purchase volume of the traditional buyers is continuing to increase, other new buyers (including Greece, Germany, The Netherlands, UK, etc.) are also coming to the market. Japan, the world's biggest importer of sesame, has not yet been adequately approached. Therefore, if the Ethiopian sesame sector were

able to meet the market's various requirements, the demand for sesame could be potentially insatiable.

However, despite the high potential for increased production and the rapidly growing demand in the international market for Ethiopian sesame, it is generally felt that the logistical supply chain of sesame suffers from different challenges, including the adulteration of sesame with foreign materials or the mixing of sesame with different sources of varying quality, a lack of transparency among chain actors and the contract default of producers and/or buyers in some cases. Sesame is being sold as plain seed, while quality characteristics such as oil content, percentage of admixture, fatty acid profile or residues are hardly accounted for. In addition, transaction risks, which are mainly the result of problems caused by the behaviour of actors throughout the entire chain, lack of proper trade arrangements or coordination among chain actors and lack of capacity to accurately measure the quality standards of sesame and control problems related to theft and adulteration, have contributed to rising sesame transaction costs. On top of that, the existence of many chain segments drives up the price of sesame and reduces its competitiveness in the international market. It is believed that selecting and grading sesame according to its quality and clearly specifying its characteristics, such as its origin (for traceability), or whether it is organic or a speciality, etc., can create higher market prices and simultaneously fulfil buyer expectations in the end market. Knowing exactly what type of seed is being bagged and transported can also prevent adulteration during transport and create premium prices for guaranteed quality.

1.2.2 Definition of supply chain management

SCM has been interpreted by various researchers. Based on the relatively recent development of the supply chain literature, it is not surprising that there has been much debate as to a specific SCM definition. Ganeshan and Harrison (1995) has defined SCM as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Lee & Corey (1995) stated that SCM consists of the integration activities taking place among a network of facilities that procure raw material, transform them into intermediate goods and then final products, & deliver products to customers through a distribution system. Christopher (1998) defined the supply chain as the network of organizations

that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer. SCM is the “strategic and systematic coordination of the traditional business functions and the tactics across these business functions within a particular firm and across businesses within a supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole” (Mentzer et al. 2001).

Christopher, 2005 defines supply chain management as the ‘management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole’. Whilst the phrase ‘supply chain management’ is now widely used, a more accurate phrase could be demand chain management to reflect the fact that the chain should be driven by the market, not by suppliers. Equally, the word ‘chain’ should be replaced by ‘network’, since multiple suppliers and customers are involved in the extended enterprise (Christopher, 2005).

Christopher (2005) asserts that each organisation in a supply chain is dependent on each other, emphasising the need for companies to integrate activities. Therefore, the mission of logistics is to plan and co-ordinate all those activities necessary to achieve the desired level of delivered service and quality at the lowest possible cost.

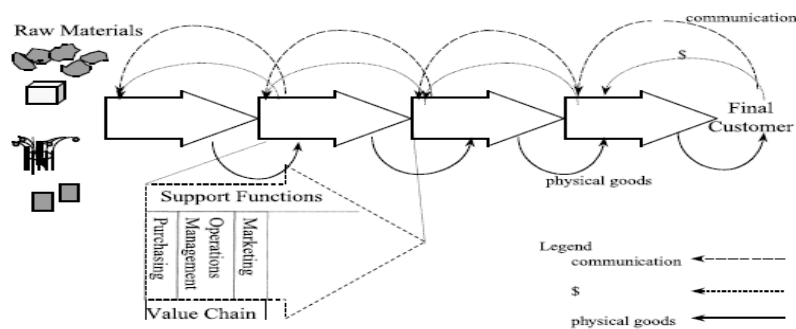


Fig.1 Supply chain (History and Introduction to Supply Chain, 2001)

1.2.3 Cost savings of supply chain management

Many manufacturers and distributors are waking up to the potential for the major cost reduction and service improvements offered by implementing best practices in their supply chain. Research has shown that companies with best-in-class supply chain operations typically enjoy supply chain costs 40% less than average companies (Source: PRTM). That might well represent a potential saving of £5 million per £100 million of turnover for the average company; not something to be ignored in the current business environment. Supply Chain Management is now recognized as a critical business process for companies manufacturing or distributing products.

A primary concern of management is how to achieve strategic goals in ways that are least costly. This is of particular interest during times when economic growth is less than robust, supplies of almost everything are plentiful, and intense competition restricts price increases as a means of improving profits. Because expenditures for materials and services are very significant in most organizations (more than 50% of revenues in most manufacturing companies), supply chains offer an obvious potential source of cost savings.

Two primary sources of cost savings in supply chains are (Dr Ralph G Kauffman, 2004):

- ✓ change what is purchased or sold or how and when it is purchased or sold, processed and delivered to the point of use; and
- ✓ Increase the velocity of material in supply chains to reduce the time from point of entry to the chain to final consumption or sale (see Figure 3).

The first source is often approached by a strategic sourcing initiative. Typically, all purchases are identified, the optimum number of suppliers determined, and appropriate strategies applied with the goal of maximizing the value of purchases for all items.

The second source of savings can be approached as part of a total cost analysis associated with a strategic sourcing initiative or as a separate effort to reduce the 'cash to cash' cycle time. The most frequent means of obtaining savings from increased velocity is to reduce or eliminate material inventories wherever they exist in the supply chain.

To seek savings from either of these sources requires as complete knowledge as possible of an organization's most important supply chains. Such knowledge should include purchases,

inventories, members of the chain including suppliers, customers and providers of transportation and other services, and all costs and cycle times throughout the chain. The most effective way to organize this information to facilitate analysis is through some form of process mapping, either on paper or with computer software.

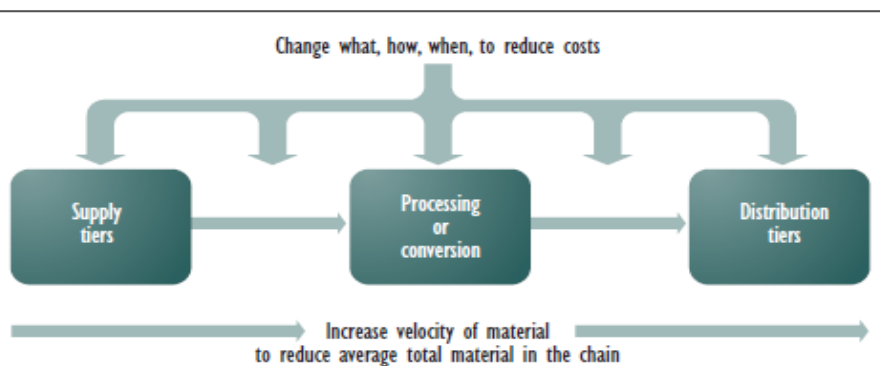


Fig.2 Sources of cost saving in supply chain (Dr Ralph G Kauffman, 2004)

1.2.4 Global sesame production and trade

1.2.4.1 World sesame production

Of the sixteen countries who are the major producers in the world, Asia and Africa together produce 70 and 26% of the world's sesame, respectively. About 24% of the sesame produced in the world goes on export while 44% of Africa's production goes on export. Nigeria became the largest supplier of sesame to the largest sesame importer, Japan in 2001 (Chemonics, 2002). Asia imports almost twice as much sesame as it produces because the seeds are consumed as tahini or crushed into toasted oil. It is suggested that Africa should step up her production to meet the ever increasing demand for sesame particularly in the Asian market.

These sixteen countries collectively account for about 84% of the world's sesame production. It could be observed that the bulk of sesame in the world is produced in semiarid regions where rainfall is relatively limiting. This confirms the attribute of sesame as a crop that is drought tolerant and as such could be widely cultivated in areas where most grain crops cannot survive.

Table 1.1 World`s major sesame producers

S.No	Country	Area harvested (in thousand hectar)	Production (thousand tons)
1	China	660	800
2	India	1850	750
3	Myanmar	1370	606
4	Sudan	1700	331
5	Uganda	210.8	121
6	Nigeria	165.1	83
7	Pakistan	135.2	75
8	Ethiopia	93.1	72
9	Bangladesh	80.1	55
10	Central African Republic	42.1	47
11	Thailand	63.9	46
12	Tanzania	104.8	45
13	Egypt	29.9	41
14	Guatemala	55.8	39
15	Chad	95.1	39
16	Paraguay	67.9	37

Source: FAO, 2005

1.2.4.2 World sesame trade

The world's leading sesame exporter as at 2004 was Sudan and the country exported about 209,000 tons of sesame followed by India (173,000 tons), while China was the leading importer (153,000 tons) (Adeniregun, O.O, 2004). The market for sesame in Asia and Europe is growing at a very high rate in the last decade because the products from sesame readily meet the health requirements for food in the developed world and the popular cuisine in the oriental world.

Sesame is currently underexploited as an organic crop despite the fact that most of the tropical farmers grow the crop organically by default i.e. "un-certified organic agriculture". Sesame seeds are demanded by a variety of markets in various forms like raw seeds crushed unrefined oil and

refined oil. Consequently, efforts should be geared towards producing appropriate products which can readily meet the specifications for other end users/markets.

Efforts should therefore, be directed towards overcoming the relatively poor commodity pricing which seems to attract the foreign buyers because the producers are unaware of quality issues that can attract premium prices in the world market. Sesame commands a relative advantage in that the seed yields under mechanization and traditional systems are comparable. Therefore, as demand increases in the world market, local producers might likely still remain relevant as supply outlet.

1.2.5 Sesame production and marketing in Ethiopia

1.2.5.1 Production

Agriculture is the mainstay of the Ethiopian economy, not only by virtue its substantial contribution to the livelihood of a large majority of Ethiopians, but also for its significant contribution to the country's foreign exchange earnings. Cognizant of this fact, the Ethiopian government has pursued the Agricultural Development Led Industrialization (ADLI) strategy since 2001 as a means of economic development. The strategy document specifically indicates that the success of the effort is assured if the performance of the agricultural sector is transformed from a generations-long period of subsistence to a market-oriented commercial production system. To this effect, all responsible ministries and agencies of the federal and regional governments and different multilateral and bilateral collaborative efforts are in the process of implementing the strategy.

As the most responsible body for this strategy The Ethiopian Ministry of Agriculture and Rural Development (MoARD), has developed a master plan to enhance market-oriented production for priority crops and livestock commodities (MoARD 2004). The oilseeds sub-sector, of which sesame is an important product, is one of the priority crops within the master plan. According to the master-plan document, in 2000 the total production of sesame seed was 156,600 tonnes, and yet this volume of production could potentially increase threefold. Consistent with this, the Ethiopian government aimed to double the production and export of oilseeds between 2005 and 2010 (PASDEP 2005).

Table 1.2: Number of sesame producers, land under cultivation, total production and productivity in 2005-06

Main Production Regions	No. Farmers	Area in ha.	Total Production (in quintal)	Yield /ha.	Land Holding /Producer	Production Contribution (%)
East Wellega	207,901	55,679	323,724	5.81	0.27	22%
Amhara	235,323	61,347	561,143	9.15	0.26	38%
Humera	122,602	71,150	481,412	6.77	0.58	8%
Benishangul-Gumuz	70,739	21,693	125,584	5.79	0.31	8%
Other	16,040	1,443	2,004	1.39	0.09	0%
Total	652,605	211,311	1,493,867	7.07	0.32	100%

Source: The FDRE-CSA, Agricultural sample survey 2006-07, volume I, July 2007.

The existing production system suffers from traditional farming practices, unimproved seed, lack of fertilizer use, etc. This situation has caused productivity of the crop per hectare to be far below the estimated FAO potential, which is about 16 quintals/ha. (Wijnands et al. 2007). According to the Ministry of Agriculture and Rural Development (MoARD) master plan, the 2000 average productivity of sesame per hectare was 4.58 quintals. However, the Ethiopian Statistical Authority report of 2005-06 indicates that the crop's productivity level is 7.07 quintals per hectare countrywide, although total production is slightly less (149,400 tonnes) than what was reported by the MoARD master plan for 2000 (156,600 tonnes). However, it is understood that the current productivity level of sesame in Ethiopia is far below the expected average, and therefore there is room for improvement by means of a better farming system and the implementation of improved inputs. Moreover, since there is still land available in the north-western, western and south-western areas of the country, the potential for increasing production volume is great.

Despite the potential for increasing the production and productivity of sesame, there are also a number of challenges inhibiting sesame production and productivity. Among the many production constraints, the most important include a lack of improved cultivars, a poor seed supply system and a lack of adequate knowledge of farming and post-harvest crop management. In addition, there are severe biotic stresses, such as bacterial blight (*Xanthomonas campestris* pv. *sesami*), phyllody (Mycoplasma-like organism), Fusarium wilt (*Fusarium oxysporum*), Powdery mildew (*Oidiumerysiphoides*), Alternaria leaf spot (*Alternaria sesame*) and Cercospora leaf spot (*Cercospora sesame*), which are the common sesame diseases registered in Ethiopia (Daniel Endale, 2008). Caused by mycoplasma-like organisms and transmitted through Jassid (*Orosius albicinctus*) bacterial blight – very common in humid and high rainfall areas, transmitted by infected seeds and phyllody – is a highly destructive disease. Sesame leaf roller or webworm (*Antigastacatalaunalis*) is also an important and widespread insect that damages sesame in Ethiopia.

Pests attack the crop in all stages of its development. The most important storage pests of sesame in Ethiopia are the red flour beetle (*Tribolium confusum*) and rice moth (*Corcyra cephalonica*). These are cosmopolitan insect pests that attack a range of stored products. Moreover, sesame is a poor competitor of weeds. The crucial period for weed competition is about four weeks after emergence (Alemayehu and Ababu, 1991).

Sesame has high agronomic importance as it has the ability to adapt to harsh environments in which other crops cannot be cultivated. Hence, in many sesame-growing regions the crop is indispensable not only for its economic importance but also for its suitability in such harsh areas. Therefore, developing improved cultivars and production technology is required to increase sesame yields and establish stability in different growing areas. More productive sesame cultivars that have been adapted by breeding are expected to be the major strategy for increasing yield and establishing stability in Ethiopia.

1.2.5.2 Marketing

Sesame is mainly produced for the market and it is wanted for its seed and for the oil in the seed. Sesame contains up to 60% oil of a very high quality and up to 25% protein (Brar and Ahuja, 1979; Bedigian et al. 1985; and Ashri, 1998). Until very recently, almost all of the sesame produced by Ethiopian producers (both large scale and smallholders) was exported. In the

international market, its demand comes from the oil industry and the confectionary sector. Seed oil content is the most important parameter for determining the suitability of sesame seeds for oil extraction, while seed coat color determines quality for the confectionary market (Ashri, 1998). Sesame seed is rich in amino acids, especially methionine, cystine, arginine and leucine. Sesame seed contains little vitamin A, but it is rich in vitamin E. Sesame seeds are used for decorating bread and cakes. Sesame oil contains a significant amount of fatty acids, mainly linoleic (39.3-59%) and oleic (32.7-53.9%) acid (Yeramanos et al. 1972), and palmitic (9-11%) and stearic (5-10%) acid (Kamal-Eldin et al. 1922a). Sesame oil is unique among vegetable oils due to the presence of natural antioxidants such as sesamin and sesamol and their derivatives (sesamol and sesaminol), which provide a significantly long shelf life and stable characteristics (Brar and Ahuja, 1979; Johnson et al. 1979; Salunkhe and Desai, 1986; and Seegeler, 1983). Sesame oil is mostly used for cooking purposes. Sesame oil is also used in soaps, paints, perfumes, pharmaceuticals and insecticides. The cake produced after the extraction of oil from un-hulled seeds is an excellent protein feed for poultry and ruminants (Ashri, 1985).

Having these intrinsic characteristics and unique uses, sesame is one of the most wanted oil crops in the world. Over the last two decades, the quantity of sesame traded on the world market has more than doubled. Japan, the European Union, South Korea, the USA and Egypt were largest importers, while India, Sudan, Guatemala, China, Myanmar, Ethiopia and Nigeria (Comtrade database, United Nations Statistics Division website, Wijnands et al. 2007) were major suppliers to the world market. In 1997, the total world import of sesame was estimated at 462,000 MT (Comtrade database, United Nations Statistics Division website) and forecasted to grow at between 6% to 8% by 2012 (Mal Bennet, Website material). The supply from some producing countries, such as China, has been in relative decline over the past few years, despite a general increase in demand for the crop. The main reason for this decline is attributable to the fact that other more remunerative crops compete with sesame for the limited amount of agricultural land and the shortage of labour.

Ethiopia has a large number of different sesame varieties, including the Humera, Gonder and Wellega varieties, which well known in the international market. Ethiopia has been significantly increasing its supply to world markets: from 1998 to 2005-06, the total quantity exported annually increased from 50,000 tonnes to about 150,000 tonnes, which is a threefold rise in eight

years' time (Wijnands et al., CSA 2007). The main importers of Ethiopian sesame are China – which is also a major sesame exporter – Israel, Turkey and some European countries. In the long term, there is high potential for increasing the Ethiopian export of sesame to the European market. Europe is a major user of sesame seed for bakery applications and confectioneries. Currently, the main suppliers to European Union countries are India and Sudan (Comtrade database, United Nations Statistics Division website). Like China, India could well reduce its sesame supply to the world market as it focuses increasingly on industrialization instead of agriculture. Therefore, the European market presents Ethiopia with a good opportunity to complement existing suppliers and even replace them should their supply decline. The only requirement Ethiopian farmers and traders need to meet is to adequately prevent the adulteration of seeds of different varieties and clean sesame up to 99-99.5% (Wijnands 2007).

In addition, local investment in value-adding activities for the crop is expected to increase the benefits the country derives from sesame production, processing and marketing. The first and most important investment needs to be directed at cleaning and grading equipment, which will significantly contribute to achieving a level of purity of the crop that meets European Union standards. Subsequently, a gradual stepping up to higher levels of processing could increase the benefits derived from sesame. This may include the hulling of sesame, which is not currently practiced but easy to establish. In line with this, an Israeli company called 'Poseidon', which is a subsidiary of 'Meir Ezra', a leading company in Israel in the production, processing and trading of food products, has already decided to invest in the production of raw tahini in Gonder (Raw Tahini Production in Ethiopia; Business Plan 2003).

1.2.6 Previous studies in sesame supply chain study related to Ethiopia

In the industry of sesame, different studies have been made where some of the studies are reviewed below.

Debela (2009) examined the Sesame trade arrangements, costs and risks in Ethiopia and sesame Production and harvest, sesame trade arrangements sesame value addition, problems associated with sesame production; sesame farmers' experiences of different crises/problems are discussed.

It has been also discussed that despite the country's immense potential to increase its production and productivity and significantly increase the international market's demand for sesame, both

the production and marketing system of sesame is full of challenges for all involved parties. The level of productivity of sesame (seven quintals/hectare) is by far below 50% of the estimated potential of the country and the average productivity level of other sesame-producing countries due to the weak supply chain management.

Evolve consulting and terra fusca (2007) studied perspectives of sesame products from Ethiopia on international market and in this study the overview of sesame marketing, import and export of sesame was discussed and the findings of the study reveal that in Ethiopia active participation of primary producers in quality management, certification processes and marketing as well as benefit sharing throughout the supply chains still need to be developed further.

Therefore, the literature indicates that if the sesame oilseed supply chain is operated wisely it can be productive, profitable and competitive in the global market in the future than the current condition.

The above stated studies fail to show the complete supply chain of sesame as they lack to give a clear picture of storage conditions, transport related facts, information gathering and exchange means and port related activities. Since sesame is exclusively traded through ECX as of November 5, 2011 the supply chain shown in the above literatures should be upgraded to show ECX's involvement in the supply chain of sesame oilseed.

1.3 Statement of the problem

Agricultural lead industrialization and market lead agriculture strategies are set by the Ethiopian government in order to bring fast and sustainable growth and development in the country. This is mainly due to the fact that agriculture employs more than 80% of the population and it accounts for 42% of the GDP. Oilseeds are currently contributing a large share to the agrarian economy. They are now the second largest export earner next to coffee for the country and already more than three million smallholders are involved in their production.

sesame (*Sisamum indicum* L.) is major cash crops for the rural population in Ethiopia. The potentials to increase their productivity are also enormous. Productivity per hectare for this crop can be doubled with improved technologies such as higher inputs and improved seeds. Moreover, new virgin regions and areas can offer good opportunities for organic oilseeds production in this country.

Despite these potentials, however, the outputs of sesame and linseed have been very low due to biophysical and socio-economic challenges, inadequate interventions, limited intensification and poor production practices. The production conditions of both oilseeds are often complex and risk prone. Factors like low soil fertility, erratic rain, drought, soil acidity, diseases, insect pests and weeds reduce the productivity of these crops. The availability and/or access to agricultural inputs (improved varieties/seeds, fertilizers, farm implements, good practices and relevant production and marketing information) are generally limited, more expensive and more variable due to poor road systems and remote markets. Thus, little information is available for intensification and modernization of these oilseeds according to the prevailing agro-ecological zones and socio-economic realities of the farmers. In addition to the productivity issues, high transaction costs throughout the chain decrease farm income and overall competitiveness of the sector. It is perceived that middlemen throughout the chain are driving up prices and that quality of seeds is deteriorated. New modalities of contract farming and the recent establishment of the Ethiopian Commodity Exchange are trying to decrease the number of actors in the chain and develop a quality consciousness and quality premium rewards for farmers.

In other terms, challenges and opportunities exist throughout the oilseed chain: in primary production, storehouses, transport, trade, oil processing, government policy and enforcement of regulation.

2 Objective

The main objectives of the current work is to study in detail the whole supply chain of sesame oil seed from farm (around Humera) to the points of export.

Specifically, the study has the following objectives:

- ✓ Investigate the existing trade arrangements within the sesame value chain among chain actors at different levels
- ✓ Determine the main constraints revolving on the service provision chain and provide or forward solutions accordingly
- ✓ Propose recommendations for improving the chain performance

2.1 Limitation of this study

The main limitation of this study predicted is to be

- ✓ Unavailability of complete and accurate information on the field.
- ✓ Although different part of the country is known for growth of this seed, the research of this paper is only limited to Kafta-Humera woreda only.
- ✓ Although Ethiopia uses both port Sudan and Djibouti port, only Djibouti port is assessed in the this research

2.2 Expected outputs and impact

This study is intended to show every detail of actions that take place to export sesame oil seed from the very beginning of harvesting up to its loading to ship. Once this study is conducted hopefully it would be very easy to spot bottlenecks of sesame oilseed supply chain which could be amended to maximize the quality, the competitiveness and the profit that could be gained from the export of sesame oilseed and to improve the efficiency of the logistics system, to boost the volume of export and improve the quality of commodities that would be exported to the world market and motivate investment in the agricultural sector of sesame oil seed.

3 Materials and methods

3.1 Description of Kafta-Humera Woreda

Kafta-Humera woreda in which the study was conducted is located about 990 km north west of Addis-Ababa and 250 km west of Gondar town; bordered on the south by Tsegede, on the west by with Sudan, on the north by Tekeze river and Tahtay Adiabo on the East (see figure 3).

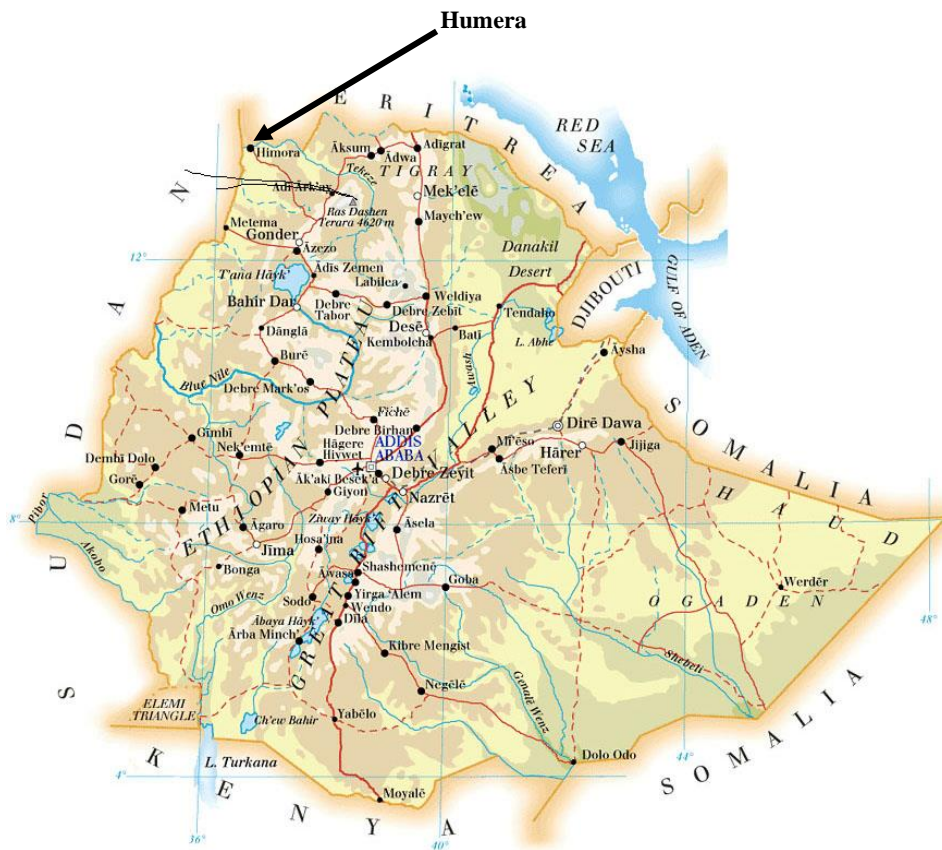


Fig.3 Kafta-Humera woreda location

3.2 Methods of data collection

Both the primary and secondary data were collected. Primary data sources were smallholder farmers and retailers from five randomly selected peasant kebele administrations (PKA) Maichadra, Bereket, Baker, Adebay and Endris/Hagere selam. Exporters, ECX personnels and transitor located at Humera, MTSE personnel at Djibouti. The data have been collected formally by individual interview using semi-structured questionnaires and informally through discussion with key informants using checklist.

Secondary data sources were different and relevant published and unpublished reports, bulletins, and websites were consulted to generate relevant secondary data on sesame seeds supply chain.

The survey covered 20 farmers and 18 retailers from randomly selected PKAs, 3 Exporters, 2 Transistors, ECX and MTSE personnel at Humera, Addis Ababa and Djibouti.

Out puts of Survey questioner data is summarized and presented in tables, ratio and percentages in all stage of the supply chain. Primary data was collected by the questioner enclosed in Appendix-A.

3.3 Methods of Data Analysis

Only summary of results of the data gathered from questionnaires is presented in the research in the form of tables and diagrams. Sampling of specific study sites and respondents were selected with consultation of local peasant keble administrations. Specific sites were selected considering their production amount high, medium and low. As for the respondents they were believed to represent the specific sites by the officials. Small sample of respondents were selected considering the fact that after the introduction of ECX trading the range of trading system has diminished as every farmer and retailer use only one local market(for one kebele administration) to sell and buy sesame, which makes respondents to share more or less common problems.

4 Result and discussion

4.1 Sesame marketing chain

Sesame supply chain starts from producers of sesame which may be individual farmers, large scale farmers/investors or farmers associations. After the introduction of ECX marketing for sesame producers are only allowed to sell their product through this system. Due to lack of capacity, individual farmers sell sesame to retailers which have license to sell to Exporters through ECX channel. Investors and farmers associations have two alternatives, they can sell sesame to exporters through ECX channel or they can export sesame for foreign market. As for exporters they are only allowed to buy sesame from ECX market for export (See figure 4).

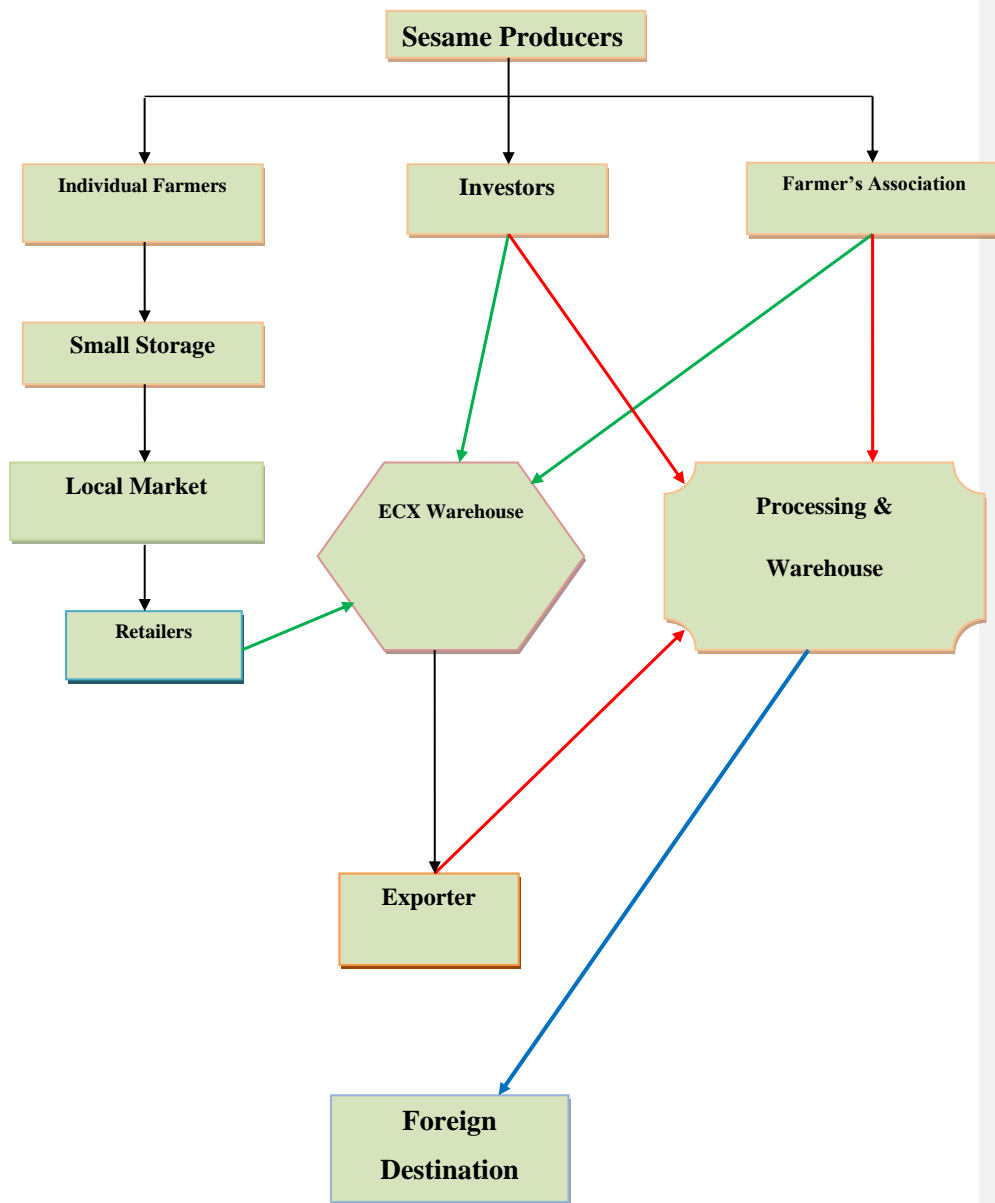


Fig.4 Sesame marketing chain

4.2 Main results of the study at farmer level

4.2.1 Sesame production

The estimated average quantity of sesame produced by sesame farmers during the research (2010) was 48.52 quintals. The average annual production of sesame reported per producer ranges between 10 and 130 quintals per farmer

4.2.2 Problems associated with sesame production

Sesame farmers have listed several problems they felt were associated with sesame production. The most important problems mentioned by respondents were the excess rain experienced in 2010, shortage of capital/lack of loan services and high price of labour (see Table 4.1).

Table 4.1: Problems associated with sesame production

	Cases	Percent
Shortage of capital	11	55
Lack of loan service	9	45
Lack of improved seed	6	30
Shortage of input supply	6	30
High price of inputs	6	30
Shortage of labour power	5	25
High price for labour	8	40
Shortage of land preparation means	5	25
Excess Rain	17	85
Lack of information on quality standard	1	5
Problem of termite	6	30
Poor soil fertility	8	40

4.2.3 Problems associated with sesame harvest

Interviewed sesame farmers were also asked whether they faced any problems during the sesame harvest. All of the interviewed sesame farmers indicated that they faced some problems during harvesting time (see Table 4.2).

Table 4.2: Problems associated with sesame harvest

	Cases	Percent
Unexpected rain during harvest	20	100
Shortage/Expensive labour force/	17	85
Theft	6	30

The most important problems faced by all respondents in order of importance are unexpected rain during harvest (100%), shortage of labour force (85%) and theft (30%).

4.2.4 Distance travelled from farm plot to storage

Almost half of the interviewed sesame farmers travel more than 10 km to reach to their owned/rented stores from their farming plots (see Table 4.3).

Table 4.3: Distance Travelled from farm plot to storage

	Cases	Percent
<1Km	1	5
1-5Km	4	20
5-10Km	5	25
>10Km	10	50

4.2.5 Means of transportation from farm plot to storage and average cost

More than half of the interviewed sesame farmers use tractors as a means of product transportation farming plots to storages. And vehicle transport is the most expensive means among other alternatives (see Table 4.4).

Table 4.4: Means of transportation from farm plot to storage and average cost

	Cases	Percent	Average price per quintal (in birr)
Animal Transport	2	10	17
Cart	9	45	11
Tractors	14	70	13
Vehicle	2	10	20

4.2.6 Storage type, ownership, capacity and average cost

All of the interviewed sesame farmers use storages, as previous practices of buying sesame directly from farm by traders is prohibited by the new trade system implemented. From the data collected half of the farmers have their own stores whereas the rest use rented stores from other farmers or Co-operatives. And the cost of GIS rental storages somehow higher than that of mud stores (see Table 4.5).

Table 4.5: Storage type, ownership, capacity and average cost

	Cases	Percent	Ownership in percent		Average capacity (in quintal)	Average cost of rented storage/ quintal/ month (in birr)
			Owned	Rented		
Galvanized iron sheet	13	65	61.54	38.46	850	3.00
Mud	6	30	50	50	1500	2.65
Wooden	1	5	100	0	500	0

4.2.7 Basic problems related to storages of sesame

Around 90% of the interviewed sesame farmers responded that they have no significant problem related to storage (see Table 4.6). The main reasons are that first weight loss of sesame during storing is not considered as a problem, second even if almost all farmers use traditional storages there are agricultural professionals in every keble that supervises and assists sesame storage conditions

Table 4.6: Basic problems related to storages of sesame

	Cases	Percent
Insufficient storage space	1	5
Poor storage facilities	1	5
No significant problem	18	90

4.2.8 Distance travelled from storage to market

Three fourth of the interviewed sesame farmers travel less than 1km to reach to market place from their owned/rented stores(see Table 4.7). This result shows that most owned/rented stores are located around small towns where market places are fixed by the administration.

Table 4.7: Distance Travelled from storage to market

	Cases	Percent
<1Km	15	75
1-5Km	3	15
5-10Km	0	0
10-20Km	2	10

4.2.9 Means of transportation from storage to market and average cost

90% of the interviewed sesame farmers use carts as a means of product transportation from storages to markets (see Table 4.8), this is because of the fact that most storages are located within 5 km radius of market places. Whereas farmers with stores located outside these small towns use owned/rented tractors and trucks for sesame transportation to markets.

Table 4.8: Means of transportation from storage to market and average cost

	Cases	Percent	Average price per quintal (in birr)
Cart	18	90	4.2
Tractor	3	15	17.5
Truck	1	5	15

4.2.10 Problems faced during transportation of sesame

65% of the interviewed sesame farmers responded that they face no significant problem related to transportation (see Table 4.9), the main reason is that most of storages and market places are within the vicinity of small towns which are crossed by main roads. And 35% of respondents (especially around bereket) claim that poor roads are the main transportation problems.

Table 4.9: Problems faced during transportation of sesame

	Cases	Percent
Shortage of transport means (labour, animals, vehicles...)	1	5
Poor roads	7	35
High transport price	1	5
No significant problem	13	65

4.2.11 Reasons for selling sesame immediately after harvest

Sesame farmers were asked whether they immediately sell their sesame or whether they store it for a given period of time. About 40% of farmers interviewed said that they immediately sell all of what they produce (see Table 4.10).

Those who responded that they sell immediately cited different reasons for doing so. The single most important reason for selling sesame immediately was the need for cash immediately after harvest. This is mainly related to the payment of loan balances taken for the cultivation of sesame, the financing of various family needs and the payment of government taxes and other obligations.

Table 4.10: Reasons for selling sesame immediately after harvest

	Cases	Percent
The need for cash to pay for labour and other loans	14	70
Price declines later	3	15
Have other occupation	2	10
No Particular reason	1	5

4.2.12 Value adding activities

Sesame farmers were asked whether they conduct value adding activities, and all of them responded that besides using jute bags for packaging sesame directly after harvesting there are no value adding activities performed by them. Previously there were some traditional activities of converting sesame into edible oil using camels by farmers but now since ECX's introduction farmers are getting good value from sesame which gives them more freedom to purchase imported edible oil by avoiding the traditional cumbersome activity of producing edible oil for consumption.

Sesame oil is hardly being produced locally, since the export price of seed is usually very attractive and sesame oil is hardly locally consumed. It is seen as a business opportunity to

increase the local capacity to produce sesame oil for export, increasing added value and foreign exchange.

4.2.13 Costs incurred

Sesame farmers were also asked about costs incurred other than production costs (See Table 4.11)

Table 4.11: Cost incurred by sesame farmers

	Average cost per quintal (birr)	Percentage from total Cost
Packaging	8.45	20.08
Transport to own storage	12.59	29.91
Storage	1.35	3.21
Loading/Unloading	7.73	18.37
Guarding	3.35	7.96
Transport to market	3.91	9.29
Communication	2.21	5.25
Broker	2.50	5.94
Total	42.09	

It is shown that transport to own storage (29.91%) is the biggest cost followed by packaging (20.08%) and loading/unloading (18.37%). Loading/unloading cost is high as farmers perform this activity two times farm to store and store to market. And as for the brokers they doesn't add any value to sesame, they simply create link between farmers and retailers.

4.2.14 Sesame trade arrangements

The data collected shows that most farmers sell their product to co-operatives, local traders or both depending on the price offered (see Table 4.12). Other selling alternatives like selling at far markets, selling to traders at home, directly selling to exporters are strictly prohibited and are illegal. Farmers can deliver sesame directly to ECX if they are registered, but this option is not

practiced by small scale individual farmers as it requires a bigger capital which is not affordable for most of them.

Table 4.12: Sesame trade arrangements

	Cases	Percent
Directly to nearby local markets	14	70
Selling to cooperatives	17	85

Farmers were also asked whether they sell their product directly to buyers or if they use brokers, only 20% of the farmers respond that they use brokers while 80% of the farmers respond that they sell directly to buyers. Broker involvement is very much less due to the fact that sesame trade is conducted at selected market places where all willing farmers and traders are gathered at that specific place.

Farmers were also asked the reasons for using brokers, 75% feel that using brokers may get them a better price and 25% responded that they only know the brokers not buyers.

4.2.15 Sesame market information

All of the interviewed sesame farmers reveal that they get day to day market information released by ECX using TV/Radio and mobile cell phones, which they use properly to decide their selling prices.

4.2.16 Sesame marketing problems and mechanisms for denying farmers fair prices

Farmers were also asked whether or not they face any marketing problems. Farmers indicated that buyers impose different problems on them. Some of these problems were unnecessarily disqualifying their sesame and collusion between buyers to suppress producers’ bargaining capacity. As a result of these problems, the majority of producers feel that buyers offer them unfair prices for their sesame. Only about 35% of all the interviewed sesame farmers reported that they fetch prices commensurate with the quality of their sesame (see Table 4.13).

Table 4.13: Mechanisms buyers use to deny farmers fair prices for

	Cases	Percent
Unnecessary disqualification	14	35
Collusion between buyer	3	65
No significant problems	1	35

As shown on the table the most prominent mechanism that buyers use to deny farmers fair price is collusion between buyers, and most farmers believe that collision between buyers is more facilitated by the presence of only one market place is for specific kebele.

4.2.17 Average unit price of sesame

The average price of sesame sold during the research period (2010) preceding the survey was 1870.25birr/quintal. The price of sesame sold ranges between 1650 and 2000 birr per quintals.

4.2.18 Problems addressed in sesame supply chain

Here are some problems stated by individual farmers

- ✓ Large price gap between ECX's price and Local traders price
- ✓ Unable to sell sesame product outside specific market places
- ✓ Delay at ECX for accepting sesame from retailers is raising transport price which forces retailers to lower sesame purchasing price
- ✓ Very Poor network services

Supply chain from individual farmer's to retailers is shown on figure 5.

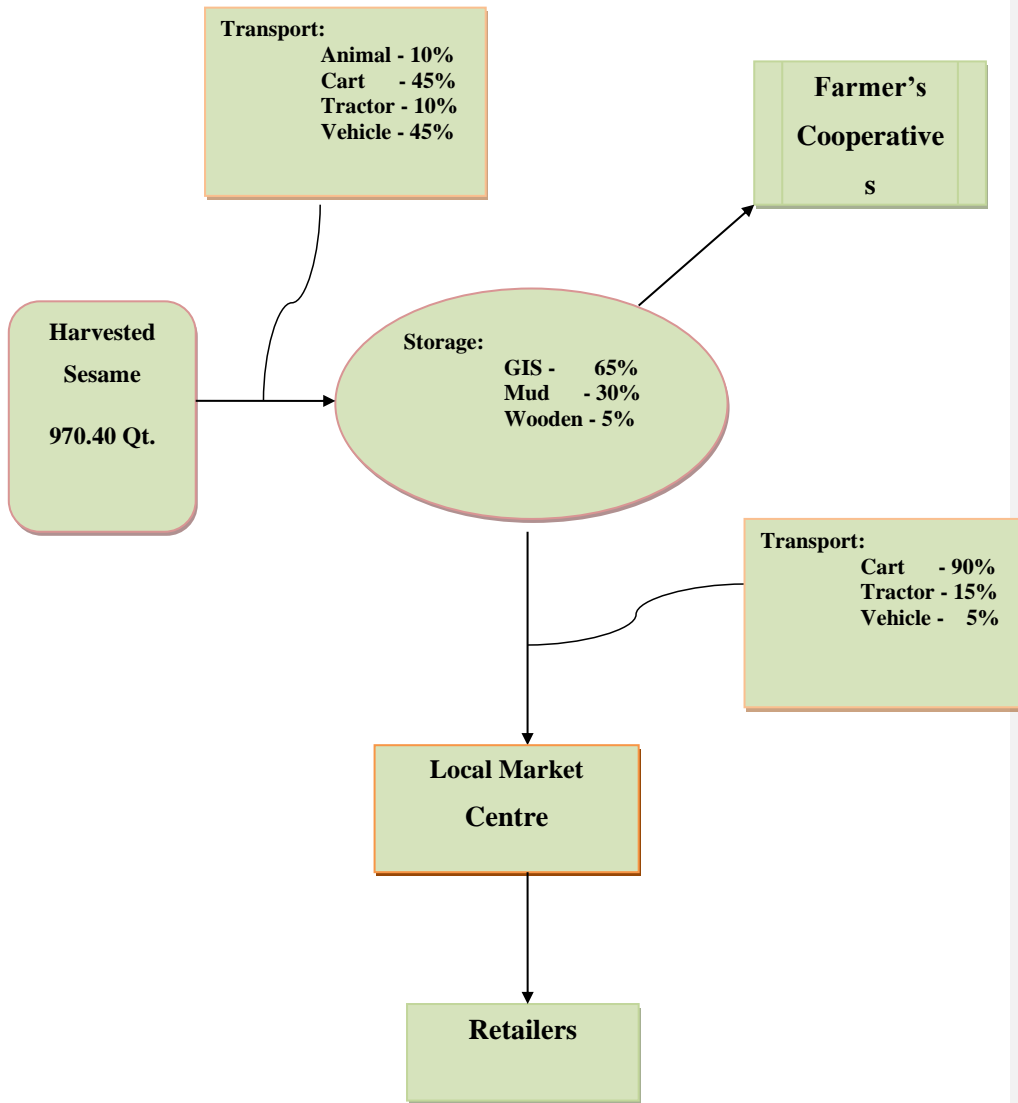


Fig.5 Sesame supply chain from farmers to Retailers

4.2.19 Proposed solutions for the problems associated with sesame marketing

Along with the perceived problems associated with sesame marketing, farmers have also suggested solutions for overcoming these problems (see Table 4.14). Most frequently mentioned solutions by all the interviewed farmers are: Availability of reliable & competent buyers, the Availability of loan facilities and Government control of sesame prices.

Table 4.14: Suggested solutions for minimizing problems associated with sesame transaction

	Cases	Percent
Availability of reliable & competent buyers	12	60
Government control of sesame prices	8	40
Availability of competent farmer coops	7	35
Availability of loan facilities	12	60

4.3 Main results of the study at retailer level

4.3.1 Purchased amount of Sesame

The average quantity of sesame purchased by sesame retailers during the research (2010) is reported is 820 quintals. The average annual purchased amount of sesame reported per retailers ranges between 50 and nearly 3000 quintals per retailer.

4.3.2 Sesame purchasing locations

All of the interviewed sesame retailers respond that they only buy sesame from local markets places set by local administrations. Any action conducted to buy sesame other than market places is illegal action

4.3.3 Problems associated with Sesame Collection

Sesame retailers have listed problems they felt were associated with sesame collection (see Table 4.15). 83.33% of retailers respond that they have financial constraints. 72.22% of retailers respond that poor quality of sesame is delivered by farmers and 44.44% of retailers are feel that price of sesame shortage of capital/lack of loan services and Lack of good quality sesame.

Table 4.15: Problems associated with Sesame collection

	Cases	Percent
Price instability/fluctuation	8	44.44
Lack of good quality sesame	13	72.22
Shortage of capital	15	83.33
Inadequate sesame supply by farmers	4	22.22

4.3.4 Distance travelled from local market to store

Over 60% of retailers have stores located from 1 up to 5 km from local market places where they buy sesame from farmers (see Table 4.16).

Table 4.16: Distance travelled from market to store

	Cases	Percent
<1Km	6	33.33
1-5Km	11	61.11
5-10Km	1	5.56

4.3.5 Means of transportation from local markets to storages and average cost

88.89% of Interviewed retailers use cart as a means of product transportation from local markets to storages. And vehicle transport is the most expensive means among other alternatives (see Table 4.17).

Table 4.17: Means of transportation from market to storage and average cost

	Cases	Percent	Average price per quintal (in birr)
Cart	16	88.89	5.55
Tractors	2	11.11	5.00
Trucks	1	5.56	7.00

4.3.6 Storage ownership, capacity and average cost

All of the interviewed sesame retailers use storages. From the data collected 72.22% of retailers have their own stores while 22.78% use rented stores. And average capacity of owned retailer stores is 1350 quintals which is more than two folds of rented stores, According to the data collected from retailers average cost of rental stores is 367 birr per month (see Table 4.18).

Table 4.18 Storage ownership, capacity and average cost

	Cases	Percent	Average capacity (in quintal)	Average cost of rented storage/ month (in birr)
Owned stores	13	72.22	1350	
Rented Stores	5	27.78	500	367.00

4.3.7 Basic problems related to storages of sesame

All of the interviewed sesame retailers responded that they have no significant problem related to storage the main reason is that the majority of respondents have their own stores and second all sesame stores are monitored by agricultural professionals which minimizes problems associated with sesame storage conditions.

4.3.8 Distance travelled from storage to ECX

72.22% of the Interviewed sesame retailers travel from 25-50kms to reach to ECX ware house located at Humera from their owned/rented stores (see Table 4.19).

Table 4.19: Distance travelled from storage to market

	Cases	Percent
10-25Km	5	27.78
25-50Km	13	72.22

4.3.9 Means of transportation from storage to ECX and average cost

Interviewed sesame retailers responded that the most common transportation means used to transport sesame from stores to ECX warehouse are Isuzu and N3. Average transport prices are very expensive considering the distance and the road conditions (see Table 4.20), the main reason is that trucks have to wait from 3-15 days in queue to unload sesame in ECX warehouse at humera.

Table 4.20: Means of transportation from storage to ECX and average cost

	Cases	Percent	Average price per quintal
Isuzu	14	77.78	35
Medium truck-FSR	4	22.22	35
Large truck-N3	13	72.22	35.62
Truck and trailer	2	11.11	35.00

4.3.10 Problems faced during transportation of sesame

83.33% of the interviewed retailers responded that they face no significant problem related to transportation (see Table 4.21); the main reasons are that first the expensive transportation cost is believed to be incurred by t queue at ECX warehouse and second most of storages and market places are within the vicinity of small towns which are crossed by main roads.

Table 4.21: Problems faced during transportation of sesame

	Cases	Percent
Poor road condition	2	11.11
Shortage of vehicles	1	5.56
No significant problem	15	83.33

4.3.11 Value adding activities

Sesame retailers were asked whether they conduct value adding activities, and all of them responded that there are no values adding activities performed by them.

4.3.12 Sesame trade arrangements

The data collected shows that all retailers deliver sesame they bought to ECX warehouse at Humera where sesame is graded, weighted and certified and Goods receiving Note (GRN) is issued. After that the retailer is able to sell his commodity directly if ECX membership is present or through an agent to Exporters by open bid held at ECX's main floor in Addis Ababa.

4.3.13 Sesame market information

All of the interviewed sesame retailers reveal that they get day to day market information released by ECX using TV/Radio and Mobile cell phones, which they use properly to decide when to sell their sesame stored in ECX warehouse.

4.3.14 Costs incurred

Sesame retailers were also asked about costs incurred other than purchasing costs (See Table 4.22)

Table 4.22: Cost incurred by sesame retailers

	Average cost per quintal (birr)	Percentage from total Cost
Transport cost (Purchase-Store)	5.32	5.86
Storage cost	1.12	1.23
Loading & unloading cost	7.88	8.69
Transport cost (Store-ECX)	34.41	37.93
Tax	34.11	37.60
Communication cost	2.11	2.33
Broker/Agent	5.63	6.21
Management	0.15	0.17
Total	90.73	

It is shown that Transport (Store-ECX) (34.41%) is the biggest cost followed by Tax (34.11%). Loading/unloading cost is high as retailers perform this activity two times market to store and

store to ECX warehouse at Humera. And as for the brokers/agent they don't add any value to sesame, they simply have the license to represent retailers at ECX trading floor.

4.3.15 Average unit price of sesame

The average price of sesame sold during the research period (2010) is 1940.94 birr/quintal. The average price of sesame sold ranges between 1850 and 2000 birr per quintals.

4.3.16 Problems addressed in sesame supply chain

Here are some problems stated by individual retailers

- ✓ Market place lacks infrastructures
- ✓ Queue to Deliver sesame at ECX warehouse
- ✓ High transport price due to Queue at ECX
- ✓ Unsatisfied with grade given by ECX after testing
- ✓ Delay to issue GRN to retailers
- ✓ Very Poor network services
- ✓ Government doesn't aware retailers on Tax matters
- ✓ Lack of competition between exporters

Supply chain from retailers to Exporters is shown on figure 6.

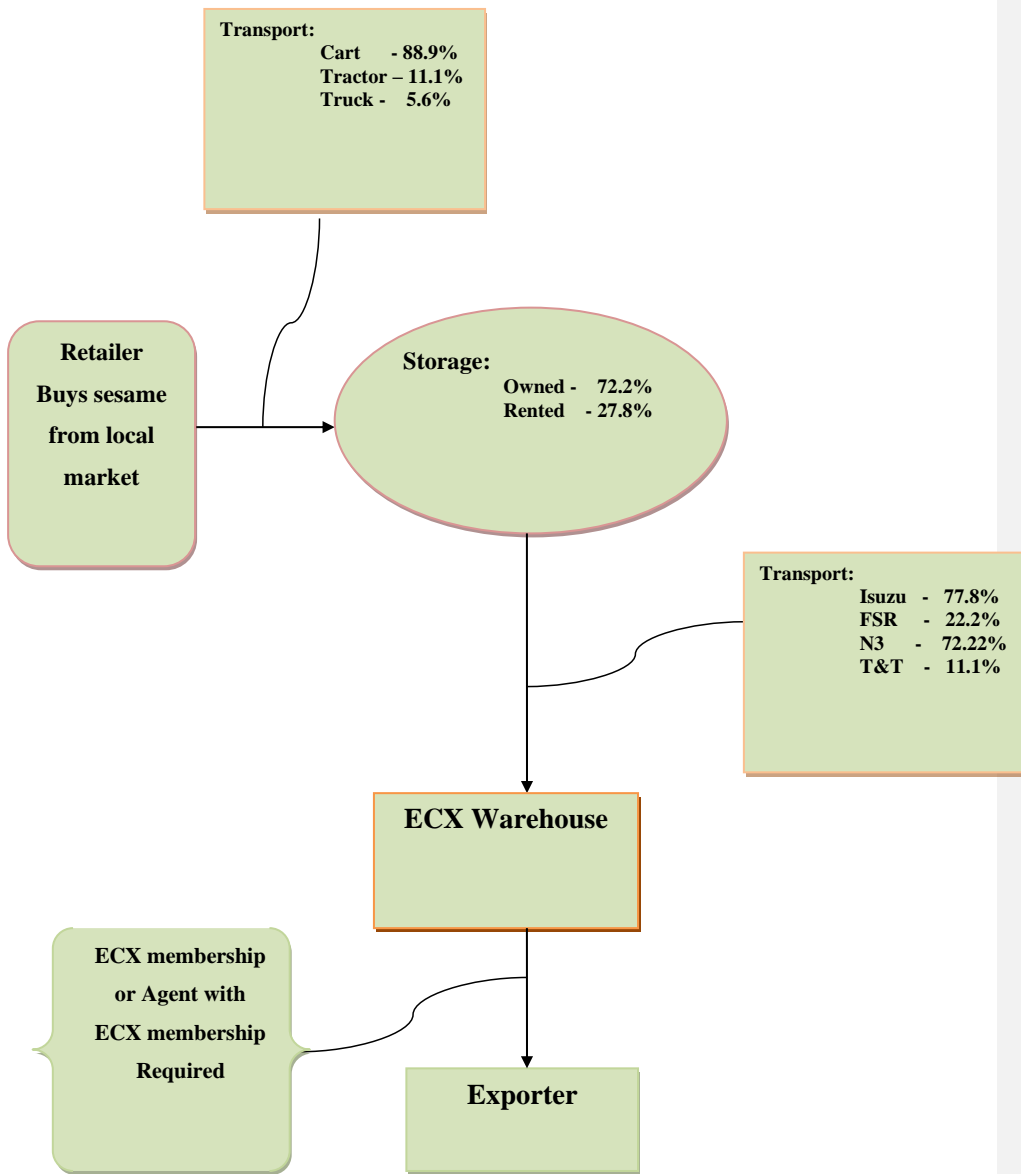


Fig.6 Sesame supply chain from Retailers to Exporters

4.3.17 Proposed solutions for the problems associated with sesame marketing

Along with the perceived problems associated with sesame marketing, retailers have also suggested solutions for overcoming these problems (see Table 4.23). Most frequently mentioned solutions by all the interviewed farmers are: improved sesame quality with improved production and productivity, the availability of loan facilities and government control of sesame prices.

Table 4.23: Suggested solutions for minimizing problems associated with sesame transaction

	Cases	Percent
Improved sesame quality with improved production and productivity	13	72.22
Availability of loan facilities	13	72.22
Government Control of sesame prices	8	44.44
Supporting Farmers to boost production	4	22.22
Lack of competition b/n buyers	2	11.11
Create awareness on Tax	7	38.89

4.4 Main results of the study at ECX

4.4.1 Background

The Ethiopian Commodity Exchange (ECX) is designed to be a marketplace where buyers and sellers come together to trade, assured of quality, delivery and payment. ECX is a national multi-commodity exchange with the aim of providing market integrity, by guaranteeing the product grade and quantity and operating a system of daily clearing and settling of contracts; enhancing market efficiency by operating a trading system where buyers and sellers can coordinate on the basis of standardized contracts; enabling market transparency by disseminating market information in real time to all market players; and allowing risk management by offering contracts for future delivery, providing sellers and buyers a way to hedge against price risk.

Several commodities, amongst which important export crops like coffee and sesame, are now sold through the ECX. Since 2009 it has been compulsory to sell all coffee through the ECX. For sesame, trade through the ECX has been mandatory from November 5, 2011 onwards.

Functioning of ECX is shown Below in Figure 7.

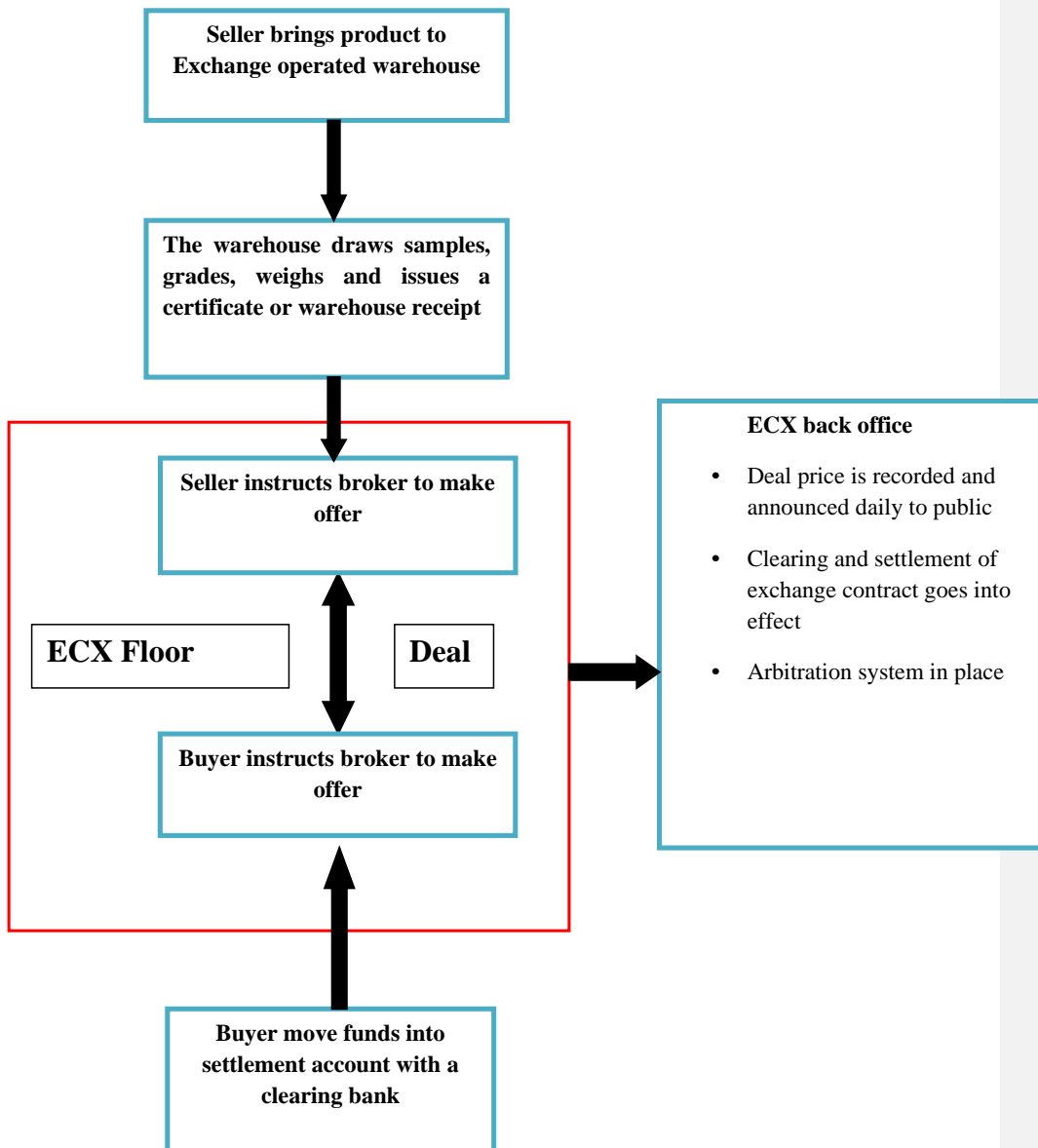


Fig.7 Functioning of Ethiopian Commodity Exchange (Gabre-Madhin, 2006)

4.4.2 Operations at ECX

4.4.2.1 Depositing product at ECX warehouse

Requirements

1. Deposited amount must be at least 50 quintals
2. Dispatch from local Agricultural Authority
3. Be a member to trade through ECX or have a contract agreement with an agent
4. A filled form
 - ✓ Name of product owner
 - ✓ Phone number
 - ✓ Vehicle driver's name
 - ✓ Vehicle plate number
 - ✓ Number of bags

Coding process

1. Deliver Filled Form and copy of driver's and owner's identification to code room
2. A line number is issued
3. Information is entered into computer
4. Sample number is issued

Sampling process

1. Sample is taken from every bag of product
2. Sample is delivered to code room, where sample number is issued randomly

Grading process

1. Sample sent to laboratory for processing
2. First phase testing, test for
 - ✓ Color
 - ✓ Objectionable odor

- ✓ Live insects
- ✓ Visible mould
- ✓ Moisture content (must be <10%)

3. Second phase testing, test for impurities, sesame grade is given as shown in Table 4.24.

Table 4.24: Sesame grade given by ECX based on impurity

Grade	G1	G2	G3	G4	UG*
% impurity	1	3	5	7	15

*UG (under grade is accepted as grade 5)

GRN issuing process

1. After grading is completed, Grade report and sample will be given to the owner
2. Truck is sent to weigh bridge
3. Scale ticket is issued by weigh bridge operator
4. Deposit ticket is prepared by store keeper
5. Goods receiving note (GRN) is prepared, which includes
 - ✓ Unique Customer number
 - ✓ Owner's name
 - ✓ Driver's name
 - ✓ Weightier name
 - ✓ Sample tester's name
 - ✓ Store keeper's name
 - ✓ Deposited amount
 - ✓ Grade of sesame
 - ✓ Deposited date and time
 - ✓ Vehicle plate number

6. GRN is sent to Addis Ababa with networked system
7. GRN is issued within three days.

4.4.2.2 Delivering product by ECX warehouse

Requirements

1. Delivery notice trade
2. Unique warehouse receipt number
3. Pick up person's identification copy*
*Name must be same with delivery notice trade

Delivery process

1. Pick-up number is issued when receipt number is entered in automated system
2. GRN of the sold sesame is sent to warehouse
3. Loading vehicle is weighted and scale ticket is prepared
4. Delivery ticket is prepared by storekeeper
5. Goods Issue Ticket (GIN) is created, which includes
 - ✓ Drivers name
 - ✓ Vehicle plate number
 - ✓ Driver's name
 - ✓ Weightier name
 - ✓ Buyer's Representatives name
 - ✓ Store keeper's name
 - ✓ Delivered amount
 - ✓ Issued date and time

4.4.3 Costs of trading through ECX

The costs of trade through ECX are related to warehousing costs (storage and handling) and ECX service fee and these are:

Exchange fee for ECX:

- ✓ 0.002 % of the value of each transaction

Warehouse Storage cost:

- ✓ 0.04 birr/day/quintal (1.20 birr/month/quintal) (includes fumigation, crop rotation, and other storage services)

Handling and product certification fee:

- ✓ 1.45 birr/quintal (Handling fee includes sampling, grading, weighting, loading and unloading)

Re-bagging cost if there be a need.

Once the product intended for sale through ECX is stored in the ECX designated warehouse, the product is insured by ECX.

4.4.4 Problems faced at ECX**Weigh Bridge Problem**

- ✓ Previously only one weigh bridge for both accepting and delivering sesame operations
- ✓ Conditions are improving as two weigh bridges are now operational for two operations
- ✓ Queue is created as equipments fail to work properly

Automated system problem

- ✓ Network infrastructure problem
- ✓ Cannot issue GRN and GIN in proper time which creates queue, wastes time, money and energy

Storage problem

- ✓ Insufficient storage was a problem previously
- ✓ Condition are improving, ECX has a capacity to store 200,000 quintals at Humera.

Customer problem

- ✓ Customer's doesn't trust weigh bridge system
- ✓ Customer's doesn't accept quality grades

4.4.5 Suggested mitigation measures by ECX

- ✓ To reduce chaos customers should study the market and deliver products wisely to market.
- ✓ Traders must seriously consider sesame quality issues when purchasing from farmers.
- ✓ Network infrastructures must be given attention
- ✓ Number of Weigh bridges must be increased, their calibration must be done properly and timely

4.5 Main results of the study at exporter level

4.5.1 Sesame purchasing locations

All exporters interviewed reply that they buy sesame from trading floor located in Addis Ababa, where buyers and sellers may participate in “open outcry” bidding for commodities, with electronic remote access to the trading system.

4.5.2 Sesame purchasing problems

Below are purchasing problems listed by exporters

Poor quality

- ✓ Some exporters believe that Sesame Grade given by ECX is not accurate, and they prefer previous means of trading where exporters buy sesame directly from private traders, commercial farms and producers’ cooperatives.

Problem on Weight Bridge

- ✓ Weight bridge is not calibrated accordingly, and gives inaccurate reading
- ✓ Usually fails to operate

ECX problems

- ✓ Doesn’t assure quality
- ✓ Doesn’t treat customers properly
- ✓ Weigh bridge problem
- ✓ If delivery order limit (an order provided to ECX Warehouse upon purchasing sesame, product must be loaded within 10 days) expires solution is sought from Addis Ababa and not the warehouses.
- ✓ Loading takes too much time, as product has to be collected from different warehouses and has to be weighted on several occasions and this process tends to rise the transportation price

4.5.3 Transportation of sesame for processing

All interviewed exporters have warehouses and processing units located in the vicinity of Humera town. Sesame purchased from ECX is transported using trucks with capacity ranging from 50-400 quintals. Previous cost of transportation of sesame within town ranges from 1.50-2.0 birr per quintal but after introduction of ECX, transportation prices rise up to 10birr/quintals as trucks are required to collect sesame from different warehouses and to be loaded in every occasion through the queued Weigh Bridge. Loading 400 quintal sesame from ECX warehouse may take 2-3 days.

4.5.4 Value adding activities

With regard to value addition, all the exporters own standard cleaning equipments which are calibrated and have license from Ethiopian quality and standard assurance Agency (EQSA).Exporters clean sesame to achieve 99% purity. After cleaning is performed standard packaging is done on 50kg bags.

4.5.5 Sesame storage conditions

All interviewed exporters have well equipped and organized warehouses located within humera town. Since there is a fear of weight loss and preservation cost of sesame seed storage of processed sesame depend on the market condition. If it is believed that buyers are abundant sesame is processed and stored whereas if there is a fear of not having buyers exporters only process sesame for immediate export.

4.5.6 Sesame export formalities

Exporters must fulfill the listed requirements in order to export sesame. Some tests conducted are presented in Table 4.25.

1. Contact Agreement
2. Bank Permit
3. Commercial Invoice
4. Phyto-sanitary Certificate
5. Fumigation Certificate
6. Processing permit

7. Hygiene certificate
8. Buyer's Agent approval certificate
9. EQSA certificate
10. Trading license, TIN and VAT

Table 4.25: Tests conducted on sesame before cleared for export

Agency	Test conducted
Ethiopian conformity assessment enterprise	<ul style="list-style-type: none"> ✓ Moisture content ✓ Oil content ✓ % of impurity
Ministry of Agriculture	<ul style="list-style-type: none"> ✓ Phyto-Sanitary (test for edibility)
Buyer's Agent	<ul style="list-style-type: none"> ✓ Check for weight ✓ Check for impurity ✓ Check for proper packaging
Ministry of Health	<ul style="list-style-type: none"> ✓ Hygiene
Pest control unit of Ministry of Agriculture	<ul style="list-style-type: none"> ✓ Fumigation (product must be free from insects)

Once the necessary documents are fulfilled sesame is loaded on truck and passes for custom clearance. Customs Authority checks for export requirements, seal the truck and gives clearance for transportation to port. Custom clearance takes from 0.5-2 days duration depending on Network conditions.

4.5.7 Sesame transportation to port

Exporters use Port Sudan which is around 870 km from Humera. Unless the destination country like Israel prefers to use Djibouti port. Trucks with capacity ranging from 150-400 quintals are used. Vehicles are mostly provided by third parties on rental basis. Vehicles travel through the 200 km route Humera – Maichadra – Lugdi - Gadarif which mostly takes one day. After reaching Gadarif the load is transferred to Sudanese trucks as the cost of transportation using

Sudanese trucks is very much cheaper due to the fact that most Sudanese vehicles travel the 700 km Gadarif - Port Sudan road unloaded, there is no return load for Ethiopian vehicles and Sudanese vehicles have a capacity up to 700 quintals . After sesame is loaded to Sudanese trucks custom clearance is performed at Gadarif and sesame is transported to port sudan which takes 1.5 days to travel.

Three road conditions are present in the stretch from Humera-Port Sudan. The first stretch Humera-Lugdi is 46km long, is located in Ethiopian territory and has all weathered road condition. The second stretch Lugdi-Gadarif is 154 km long, located in Sudanese territory and has very poor road condition which is inaccessible in rainy season, the last stretch is Gadarif-Port Sudan is 700km long, has a very good road condition, it takes at most 1.5 days to complete the journey.

As road condition from Lugdi-Gadarif is very poor and inaccessible during rainy season Exporters Store sesame prior to the rainy season at Gadarif to export sesame if they have to export in summer time.

4.5.8 Port activities at Port Sudan

When truck reaches port the exporter's agent arranges for the sesame to be unloaded, stuffed into suitable container, loaded to the Arranged ship and accepts the issued bill of lading on behalf of the exporter.

Sesame is loaded in 380 bags for 20ft container and 760 bags for 40ft container where 1 bag is equivalent to 50.1kg.

If the sesame loaded cannot reach to the port before 48 hours it is not allowed to be loaded to the Vessel arranged, to avoid the extra cost paid to the ship for waiting the product exporter agent's usually advice exporters to change their agreement with their customers to use other vessels.

Port Sudan is well equipped with the necessary professionals and machineries and no major problem is encountered on behalf of the port

4.5.9 Transport conditions and port activities via Djibouti port

Sesame exporters are forced to use Djibouti port in contradiction to its 1920km distance from Humera if the customer's destination prohibited letting products loaded from Port Sudan as in the case of Israel.

After the truck is loaded and cleared and sealed at customs at Humera, plate number, Quantity and type of load is entered on ASycuda++ software and the driver is given export transport licence. The same entered data is verified and truck is granted to pass at Akaki, Awash, Mile and Galafi Custom branch offices. But if network is available at custom's offices trucks are forced to stay at the checkpoints until original information entered is verified.

After arriving at Djibouti trucks stopped at "Pecados", reserved place for Ethiopian trucks in Djibouti, and wait for receiving gate pass to enter to port by the freight forwarder. On successful operation 6 days are taken to arrive at Djibouti and other 2 days for port operation i.e. gate pass, container release and unloading from trucks at port. On average at normal operation 6 days for transport from Humera to Djibouti and 2 days to unload, staff and stevedore at port. In the worst scenario trucks waited unloaded for more than 10 days at "Pecados". This happened due to:

- ✓ Missing the vessel due inappropriate information delivered from the shipping agent
- ✓ Containers shortage at port
- ✓ Late arrival of vessel
- ✓ Shortage of cranes for stuffing operation in Durhale containerized port, Djibouti

Here are the steps followed once the truck reaches Djibouti

Day 1

- ✓ Collect weigh bill (license for export transport) from the transporter/driver
- ✓ Djibouti customs declaration
- ✓ Container release from shipper
- ✓ Truck is weighted on weighbridge
- ✓ Only 10% sample bagged weighing done from the cargo

Day 2

- ✓ Gate Pass prepared for truck to enter port

Day 3

- ✓ Stuffing of the container
- ✓ Handover the stuffed container to Port for stevedoring
- ✓ Collect draft stuffed Report

On Vessel Arrival

- ✓ Stevedoring
- ✓ Collect Bill of Loading from Shipper

Supply chain from retailers to Exporters is shown on figure 8.

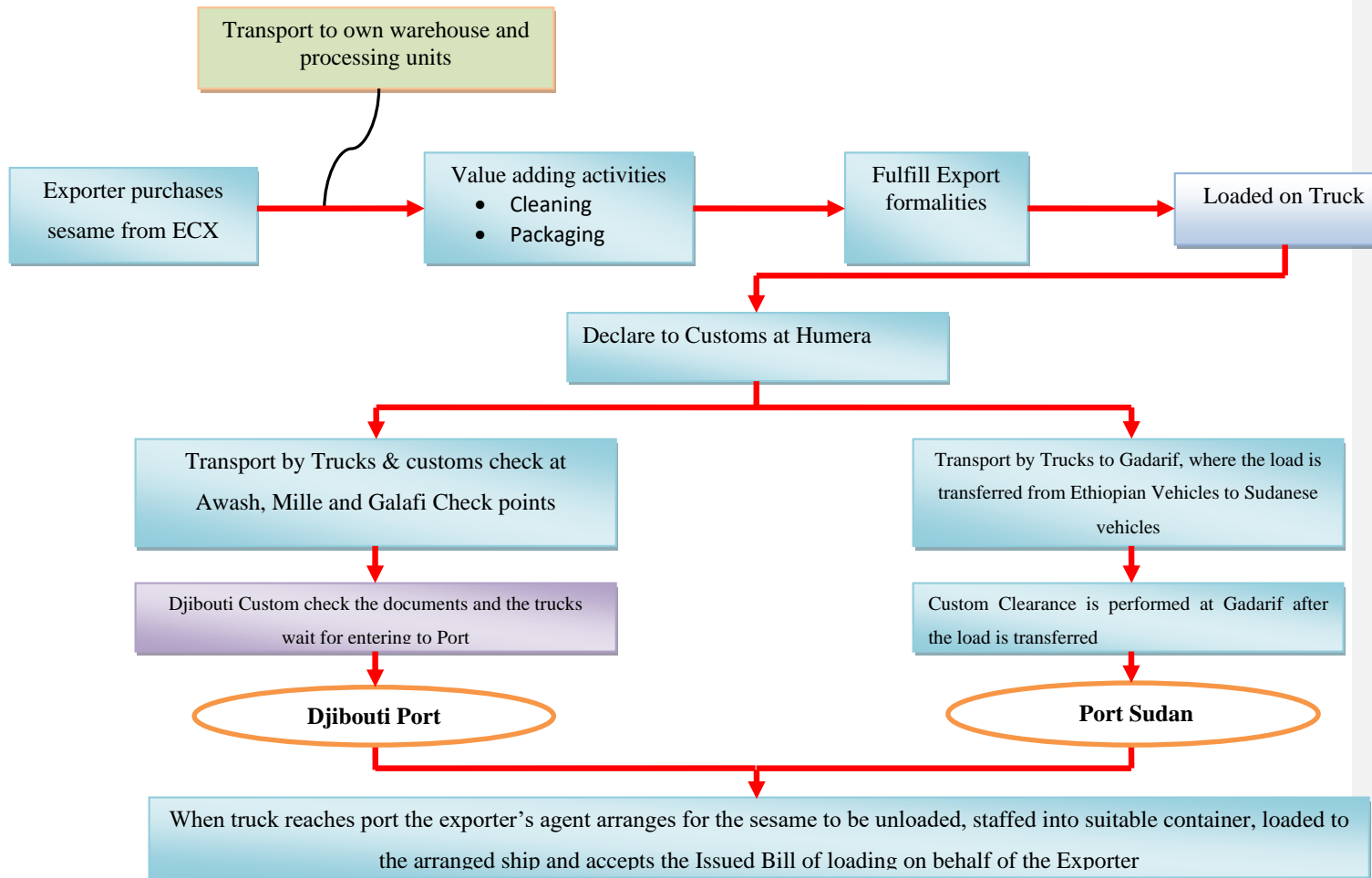


Fig.8 Supply chain of sesame from exporters to port

4.5.10 Means of communication and information exchange

All of exporters have fixed & mobile telephone, internet, email and fax for information exchange with all of stakeholders. They also get market information released daily ECX from TV/Radios. But some Exporters feel that ECX must provide them Global market information.

4.5.11 Problems faced in Supply chain of sesame

Here are listed transport and related problems stated by exporters around humera

- ✓ High transport price to transport sesame from ECX warehouse to Exporters storages due to the delay created to load sesame at ECX
- ✓ Poor road condition from Lugdi-Gadarif which raises transport price, and it's an accessibility during rainy season forces exporters to store sesame at Gadarif stores which adds Transaction cost
- ✓ No shortage of trucks for transportation of sesame to Port Sudan as trucks are leased for one year in advance by exporters transport agencies, and there is also possibilities of using Sudanese trucks
- ✓ Asycuda++ software cannot be applicable at checkpoints due to poor network conditions which creates delay.
- ✓ There is a serious problem of theft and adulteration when using route to Djibouti port
- ✓ Shortage of container is a major problem in the supply chain. Since almost all of agreements are FOB the buyers choose the shipper and the shippers want to use their own containers, and they may not have empty containers. At this scenario trucks have to wait 7-15 days for unloading
- ✓ Poor cargo handling by negligence of operators at port
- ✓ On non-partial shipment agreement if one truck delays from group of trucks arranged to be loaded on one shipping instruction the freight forwarder wait the truck to start the port operation.
- ✓ Incorrect vessel schedule ordered by the shipping agent also cause a delay of 7-14 days unless the buyer change the shipping instruction

5 Conclusions and recommendations

5.1 Conclusions

From the study conducted it was observed that every stakeholder in sesame supply faces challenges with different degrees of importance. The introduction of Exclusive sesame trading through ECX from November 2011 has created some discomfort to some parties in the chain as it is a new system but it is believed to gear sesame export chain to a better stage with short span of time. Generally the main findings of the study can be summarized as follows

- ✓ Most Farmers are faced by shortage of capital/Lack of loan services, lack of improved seed and inputs, high price inputs high price of labour and poor soil fertility.
- ✓ 60% of farmer use their own stores and 40% use rented stores.65% of the stores are constructed with Galvanized iron sheets while the rest are made of mud and wood. The rented stores have an average cost of 3birr/quintal/month. All stores are traditional but the degrade in mass and quality of sesame is kept to minimum by the effort of Agricultural professionals present in every kebele.
- ✓ 70% of farmers sell to retailers at market places whereas 85% of them sell sesame to Co-operatives & 70% of farmers sell their sesame immediately harvest as they need cash to pay for labour costs, and other loans.
- ✓ Other than packaging no value adding activities are conducted at farmer level. Excluding production and harvesting Approximately 42.09 birr is incurred for storage transportation and other activities conducted to sell sesame and out of this cost 29.91% is spent to transport sesame from farm to storage, 20.08% for packaging and 18.37% for loading/unloading activities.
- ✓ All farmers gather information released by ECX using TV/Radio and SMS services using cell phones.

- ✓ 65% of farmers believe that retailers make collusion and 35% respond that retailers disqualify their product to deny them fair sesame purchasing prices.
- ✓ Unable to sell sesame outside prepared market places, Delay at ECX for accepting sesame which causes high transport prices that make retailers to lower purchasing prices and Poor network conditions are among the listed problems by farmers.
- ✓ 83.33% of retailers are faced with shortage of capital/Lack of loan facilities and 72.22% are not satisfied with the quality of sesame brought by farmers.
- ✓ 88.9% of retailers transport sesame purchased from market place to stores using carts with average price of 55.5Birr/quintal.11.1% use tractors with average price of 5.0 birr/quintal.
- ✓ 72.2% of retailers have their own stores with an average capacity of 1350 quintals, whereas 27.8% use rental stores with an average capacity of 500 quintals and an average rental price of 367 birr/month.
- ✓ Storage related problems are not magnified around retailers as most retailers use their own stores and agricultural professionals assist storage conditions to minimize weight loss and quality degrading conditions.
- ✓ 77.78% of retailers use Isuzu trucks (50 qt.) to transport sesame from store To ECX warehouse at Humera and 72.22% use (150 qt.) trucks. The transportation cost very much exaggerated when considering the short distance the very good condition, the main reason is that trucks are forced to wait from 3-15 days to unload sesame at ECX due to the queue present there.
- ✓ Retailers gather information released daily by ECX through TV/Radio, internet and Cell phones.

- ✓ Retailers spend 90.73 birr cost per quintal for transaction cost of selling sesame. 34.4% of this cost is spent on transport from store to ECX warehouse and 34.1% for paying government taxes.
- ✓ Lack of Infrastructure at market places, Queue at ECX warehouse and high transport price due to that, Unconvinced with grades given by ECX and Poor network services are among problems listed by retailers
- ✓ 72.2% of retailers believe that improved sesame quality with improved production and productivity and Availability of loan facilities will improve the supply chain condition.
- ✓ Exporters interviewed reply that they buy sesame from trading floor located in Addis Ababa, where buyers and sellers may participate in “open outcry” bidding for commodities.
- ✓ Exporters complain about Poor quality of sesame sold by ECX, Inaccuracy and Queue of Weigh bridge problem at ECX warehouse and poor network services for delaying Purchased sesame collection from ECX.
- ✓ All exporters have Warehouses and processing units within Humera town. They use trucks with capacity ranging from 50-400 quintals to transport sesame from ECX warehouse to their Stores with average price of 10birr/quintal. The transport cost is high as trucks are required to collect sesame from different stores and have to pass through Queued weighbridge in every occasion.
- ✓ All Exporters perform cleaning of sesame to 99% purity and standard packaging of cleaned sesame in 50 kg bags.
- ✓ Exporters need to have 8-12 documents to export sesame, after acquiring these, sesame is transported first to Gadarif using Ethiopian vehicles and then to Port Sudan using Sudanese Vehicles.

- ✓ Due to inaccessibility of road from Lugdi to Gadarif during rainy season Exporters are forced to store sesame at Gadarif for summer export needs.
- ✓ If Destination of sesame is to Israel Port Djibouti is used which is 1920 km from humera, with Customs checkpoints at Humera, Akaki, Awash, Mile and Galafi. Customs Branch offices Check the original information entered about the transported sesame using Asycuda++ software which sometimes fails and creates delay to pass checkpoints.
- ✓ Theft “kisheba” was one the major problems along the Djibouti corridor at some place.
- ✓ On good conditions it takes Six days for transport from Humera to Djibouti and another three days up to stevedoring was needed.
- ✓ Shortage of container, shortage of cranes at the stuffing area, inaccurate weigh bridge, Poor Handling of cargo by negligence of operators at port late arrival of vessel are problems at Djibouti port.
- ✓ All of exporters have fixed & mobile telephone, internet, email and fax for information exchange. They also get market information released daily by ECX from TV/Radios. But some Exporters feel that ECX must provide them Global market information.

5.2 Recommendations

The following measures are recommended to improve the constraints around sesame supply chain observed in the research

- ✓ Provide Loan Facilities for farmers, Retailers and exporters.
- ✓ Improve road conditions that link farm plots to Stores and market places so that transportation price is minimized and Time and Energy is saved.
- ✓ Improve storage conditions around farmers and retailers so that sesame can be kept without losing its weight and quality.
- ✓ Encourage farmers to produce quality sesame by providing necessary technical, material and financial support so that Ethiopian sesame can be competitive in the world market.
- ✓ Monitoring market places to stop acts of collusion between buyers that tends to deny farmers fair prices
- ✓ Strengthen Farmer cooperatives to involve in value adding and exporting activities which will improve member farmers living conditions and the country's capacity as a major sesame exporter.
- ✓ Improving network system conditions so that information flow is uninterrupted.
- ✓ Improve the Capacity of ECX at humera by building network infrastructures, increase number of weigh bridges and number of professionals so that delay at ECX for accepting sesame from retailers and issuing GRN is kept to minimum. Improving these conditions will lower transport prices significantly, farmers can have better selling prices, retailers can make more trips to sell sesame and government can collect more tax.

- ✓ Encourage exporters to further include other value adding activities besides purifying like producing sesame oil which will benefit exporters and the country as a whole. Almost all of Ethiopian Sesame exported is bought by intermediate traders involved in processing sesame further and sell to other users.
- ✓ Work in collaboration with Sudan government to improve road conditions from Lugdi-Gadarif currently maintained by Ethiopian Government budget which is poor and inaccessible in rainy weather conditions which tends to raise transportation cost and force exporters to pay extra money for stores located at Gadarif.
- ✓ Taking strong actions on parties involved in theft and adulteration of export sesame as it creates bag image for exporters and the country.
- ✓ To avoid delay faced due to shortage of container and to containerize sesame at dry ports or exporter's warehouses, exporters should have the freedom to choose vessels to foreign buyer's destination.
- ✓ Containerizing sesame from exporter's warehouse, it helps to control the theft along the route, accelerates the Port process, eliminates cost of staffing paid by foreign currency at Djibouti/Sudan port and creates job opportunity for Ethiopians.
- ✓ Capacity of Djibouti port must be upgraded in order to accommodate the growing demand from Ethiopian Exporters.

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ANNEX

ANNEX A – DATA COLLECTION PROTOCOL

SURVEY QUESTIONNAIRE FOR FARMER

Date _____

Name of house hold head _____

Gender

- Male
- Female

Woreda _____

Kebele _____

1. Major Cash crops Produced

No	Grain Type	Production/ Yield (qt)	Average unit price/qt
1	Sesame		

2. What are the basic problems you face during production of sesame?

- Shortage of capital/Lack of credit service
- Lack of improved seed
- Shortage of input supply
- High price of inputs
- Shortage of labour power

- Shortage of land preparation means
- Drought/inadequacy of rain
- Lack of information on quality standard
- Pest infestation
- Wilting after germination
- Problem of termite
- Poor soil fertility
- Problem of weed
- Hailstorm
- Others (Specify)

3. What problems do you face during the harvesting season?

- Unexpected rain during harvest
- Shortage of labour force
- Theft
- Lack of appropriate cutting/ transporting tools
- Other (specify)

4. What type of packaging do you use?

- Jute bag
- Plastic bag
- Clay Pot
- Other (specify)

5. Type of transport used from harvesting to storage place?

- Human porters
- Animal Transport
- Cart
- Tractors
- Vehicle

6. What is the Distance From your farming plot to your storage area?

- <1Km
- 1-5Km
- 5-10Km
- >10Km

7. What is the Distance from your storage area to the marketing place?

- <1Km
- 1-5Km
- 5-10Km
- 10-20km
- 20-50km
- >50km

8. What type of transport you use for grain transport to market

- Animal
- Cart
- Motorized (Land Rover, Isuzu...)
- Tractors
- Trucks

9. If Motorized (Land Rover, Isuzu, Truck...) specify price

- Using Land over For 1 qt grain_____ birr
- Using Isuzu for 1 qt grain_____ birr
- Using Trucks for 1 qt grain_____ birr
- Using Tractor For 1 qt grain_____ birr

10. Do you have a storage

- Yes
- No

If yes, Type and capacity

- Modern _____ Quintal
- Traditional "Gotera" _____ Quintal
 - ✓ Galvanized Iron sheet
 - ✓ Masonry
 - ✓ Mud
 - ✓ Wooden
 - ✓ Mixed

11. Do you have any value added activity on Sesame you produce?

- Yes
- No

If yes list?

- Cleaning
- Standard Packing
- Process into oil
- Other

12. What are the basic problems you face during Transport and Storage of sesame?

- Shortage of transport means (labour, animals, vehicles...)
- Insufficient storage space
- Poor storage facilities
- Poor roads
- Termite attacks
- High storage price
- High transport price
- Theft
- Others (Specify)

13. What are Major causes for production losses?

- Natural Disaster (pre-harvesting & post-harvesting) Rain, Drought....
- Poor Handling During and After harvesting
- During Processing
- Theft
- Fire
- Other

14. Transport and Storage Cost per quintal

No	Description	Birr/ Quintal
1	Packaging	
2	Transport to own storage	
3	Storage	
4	Labor cost	
5	Guarding	
6	Transport to market	
7	Communication	
8	Other	

15. Do you sell your entire product immediately after Harvesting?

- Yes
- No

If yes, what are the reasons?

- Buyers come only during harvest
- No storage place
- High Storage price
- The need for cash during harvest
- Price declines later
- Fear of weight loss if stored

- Fear of colour change if stored
- Other

If No, what are the reasons?

- Price rises later
- Other

16. Where do you sell your sesame?

- Directly to nearby local markets
- Selling to collectors at home
- Selling through cooperatives
- Selling at faraway markets
- Selling through contract farming
- Selling directly to exporters
- Others

17. How do you sell your grain product?

- Through brokers
- Customers
- Advertisement
- ECX

18. If you sell through brokers, what is the reason for doing so?

- Don't know the buyers
- Don't trust the buyers
- Would bring a better price
- other

19. How do you get market information?

- From ECX
- From Observation of Local and regional Markets
- Browsing market information on the internet

- Asking customers
- Other

20. How do you communicate with your customers?

- Cell phone
- Mail
- Internet
- Fax
- Other (specify)

21. Mechanisms buyers use to deny farmers fair prices for sesame by region/Market Problems

- Low Demand
- Hiding price information
- Unnecessary disqualification
- Collusion between buyer
- Swindling with weighing scales
- Others

22. Amount and price of sesame sold?

No	Description	Sold Amount (qt)	Average unit price/qt (birr)
1	Sesame		

23. Market cost

No	Description	Birr/ Quintal
1	Broker	
2	Tax	
3	Other	

24. Suggested solutions for minimizing problems associated with sesame transaction by region

- Availability of market information
- Availability of transport facilities to market
- Availability of reliable & competent buyers
- Government control of sesame prices
- Availability of competent farmer coops
- Availability of credit facilities
- Existence of stable sesame prices
- Elimination of brokers between buyers & farmers

25. Major problems faced on the supply chain and possible mitigation measures

SURVEY QUESTIONNAIRE FOR RETAILER/WHOLESELLER

Date_____

Name of Respondent _____

Gender

- Male
- Female

Age _____

Experience _____

Woreda _____

Kebele _____

1. Form where do you buy sesame?

- From farmers at market
- From farmers at their homes
- From small local traders
- Other (specify)

2. What problems do you face during collection of sesame?

- Price instability/fluctuation
- Lack of good quality sesame
- Lack of capital
- Inadequate sesame supply by farmers
- Annual decline of sesame supply
- Other (specify)

3. Means of Transportation from purchase point to storage

- Up to 50 quintal (Isuzu)
- 50-100 quintal (truck)
- 100-200 quintal (truck trail/Lobed
- Greater than 200 quintal
- Other

4. If you use rental trucks how much is transport cost/Km/qt? _____ ETB

5. What are major problems during transportation?

- Poor road condition
- Shortage of vehicles
- Poor vehicle fleet
- Excess checkpoints
- Theft
- Forgery
- Other (specify)

6. Do you own/ rent a warehouse? 1. Yes 2. No

If yes,

- Capacity _____ quintal
- Average distance from market _____ KM.
- Cost of warehouse _____birr/ quintal/year

7. Do you perform value adding activities? 1. Yes 2. No

If yes, list Activities

- _____
- _____
- _____

8. Where do you sell sesame?

- Local Wholesalers
- Exporters
- ECX
- Other specify

9. Where do you collect market information?

- Friends involved in sesame trading
- From local and central markets
- From ECX
- Other (Specify)

10. Means of communication for information exchange

- Telephone
- Mail
- Internet
- Other (specify)

11. Purchased and sold amount of sesame

Purchased (Quintal)	
Price/quintal	
Sold (Quintal)	
Price/quintal	

12. Average costs/quintal of sesame bought

No	Description	Birr/ Quintal
1	Transport cost	
2	Storage cost	
3	Labour cost	
4	Packaging cost (sewing sacks)	
5	Tax	
6	Guard's salary	
7	Loading cost	
8	Sorting cost	
9	Communication cost	
10	Advertising	
11	Broker	
12	Management cost	
12	Other	
13	Total	

13. Problems faced in sesame transactions by region

- Shortage of working capital
- Sesame price fluctuations/instability
- Lack of information about sesame prices
- Competition among buyers
- Swindling buyers
- Limited quantity of sesame supply
- Lack of storage
- Limited skills regarding sesame quality control
- Lack of transportation facilities to market
- Absence of direct buyer and seller connection (involvement of brokers)
- Problem of trade policy

- Lack of high-quality sesame supply by farmers
- Others

14. Suggested solutions for the sesame transaction problems by region

- Regular availability of sesame market info
- Improved sesame quality with improved production and productivity
- Availability of credit facilities
- Availability of banking services
- Presence of adequate working capital
- Government control of sesame prices
- Supporting farmers to boost production
- Eliminate unnecessary competition among traders
- Availability of transportation facilities
- Non-involvement of brokers
- Buyers directly buying from farmers
- Presence of agreement between seller and buyer
- Adequate administrative costs
- Unfair trade policy
- Controlling contraband

15. Major problems faced on the supply chain possible mitigation measures

SURVEY QUESTIONNAIRE FOR EXPORTERS

Date_____

Name of the Company _____

Address _____

1. Major suppliers

- ECX
- Own Farm
- Individual Farmers
- Commercial Farmers
- Co-operatives
- Private traders
- Central Market
- Other

2. Purchasing problems

- a) Insufficient sesame amount
- b) Product not fulfilling quality standards Financial incapability
- c) High price
- d) Other

3. What are the merits from ECX marketing

- a) Purchasing good quality sesame (Graded, weighted, certified,..)
- b) Constant Sesame supply
- c) Easy market information access
- d) Minimizes export formalities
- e) Saves transaction costs
- f) Other

4. What are the demerits from ECX marketing

- a) High purchasing price
- b) Weight and Quality not as intended
- c) Other

5. Distance from Sesame Delivery point to Storage
 - a) <5 km
 - b) 5-50 km
 - c) 50-100 km
 - d) 100-400 km
 - e) 400-1000 km
 - f) > 1000 km
6. Means of Transportation from purchase point to storage
 - a) Up to 50 quintal (Isuzu)
 - b) 50-100 quintal (Medium truck)
 - c) 100-200 quintal (Large truck)
 - d) Greater than 200 quintal (Truck and trailer)
 - e) Other
7. Specify price Transport price (Purchase to Storage)
 - a) Using Isuzu for 1 qt sesame_____ birr
 - b) Using Trucks for 1 qt sesame_____ birr
8. What are major problems during transportation?
 - a) Poor road condition
 - b) Shortage of vehicles
 - c) Poor vehicle fleet
 - d) High Transport Price
 - e) Excess checkpoints
 - f) Theft
 - g) Forgery
 - h) None
 - i) Other (specify)

9. What means of communication do you use?

- Have an agent/office
- Phone
- Fax
- Internet/Email
- Other (specify)

10. Value adding activities

- a) Sorting
- b) Cleaning
- c) Packing
- d) Other(specify)

11. Storage and Processing units?

- a. Number & Location _____
- b. Cost of warehouse _____
- c. Storage Capacity _____ Quintals
- d. Processing Capacity _____ Quintal/day.

12. Problems Associated with storage

- a. Weight loss during storage
- b. High storage cost
- c. Rented storages doesn't fulfill necessary standards
- d. Other

13. List export formalities files for sesame export

14. Distance from Sesame processing point to Port

- a) <500 km
- b) 500-1000 km
- c) 1000-1500 km
- d) 1500-2000 km
- e) > 2000 km

15. Means of Transportation from processing point to Port

- a) 50-100 quintal (Medium truck)
- b) 100-200 quintal (Large truck)
- c) 200-400 quintal (Truck and trailer)
- d) >400 quintal
- e) Other

16. What are major problems during transportation?

- a) Poor road condition
- b) Shortage of vehicles
- c) Poor vehicle fleet
- d) High Transport Price
- e) Excess checkpoints
- f) Theft
- g) Forgery
- h) None
- i) Other (specify)

17. What are the major marketing problems that you face in the business?

18. What measures do you use to overcome this problem?