Market Chain Analysis of Sesame in Melekoza and Basketo Districts

Endrias Oyka*

Department of Agricultural, Southern Agricultural Research Institute, Arba Minch Center, Arba Minch, Ethiopia

Abstract

This study was aimed at marketing chain of sesames in Melekoza and Basketo special woreda of Southern Ethiopia. The data were collected from both primary and secondary sources. The primary data were collected from 184 farmers and 22 traders via statistical approaches. The study result identified producers, cooperatives, commission agents, assemblers /local and/or village collectors, wholesalers and exporters as the sesame market participants in the study areas and among these producers, wholesalers and exporters account more shares than others. The study also revealed that sesame market in study area was slightly oligopoly (medium concentration) where the top 4 traders were controlling 57.8% of the sesame market. The study result showed that sesame producers are faced with high diseases and pests, lack of improved varieties and declining sesame output price. Traders in study area were faced with Sesame trading in study area is characterized by different factors that hinder free entrees and include high capital requirement and volatile price. On marketing side, poor quality product, unlicensed intermediates, limited access to market, low price of product, lack of storage, and shortage of formal market places and very long distance of ECX are the major problems. The study also tried to identify challenges such as shortage of experts, low budget allocation and lack of training at supportive organization level. Therefore, this study tried to recommend the solutions based on study findings.

Keywords: Sesame melekoza • Basketo • Market chain • Market structure • Conduct • Performance

Introduction

Agriculture plays crucial role in Ethiopia's economy. This sector supports livelihood for 85% of the population, contribute about 43% of gross domestic product [1]. generate more than 90% of export value and supply over 70% of industrial raw materials for domestic industries [2].

The government of Ethiopia in its policy and growth strategy, with the current Growth and Transformation Plans [3]. Places smallholder farmers as a primary source of agricultural growth and agriculture as the main source of overall economic growth. The commercialization of smallholder farming received high government policy priority through GTPs. In this regard, the major effort is placed to support the intensification of marketable farm products-both for domestic and export markets-by both small and large scale farmers. Such fundamental strategy involves an enhancement of producing high value crops-paying a special focus on high-potential areas [4].

Therefore, promotion of export potential cash crops like sesame is one among the current governments' strategy for raising agricultural growth in gross domestic product [5]. In general and rural income in particular. This also helps to promote diversification out of low-value crops into higher value crops for the markets including the export market, which in turn can contribute to improve agricultural marketing systems in the country. Especially, promotion of export potential cash crops is crucial since it generates income for the producers and government and it is one of the fundamental government policies for acquiring foreign currency [6].

According to Broséus, et al. [7] Ethiopia is among the top-five sesame producing countries in the world, ranked at fourth place in 2011/2012. Accordingly, sesame is the major oilseeds crop in the country in terms of exports next to coffee, accounting for over 90 percent of the value of oilseeds exports. There is still potential arable land in different areas of

the country to cultivate this crop and there is a considerable demand for Ethiopian sesame seed at international markets. This indicates that, growth and improvement of the sesame sector can substantially contribute to the economic development at national, regional and family levels [8].

As Gilberto argued, the analysis of marketing chain is intended to provide a systematic knowledge of the flow of goods and services from their origin (producers) to their final destination (consumers). This study was mainly focused on the sesame marketing chain analysis in AGP II districst (Melekoza and Basketo special woreda), Southern Ethiopia and attained the following objectives:

- To map important marketing chains
- To identify main actors and shares along the chain
- To analyze the s-c-p (conduct, structure and performance) of sesame markets, and
- To identify major constraints and opportunities of sesame marketing and production.

Research Methodology

Description of study areas

Melokoza Woreda: Melokoza is located in the south West part of Ethiopia. More specifically, it is located in the Gofa Administrative Zone in Southern Ethiopia. Laha is the administrative center of Melokoza woreda and it has 39 kebele (37 rural and 2 peri-urban). Melokoza is 405 km away from Hawassa, the regional capital and 661 km Addis Ababa, capital city of Ethiopia.

The district's altitude ranges from 505-2500 m.a.s.l; average annual rain fall is 1125 mm with minimum 750 mm and maximum 1500 mm and average temperature is 21.3 C0 with minimum 15.1C0 and maximum 27.5C0. The total population of the district is 152,502. Among these, 75,194 are male and 77,308 are female. The total household of the district is 28,936 from whom 3,077 are female headed and 25,859 are male headed.

The data gathered and compiled from the woreda's Agricultural and Rural Development Office (DARDO) shows that, regarding the land use pattern, total land coverage is 168,180.93 ha of which 47,103.897 ha is covered by annual crops, 31,884.093 ha perennial crops, 6,885 ha grazing land, 33,687.15 ha natural forest, and others 48620.78 ha. The lowest land

Address for Correspondence: *Endrias Oyka, Department of Agricultural, Southern Agricultural Research Institute, Arba Minch Center, Arba Minch, Ethiopia; E-mail: endoyka@gmail.com*

holding per household is less than 0.5 ha whereas the maximum is about 2 ha (AGP II CLPP, 2016).

In Melokoza district 26.7% of total farmers are having minimum land holding of less than 0.5 ha and 20.3% of the total farmers are having the land holdings of greater than 2 ha. Women headed households having their farming land less than 0.5 ha are 1458 (i.e. 47.4% of total women household heads). The soil types of the district classified as clay (15%), Loam (50%) and Sandy loam (35%) across agro ecologies.

Basketo special woreda: Basketo special district is also located in the south west part of Ethiopia (adjacent to Meleokza district). The district is located 367 km away from Hawassa (regional capital city) and 626 km away from Addis Ababa (capital city of the country, Ethiopia). The total household of 27092 (2,506 female headed and 24,586 male headed) and total population of 74,050 (37,221 male and 36,729 female). Altitude ranging from 780-2200 m.a.s.l.; average annual rain fall of the district is 1200 mm (minimum 1000 mm and maximum 1400 mm) with minimum and maximum temperature of 150C and 270C, respectively. The total land coverage of the district is 105750.75 ha of which19250 ha is covered by annual and perennial crops, 2250 ha grazing land, 491.75 ha forest land, 103 ha water body, 566 ha bare land and 83090 ha others. The soils of the district classified as 18% clay, 52% loam and 30% sandy in all agro ecologies (woreda office of agriculture and natural resource management office, WOANRM).

Sampling procedure and sample size: The study was conducted in MelokozaWoreda and Basketo special woreda, South west part of Ethiopia. The areas have high potential for the sesame production and have three agro ecologies (high land, midland and low land). Among these, low land is the only agro ecology that produces sesame crop in the targeted areas and have already been classified in to three clusters based on distance and all of them produce sesame crop.

For this study, all above mentioned clusters were selected as target population and followed two stage sampling procedures. In the first stage, from each cluster, two kebeles those produce sesame were selected randomly [9]. In the second stage, the sampling frame for each selected kebele was prepared with the help of Development Agents (DAs). The sampling frame included all formal lists of sesame producing farmers. After complete lists of sampling frame, households were selected from prearranged lists using simple random sampling based on the Probability-Proportional-to-Size (PPS) and cross sectional data were obtained from sampled smallholder sesame producing farmers.

The sample size was determined by using Cochran (1977) formula and sample was drawn from the lists of sampling frame of the respective kebeles using probability proportional to size (PPS).

First, Cochran (1977) formula was used to obtain sample size for infinite population:

$$n_0 = (z^2 pq)/e^2$$

Where n_0 is sample size for infinite population

Z (1.96) is the selected critical value of desired confidence level at 95%

P is the estimated proportion of an attribute that is present in the

Population (assumed to be the maximum variability, which is equal to 50% (p=0.5) and taking 95% confidence level with 7% sampling error)

q=1– p and e is the desired level of sampling error.

This Cochran formula is for calculating sample size when the population is infinite.

Accordingly, $n_0 = ((1.96)^2(0.5)(0.5))/((0.07)^2) = 196$, for whatever population

However, according to Gauhati University Mathematics Association (2012), Cochran pointed out that if the population is finite and known, then the sample size can be reduced slightly. Hence, he proposed a correction or adjustment formula to calculate the final sample size.

Then the above Cochran formula for known target population (in this case, N=3029) was adjusted or corrected and final sample size become:

$$n = n_0/((1+(n_0-1)/N) = 196/[1+(196-1)/3029] = 184$$

In order to calculate the sample size for each kebele proportionally, the value of allocation factor "a" was calculated according to Bowley (1926) formula as:

$$a_i = N_i/N$$

And then, the sample size (ni) calculated proportionally for each kebele according to the following formula as: $n_i = (N_i/N)n = a_i n$ (Table 1).

All procedures are summarized in the following table (Table 1).

Source: Agriculture and rural development office of Melokoza woreda Basketo special woreda for column 3, the rest were own calculations.

For other actors (traders) along the chain, different criterions (accessibility, availability) were used to collect traders' data and 22 traders were used as sample for this study.

Data types, sources and methods of data collection: The data for this study were obtained from both primary and secondary sources. The secondary data were obtained from selected woreda and kebeles' agricultural offices and extension agents (DAs). In addition to these, the documented materials such as journals (publications), reports, proceedings and books were referred.

The primary data were collected by developing structured questionnaire, focus group discussions and key informant interview (KII).

Methods of data analysis

The raw data collected were entered in to SPSS software and analyzed using both SPSS and EXCEL. Statistically, descriptive statistics like mean, percentages, ratios and frequency were employed.

Results and Discussion

Socio-demographic characteristics of sampled households

Sample of 184 household heads were used in this study. Out of the interviewed farmers, 165(89.7%) participate in sesame market and

Table 1. The summary of sample frame and sample size.

No	Name of kebeles	Sesame producer for each sampled kebele	Calculation of allocation factor, $a_i = N_i/N$	Sample size from each kebele, $n_i = (N_i/N)n$
1	mender-1	$N_1 = 183$	$a_1 = N_1/N = 0.1371$	$n_1 = 25$
2	mender-3	$N_2 = 225$	$a_2 = N_2/N = 0.1685$	$n_2 = 31$
3	Gergeda	$N_3 = 316$	$a_3 = N_3/N = 0.1198$	$n_3 = 44$
4	Angla-1	$N_4 = 160$	$a_4 = N_4/N = 0.1198$	$n_4 = 22$
5	Angila-2	$N_5 = 309$	$a_5 = N_5/N = 0.2315$	$n_5 = 42$
6	Bokine	$N_6 = 142$	$a_6 = N_6/N = 0.1064$	$n_6 = 20$
	Total	$N = N_1+N_2+N_3+N_4+N_5+N_6 = 1335$	$a_1+a_2+a_3+a_4+a_5+a_6 = 1$	$n = n_1+n_2+n_3+n_4+n_5+n_6 = 184$

Table 2. Sex of sampled farmers source, Own survey result, 2019.

Variable	Participants in sesame market						Non-participants in sesame market					
SX	Female		Male		Total		Female		Male		Total	
	Count (freq)	%	Count (freq)	%	Count (freq)	%	Count (freq)	%	Count (freq)	%	Count (freq)	%
	13	7.1	152	82.6	165	89.7	5	2.7	14	7.6	19	10.3

Table 3. Sesame market price decision sources: survey result, 2019.

Who sets selling price?	Percent (%)
Yourself	1.8
Market	12.1
Buyers	80.6
Negotiation	5.5

the remaining 19(10.3%) do not. As presented in Table 2, among total respondents, 166(90.2%) are male heads and 18(9.8%) are female. The table below also shows that among market participants, 152(82.6%) are male and 13(7.1%) female headed whereas among non-participants, 14(7.6%) are male and 5(2.7%) are female headed households. All other actors (100% of traders) were male respondents (Table 2).

Sesame marketing chains: This study identified produces, cooperatives, commission agents, assemblers/local and/or village collectors, wholesalers and exporters as the sesame market participants in the study areas and each of them is explained one by one and mapped too.

Producers: Producers are the first link in the marketing chain. Sesame producers in study areas and supply to the next sesame market chain actors. In the study area, there exist only small scale farmers. No identified large scale commercial farmers due to shortage of land holding size and capital.

Farmers in study area sell their sesame produce to village collectors/assemblers, commission agents, cooperatives and wholesalers but not to exporters. As table above shows, around 81% of producers did not decide on market price and take whatever price the sellers decide (Table 3).

Assemblers/Village Collectors: Village collectors come from producer communities (both Melekoza and Basketo). They collect sesame from producers and sell to wholesalers and cooperatives (Figure 1). Though they have no formal license to work on (trade) sesame, they purchase and supply to next actors. The total share of sesame purchase by village collectors accounts 23%. They collect and resold to either wholesalers or cooperative in study year. Most of time, their source of money and information are their customers (wholesalers and cooperatives).

Wholesalers: Wholesalers are the core pivotal actors to reach all sesame products from production areas to export destination. They purchase sesame from all actors (producers, cooperatives, local collector and commission agents) and resale at export market (ECX, Ethiopia commodity exchange), at Addis Ababa. Though other actors involve in sesame marketing, 100% of sesame produced in area is arrived to export market via wholesales. They purchased 43.5%, 26.5%, 12% and 19% of survey (study year) production from producers, commission agents, cooperatives and local collectors respectively.

As study finding shows, wholesalers face different challenges those must be solved by respective bodies and include: lack of quality sesame product; availability of non-licensed traders; low production potential; unknown category or no brand for product (mostly categorized as welega category); traders (wholesalers) have no power to decide on market price at ECX level; price fluctuation (high price when they purchase and immediately drops price when they resale the product) and focus is not given for traders by government like that of producers.

Cooperatives: Several primary cooperatives had been established in study area, especially Melekoza woreda and a few in Basketo special woreda. The main purposes of these cooperatives include collecting agricultural
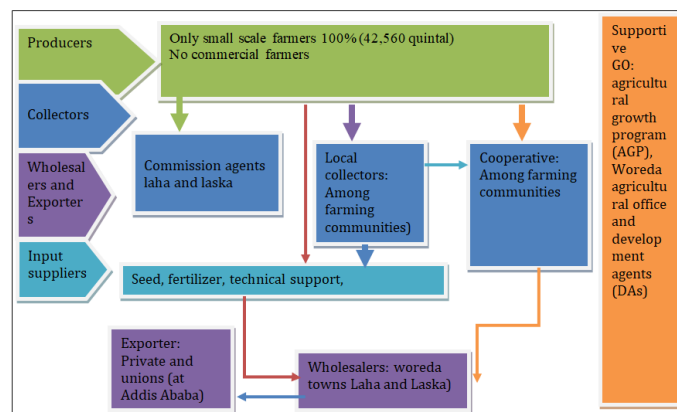
Figure 1. Sesame market chain map.

products including sesame from their members and other producers and resale to wholesalers; supplying consumption goods (oil and sugar); and benefiting their members by offering credits. Currently, most of primary cooperatives are not working on their main missions.

The primary cooperative in Basketo special woreda called "Basketo dischisto hulegeb mahiber" has already stopped working on sesame and other agricultural products. As members' explanation, the cooperative was faced with different challenges. For example, shortage of capital; no audit result on costs, revenue…etc. In addition to these, no regular follow up by woreda experts. Due to these and other challenges, cooperative missed its function. As experts' and producers' explanation, there is no other cooperative working agricultural product. Though Melekoza has better cooperative than Basketo, the existing cooperatives are getting weak. The total sesame purchase of cooperatives in study year reported as only 12% (8% from producers and 4% from local collectors) and total of 1702.4 quintal. They purchase sesame directly from producers and local collectors and resale to wholesalers. Therefore, this shows that the respective stakeholders should work on challenges of cooperatives by solving problems of existing cooperatives and establishing new ones, especially producers' cooperatives.

Commission agents: Commission agents are the representatives of formal traders (wholesalers) and common in sesame marketing in study areas. They manage sesame marketing on behalf of wholesalers. Since main production season is short, many commission agents involve in sesame marketing. Commission agents accounted 26.5% of study year sesame production. They all are provided with required capital and market information from wholesalers. They earn benefit of 30 cents per kilo from wholesalers.

Exporters: Sesame exporters are the last marketing chain link in the domestic trade and found in Addis Ababa. The main challenges around export area include: suppliers to exporters have no power to decide on their products' price; price fluctuations and transportation and storage costs. As Figure 1 show, there is no direct connection of producers and exporters.

As shown in Figure 1, there is no chain which directly connecting producers and exporters. This indicates that there is long and complex chain between them resulting in intermediate costs which minimize farmers' revenues. The surplus of sesame seeds flow at each channel member was estimated by multiplying whole marketed surplus by their respective share in the channel. The shares are quantified based on the reports from the survey participants. The identified market channels illustrated in Figure 1:

The identified market channels illustrated in figure

Producer →local collector→ cooperative →wholesalers (17,02.4 quintal, 4%)

Producer→ local collector→ wholesaler (7660.8 quintal, 18%)

Producer→ cooperative → wholesalers (3404.8 quintal, 8%)

Producer→ commission agent→ wholesalers (11,278.4 quintal, 26.5%)

Producer → wholesaler→ exporters (18,513.6 quintal, 43.5%)

The most important channels in the sesame marketing chain are those that move from producers to wholesalers then exporters and from producers to commission agent then wholesalers.

Structure-Conduct-Performance (S-C-P): Structure, conduct and performance is the method applied to evaluate performance of industry in USA and subsequently applied in studies on the functioning of market in agricultural sector and which was elaborated by Bain. The basic view of S-C-P is that, given certain basic conditions, the performance of a particular industry depends on the conduct of its sellers and buyers, which in turn is strongly influenced by the structure of the relevant market.

Sesame market structure: Market structure is defined as characteristics of the organization of a market, which seem to influence strategically the nature of the competition and pricing within the market. Some elements of market structure include: type of intermediaries, type of marketing channels, and type of markets, number of actors, instruments/quality standards, physical market infrastructure and regulation of entry and exit etc.

The research findings showed that unlike other commodities sesame export price is not influenced by domestic factors. However, international prices can significantly affect the export price and export price in turn can affect the local and producers' price. Almost all wholesalers explained that when they purchase sesame from their suppliers, the price was in good condition (high). However, after they purchase from their suppliers and start to supply to export market at Addis Ababa the price become lower than what wholesalers purchased from their suppliers. This indicates that the market information flow from ECX is inconsistence and affects traders negatively and which results decreasing prices for sesame producing farmers.

The study result revealed that all of sample farmers (184) interviewed, 100% were identified as a smallholder farmers owning an average size of land 1.5 hectares which is very lower than the standard for smallholder farmers criteria, which is identified as 5 hectares. This shows that there is no commercial farmer in study areas and these needs to identify the way to increase productivity of sesame like intensive farming for these smallholders farmer since they do not expand their land size. All the sampled farmers grow sesame and 89.7% supplied sesame to the market and the rest 10.3% retain as seed and own home consumption due to low volume of production which was related with different production challenges like disease, land size low productivity etc.

Generally, market places for sesame in study areas divided in to two: informal market place and formal market place. Informal market place in study areas show that there is fixed market day as such where buyers and sellers meet together. Producers sell their output by searching for client traders or via commission agents who are moving among farmers' villages. In both informal market place accounts more proportion than formal market place. This results for different challenges like unlicensed traders, lack of quality control, poor storage places, disadvantaging for producers, and the likes.

Formal market place is defined as an authorized public gathering of buyers and sellers of commodities meeting at an appointed place at regular intervals.

Formal village market in study areas has not been well identified and documented yet. Though some places were identified as formal marketing places, currently not functioning. Agricultural growth program constructed cash crops' including sesame marketing centers. However, sesame producers are not using those places due to different reasons like long distances from production area and inappropriate construction of marketing centers (i.e. the place is not suitable topographically for transportation and most of traders were also complaining). In study areas there is no fixed market day to exchange their produce and producers use all others days of the week to sell and buy in the villages. Therefore, marketing centers should be established at least cluster level for producers.

Measures of concentration ratio (CRx) (market type): Market concentration is a strong indicator of non-competitive pricing behavior and of inefficient market performance for agricultural commodity markets in developing countries. The presence of few and large market agents within a defined market boundary is sufficient evidence of market power and collusive pricing.

To evaluate the concentration of firms as a characteristic of the organization of the market and the strategic influences on the nature of competition and pricing within the market was estimated by market concentration or concentration ratio.

The concentration ratio is expressed in the terms of CRx, which stands for the percentage of the market sector controlled by the biggest x firms.

Four firms (CR4) concentration ratio is the most typical concentration ratio for judging the market structure (Figure 2).

The mathematical formulation for concentration ratio /C/ is:

Calculated as: CRx $= \sum_{i}^{r} si / [\text{industry total sale}] * 100\%$

Where: $i = 1, 2, 3,...$

Si = share of leading (top) firms in the in the industry

r = number of leading (top) firms and CR_x = concentration ratio

Figure 2. Mathematical formulation.

Interpretation

0%

-No concentration

-Market is perfect competitive

Rules to decide market type:

If CRx=0%

-No concentration

-Market is perfect competitive

If CRx=1-50%

-Low concentration

-Market is monopolistic competition

If CRx=51%-80%

-Medium concentration

-Monopolistic competition/oligopoly

If CRx=81-100% (- High concentration- Market is oligopoly) (Table 4).

According to the concentration ratio rule, the sesame market in study area was slightly oligopoly (medium concentration) where the top 4 traders were controlling 57.8% of the sesame market.

Entry and exit of sesame marketing

Sesame trading in study area is characterized by different factors that hinder free entrees, which made the market uncompetitive. The main factors include the following ones:

Capital requirements serve as an entry barrier because only those who can afford enough finance can enter the market. This is the fact that the commodity unit price is very high when compared with the price of other

Table 4. Sesame traders' Concentration in study areas. Source: survey result, 2019.

Traders	Total sesame trade firms		
	Quantity purchased (qt)	Indiv. % share purchase	%cumulative
1	6750	15.6	15.6
1	6500	15.3	31.13
1	6000	14	45.23
1	5350	12.6	57.8
1	4000	9.4	67.2
1	2340	5.5	72.7
1	1800	4.2	76.9
1	1600	3.8	80.7
1	1300	3.1	83.7
1	1300	3.1	86.8
1	1300	3.1	89.9
1	1200	2.8	92.7
1	1170	2.7	95.4
1	1000	2.4	97.8
1	950	2.2	100
Total	42,560	99.8	

commodities. The nature of the commodity (sesame) is totally export type and seeks special facilities like cleaning, packing, storing etc. that requires also huge capital investment. Illegal inter mediators was also challenging the formally licensed traders.

High price fluctuation (highly volatile price) of sesame particularly at local level prevents traders to be engaged confidentially in sesame marketing. Non accessibility of accurate and timely market information mechanisms could be seen as another entry barrier.

Sesame market conduct (behaviors of market actors)

Producers' market behavior: Out of the total sample farmers, only 10.3% of households retained their production either for seed and/or home consumption. The rest 89.7% of households supplied their production to the market. This shows that sesame is the one of the important cash crops in study area. The sesame sales start in September and reach its peak in august. Critical periods for sesame purchase also include July and August.

The sources of price information for the majority of the farmers were client traders, nearby farmers, and sometimes via mobiles. All transactions were paid in cash for farmers and no delay on payments. Farmers do not store their produce to recover price fluctuations seasons due to lack of storage since the sesame product grow moldy if storage condition is not good. Farmers easily shift to other commodity like maize if challenges like disease and pest faced with sesame.

Traders' market behavior: According to the study findings, almost all traders had no specialization on sesame alone. They have general (all commodities' license like coffee, korerima, maize, etc). They focus on all commodities in their peak harvesting seasons. Almost all of traders come from production area among farming communities. The bulk purchase of sesame accounts for wholesalers. Wholesalers collect from all other actors (cooperatives, assemblers, commission agents, local collectors) and supply to export markets. In all cases, prices of sesame have been decided by traders, and hence, traders were price makers. There is no association or relation of traders to share and communicate on their common issues.

Though there were formal market places, they were not well functioning and informal market places account more proportion than formal market places thus results for different challenges like unlicensed traders, lack of quality control, poor storage places, disadvantaging for producers, and the likes.

Sesame market performance: The sesame market performance was evaluated based on the level of marketing margins among the major

sesame markets in the market chain.

Marketing margins: The profitability of study area producers was calculated by taking the average total income and expenses of all the sample producers' operation in 2019. The study result revealed the diverse nature of cost structures (land clearing and preparation, plowing, inputs like seed, chemicals, fertilizer, seeding, weeding, harvesting, threshing, transportation etc). The average yield of producers is 5.7 qt/ha; producers earned a net profit of Birr 4667.98/ha and average profit from quintal is 900.84 (Table 5).

Marketing margins: Based on the price data, the marketing margins for sesame at different level are calculated and the estimates are:

TGMM=(consumer price-producer price)/(consumer price) x 100%

where; TGMM=total gross marketing margin

NMM=(gross margin-marketing cost)/(consumer price) x 100%

TGMM (complete distribution channel)=12.4%

GMM (wholesalers)=5.3%

GMM (exporters)=7.05%

GMMp (producers participation) =100%-12.35%=87.65%, (Table 6).

Major constraints and opportunities in sesame production and marketing in study areas

According to sampled respondents' explanation, a number of problems associated with sesame production and marketing in the study area. Among the major problems, sesame disease is the serious problem in study areas. As shown in the Table 7, all of the sampled farmers (100% respondents)

Table 5. Cost structure and profitability for sesame producers in study area. Sources: survey result (2019).

Cost structure and profitability for sesame producers	
Items	Average price/ha or qt
Cost/ha	2309.05
Cost/qt	461.8
land devoted for sesame production (ha)	1.1
yield in quintal/ha	5.7
Selling price/qt	1383.04
Total revenue/ha	6977.03
Profit/ha	4667.98
Profit/qt	900.84
Cost structure and profitability for sesame wholesalers	
Purchase value/qt	1383.04
Cost/qt	71.5
sale value/qt	1466.54
Gross margins	83.5
Net benefit	12
Cost structure and profitability for sesame exporters	
Purchase price from wholesalers	1466.54
Cost/qt	91.5
Sale value(fob price)	1578
Gross margin	111.46
Net benefit	19.96

Table 6. Price of sesame at different market level. Sources: survey result (2019).

Marketing Channel Participant	Selling Price(birr/qt)	% share from fob(closing) price	Net Marketing Margin in%
Producer	1383.04	87.65	58.38
Wholesaler	1466.54	5.3	0.76
Exporter	1578	7.05	1.26

reported that sesame disease limits production and productivity of sesame from year to year. Farmers explained that the "fall army-worm" affects sesame at the early growth stage.

Shortage of improved sesame seed is another factor that limits farmers' sesame production potential and limits also supplying more output to the market. As shown in the 3.6, 59.8% of respondents explained that there is lack of improved sesame seed in the area. Figure 1 also shows the usage of sesame seed type by sampled households. Accordingly, about 60% (110) of sampled households use unimproved sesame seed whereas remaining 40% (74) use improved seed for last year production season. As the response of the respondents, the main reason not to use improved sesame seed was due to lack of improved seed and absence of supplying organizations.

As explained during conversation with key informant interview and focus group discussion, lack of awareness on how to produce sesame also restricts farmers from obtaining advanced output. Producers in study areas have no understanding about all agronomic practices, land preparation to harvesting (i.e. land preparation, seed rate, sowing, weeding, harvesting and post-harvest handling).

According to sampled respondents, they cultivate the land only once and /or sometimes they sow simply clearing the area without plough even at once. They assume that sesame needs land which is not cultivated more because in more cultivated land it will lodge and not provide expected yield. Weed is another problem to produce sesame in study area. Farmers were worrying about weed during sesame production season and asking the local government for the solutions.

As shown in Figure 3, no one uses both organic and inorganic fertilizer for sesame production. According to the farmers' explanation, reason why not using inorganic fertilizer was that "the farm land is so fertile to produce sesame." They said that" If fertilizer is applied, the farm land become more fertile and sesame will be lodged."

Figure 1 also shows that all (100%) of the respondents were sowing sesame seed by broadcasting and no one used raw planting technology for sesame production. This indicates that there are the wastages of sesame seed. Therefore, it is crucial to interfere for respective organization(s) in order to minimize these gaps.

As farmers explained during survey season, there is a security problem that prevents sesame production in the study area. They reported that people who are living in the border come across and take away their livestock and this was the serious challenge for sesame cultivation in the area.
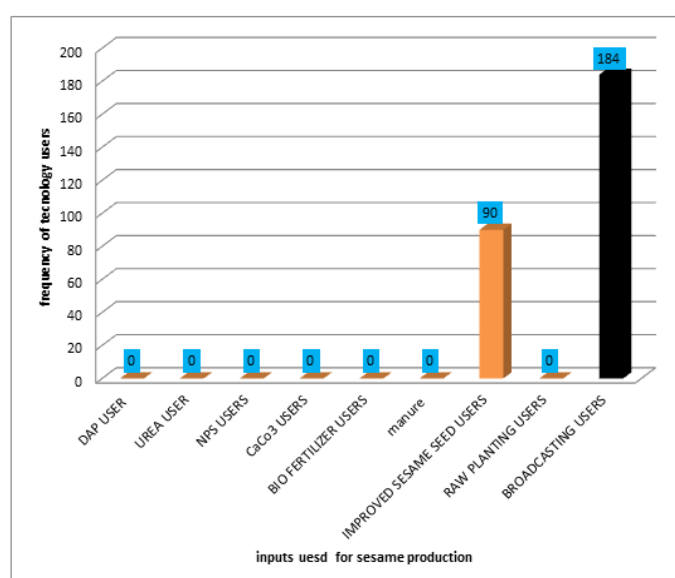
Figure 3. Use of agricultural technologies by farmers for last production season (2018) (Source: own calculation from survey result, 2018).

Farmers in study area sell their sesame product to different actors. As shown in the Table 8, most of farmers (57%) sell their produce to licensed merchants and 33.9% sell to cooperatives which is available in the area. Table 8 also shows that 31% of sampled farmers sell their produce at farm gate and 63.7% do at the village or kebele markets (Table 8).

Though there are cooperatives and licensed merchants (who are buying sesame output at the farm gates), respondents are complaining on sesame selling price. They explain that almost all the time buyers set the selling price and producers are price takers. As indicated in the table 8, 80.6% of the sampled farmers responded that buyers decide on selling price and they have no power to make decision.

The other problems farmers facing in sesame selling are buyers' problems (price lowering and scale cheating). The farmers explained that buyers communicate among themselves through mobile not to buy by good price and pay lower price. Since farmers have no other options, they agree whatever price they communicated. Farmers were complaining that local government is not following such kind of problems. In addition to this, buyers are cheating scales. As indicated in Table 8, 41.8% of farmers explained about measurement cheating problems.

Table 7. Failures of sesame production and marketing in study Area. source: own survey result, 2019.

Failures of sesame production and marketing	Sesame failures	Responses		Percent of Cases
		n	%	
	Sesame disease	184	22.3	100
	Fest infestation	29	3.5	15.8
	Short or long rain	130	15.8	70.7
	Deceased productivity of sesame from time to time	73	8.8	39.7
	Lack of improved sesame seed	110	13.3	59.8
	Shortage of land	51	6.2	27.7
	Fear of market related problems	134	16.2	72.8
	Lack of awareness creation	63	7.6	34.2
	Shortage of input supply	51	6.2	27.7
Total		825	100	448.4

Table 8. .sesame marketing conditions in study area. Source: survey result, 2019.

Conditions	Percent (%)	Conditions	Percent (%)
Place of sell		Problem of buyers	
Farm gate	31	Scale cheating	41.8
Village/kebele market	63.7	No bargaining power	6.7
Woreda/district town market	4.7	Lower price	51.5
Sesame market center	0.6	Mode of transportation	
Buyers		By foot	25
Cooperatives	33.9	Animal transportation	75
Licensed merchants	57	Road access	
Non-licensed merchants	9	Somewhat goad	32.2
Who set selling price		Bad	45.4
Yourself	1.8	Worst	22.4
Market	12.1	-	-
Buyers	80.6	-	-
Negotiation	5.5	-	-

Farmers also complaining about the road access that connects them to primary markets. As indicated in Table 8, about 45.4% of respondents said that road access is bad and about 22.4% of respondents responded worst. According to their explanation, the distance of nearest market takes about three hours if they walk by their foot. As indicated in Table 8, 75% of farmers use animal transportation and 25% uses foot. In study area it is difficult to find transportation to move their produce to the market centers (Figure 4).

The very important problem thus farmers were complaining on sesame marketing was the price fluctuation which is declining from time to time. As shown in Figure 5, the price of sesame declining from 2014 to 2017. Accordingly, the average price of sesame in 2014 was around 2500 birr per quintal. One year later (2015), the average price become 1500 birr per quintal, which was 60% declined within one year. As observed in the figure, the price of sesame declining from time to time.

During survey season, sampled respondents, focus group discussion and key informant interview explaining that the main reason for good price for sesame in 2014 was that regional and local governments were following up to the farmers' house to house and controlling the price fixed by ECX when buyers were buying the sesame from producers. Later on, there was no one who following the price status. Buyers decide on the price themselves and producers become price takers.

Farmers also reported that there was no warehouse (store) to keep on or wait for their produce for long time. They said that if it is kept not in good place, the seed become decay (grow moldy). Therefore, whatever the price

Figure 4. Transportation system of sesame to the market place (Source: captured during survey season, 2019).

Figure 5. Price trends of sesame in study area (from year 2014 to 2017) (Source: own computation, survey result, 2019).

decided by the buyers, they were forced (obligated) to sell their produce. By mentioning these and other problems, Part of the farmers were reporting that they are going to shift from sesame to other crops.

Constraints at traders' level: As study identified there were different challenges that traders facing is study area. Poor quality products, unlicensed intermediaries, very long distance of Ethiopia commodity exchange market, lack of brand for sesame at ECX level, traders are price takers at ECX level and price volatility, lack of formal market places which results for unlicensed intermediaries. As key informant interviewers explained attention is from governmental organizations always focus on only producers or farmers but very little attention was given to traders and this should be considered by different stakeholders. The existing cooperatives in study area are not sufficient and even not well function able. Therefore, strengthening the existing and establishing new cooperatives is very vital to enhance producers' and other formal traders' earnings. Supportive organizations like experts at district level were complaining that they faced challenges such as shortage of experts at office level, low budget allocation and lack of training in order to support different stakeholders (producers and traders).

Conclusion

This study was mainly focused on the sesame marketing chain analysis in AGP II districsts Southern Ethiopia. The main actors of sesame market were identified as producers, cooperatives, commission agents, assemblers /local and/or village collectors, wholesalers and exporters. According to the study finding, the sesame market was slightly oligopoly (medium concentration) where the top 4 traders were controlling 57.8% of the sesame market. The sesame producers are faced with high diseases and pests, lack of improved varieties and declining sesame output price while traders in study area were faced with Sesame trading in study area is characterized by different factors that hinder free entrees and include high capital requirement and volatile price. On marketing side, poor quality product, unlicensed intermediaries, limited access to market, low price of product, lack of storage, and shortage of formal market places and very long distance of ECX are the major problems. The study also tried to identify challenges such as shortage of experts, low budget allocation and lack of training at supportive organization level (district offices). Therefore, the researchers recommend the following way out for policy makers: adaptive research and demonstration of improved varieties, especially disease resistance; encouraging existing cooperatives and establishing new sesame market centers; establishing other ECX branch in convenient place which serves as center for all sesame producers in southern Ethiopia; and giving more attention on quality control at producers level.

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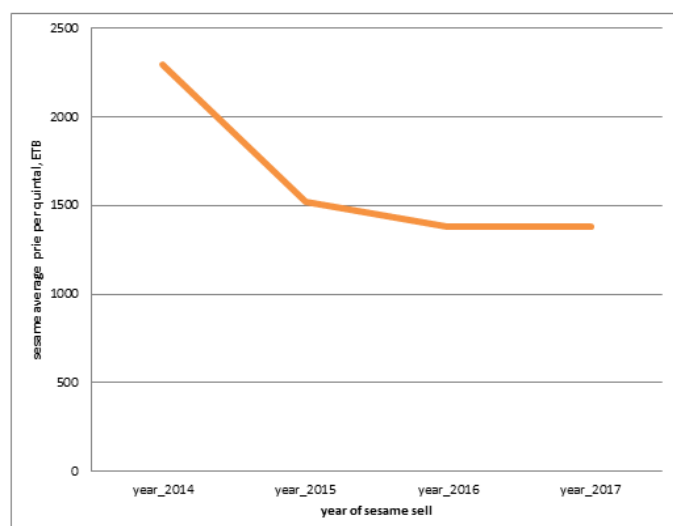
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How to cite this article: Oyka, Endrias. "Market Chain Analysis of Sesame in Melekoza and Basketo Districts ." *Bus Econ J* 11 (2021): 342.