

# **Transaction Costs, Risk Preference and Market Participation - Field Experiments with Value Chain Actors in Ethiopia and Eritrea**

## **Report of a reconnaissance survey**

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## **Introduction**

The International Center for Agricultural Research, International Food Policy Research Institute, International Institute of Tropical Agriculture, Gondar Agricultural Research Center in Ethiopia, and National Agricultural Research Institute of Eritrea are implementing a research project in Ethiopia and Eritrea. The research project is entitled “Transaction Costs, Risk Preference and Market Participation - Field Experiments with Value Chain Actors in Ethiopia and Eritrea.” It is a two years project funded by Policies, Institutions, and Markets CGIAR Research Program [PIM CRP] led by IFPRI. The project aims at:

- Characterizing the chickpea VCs in Ethiopia and Eritrea with deliberate focus on understanding gender gaps,
- Eliciting and quantifying risk perception, preferences, and behavior of the key actors in the chickpea VCs,
- Quantifying implicit prices for different types of market information male and female producers of chickpea are willing to pay,
- Estimating transaction costs in chickpea marketing for male and female producers and collectors, and possible ways to reduce these costs, and
- Estimating the impact of access to market information on market participation and producer prices for male and female producers of chickpea.

The project implementation started with a reconnaissance survey that aimed at characterizing the chickpea value chain in the study areas. The characterization was based on closer look into the key features the key actors and the main activities along the value chain with deliberate focus on those with direct or indirect bearing on the transaction cost of chickpea marketing and the risk behavior of the key actors.

We conducted focus group discussion with farmers, researchers, and cooperatives managers. We also had individual discussions with processors, and traders. The discussions were guided by semi-structured checklists [See Annex 1], which were complemented with issues that emanated from the revelations during the discussions.

The observations made during the reconnaissance survey served as the basis for intervention site selection and for the development of the instruments for the structured survey that generated data on general characteristics of chickpea farmers, their chickpea trait preferences and on their risk perceptions.

This report summarizes the observations made during the reconnaissance survey and presents a general overview of the chickpea value chains in the two countries. We have presented the observations separately for the two countries unless the information is quite similar in both countries. This is a report based on an informal survey with convenient sampling and hence the results can hardly be extrapolated to a bigger or different set of individuals than the ones we talked to.

We will present the observations in Ethiopia followed by those in Eritrea. We have divided the sections based on the sources of information; i.e., different actors in the value chain. The discussions with each of the actors included topics related to production, marketing, and consumption. The challenges identified and the recommendations identified by each actor will also be presented.

## Ethiopia

### Discussion with researchers

#### Chickpea production

The suggested intervention site for the implementation of the project in Ethiopia was North Gondar Administrative Zone. According to the researchers at GARC, Dembia area [previously known as Dembia *Awraja*] in North Gondar is the location with the highest potential in the whole of the Amhara national regional state (ANRS).

Researchers indicated that 18% of the national chickpea production is from North Gondar Zone where 42,000 hectare of land is covered with chickpea; whereas about 25% of the chickpea production in the Amhara region is from *Taqusa* and *Dembia* districts in North Gondar Zone.

Chickpea, sorghum, and teff are the three most important crops grown in the study area. Every farm household grows chickpea every season on different plots. Producers of

chickpea in the area show semi-subsistence orientation as they grow the crop both for home consumption and for cash generation.

Chickpea is usually grown on residual moisture and/or after a season long fallowing of the farmland around the end of September. Farmers mainly use local *Desi* varieties with little attention to weeds and weeding. Plowing frequency for chickpea farming was also indicated to be very low and insufficient. Only recently, it is observed that farmers have started intercropping chickpea with maize, wheat, and barley. There is low level of fertilizer use and limited adoption of improved *Kabuli* varieties (such as *Arerti* and *Shasho*). *Desi* variety is dominant mainly because it tastes better and is of higher demand in the market. Chickpea being the main ingredient of ‘*Shiro wot*’ or the stew with which *injera* ‘the staple baked bread’ is served with, its taste is a critical attribute that consumers carefully looked at. In addition, farmers are less interested in the improved chickpea varieties because of pest and disease risk and the local varieties performance. The researchers revealed that at national and continental levels, *Desi* accounts for most (75-80%) of the production and the balance is *Kabuli*.

There is huge gap between research potential and farm level performance of chickpea varieties in areas where GARC is operating. The difference is both in quantity and in quality of production. In terms of productivity, chickpea has a potential of producing 60 quintals (or 6 tons) per hectare. Research has managed to achieve 30 quintals per hectare. On farmers’ fields, productivity achieved so far is only 14 quintals per hectare. This is a glaring gap indeed. Although the different performance related traits are better for research recommended varieties, *Desi* [the local variety] is still the preference of farmers and other consumers in the area. For instance, the seed size of the *Kabuli* varieties is much bigger than that of *Desi* but because of the inverse relationship between seed size and protein content in chickpea, *Desi* is still the variety farmers are so keen to produce. On the other hand, there is limited international market for the *Desi* varieties compared to *Kabuli* produced within the region.

Researchers indicated that farmers planting time of chickpea is not ‘appropriate’ and does not follow research recommendations. Although researchers did not explain why farmers are doing the plating untimely, they emphasized that none of the agronomic practices of farmers are in line with research recommendations. This was indicated to be one of the reasons why the varieties farmers are growing are of poor quality with shriveled appearance. In relation to planting date, for instance, researcher indicated that farmers are planting *Arerti* – an improved variety – way later than the recommended period and this exposes the crop to disease and moisture stress.

Improved variety adoption is low also because of limited or no supply of seed for the improved varieties. Even when farmers get access to the seed, they hardly grow the improved varieties with the recommended agronomic practices.

### Chickpea marketing

Most of the chickpea production is meant for the domestic market. Yet, any effort to export the chickpea grains to the international market would hardly succeed as the chickpea production yields grain of low quality. Farmers sell most of their chickpea produce between December and January to address the high cash need in the period. The researchers emphasized that chickpea is usually neglected in public research and development initiatives, mainly because it is sown at the end of the so-called cropping season, has undermined the potential of the crop and the benefits producers could have reaped from the crop. In identifying crops for commercialization in the Administrative Zone by the office of agriculture, for instance, chickpea – despite its potential and acreage - was ignored when sesame, malt barley, sorghum, faba bean, wheat and tef were included.

There is no any formal institution or mechanism with which farmers access information on markets and marketing of agricultural products. Farmers visit the markets themselves as often as they can and/or communicate with fellow farmers who have visited the markets. Some farmers also make phone calls to traders to learn about the markets. Farmers of interest to farmers in Dembia area are *Kola Diba*, *Chuwahit*, *Robit*, and *Aberja*.

The only formal source of information mentioned by researchers was Tsehay Cooperatives Union. The Union has about 44,000 member farmers. They purchase chickpea from cooperatives. The Union provides information to farmers on production and marketing related issues. We learned in this survey that Ethiopian Commodity Exchange has decided to include chickpea in its operations that aim at smoothing prices for crop farmers.

#### Collective action in chickpea production and marketing

Tsehay Cooperatives' Union is an active and strong Union with a noticeable presence in the area. The Union provides seed for the farmers and collects the grain yield. The Union indicated that the demand for Desi [local] chickpea is very high in the international market – particularly Turkey - and the current production is way below the quantity demanded and the quality standards in some cases.

Farmers operate individually in selling and/or buying agricultural produce. Limited marketing happens through the farmer cooperatives that are mainly under the auspices of Tsehay cooperative union. Some smart farmers do collect crop grains from individual farmers and bring it to the market in bulk trying to make profit from supplying at scale.

#### Challenges of chickpea identified by researchers

##### Production challenges

The key challenges of chickpea production include susceptibility to wilt, root rot, cutworm and African ball worm. Pesticides were reported to have been available but their efficacy and use was described as irregular and unscientific. Another important challenge is lack of seed of improved chickpea varieties. For instance, although *Belessa* and *Habru* [two improved] chickpea varieties are in high demand. The other important production challenge is limited practice of land and crop rotation. Land rotation implies growing the same set of crops on different plots of land and crop rotation implies growing different crops on the same plots of land.

##### Marketing challenges



Forced marketing immediately after harvest in December to January. The oversupply of the agricultural produce results in price going down and hence lower income from crop sales. Farmers do complain about the unfavorable price but have little or no option.

#### Recommendations made by researchers

- Establishing guidelines and frameworks for proper application of pesticides and other chemicals.
- Creating awareness and encouraging farmers to use recommended agronomic practices. Particularly, land preparation seems to be an important activity that is not being done as per the research recommendation. This poor land preparation culture is indicated to be another reason why pests and diseases are rampant in chickpea production. Crop rotation is also needs as much emphasis to improve chickpea production and productivity.
- The seed systems need to be improved to enhance the level of adoption of improved chickpea varieties. Developing new varieties is not going to help farmers in anyway unless the seed system is good enough to create the access to farmers.
- The extension system needs to have a clear agenda for or around chickpea. The low-level attention to chickpea research and extension explains part of the huge gap between the crop's potential and the crop's performance on farm.
- The agricultural research system needs to be strengthened. Despite the potential for chickpea production in the area, the foundation seed for chickpea is acquired, only when possible, from Debre Zeit. Generally, research and extension capacity in the area needs to be strengthened so that the dynamic and complex challenges of farmers are well understood and addressed.
- The agricultural chemical supply system is so inefficient and corrupt. Provision of expired and adulterated chemicals and lack of awareness of the rate and frequency of application of the chemicals characterize chemical supply system in the chickpea producing areas of the zone. Tsehay Union is willing to provide the chemicals to farmers but wants to have a solid needs assessment with demand forecasts documented. Most of the chemicals currently in the market are expired. Woreda

level experts and extension officers do not know which chemicals are meant to deal with which disease or pest.

- Strengthening cooperatives with comprehensive functionalities including warehousing service, information provision, equitable dividend distribution, and rural financing. Market information system needs to be put in place to help farmers make informed decisions.
- Post-harvest loss is an important challenge farmers are facing and interventions need to be designed to reduce it. In addition to the dire cash needs farmers have, due to its high protein content, chickpea is vulnerable to storage pests and hence farmers tend to sell it immediately after harvest. Any intervention that would enable farmers to avoid this forced selling will help them earn more from their production. The storage facilities farmers use to store chickpea were also indicated to be not appropriate to keep off storage pests or diseases.
- Capacity building of farmer cooperative needs to be given due emphasis especially in the areas of book keeping, resource management, and marketing. They also need help in setting up and managing storage facilities.
- Identifying the key challenges faced by and strengthening the capacity of the different actors along the chickpea value chain would create better linkage and performance at an actor and at value chain levels.
- Carefully designed market interventions need to be tested and implemented to narrow the huge gap between producer and consumer prices.

### Discussion with farmers in *Dembia*, North Gondar

#### Chickpea production

We talked to a group of 11 farmers where three of them were female in *Fendika* – the administrative capital of the Kebele administration named the same. Farmers indicated that each household in the area grows chickpea to a different extent. The main purpose of chickpea production in the area is for cash generation purpose through selling in the domestic market. The importance of chickpea was clearly revealed with a saying that goes “*the kitchen will not be a real kitchen without chickpea in it*”.

Farmers indicated that the ‘*nech*’ [white Kabuli] chickpea is grown for selling and the ‘*key*’ [red Desi] chickpea for home consumption. Farmers produce Kabuli chickpea for marketing mainly because of the better price compared to Desi and the poor quality *shiro* [ground chickpea used to make the staple stew] it can yield.

Comparing Desi and Kabuli, farmers consider the latter to be more rewarding in the markets and has clear appeal to the export market. Accordingly, it is growing in importance [in terms of acreage] in *Dembia* area. Farmers have high and growing interest in growing Kabuli chickpea. However, the lack of seed is a formidable challenge that has barred them from producing more since they started growing Kabuli three years ago. The office of agriculture was able to provide seed only to one of the 12 villages of the Kebele in which we held the discussion. Farmers are not still sure about the potential of Kabuli chickpea and yet seem to have a considerable interest in the varieties they have tried so far.

Seed production was tried in the area by the office of agriculture on about 90 hectares of land. The seed was grown along the main road and farmers reflected that the whole effort was about impressing officials than availing seed at scale. Farmers get chickpea seed mainly from fellow farmers and extension agents. More often, however, the office agriculture does not provide the seed and farmers usually wait for a season to get it from their fellow farmers.

Farmers were able to describe the distribution of grain yield per unit area for both Kabuli and Desi types. The table below summarizes farmers’ estimations of the grain yield level (Table 1).

Table 1. Farmers' estimates of chickpea grain yield distribution in Dembia, North Gondar

	Yield [kg/ha]
Desi	
Low	720
Medium	900
High	2040
Kabuli	
Low	480
Medium	900
High	2400

Currently, farmers are not using fertilizer for Desi chickpea. They use limited amount of fertilizer for Kabuli chickpea production. The main reason for not applying or limited application is lack of purchasing power.

#### Chickpea marketing

The closest markets farmers sell their chickpea grain are *Fendika* [their own village market] and *Chuwahit* – the primary market, which takes 30-60 minutes in walking from *Fendika* Kebele. All farmers in the group indicated that selling the chickpea grain they take to the market has not been an issue yet. The market demand is dependable and farmers are happy with the price they have been receiving for their chickpea in *Fendika* and *Chuwahit*.

The quantity farmers take to the market at a given point in time depends on their cash requirement and rarely take all their produce to the market at once or in bulk. This is essentially because farmers consume part of the produce and their cash needs are apparently spread over the year.

Farmers gather market information [on price, buyer type and number, etc.] on our own in the markets we visit. Usually, farmers ask for the price on the date they plan to bring the grain to the market. Farmers compare prices among the different buyers and clearly notice that usually farmers and cooperatives offer different prices for the same quality of

chickpea. Farmers believe that traders take advantage of their lack of market information. Farmers admitted that they have usually no idea about the level of demand and supply when they decide to go to the market to sell their produce.

Farmers indicated that traders could resell what the chickpea grains they purchased from them with a price of 100% higher than they paid. Farmers' market choice is very sensitive to the price level and a price of 1.00 or 0.50 birr more per kg would certainly affect their market choice as admitted by themselves.

While explaining the causes of the glaring gap between their selling price and the price they purchase chickpea grain, farmers emphasized:

- Their illiteracy and inability to understand how the market functions.
- Their lifelong challenge of trying to do too many things with limited resources.
- Lack of economic strength [their own way of describing what we call 'poverty']
- Livelihood pressure forcing them to sell their produce not necessarily at the right price.
  - Dire cash need is forcing them to sell their produce cheaply and buy with higher price when they have to purchase the grains. Farmers however indicated that they rarely purchase chickpea for consumption purposes.
  - Stringent loan repayment schedule of the rural saving and credit service provides is also forcing us to sell cheap.

Farmers do not have any collective action aimed at maximizing their returns from their chickpea produce. They make their marketing decisions individually and go to the market on their own.

#### Challenges farmers face in chickpea production

- Seed scarcity – there is lack of improved chickpea seed. Interestingly, the agricultural extension system hardly supplies any seed to the farmers and if farmers purchase seed from the market, they will be denied all kinds of support from the agricultural extension office.
- Lack of farm inputs [chemicals, fertilizer, etc.].

- Pesticides, herbicides and other chemicals farmers are given are not of the required standard. Farmers are aware of this. The chemicals have no efficacy and have considerable side effects often. In addition, the chemicals, despite their lack of efficacy, are supplied with limited quantity.
- Pest and diseases.

#### Challenges farmers face in chickpea marketing

- Lack of contract enforcement mechanism. Chickpea farmers in this location had a contract farming agreement with Tsehay Union and yet received less price for the Kabuli chickpea seed they produced than they were expecting as per the agreement.
- Lack of warehouse system or institutions for future marketing. Farmers indicated that if there is a mechanism by which they will be able to store or future market their seed/grains, then they will be able to make more from their produces.
- Price volatility – unpredictability of prices in the market and lack of any systematic provision of market information is forcing farmers to make decisions within a considerable level of uncertainty. Price stabilization mechanisms need to be put in place.

#### Specific challenges women farmers face

- Lack of labor – women farmers are forced to sharecrop their farmland as they usually have limited labor at their disposal. This entails paying half of their crop produce to the sharecropper.
- Women farmers also pay additional fees for packaging and transportation for their male counterparts. Once in the market, women and men farmers reported no difference in terms of prices they receive.

#### Cooperatives and Tsehay cooperatives union

- Farmers are not happy with the services rendered by Tsehay Cooperatives Union. Farmers believe that traders are more convenient to work with especially in measuring the quantity of the produce farmers supply to the market.

- According to farmers, the cooperatives are not serving the interest of the farmers even when they bring in commodities for members. The supply is irregular and hardly take the demand of the members into consideration.
- The entire process of dividend sharing was also reported to be very fragmented and not so clearly organized.
- Traders and coop officials collide and vandalize the commodities supplied by the cooperatives. Farmers end up paying more to get some of the basic commodities in the markets that are way far from the residential areas of farmers.

### Tsehay multipurpose cooperatives union (TMCU)

We talked to three officials of the union; i.e., the Acting Director General, the Agronomist of the Union, and the Agricultural Market Division head. We learned from the discussion that **TMCU** has six divisions, a Manager and a Deputy Manager. The union was established in 1999 covering only Alefa Taqusa and Chilga districts with a capital of 36,000 Ethiopian Birr and registered membership of 5 primary cooperatives and 2500 households. The union, then, moved to Gondar and increased its coverage to 10 districts. Currently, it covers 14 districts in North Gondar administrative zone, has a member of 120,000 households, 143 primary cooperatives, 117 permanent and temporary employees, and claims a capital of 102 million Ethiopian birr.

The main purpose of the Union is input supply. It also engages in grain [cereals, oil crops, and pulses] marketing. It purchases grains from farmers, does a bit value addition [cleaning and packaging mainly] and sells it to the domestic and export markets [Europe, USA, China, and Israel]. The Union also works on animal feed supply. Recently, the Union has started agro-processing activities, mainly oil production. The cooperative started working on chickpea in 2013/4 in Gondar Zuria, Dembia, Alefa and Taqusa districts. The activities related to chickpea include seed supply, capacity building, and input supply.

The Union indicated that there is little or no information on chickpea production and marketing structure and patterns. The Union believes that chickpea production is increasing and farmers are more than willing to supply their produce to the Union.

About 25% of the total chickpea production is purchased by the cooperatives some of which are working with TMCU. In 2018/2019, the Union purchased only 1000 quintals of Kabuli and 2600 quintals of chickpea. Apparently, this is very little but it was not clear what proportion this was of the total production. In terms of marketing, it was indicated that the Union is not so competitive in the international market because of the high price it has to pay for the chickpea it purchases in the domestic market. The Union believes that traders can live with the uncertainty of their profit margin whereas the union cannot afford to engage in any marketing with higher uncertainty. The Union is yet to export chickpea. However, it has planned to do so in the near future notwithstanding the fact that the export price of chickpea is much lower than the domestic price.

Ethiopian commodity exchange is to include chickpea as one its crops implying that farmers/cooperatives would have to sell to the exchange right after harvesting. The Union believes that the arrival of ECX is not going to affect its operations. Rather, it expects traders to be affected negatively nonetheless.

Sources of chickpea seed for the farmers in North Gondar were indicated to be regional seed producers and Debre Zeit Agricultural Research Center.

The leaders of the Union emphasized that seed supply is very critical as lack of it is undermining the performance of farmers. Farmers do not have capacity problem to produce good quality seed. Certified seed is sold to farmers at 3000 Ethiopian Birr/100 kg<sup>1</sup>.

Chemical supply is another important challenge the Union is facing and farmers are struggling with. Adami Tulu chemical factory is not willing to sell to the cooperatives in the Amhara region. The manager of the Union went all the way to the Ministry of Agriculture and yet he could not succeed in coming up with a solution for the limited supply. The regional office of agriculture could not do anything about it either.

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<sup>1</sup> That is about 300 US\$ per ton.



There is a serious gap in expertise required and available in the region to practice an efficient use of chemical inputs for crop production. Particularly, there are no experts at district level advising farmers on the efficient use of chemicals. Currently, the Union depends on Ambassel trading for its chemical supply. Ambassel being a profit making business owned by a strong political party, there is no chance that farmers will get the chemicals in fair prices. The Union admitted that it has become very difficult for it to supply chemicals to farmers.

The Union indicated that it needs support on the following:

- Crushing machine for processing the produces it purchases from farmers.
  - To produce *shiro* and crushes of chickpea for instance.
- Before the processing is to be started however the challenges the production is facing need to be addressed.

The critical challenges farmers are facing are seed and chemicals. The Union believes that sufficient effort shall be exerted to encourage model farmers. For example, contract farming. Both farmers and the Union were satisfied with the results of the seed multiplication through contract farming.

Strengthening research support from GARC. TMCU indicated that Gondar research center helps in seed quality checking and quarantine. The Union started its seed multiplication activity in collaboration with Gondar agricultural research center.

The Union has a division working on market information. At district level, the Union has an employee collecting market data on quantity demanded, quantity supplied, and price. Every Monday, the data are analyzed and the information is relayed back to farmers. Ethiopian commodity exchange and the district level data collectors are the ones who generate the data for the Union. The Union believes that daily provision of market information needs to be done if farmers are to benefit from this service.

The need for collective action in chickpea production and marketing. There is high and growing interest in collective action. Non-members know the benefits members of the

cooperatives are enjoying and they crave to join the cooperatives. At TMCU, sense of ownership of the cooperatives by member farmers is quite high.

The collaboration with AgriTera [an international NGO working in Ethiopia] has improved the market performance of the Union as reported by the Union leaders. The collaboration also improved the marketing behavior of the farmers. Agri-Tera had been working on 10 model cooperatives [in Mirab Belessa, Gondar Zuria, Alefa, Taqusa, and Dembia]. They put in place a market information system in 2014/2015 to provide market information to the producers. The system, however, depended so much on internet access and hence had limited functionality.

Bureaucratic hurdles at district level were mentioned as the main reason why the operations of Agri-Tera and hence finally it suspended its activities. The NGO still has an office in Addis Ababa.

Recommendations made by TMCU

- The cooperatives need to be well monitored, supervised, and supported in legal of financial management.
- Training needs to be given to farmers and experts in a structured way.
- Research support is needed on chemical application and disease management.

#### Discussion with a processor in Gondar city

The woman chickpea processor we talked to started processing chickpea and marketing in 2007. She processes [clean, ground, or crush, and pack] 3 to 4 quintals of chickpea per month. This is equivalent to 3.6 to 4.8 tons of chickpea per year. The cost of the chickpea grain is the most limiting factor for her to expand her business. Otherwise, she has the capacity to process up to 20 quintals of chickpea per month.

She and other processors buy the chickpea grain from the traders as farmers do not bring it to the big towns and sell their chickpea grains. The Processor indicated that there is lack of chickpea in the market with the required quality. There is reliable and stable market for the processed chickpea in Gondar town.

The processor talks to different traders to learn about the price of chickpea in the market. There is a mutual trust between this processor and the traders that the information they share is correct and precise. The quantity of chickpea supplied by traders depends on the season and the level of production thereof. It is not easy for processors like this woman to get reliable information on quantity demanded and supplied in the market.

#### Challenges and recommendations made by the chickpea processor

- The chickpea produced in the area needs to be supplied to the nearby markets before it is transported to others.
- The farmers and traders need to take into account all actors in setting the price. Currently, the price of chickpea is increasing and something has to be done to lower the price.
- There is a problem of adulteration of the grains supplied to the market.
- The processor believes that government shall intervene in setting the price.
- It is important to encourage farmers in high potential areas to supply their chickpea produce to the Gondar market.
- We need to get support [in terms of capacity building] on:
  - Product quality management
  - Working space – many of us do not have enough space.
  - Accessing enough amount of grains for processing
- The processor indicated that she pays for Desi chickpea 17 Birr per kg when cheap and 23 Birr per kg when expensive.

#### Discussion with a trader in Gondar City

We talked to a male cereal trader who has been in the business of chickpea trading for six months. The trader believes that retailing is more rewarding than wholesaling or selling in bulk. The trader receives his chickpea merchandize from other rural traders and collectors. The collectors and rural traders are mainly from Maksegnit and Dembia areas and they bring it to the market Gondar city to the trader in person. The trader indicated that the collectors and rural traders that supply chickpea to him and other

fellow traders are very few in number. The trader indicated that they rarely buy from farmers directly.

The trader is not happy with the quality of the chickpea he is receiving. He indicated that he depends entirely on the collectors and rural traders to get him the best quality chickpea and yet they can only choose from the chickpea supplied to the rural market in the areas indicated above. In addition, the lack of capital might also force the rural trader and collectors to buy the low quality chickpea. Low quality chickpea does not get traded in time and stays in store for long - undermining the liquidity of the traders.

Storage capacity is not a problem for most of the traders according to the trader we talked to. He indicated, however, that for well established and big traders, storage could be a problem as they buy in bulk for immediate and long term trading.

Traders discuss among themselves about chickpea price paid to the different types in the different markets including the one they are in and the big ones such as Bahir Dar and Woreta. Yet, traders do not know the quantity demanded and supplied in any of the markets. The trader believes that it would be very useful in managing their activities if they were able to get market information.

The chickpea supply chain up until Gondar city is: farmers to local traders/collectors then to collectors/traders in big towns and then to traders in big town. In fact, traders in big towns do purchase from local collectors and traders directly as well.

In terms of the chickpea variety in demand, the trader indicated that Kabuli is hardly traded in grain form and has to be crushed if it is to be sold. Desi is the variety that consumers prefer in both grain and crushed forms. The trader sells both grain and crushed/processed Desi and processed Kabuli in his store. He does not do the processing and depends on processors in town. The processed chickpea's main buyers are interestingly other traders and collectors who take it to other markets in bigger cities or neighboring countries.

The trader discussed the price range for the two types of chickpea. Desi chickpea price ranges from 19 to 25 birr per kg of grain and Kabuli price ranges from 25 to 27 birr per kg.

The key challenges the trader emphasized are limited supply of chickpea because low production and lack of transportation infrastructure.

## Eritrea

### Discussion with researchers

#### Chickpea production

The discussion at the national agricultural research institute (NARI) of Eritrea with officials and researchers indicated that there is little or no information on the characteristics of the chickpea value chain. The Director of NARI made his interest clear that description of the value chain would be more useful than any specific and advanced production and/or marketing study. Yet, the DG appreciated the relevance of the study in general as there has never been anything done on the production and marketing of chickpea in Eritrea. Specifically, he wants researchers to focus on identifying the different chickpea varieties under production. He believes that there is difference among the varieties from the consumers' perspective, for example, in terms of quality of *Shiro*.

NARI researchers indicated that the main chickpea growing areas in Eritrea are South Zoba and lowlands of Eritrea. The Zoba has 12 sub-zobas. Eight of the 12 sub-zobas are chickpea growers; namely, Adi Quala, Areza, Deqe Mehari, Duba Roba, Emni Haile, Emainy, Mendefera, and Tsorena. Office of agriculture staff prioritized Adi-Quala, Emni Haile, and Mendefera as the three most important chickpea growing areas.

NARI also highlighted the importance of capacity building as the single most important priority of the Eritrean agricultural research system. NARI has 6 stations and all of them are understaffed and underwquiped. The centers are:

- Hagaz – 25 km from *Korem* focusing on pearl millet.
- Aqordat – focusing on fruit research.
- Golij
- Shiib – focusing on sorghum, maize and cotton.
- Gahtelay – focusing on date palm.

- Halehale – NARI head office and a center for highland and midlands of Eritrea.

The GoE has a policy in place that forces farmers need to grow cereals, oil crops and pulses on 50%, 25% and 25% of their land in a given cropping season. Farmers are, however, not growing crops using this proportion yet because of many household level and macroeconomic challenges.

The price of chickpea [*ater* in Tigrigna] is quite high and varies from season to season. It goes up to 60 Nakfa/kg. It is very expensive in any standard. He indicated that demand is not a problem as far as legumes are concerned. It is the supply which is a challenge to Eritreans.

Researchers of NARI also indicated that food legume research has been ongoing for more than 20 years. Chickpea is one of the key legumes produced and consumed in Eritrea. The productivity of chickpea per unit area is, however, very low. As a result, the price of chickpea remained to be very high [40-60 Nakfa/kg] up until the recent opening of the border with Eritrea<sup>2</sup>.

Challenges in chickpea research, production and marketing according to NARI include:

- Terminal drought at critical stage of the plant development and erratic distribution of rain [early setting and early cessation].
- Lack of support for the seed production system. The seed system in Eritrea is very poorly organized and in some cases non-existent. Seed multiplication and dissemination are underfunded. Chickpea seed request is quite persistent and high from the Zonal offices of agriculture. NARI needs support to produce foundation seed and improved varieties.
  - NARI and ICARDA have collaborated for about 6 years [2005-2010] on participatory research whereby seven varieties were developed. The varieties

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<sup>2</sup> Right after the survey, the border was closed once again.

are, however, not available to the farmers because of lack of funding to undertake foundation seed production and demonstration trials.

- De-prioritization of chickpea. It is evident that farmers give less priority to chickpea in terms of land allocation. Farmers give priority to cereals and chickpea is usually grown on the marginal plots.
- Lack of capacity. NARI has very limited capacity in terms of both human power and germplasm. It was indicated that NARI has large number of ICRISAT material and they are keen on having ICARDA germplasms as well.
- Lack of farm input supply. Farmers are continuously asking for improved chickpea varieties and other farm inputs. They are hardly provided with the inputs though.
- Researchers indicated that farmers complain about the level and variability of chickpea price. Farmers also have serious problems related to post harvest management and storage of chickpea grain.
- NARI also expressed interest in financial assistance for legume germplasm collection. Eritrea's legume germplasm collection is not yet complete as large portions of the country were not covered when collections were done previously. Germplasm collection did not happen for the last 10 years to any meaningful extent. Only in 2014, SIDA funded collection but it was interrupted for no so clear reasons.

#### Discussion with farmers

##### Chickpea production

We conducted a discussion in a locality called Eminehaile in Dirko Sub-zoba with a group of four women and eight men. The discussion showed that all farmers in the area grow chickpea. The purpose of chickpea production is both for home consumption and cash generation. Women farmers indicated that most of their chickpea production goes to the market and as the production level increases, so does the proportion that goes to the market.



All farmers grow one type of chickpea and they call it “*key ater*”, i.e., Desi. Farmers have tried Kabuli varieties but they could not get any meaningful grain yield despite the impressive level of vegetative growth. Farmers have their own ways of differentiating chickpea varieties. There is a difference among the types of chickpea produced such that depending on the moisture content in the soil, the chickpea quality varies. The grain size is also important in differentiating the chickpea grain although the variety is the same. The productivity of chickpea was indicated to be quite low ranging only from 2 to 12 quintals per day.

### Chickpea marketing

*Adi Quala* and *Mendefera* are the two markets where farmers undertake their chickpea transaction. Most of the time farmers walk on foot to the markets. The markets set on Saturdays, and both markets are three hours far from their residences. Both men and women take chickpea grain to the market simply based on convenience. This actually varies from village to village depending on the distance to market. If it is too far, the men take the grain to the market. If it is nearby, both men and women take the grains to the market. The roles also interchange based on the tasks they are undertaking. If men are busy with something, the women will take the grain to the market and vice versa.

If they find buyers willing to pay the expected price, farmers sell the chickpea on the spot. If not, they keep it with relatives living close to the market in some cases with payment. If they are desperate for cash, they will sell it regardless of the market price. Price in chickpea markets is discovered through negotiations. Farmers compared men and women in terms of negotiation skills and indicated that the women are much better in bargaining in chickpea markets as sellers. The reasons were indicated to be first men do not have the patience to stay in the markets for long, and second the women care about every penny and are very frugal in spending it.

Farmers seem to be happy with the high market price they have been fetching before the border between Eritrea and Ethiopia opened. Before the border opened, a kilo of chickpea fetched up to 80 Nakfa per kg. After the border opened, the price went down

to 15 Nakfa/kilo. Although farmers showed unhappiness due to the drop in the price of chickpea, they seem to be quite content with the fact the price for the crops they are not growing has also gone down. As we indicated above the border is not open anymore. Farmers usually take their chickpea in portions than bulk as selling decisions are usually driven by immediate cash needs of the family.

Farmers emphasized that traders are the ones who dominate the chickpea market. They declared that they rarely sell to consumers directly. Farmers seem to have no options in the market and hence are at the mercy of the traders. Both male and female farmers feel that they are being ripped off by the traders in the market because of lack of options and their dire need for cash. There are no brokers in the chickpea markets according to markets. Brokers were indicated to be quite common in livestock markets.

Farmers not only produce and sell chickpea. Usually, whatever they produced is consumed and that will be it. Sometimes, however, they purchase chickpea from within the villages they live in and the two markets mentioned above; i.e., *Adi Quala* and *Mendefera*. On average, farmers buy chickpea twice per year for consumption purposes. Farmers in the group we talked to do not purchase chickpea in the market for reselling purposes. However, farmers indicated that they do practice bartering in addition to regular selling.

Farmers indicated that the price they sell with is much lower than the price they pay for chickpea in the markets. They admitted that they are not happy with the considerable gap between the two prices. Farmers suggested establishing government owned shops for chickpea so that they will be able to compete against the traders and help smooth the price.

Farmers indicated that they try to collect information and make use of it to make marketing decisions. They indicated that they often go to the market if they hear that there is 'high' price in the market. The only source of market information for the farmers is, however, only other fellow farmers. There is little information that farmers can have access to and usually they ask only about the price in the market. They hardly

ask about the market demand and market supply of chickpea or any other commodity they plan to sell. They seem to notice this information gap and have a local adage that goes with it. The adage goes as [*in Amharic*] “ደግና ገበያ ሳይገናኝ ይኖራል!” This roughly translates to “The poor and the market never have the right moment together”.

#### Collective action

There is lack of collective action in chickpea marketing among the farmers we talked to in Eritrea. Farmers tend to visit markets individually than in groups. They might still go in groups but only until they get into the markets as they usually carry different crops or different qualities of the same crop.

#### Challenges in chickpea production identified by farmers:

- Pests and diseases
  - Bollworm – especially the one which happens during pod formation.
  - Rust
  - Cut worm
  - Humidity
  - Seed shortage – farmers could not underutilize their farmland due to lack of sufficient chickpea seed.
  - Lack of pesticide, and
  - Labor shortage.

Women farmers emphasized the last three challenges and the last one was indicated to be a unique challenge for women farmers. The first four challenges were considered to be important by male farmers.

#### Challenges in chickpea marketing identified by farmers:

- The market disincentive whenever they produce more. This is the law of supply farmers are grappling with. Higher production almost always ends up undermining the market price.
- Lack of transportation facilities/services as the markets are quite far.
- High transaction cost due to poor physical access to the markets and the storage costs that farmers need to pay if they have to postpone their selling decisions.

- For women, specifically, transportation and other physical tasks are quite difficult for them and hence they end up paying more for the same quantity of chickpea grain.

#### Discussion with a trader in Mendefara area South Zoba

We also talked to an experienced trader in Mendefera town of South Zoba, Eritrea. The trader described that the good markets happen in January is when the prices for grains is quite low. Traders are happy during this time of the year as they would be able to sell more [due to increased quantity demanded]. The trader openly discussed the pleasure they have in lower prices for grains in the market. He indicated that traders have families and relatives and therefore no trader sells everything that he needs for his own family or relatives implying that he/she depends on the market to sustain his/her family like any other household. In addition, traders will normally be happy when their neighbors are able to feed their family and therefore avoid going to sleep hungry. This is interesting as we tend to think that traders always craved for higher prices for the commodities they transact.

The trader does not think that there are different varieties rather he believes that the difference is due to the type of soil they are grown on. He believes that red chickpea comes from production on red soil and black chickpea from production on black soil. The trader however indicated that there is no difference in terms of price. Before the border opened, the price of chickpea was 7000 Nakfa/100kg. After the border opened, the price has gone down to 1500 Nakfa/100kg. The trader is quite happy with the low price. Unfortunately, the border did not last long opened.

The traders in Mendefera have asked for sheds and stores in the market for years and yet nothing has ever been done. The traders believe that if the sheds are built, the grains will be healthy and more edible, the traders and the buyers will be safer, and traders will have a better discipline in the markets. The trader believes that the market facilities can be made available by the public or the private sector. If the private traders were given the plots in the markets, they could make the facilities available in the markets. The trader is, however, more in favor of the government to make the facilities

available simply because the government owns the market plots and can easily enforce markets codes of conduct.

The traders seem to be content with the tax system not only in relation to chickpea trading, but also in all agricultural product marketing. Traders pay no taxes on the amount of chickpea they market during the transaction. Whatever tax they pay is paid at the end of the year as part of the income tax.

After the opening of the border price of chickpea has gone down significantly and it ranges from 15 Nakfa/kg around January to 20 Nakfa/kg in September. The trader indicated that market information is scarce and hence they work within an environment of uncertainty. They depend on their friends and acquaintances to generate market information. Traders know that farmers do employ the same technique to generate information and come with to the market with some idea as to what is happening.

The trader indicated that farmers supply very good quality grain given their limitations. He emphasized that farmers take good care of their produce. Traders prefer farmers to bring their products in groups and collectively than bringing products to market in small portions at individual level. Farmers tend to bring their products individually and in portions mainly because their marketing is driven by immediate cash need. The trader believes that bulking is most likely to reduce price of chickpea as it might end up in mixture of different qualities and, yet, he considers it to be a challenge to farmers.

The trader has clear suggestions to improve chickpea marketing. That is:

- Production needs to be increased so that supply increases and price goes down.
- The farm households need to be assisted to enhance chickpea production.
- The government shall focus on the supply side of the market than on the market control system.

#### [Discussion with chickpea processor in Asmara city](#)

The last discussion we had was with a lady who sells processed and unprocessed chickpea in Asmara city, capital of Eritrea. She started processing chickpea and other

crops some 30 years ago. She currently has a capacity of processing 4-5 quintal [0.5 ton] of chickpea for 6 months.

She indicated that she is quite satisfied with the quality of the chickpea grain she is buying from her suppliers – mainly traders. She indicated that she processes chickpea from within Eritrea, Ethiopia and Dubai. Ranking in terms of value and suitability for the food types they are used for, the processor indicated that the Eritrean chickpea is the best and the one from Dubai is the worst. The processed local chickpea [in the form of ‘shiro’] fetches a price of 60 Nakfa/kg whereas the one from Ethiopia fetches 35 Nakfa/kg. The chickpea imported from Dubai is used for bread making only. The processor buys almost entirely from traders and rarely from farmers.

There is an interesting trust between processors and traders of grain chickpea. The processor believes that traders hardly rip her or any other buyer off as they add up only nominal mark-up that might or might not cover their cost.

Farmers do also retail and charge usually less than traders as there are no brokers in between. The problem with farmers, according to the processor, is that they supply in small quantities and only when they have an urgent need for cash. The processor suggests that so much has to be done in expanding of chickpea production in Eritrea, including in the highlands.

The processor will not be willing to buy bulked or mixed chickpea. Even when she buys, she will pay less than what she would have paid for the least quality in the mix. She prefers small quantity to mixed and expects farmers to continue supplying in small quantities without mixing anything.

The processor finally suggested that interventions are needed to expand demand in the city. Something needs to be done to expand the demand. This thinks that this shall be done through increasing the purchasing power of consumers.

Way forward

The observations in this survey will be used to develop the sampling framework and the instruments for the baseline survey.

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