

000340



Volume IV
ISSN 2306-6873

Proceedings of the 4th Biennial
Conference of Ethiopian
Horticultural Science Society

12 - 13 April 2013
Ambo, Ethiopia



**E
H
S
S**

Status of Potato Export from Ethiopia: An Overview of Potentials and Constraints

Ali Mohammed Oumer^{1}, Berga Lemaga², Chilot Yirga¹
and Gebremedhin Woldegiorgis³*

¹EIAR, Holleta Agricultural Research Center, P.O. Box 2003, Addis Ababa

²Ethiopian Agricultural Transformation Agency, Addis Ababa

³CFC Project Coordinator, EIAR, Holleta Agricultural Research Center, P.O. Box 2003, Addis Ababa

*Corresponding author, E-mail: alioumer@gmail.com

Abstract

Potato is one of the commodities of the horticulture sector which has immense potentials for export. However, until recently export of potato was limited to cross-border markets. Currently, ware potato export to regional and international markets is on the rise in response to demands in world markets. Export of certified seed potatoes, however, is either very limited or non-existent. The value of ware, chilled, frozen and other potato products export increased from nearly 19 million Birr in 2007 to 84 million Birr in 2010. There are challenges as well. Using qualitative methods and secondary data, this paper assesses the potentials and constraints associated with exporting potatoes in Ethiopia. The results show that the bulk of produce is sourced from smallholder farmers while few commercial growers are just at starting. Recently, some investors have started engaging in potato processing. Evidence suggests that sustainable production of quality products, identifying reliable destination markets, managing export costs and stakeholder innovation to link key actors are all critical to promoting potato export. The experiences of the stakeholders' taskforce for the horticulture sector can be applied to the potato sub-sector by, among others, forming a permanent stakeholders' forum such as the 'Ethiopian Potato Council' to accelerate development of the potato export sub-sector. It is time to be proactive in re-orienting potato research and development, including value addition to ensure competitiveness, in export markets in response to the emerging local and global market signals.

Keywords: *potato sub-sector, export market, cross-border market, value addition, stakeholder innovation*

1. Introduction

Ethiopia's agricultural exports have been dominated by a few agro-based commodities such as coffee, leather and meat. Despite Ethiopia's favourable climate for the production of quality horticultural crops such as cut flowers, potato, etc., the contribution of the horticulture sector remained negligible. Recently, the export-oriented horticulture sector in Ethiopia has witnessed substantial growth becoming an important component of the Ethiopian economy (Joosten, 2007). In the horticulture sector, potato is one of the major tuber crops produced largely by small-scale farmers with a prime objective of food. The crop is grown by over one million small-scale farmers throughout the country (CSA, 2011). It is now recognized that the crop can contribute to foreign exchange earnings for the country given the suitable agro-ecology and improved infrastructure development.

This paper is based on secondary data, literature review, semi-structured interviews, and stakeholder meeting. The aim of the paper is to highlight the current status of potato export from Ethiopia and illustrate an overview of constraints restricting exports and potentials for expanding the potato export sub-sector.

2. Study methods

Literature review was used to get an insight of the sub-sector and to design necessary data collection tools. Semi-structured questionnaire were used with respondents selected from the main stakeholders involved in the potato sub-sector in Ethiopia. The interviews were conducted using checklists for different institutions and respondents with a stakeholder meeting held in Addis Ababa on 21 December 2010 (Table 1). The stakeholder meeting was intended to discuss some of the key challenges and opportunities in the production and export of potatoes. Informal discussions with the various stakeholders during the meeting were also used to fill some of the information gaps in the paper. Secondary data were collected from different sources and summarized to illustrate some of the production and export trends over the last few years in the potato sub-sector.

Table 1: List of institutions contacted for the qualitative interviews

List of Institutions contacted	No. of respondents
Ethiopian Institute of Agricultural Research (EIAR)-Potato research program	1
Ministry of Agriculture and Rural Development (MoARD)-Phytosanitary Inspection and Certification unit	1
Ethiopian Investment Agency (EIA)	1
Ethiopian Horticulture Development Agency (EHDA)	3
Ethiopian Horticultural Producers and Exporters Association (EHPEA)	2
Ethiopian Seed Enterprise (ESE)	2
Ethiopian Quality and Standards Authority (EQSA)	1
USAID-Agribusiness and trade expansion unit	1
Ethiopian Development Bank (EDB)	1
Total	13

3. Results and Discussion

Production of ware potatoes in Ethiopia

In Ethiopia, both seed and ware potatoes are widely produced by smallholder farmers. Potato is grown throughout the country but production is concentrated in the central, the eastern, the north-western and southern Ethiopia (Hirpa *et al.*, 2010). The major growing zones in the central area are West Shewa and North Shewa, mainly in the vicinity of Holetta Agricultural Research Centre (HARC), where about 10% of the potato farmers are located. Potato growers in the area have access to improved varieties and crop management practices. However, the average potato productivity in this area ranges from 8 to 10 tons/ha, which is low compared to 30t/ha that can be achieved by farmers with improved varieties and management practices but slightly higher than the productivity in the north-western and southern Ethiopia.

The eastern area mainly is mainly the East Harerge zone, constituting only 3% of the potato growers. With the exception of farmers in the vicinity of Haramaya University, most producers rely on local seeds. However, the production is market-oriented targeting the major urban centres of Harar and Dire Dawa as well as export destinations such as Djibouti and Somalia. Potato productivity is comparable to the

central highlands due to the use of irrigation and better agronomic practices driven by better market demand.

The north-western area of potato production is the major belt of potato growing area constituting about 40% of potato growers in Ethiopia. The major potato production zones in the north-western area include South Gonder, North Gonder, East Gojam, West Gojam and Awi zones. Potato producers in this area mainly depend on local varieties and traditional management practices. Consequently, potato productivity is only 7 to 8 tons/ha.

The southern area is the second most potato growing region in the country constituting 30% of the potato growers in Ethiopia. The southern area includes Southern Nations Nationalities and Peoples Regional States (SNNPRS) as well as adjacent zones of Oromiya region. The major production zones are Gurage, Gamo Goffa, Hadiya, Wolaita, Kambata, Siltie and Sidama in the (SNNPRS) and West Arsi in the Oromiya region. Potato productivity in this area is low ranging from 7 to 8 tons/ha, and in some places even below 7 tons/ha.

Production of seed potatoes in Ethiopia

The use of clean planting material is one of the most important factor determining the profitability of potato production and potential exportability of the commodity. Three major types of seed potato systems exist in Ethiopia, namely, the informal, the alternative and the formal (Hirpa *et al.*, 2010). The informal seed potato system is the most dominant type, contributing about 98.7% of the seed tubers required by the country (Gildemacher *et al.*, 2009a). In the informal seed system, the seed tubers needed for planting are produced and distributed by smallholder farmers without any regulation. The quality of the tubers is often poor negatively impacting productivity and potential exports (Gildemacher *et al.*, 2009b).

The alternative seed potato system is a system that supplies seed tubers produced by local smallholder farmers through financial and technical support from non-governmental organizations (NGOs) and research centres. As reviewed by Hirpa *et al.*

(2010), community based seed supply systems such as Self-help Development International (SHDI) and FAO seed security project, both in eastern Ethiopia; small-scale farmers research groups (FRGs) and farmers field schools (FFS) in the central and north-western areas of Ethiopia, supported by the Ethiopian Institute of Agricultural Research (EIAR), International Potato Center (CIP) and Regional Network for Improvement of Potato and Sweet potato (PRAPACE) are good examples of the alternative seed system. This system accounts for 1.3% of the potato seed supply in the country, which is currently on the rise.

The formal seed potato system is a system in which seed potatoes are produced by licensed growers. So far, there is no public formal seed potato supply system in Ethiopia. The Ethiopian Seed Enterprise (ESE) is not engaged in the seed potato production. The formal seed potato system is just starting and its contribution to potato seed supply is negligible. Recently, two seed potato cooperatives have been established in eastern Ethiopia and two more are in the process in the central area. However, there is only one private seed Potato Company called SolaGrow PLC in the country.

Production trend of ware and seed potatoes

In Ethiopia, potato improvement research began in 1975 with the objective of developing high yielding, late blight resistant and widely adaptable varieties. Since then, many potato varieties have been released by research and higher learning institutions. Small-scale farmers in the country use some of these varieties for production including Jalene, Gudene, Guassa and Gera.

In the last decade, the country witnessed increase in area coverage, production and productivity of potatoes. Average area, production and productivity of the last decade are 55, 593 ha, 465,173 tons and 8.51 tons/ha, respectively (Table 2). The national productivity, however, remained one of the lowest in the world, and even very low compared to the productivity (>30 tons/ha) that could be achieved using improved technologies in the country. The low yield is attributed to the use of local varieties,

low quality planting materials and traditional crop management practices. It was reported that farmers lose about 14 times more benefit generated by using improved varieties compared to local varieties (Lemaga, 2010). So far, research institutions mandated to generate improved potato varieties are the main sources of modest amounts of starter seed potatoes for different purposes. The statistics by CSA does not make any distinctions between ware and seed potato.

Table 2: Area, production and productivity of potato over the last nine years in Ethiopia

Cropping year	Area (ha)	Production (tons)	Yield (tons/ha)
2001/2	36,736	385,258	10.49
2003/4	54,603	509,715	9.34
2004/5	51,698	509,716	9.86
2005/6	61,812	449,996	7.28
2006/7	73,095	525,657	7.19
2007/8	50,488	402,508	7.97
2008/9	48,113	384,046	7.98
2009/10	69,784	572,333	8.20
2010/11	54,007	447,334	8.28
Average	55,593	465,173	8.51

Source: CSA, 2001-2011

Production of ware and seed potatoes for export

In Ethiopia, potato is mainly produced for the domestic market primarily for consumption. Much of the seed potato is supplied by the informal seed potato system. Recently, in response to the growing urban domestic demand for ware potato and emerging exports to neighbouring countries, modern seed potato producers such as SolaGrow PLC and some cooperatives are emerging. So far, potato export focuses on ware potatoes with little or no seed potato export. The produce is exported in bulk without value addition to neighbouring destination countries such as Djibouti, Somalia and the Sudan. Therefore, the export is more of cross-border market which has low value, price and quality. The bulk of ware potato for this export is sourced from small-scale farmers mainly in eastern and north-western regions of the country due to the proximity of these areas to the destination countries.

There has been a rapid increase of ware potato export over the recent years (Fig. 2a and 2b). Similar trends have been observed with data from the CSA. Specifically, the values of chilled potatoes export have sharply increased in the recent past following the trend in world export values (Fig. 2c and 2d). For example, the value of ware potatoes export increased from nearly Birr 19 million in 2007 to Birr 41 million in 2010. The value of chilled potatoes increased from nearly Birr 116 thousands in 2007 to Birr 42 million in 2010. Generally, the value of potato export (ware, chilled, frozen and other¹ potato products) increased from nearly Birr 19 million in 2007 to Birr 84 million in 2010. The trends show that there is a huge export potential for the crop, which ultimately will have a positive impact on the overall growth of the national economy.

The major export destination countries of potato include Djibouti, Somalia and the Sudan (Table 3). The bulk of ware potato is exported to Djibouti largely from the eastern part of Ethiopia reflecting the importance of cross-border market in enhancing the welfare of both countries. Besides, Ethiopia has recently started exporting potatoes to the Middle East countries such as Yemen, United Arab Emirates (UAE), Bahrain, Qatar and Saudi Arabia. Therefore, these countries could be seen as potential ware and value added potato export destinations for Ethiopia. Given the country's diverse agro-ecological conditions suitable for producing seed potato, Ethiopia could also export clean seed potato to different parts of Africa. As the continued infrastructural improvements within the country and envisioned improved pan African roadnetworks, Sub-Saharan African countries would be potential seed potato export destinations for Ethiopia.

¹Other potato products include potato flour, meal, powder, potato flakes, granules, starch and preserved potatoes.

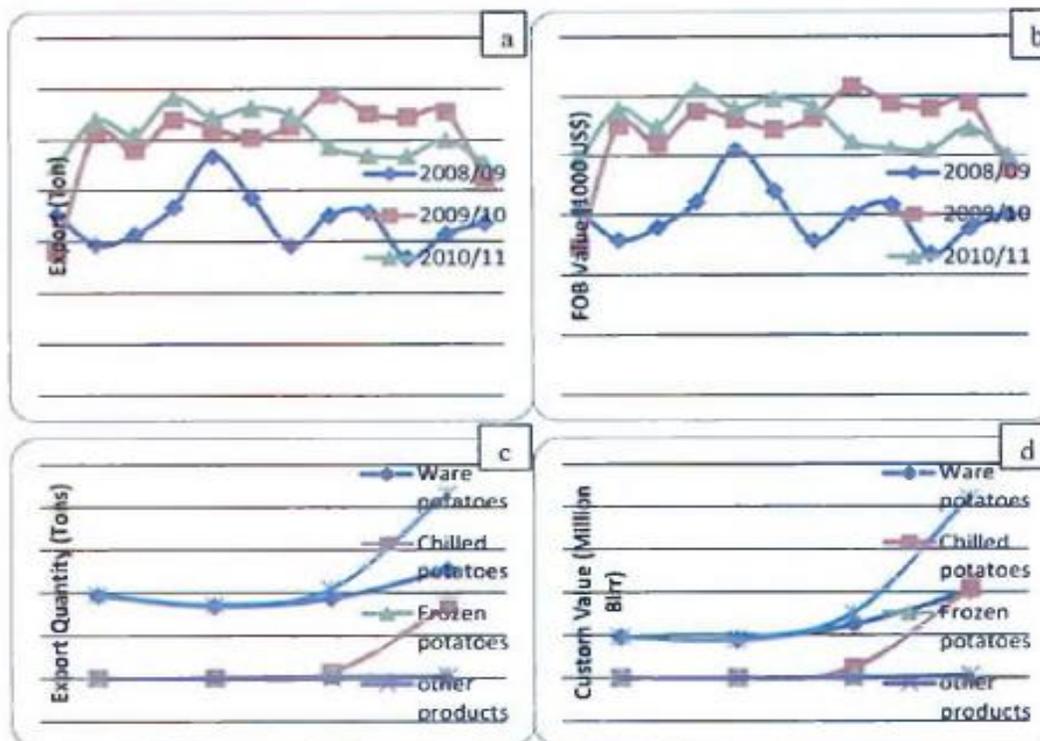


Fig. 1: Potato export trends in the recent past: a) quantity of monthly exported potatoes, b) value of monthly exported potatoes, c) quantity of ware, chilled, frozen and other potato products exported, and d) value of ware, chilled, frozen and other potato products exported from Ethiopia. Source: Calculated by Authors from EHDA data (Fig. 1a and 1b) and CSA data (Fig. 1c and 1d)

Table 3: Major export destination countries for Ethiopian ware potatoes

Country of destination	Export of ware potatoes (Customs Value in Thousands Birr)			
	2007	2008	2009	2010
Djibouti	19,127.21	18,123.14	25,396.32	40,970.36
Somalia	-	4.15	7.00	35,473.13
Sudan	93.05	-	4,715.42	6,322.66

Source: Calculated by Authors from CSA data

Despite positive trends in exports and large volume of potatoes produced in Ethiopia (Table 4), the share of export is very small, just less than 5% between 2007 and 2010. Analysis using FAOSTAT data indicated similar results. Although this paper is limited to analyse the quantities of potatoes consumed in the country, it seems that

large production of potatoes goes to local markets, particularly where cross-border market is not possible due to the geographic location of the production areas. Potato is a food security crop. However, the current export trend shows that potato a potential to fetch foreign currencies as well. This calls for the need to re-orient smallholder farmers towards market through support in similar ways to the horticulture commercial farms, as smallholder farmers do have the largest share of potato production in the country.

Table 4: Potato production and export trends of Ethiopia

Year	Production (tons)	Export (tons)	Export (%)
2007	402,508	9,744	2.4
2008	384,046	8,576	2.2
2009	572,333	10,420	1.8
2010	447,334	21,318	4.8

Source: Calculated by Authors from CSA data

Although, Ethiopia's potato export is rapidly increasing, the country also imports small amount (Table 5). Major potato importers in Ethiopia are high star hotels, which look for high quality potato products. As shown in Table 5, though small in absolute figure, imports tend to show an upward increase signifying the need to locally provide quality potato products. Rapid population growth and urbanization in the country is more likely to increase the demand for processed potato products. Urbanization is also expected to rise in SSA which is an opportunity for processed potato products. For example, the current 34% of SSA urban population is expected to reach 47% by 2015 with the highest rate of urbanization in East Africa (Lemaga, 2010). Therefore, it is crucial that the country benefits from potato sub-sector through value addition in the agro-processing sector.

Table 5: Potato import and export trends of Ethiopia

Year	Export		Import	
	Quantity (tons)	Trade value (US \$)	Quantity (tons)	Trade value (US \$)
2006	61.3	13,219	75.85	145,440
2007	19,449	4,301,618	85.98	205,016
2008	17,029	3,744,286	508.35	455,969
2009	20,493	5,143,961	110.59	233,587
2010	42,571	13,066,043	149.16	347,134

Source: UN Comtrade/HS data © United Nations, 2009

Constraints and potentials of the potato export sub-sector

The sub-sections provide a short overview of the main issues and focusing on the key constraints and potential improvement options for the sub-sector (Table 6).

Regulatory body: A successful potato export sector undoubtedly would benefit from a regulatory body capable of discharging its role and responsibilities. In Ethiopia, two regulatory bodies, namely, the Phytosanitary Inspection and Certification Unit of the Ministry of Agriculture and Rural Development (MoARD) and the Ethiopian Quality and Standards Authority (EQSA) are responsible for issuing phytosanitary certificate and quality standards regulation, respectively. Our analysis showed that the regulatory issues are not that trade barriers once a framework for potato export development plan is set and producers meet international quality standards.

Export development plan: To date, Ethiopia does not have an export development plan specifically targeted at seed and ware potatoes. Nevertheless, the country has developed an export-oriented development strategy for horticulture sector as a whole (Joosten, 2007). The strategy has had an enormous positive impact on the horticulture sector; thus the potato sub-sector can be integrated in this strategy. A "Horticulture Development Agency" has been established to effectively implement the export development plan of the horticulture sector. The agency is the core governmental body linking stakeholders in the horticulture sector with various government and private intuitions. The horticulture export development strategy, therefore, could

easily be reviewed in order to include the specific requirements of the potato export sector. At present, some commercial farms have begun exporting ware potatoes to the Middle East. The agency advises these farms in their export plan, however, do not provide direct support to small-scale farmers for the mere fact that the export development strategy is not focused on smallholder farmers. Furthermore, cross-border potato exports have received little attention as it is considered informal.

Value addition: So far, development efforts in potato were targeted at increasing production and productivity through the promotion of high yielding and disease resistant potato varieties and better management practices. The attention provided to meeting quality requirements, however, was very marginal. Although potato processing is almost nil at the moment, it would be difficult to get a quality potato needed by processors. This warrants the need for value addition especially when new potential destination countries are emerging. Recently, there are 25 private investors² registered, most of them are engaged in potato processing and other related business. Yet only three of them were reported to be operational at the time of this study. This recent development is one step forward for the potato sub-sector; it signals potato actors to consider market (both local and global) facilitation, in addition to improving production. This is because well developed local markets lead to regional and international markets.

SWOT analysis of the Ethiopian potato export sub-sector

Review of the relevant literature, discussion with stakeholders and a strength, weakness, opportunity and threat (SWOT) analysis revealed that while there are a number of constraints that need to be resolved, a lot of opportunities present for improving policies in favour of increasing potato production and strengthening the export sub-sector.

² The figure is based on data obtained from the Ethiopian Investment Agency.

Table 6: An overview of key constraints and improvement options for potato export

Constraints	Improvement options	Potential actors
There is poor promotion in the potato sub-sector.	Expand promotion activities which are often positive and dynamic. There is a need for stakeholder innovation to attract investment in the sub-sector, including improving links between embassies and exporters. This will attract Ethiopian Diaspora for both processed and seed potato business. Ethiopia can use the already established stakeholder taskforce of the horticulture sector to promote the potato export sub-sector.	EHDA, EHPEA, Embassies
There is a gap in export destination market assessment.	Bridging potato demand and supply, i.e., connecting investors in Ethiopia to destination countries. There is a need to have a detailed scoping study on potato export market assessment to identify the key quality requirements to ensure sustainable export market participation.	EHDA, EHPEA and Ministry of Trade-export promotion service. This public-private partnership might be a good foundation to identify suitable destination markets.
Small-scale farmers who produce the bulk of potatoes do not get enough support compared to the few commercial farms.	Small-scale farmers should be included in the export development plan. This may require strengthening small-scale farmers' capacity through technical, commercial and institutional innovations.	EHDA, EHPEA, MoARD, NGOs
Potato production is fragmented and often difficult to meet the right volume of supply for export.	Establish out grower schemes in the four major potato growing areas, and link these to cross-border market outlets.	Private investors, NGOs, CFC
Value addition and processing sector is almost none-existent.	There is a need to develop the required variety, improve productivity to meet the required quality and volume of produce. It means strengthening the seed and ware potato systems is necessary.	Research institutions-EIAR, Regional research centres, higher learning institutions, and international research institutions
Formal seed potato production is almost none-existent in Ethiopia.	First, identify key market outlets before seed potato production. Second, re-orient Ethiopian potato research and production to export seed quality requirements.	Seed Enterprises, private sectors, NGOs, Research institutions
The value of export through cross-border market is very low, which is associated with poor quality of potatoes and poor export logistics (handling, packing, storage, transport, etc) into the key neighbouring countries.	Value addition; and adjusting production (quality and quantity) through improved varieties and post-harvest management. Out grower schemes can be a good sourcing mechanism to ensure continuous supply and low transaction costs. Clear information flow between actors is needed so that production is planned in response to markets. Developing a specific export development plan for potato may be necessary, which can give directions on what to produce and at what price.	Stakeholders can form a Potato Council in the country

Strengths

Favourable climate and soils: Ethiopia has favourable climate to grow seed potatoes in the highlands. Therefore, it is feasible to export seed potatoes to different African countries using the country's agro-ecological advantage. About 70% of Ethiopian arable land is in the highland areas above 1500 m.a.s.l, which are believed to be suitable for potato production (FAO, 2008). The good soil conditions also mean higher potential for high quality and quantity potato production.

Favourable policy environment: The Ethiopian Government has identified agro-processing as one of the key investment priority areas. Thus the policy encourages investors involved in the export of processed potato products through various benefits including customs duty and income tax exemption for agriculture or agro-industrial investments. The types of incentives available to both foreign and domestic investors can be viewed at (www.ethioinvest.org).

Low production cost: Land and labour are relatively cheap in the country for an intensive potato production. Production costs are not expensive compared to the other commodities in the horticulture sector, such as floriculture and high value vegetables. It requires modern grading system and washing facilities, and it is possible to rent refrigerated containers for storage and transportation. Companies can also minimize inland transportation cost using various cost-effective sourcing mechanisms such as out grower schemes.

Geographical location: Ethiopia has a strategic location at the crossroads between Africa, the Middle East and Asia. This offers the country wide market opportunities.

Public-private sector partnerships: The huge involvement of the private sector in the floriculture sector development can directly translate into the potato export because experience has already been developed. An example is the close collaboration between the private sector (e.g., EHPEA) and the public sector (e.g., EHDA).

Potential for irrigated production: Large production of potatoes at the moment is under rain-fed, but the country has a huge potential for irrigated production provided irrigation infrastructure is developed.

Transport: The proximity of Ethiopia to Asia and Middle East means lower transport cost for potato export. It also has good road network to link potato producers with markets. The rail network plan is one of the potentials to reduce inland cost of export. Ship transport to Yemen and Saudi Arabia is being used for other horticultural commodities, which can be seen as another potential to reduce transport cost for exporting potatoes. However, it must be noted that airfreight is not a cost effective way for ware potato export from the country compared to the other high value vegetables.

Code of Practice: Experiences gained in the development of Code of Practice from the floriculture sector will benefit the potato sub-sector. For high value vegetables, 'Euro GAP' certification is underway, which might apply for potatoes as well.

Weaknesses

Inconsistent supply of quality potatoes: In Ethiopia, there is limited or no value addition, which makes the potato sub-sector export very weak. Large share of export is dominated by ware potatoes. There is also no constant supply of quality potatoes in sufficient quantities as the country has no export development plan for potato. Small-scale farmers who are the key sources of export provide less volume and poor quality. This renders the country to benefit less from regional common markets that require continuous and larger export volumes of quality potatoes. This will lead to a low position in export compared with other organized competitors (e.g., Kenya and Egypt). Therefore, improving the production/supply side, including variety, productivity, extension, quality and quantity is of paramount importance for the country to maintain the required quality and volume of produce.

Packaging: Sac is the main packing material used for ware potatoes, particularly in the eastern part of the country. There is much postharvest loss due to the warm

temperature which is hindering export in the main cross-border market, Djibouti. Generally, there is an impression that packaging is not an obstacle for future export because potato is not very sensitive compared to the other high value vegetables. Therefore, relatively small investments of packaging can make export feasible.

Storage facilities: There are limited capacities in ware and pack houses as well as cold storage facilities. Yet small-scale level diffused light stores (DLS) for seed potatoes are found at small-scale farmers' levels. Recently, there are ongoing construction of storage facilities, such as modern pack and ware houses in the eastern part of Ethiopia, Dire Dawa and the reconstruction of the vegetable trade centre in the capital city, Addis Ababa. This may contribute to overcome the constraints associated with postharvest losses.

Technical knowhow: Technical knowledge for export-oriented potato production and research is limited. Potato production and research has mainly been focused on addressing constraints related to small-scale farmers, i.e., improving yield, disease resistance and wider variety adaptability. In addition, production has mainly been targeted to improve food security and hence hardly oriented to market signals.

Varieties: There is a very limited assessment whether the current potato varieties have been demanded in the export sub-sector. Ethiopia's potato breeding program should now start to consider exporters' opinions on the demanded quality attributes for export market.

Market information: There is limited information about export markets for potato sub-sector. This is because the sub-sector is just at its infant stage. For commercial farms, some strategies could be used to bridge potato producers and destination markets. These include: i) access to direct customers who are already importing horticultural commodities from Ethiopia, ii) use of Ethiopian embassies abroad for promotion, iii) use of foreign embassies in Ethiopia, and iv) exhibition or trade fairs. This can be facilitated and organized by public-private partnerships (EHPEA and EHDA). For small-scale farmers, market information is asymmetric. The MoARD is the main body in charge of small-scale farmers, which is not currently supporting

export-oriented potato production. It is realized that the link between small-scale farmers and the EHDA is very weak. The agency focused on commercial farms compared to small-scale farmers who contribute much on the GDP. It is crucial that the agency addresses small-scale farmers' constraints to ensure successful participation in export markets. There is a need to conduct scoping studies to identify suitable export market outlets particularly in the Middle East countries. Detailed scoping study has been conducted to identify market opportunities for Ethiopian horticulture exports in some Middle East countries (DFID, 2003), in which the experiences can be shared for the potato export sub-sector.

Local markets: There are no well functioning local markets in the potato sub-sector. Markets are often facilitated either by research institutions or other GOs and NGOs mainly in the informal seed potato system. For ware potatoes, there is a low consumption rate similar to the other vegetables in the country. This offers little scope to develop well functioning local markets. This is also associated with the little value addition in the country.

Opportunities

Demand for potatoes in major markets: There is a growing demand for Ethiopia's 'organic' potatoes in the Middle East countries such as Saudi Arabia, UAE, Bahrain, and Yemen. Moreover, the current low value regional export sector, i.e., cross-border market in Djibouti, Sudan and Somalia can have a huge potential if improved through proper investments.

Demand for processed potato products: Demand for processed potato products is increasing in different markets including the Local and EU. This will be a good opportunity for Ethiopia if it improves its agro-processing sector to meet the requirements of the EU standards.

Ecological and fair trade production: Demand for ecological and fair trade product is increasing as a result of consumer's concerns to food safety issues particularly in the

European markets and some Arab countries. Ethiopia can offer good scope for ecological products, as the country is relatively characterized by low input agriculture.

Institutional environments: There is a very conducive institutional environment for expanding the potato export sub-sector. Development banks offer loans for investment proposals targeted for export especially when linked to agro-processing sector. There are benefits and support when investing in the country. There is already established foundation for stakeholder innovation in the horticulture sector in which the experiences can be translated into the potato export sub-sector. Details of institutional environment in the fruits and vegetable sector in Ethiopia are described in Wersinga and Jager (2009).

Rapid multiplication facilities: Some rapid multiplication technologies (e.g., screen houses and tissue culture) are found around research centres to produce potato plantlets mainly for research purpose. Although these technologies exist, chemicals are not easily accessible and are often imported from abroad. The biotechnology laboratory at Holeta Agricultural Research Center can be a huge opportunity to speed up the rapid multiplication process of seed potato production in the country.

Threats

Competition: There is an increased competition of countries with a strong position in the potato export sub-sector. Ethiopia is just beginning from the scratch, which makes it less competitive in this sector both in the EU and Middle East markets.

Stringent standards: Stringent requirements in terms of quality, traceability and consistency of products supply by the rapidly growing supermarkets may be an export barrier for Ethiopia. These standards would become more complex for the country given the local potato markets is not yet well developed. This notion becomes relevant in the sense that capacity gained from strong local markets translate into stronger regional and international markets.

4. Conclusion

The export oriented horticulture sector in Ethiopia is rapidly growing. Potato is also emerging as one of the exportable commodities with a rapid increase in export value. Cross-border market, to neighbouring countries such as Djibouti, Somalia and Sudan, is identified as the main export outlet for the crop. But the value of the cross-border market is low because of the poor quality of produce exported to those countries. Recently, there has been some potato export to regional and international markets, which provided an interesting opportunity for Ethiopia. But export of certified seed potatoes is either limited or non-existent. While there are positive signals in the potato export sub-sector, there are also key challenges in the production and marketing strategies.

The bulk of produce is sourced from small-scale farmers who grow many varieties with sub-optimal management while few commercial growers are only emerging. Therefore, the country's current production/supply is questionable in meeting the right exportable variety, volume and quality. Value addition in terms of potato processing is scant, which has a negative implication on the export value. Recently, some private investors have already started engaging in the processing sector, which is an opportunity to diversify the export potential of the crop and for the sub-sector development.

It appears that sustainable production of quality products, identifying reliable destination markets, managing export costs and stakeholder innovation to link key actors are all critical to promoting potato export. The experiences of the stakeholders' taskforce for the horticulture sector can be applied to the potato sub-sector by, among others, forming a permanent stakeholders' forum such as the Ethiopian Potato Council to accelerate development of the potato export sub-sector. The council can develop a potato export development plan to succeed in dynamic markets, without overlooking the importance of well-functioning local markets that are actually the starting point for regional and export markets. Our analysis also showed that as long as producers meet international standards for potato export, the quality regulation

seems not a trade barrier. Experiences from other horticultural commodities could be used in potato quality regulation. It is therefore recommended to re-orient potato research and development in response to emerging local and global market signals, including value addition to ensure competitiveness in export markets.

This paper highlighted some of the key issues in the Ethiopian potato export sub-sector. However, it is necessary to gather more information from private companies, small-scale farmers, cross-border markets, and cooperatives. The information will lead to framing the potato export sub-sector plan in the future to ensure successful participation in export markets.

Acknowledgments

We would like to acknowledge all individuals from the various institutions who provided the necessary data and devoted time for the interviews.

5. References

- CSA (Central Statistical Authority of Ethiopia). 2011. Agricultural sample survey 2010/2011: Report on area and production of crops. Addis Ababa, Ethiopia.
- DFID (Department for International Development). 2003. Ethiopian Horticulture Export Promotion: Supplementary report by DFID.
- EIA (Ethiopian Investment Authority). 2010. Ethiopia Land of Tomorrow. Ethiopia at a Glance. www.ethioinvest.org.
- FAO (Food and Agricultural Organization of the United Nations). 2008. <http://www.potato2008.org/en/world/africa.html>.
- Gildemacher, P., W. Kaguongo, O. Ortiz, A. Tesfaye, W. Gebremedhin, W.W. Wagoire, R. Kakuhenzire, P. Kinyae, M. Nyongesa, P.C. Struik, and C. Leewis. 2009a. Improving potato production in Kenya, Uganda and Ethiopia. *Potato Research*, 52: 173-205.
- Gildemacher, P.R., Demo, P., Barker, I., Kaguongo, W., Woldegiorgis, G., Wagoire, W.W., Wakahiu, M., Leeuwis, C., Struik, P.C. 2009b. A description of seed potato systems in Kenya, Uganda and Ethiopia. *American Journal of Potato Research*, 86: 373-382.
- Hirpa, A., Meuwissen, M.P.M, Tesfaye, A., Lommen, W.J.M., Lansink, A.O., Tesfaye, A., Struik, P.C. 2010. Analysis of seed potato systems in Ethiopia. *American Journal of Potato Research*, DOI 10.1007/s12230-010-9164-1.
- Joosten, F. 2007. Development strategy for the export oriented horticulture in Ethiopia. Wageningen UR.
- Lemaga, B. 2010. The potato value chain in sub-Saharan Africa with case study on Eastern Arica. In: FAO (2010). *Strengthening potato value chains: Technical and Policy options for developing countries*. Rome, Italy. pp 43-52.
- Tesfaye, A. Lemaga, B. J.A. Mwakasendo, Z. Nzohabonayoz, J. Mutware, K.Y. Wanda, Kinyae, Peter, Ortiz, O., Crissman, C., Thiele, G. 2010. Markets for fresh and frozen potato chips in the ASARECA region and potential for regional trade: Ethiopia, Tanzania, Rwanda, Kenya, Burundi and Uganda. International Potato Center (CIP), Lima, Peru. Working Paper 2010-1. 44p. ISSN: 0256-8748.
- UN (United Nations) Comtrade database. 2009. United Nations.
- Wiresinga, R.C, de Jager, A. 2009. Business opportunities in the Ethiopian fruit and vegetable sector. Report 2008-075. LEI Wageningen UR, The Hague.