International Journal of
Advances in Scientific Research and Engineering (ijasre)

E-ISSN : 2454-8006

DOI: http://dx.doi.org/10.7324/IJASRE.2018.32660

Volume 4, Issue 4
April - 2018

Review of Value Chain Analysis of Potato in Ethiopia

Belayneh Yohannes

School of Post Graduates

College of Agriculture and Veterinary Science

Ambo University

Ethiopia

ABSTRACT

Potato has been considered as a strategic crop by the Ethiopian government aiming at enhancing food security and economic benefits to the country. The value chain of potato in Ethiopia was not developed due to lack of market and low-value addition to the product. Furthermore, the measure to solve the problem were limited partly for the reasons of little research and lack of attention on the issue. Therefore, this review was conducted to review potato production, management practices and its constraints in Ethiopia, review potato marketing and its constraints in Ethiopia and review potato value chain actors function and value addition. Potato production in Ethiopia was constrained by lack of land availability and lack of improved verities. There are different actors in potato production and value chain system from these suppliers, producers, wholesalers, collectors and consumers listed.

Key words: *Potato, Value chain, Wholesalers.*

1. INTRODUCTION

In Ethiopia, agriculture still takes the lion's share (72.7%) in terms of employment (UNDP, 2014). The sector is the livelihood of the overwhelming majority of Ethiopians. It is the source of food and cash for those who are engaged in the sector and others. Most agricultural holders acquire the food they consume and the cash they need to cover other expenses only fromfarming activities. Since farming in Ethiopia is often precarious and usually at the mercy of nature, it is invariably an arduous struggle for the holders to make ends meet. This, it often transpires, is true to the frequent shortfalls in the volume of production that occur in the country (CSA, 2014). Different types of vegetables are grown in Ethiopia with different intensities in terms of land and other input allocation, purpose of production, and marketability.

Among which potato is the world 's top non-grain food commodity. Global production over the past two decades has expanded from 267 to 375 million tons, and market opportunities are emerging to respond to the potato as a popular source of affordable food for growing urban populations. A highly dependable food security crop, potato offers important advantages over major food grains. Potato produces more food per unit area than the other major food crop. It generates more employment in the farm economy than other crops and serves as a source of cash income for low-income farm households through access to higher value markets along the potato value chain. Finally yet importantly, potato is not prone to speculative commodities trading on global markets, instead, prices are more likely set by local supply and demand conditions (USAID, 2013).

Potato has been considered as a strategic crop by the Ethiopian government aiming at enhancing food security and economic benefits to the country. As the population grows rapidly, increased productivity of potatoes can improve the livelihood of smallholder potato producers and is required to meet the growing demand. In addition, potato is regarded a high-potential food security crop because of its ability to provide a high yield of high-quality product per unit input with a shorter crop cycle than major cereal crops like maize. In country level, in Ethiopia, in the year 2013/14, about 1,437,697 private peasant holders participated in potato production, on the total area of 66,745.61 hectare (having 31.80% distribution) covered by potato, and

7,849,934 quintals of potato was produced, yielding 117.61Qt/ha in Meher Season. The total area coverage of potato in the year 2012/13 in national level was 74,934.57 hectare, and for the year 2013/14 became 66,745.61, and its percentage change showed a decrease by 10.93% of the areal coverage. Regarding its total production, it was 8,633,477.92 quintals in the year 2012/13, and 7,849.934 quintals in the year 2013/14, and its percentage change showed 9.08% decrements. However, the amount of yield per hectare of the year 2012/13 and 2013/14 was 115.21 and 117.61 quintals respectively. Its percentage change showed an increment by 2.08%. (SCA,2014)

1.1 OBJECTIVES

1.1.1 General Objectives

To review potato value chain in Ethiopia

1.1.2 Specific Objectives

- To Review Potato Production, Management Practices and its Constraints in Ethiopia.
- To Review Potato Marketing and its Constraints in Ethiopia
- To Review Potato Value Chain Actors Function and Value Addition

1.2. Methodology

This senior seminar is reviewed by referring different studies, published documents, guide books, international journals and proceedings.

2. LITERATURE REVIEW

2.1 Concepts and definition of value chain.

S**upply chain:** It is taken to mean the physical flow of goods that are required for raw materials to be transformed into finished products. Supply chain management is about making the chain as efficient as possible through better flow scheduling and resource use, improving quality control throughout the chain, reducing the risk associated with food safety and contamination, and decreasing the agricultural industry's response to changes in consumer demand for food attributes (Dunne, 2001).

Value chain: It is taken to mean a group of companies working together to satisfy market demands. It involves a chain of activities that are associated with adding value to a product through the production and distribution processes of each activity (Schmitz, 2005). An organization's competitive advantage is based on their product's value chain. The goal of the company is to deliver maximum value to the end user for the least possible total cost to the company, thereby maximizing profit (Porter, 1985).

A value chain is the full range of activities required to bring a product from conception, through the different phases of production and transformation. A value chain is made up of a series of actors (or stakeholders) from input suppliers, producers and processors, to exporters and buyers engaged in the activities required to bring agricultural product from its conception to its end use (Kaplinsky and Morris, 2001). Bammann (2007) has reviewed three important levels of value chain.

1. Value chain actors**:** The chain of actors who directly deal with the products, i.e. produce, process, trade and own them.

2. Value chain supporters: The services provided by various actors who never directly deal with the product, but whose services add value to the product.

3. Value chain influencers*:* The regulatory framework, policies, infrastructures, etc.

The value chain concept entails the addition of value as the product progresses from input suppliers to producers and consumers. A value chain, therefore, incorporates productive transformation and value addition at each stage of the value chain. At each stage in the value chain, the product changes hands through chain actors, transaction costs are incurred, and generally, some form of value is added.

Pender,1985 reviewed that Value chains encompass a set of interdependent organizations, and associated institutions, resources, actors and activities involved in input supply, production, processing, and distribution of a commodity. In other words, a value chain can be viewed as a set of actors and activities, and organizations and the rules governing those activities.

2.2 Potato Production and profile in Ethiopia.

Following the introduction of the potato to Ethiopia in 1858 by a German immigrant, (Kidane, 1980). The first available potatoes were probably of a very limited genetic base, hence vulnerable to diseases and pests. Cultivation was limited to potatoes growing voluntarily in fields in the colder highlands until wider adoption of the potato occurred at the end of the nineteenth century in response to a prolonged famine (Medhin et al., 2001). However, potato cultivation declined in the early 1980s, due in part to widespread infestation of late blight, Phytophthorainfestans (Tesafun, 1984).

During this period, agricultural production in general was disrupted in several areas of the country by drought, famine, and civil war (Wolfe, 1988), as various opposition groups fought the Dergue regime which had come to power in the revolution of 1974. Land reform legislation under the Dergue directed the majority of agricultural resources (such as credit, fertilizer, and improved seed) to state farms and cooperatives, likely to the detriment of smallholders who continued to produce most of the nation's food in spite of a lack of investment (Belete et al., 1991).

Ethiopia has a variety of vegetable crops grown in different agro ecological zones by small farmers, mainly as a source of income as well as food. The production of vegetables varies from cultivating a few plants in the backyards, for home consumption, to large-scale production for the domestic and home markets. According to CSA (2012) the area under these crops (vegetables and root crops) was estimated to be 359,950.13 hectares with a total production of 24,267,581.58 tons in the year 2011/12. Root and tuber crops were by far the dominant product group. Potatoes (32%) stand out as the important products, followed by Taro/Godere (19%), garlic (12%), and onions (nearly 12%). Potatoes were mostly found in the Amhara Regional State (51%) and Oromia (33%). Smallholder vegetable farms are based on low input – low output production systems.

The use of improved seeds and planting material of high yielding varieties and other inputs such as fertilizer and plant protection materials is not common in the smallholder sector. Technical training and extension services on improved crop husbandry techniques are not available (EHDA,2011). In Ethiopia, the main production season for potato, at altitudes higher than 2,500 masl is June to September (Meher). The off-season production for Ethiopia at higher elevations is April to August (Belg). However, one should bear in mind that nowadays the main production season for ware potato represents only 22 % (34,000 ha), while the off season production is around 128,000 ha.

The reason for a gradual shift from Meher to Belg is the fact that the late blight pressure is increasing and farmers experience less risk with cultivation during the “small” rains combined with irrigation. During the main season, risks are high. The average potato production throughout Ethiopia is 8–10 t/ha. This is a relatively low average, especially when considering the potential of Ethiopia, with its favorable climate at higher elevations, soils and irrigation potential (EHDA, 2011).

2.3 Management practices

Dirou reviewed that the selection of a suitable site is of the utmost importance potato are extremely susceptible to the root rot fungus no avocado rootstock is completely resistant to this disease and Trees of most potato varieties grow quite large if the canopy is not managed. If sufficient land is available a wider spacing is preferred.

Planting distances is a much-debated subject. A higher planting density gives higher returns in the early years of the planting, but it can also give more canopy management problems in later years. (Dirou,2003) Most of the time Ethiopian farmers did not give attention to spacing.

Orchards growth are not well spaced, some orchards are nearer to each other and the others are very far from one orchard to the others, according to the oldness of the trees age most of the farmers had no knowledge about spacing. Space plays significant role for all activities, absence of proper spacing creates difficulties for production (Seid and Zeru, 2013). Zekarias (2010) indicated in his research that difference in spacing associated with difference in size and expansion nature of varieties used. in relation to this management practice starting from seed multiplication up to harvesting are done by farmers indigenous practice.

According to Orwaet,al.(2009) planting distances depend on soil type and fertility, current technology, and economic factors. In commercial groves, trees are planted from 5-7 m in rows and 7-9 m between rows. Pruning during the first 2 years encourages lateral growth and multiple framework branching.

2.4 Constraints of potato production in Ethiopia.

The most important constraints reviewed with deferent researches are the following

2.4.1Land Availability

Land shortage was a cross-cutting constraint raised by some of the interviewed households. Farmers specifically associated land shortage to the large amount of land required to meet the recommended rotation (≥ 3-years) of potatoes. Land shortage is a

DOI: dx.doi.org/10.7324/IJASRE.2018.32660

common constraint in the high population density areas of the country (Josephson et al. 2014). It is one of the constraints that hinder the full implementation of the extension packages for other crops, too (CSA 2011a). The size of land holding positively influences the adoption of potato technologies (Beliyu et al. 2013). To solve their general land problems, some farmers in the study area hire land from other farmers who experience a shortage of inputs (cash, labour, seed and fertilizer) and/or whose fields are too far away to manage effectively by themselves.

2.4.2Cash Availability

The strong negative association of cash shortage with wealth, adoption and education level indicates that cash shortage is a main constraint to poor, non-adopter and uneducated households. Most of the non-adopter (71 %) and uneducated (57 %) households were poor and cash shortage was mainly associated to their inability to purchase inorganic fertilizer and labour. Moreover, the positive correlation between cash shortage and inadequate produce indicates a vicious poverty cycle where lack of cash results in inadequate productivity and vice versa. Shortage of cash is the most important reason why farmers in Ethiopia do not implement the extension packages for different crops (CSA Central Statistics Agency 2011a).

At national level, the potato extension package was fully implemented on only 15 % of the potato farm area during the 2011 main season. Most farmers do not use financial credits for two reasons: (1) because they expect that they will not be able to pay off loans and (2) because of the unavailability of credit services.

2.4.3Labour Availability

Labour is a cross-cutting constraint associated with the high labour requirement of potato production. The opposite relationship between practices of hiring-in labour and off-farm income generation) indicates that households that were engaged in off-farm activities had little experience with hiring-in labour and vice versa. This may be related to the household's capacity to hire-in labour, as most (86 %) of the households which were engaged in off-farm income activities were poor, whereas most of those which relied on hired-in labour were rich.

This contradicts findings by Belete (2006), who found that most households which are engaged in weaving prefer to hire-in labour for agricultural activities so that they have sufficient time for weaving. In his results, the large negative correlation values of gender and positive values of hiring-in labour implies that hiring labour was more dependent on the gender of the household head. Accordingly, most of female-headed households had more experience with hiring-in labour, compared to the male-headed households and this may be attached to the local tradition that tillage is the responsibility of men (Belete 2006). The cost of labour, which includes the daily meals of the laborer, is increasing over time and is becoming unaffordable for most of the households.

2.4.4Access to Training

The positive association of reduced access to training with age, family size and gender suggests that access to training was related to age, larger family sizes and male-headed households. The reason why none of the female headed households considered lack of access to training to be a constraint may be due to lack of awarenes on its importance. Some farmers in the country do not get adequate advisory service (Bezabih and Nigussie 2011) and lack of awareness about the availability and use of improved technologies and management practices has hampered adoption of potato technologies (Hirpa et al. 2010). Conversely, access to training positively influences the adoption of potato technologies (Beliyu et al.2013).

2.4.5Use of Improved Varieties

The use of improved varieties was predominantly governed by the households' wealth, adoption and education levels. This is consistent with other research from Ethiopia that has shown that education level and access to extension service significantly influence the adoption of improved potato varieties (Gumataw et al. 2013; Teklemariam 2014; Beliyu et al. 2013). Wealthy households have better opportunities to access education; in turn educated farmers have better opportunities to access training on new technologies. On the other hand, lack of access to improved varieties was related to age, larger family sizes and male-headed households and applied to all improved varieties including the most recently released ones which are more productive and resistant to diseases (e.g. late blight). Male farmers (particularly the rich ones and the adopters) who already had access to different improved varieties and training considered access to the most recently released varieties a constraint, because they were aware of such varieites. However, female-headed and poor households who had no information on the importance and presence of the recent varieties had interest in accessing any improved variety. Schulte-Geldermann (2013) noted that lack of demand for seeds of new varieties may be the result of inadequate information about their advanatages; thus awareness is an important element in the adoption of new varieties. This constraint of limited access to varieties in the study area is indicative of other parts of the country (Tewodros et al. 2014) which explains why improved varieties were used on only 0.5 % of the potato cropping area in 2011 (CSA 2011a).

2.4.6 Fertilizer Use

Inorganic fertilizer use was largely influenced by the households' wealth, adoption and education levels. Inorganic fertilizers were used mostly by wealthy, educated and adopter households. Wealthy households have the financial capacity to buy

fertilizers and have better access to education which improves their awareness of the importance of fertilizers. This is consistent with other studies in Ethiopia that have shown that fertilizer adoption is positively influenced by education levels of the household heads (Endale 2011; CSA 2011a).

Many poor households identified inadequate access to inorganic fertilizers a constraint, citing high prices and cash shortages, whereas timely delivery of fertilizer was a more prominent constraint for wealthy households. This shows that poor households may not adopt fertilizers due to their low financial capacity. Indeed, an increase in the price of fertilizer (Endale 2011; Abush et al. 2011) and adverse climate and illiteracy (Daniel and Larson 2010) have been a main constraint of fertilizer adoption in the country. Moreover, some farmers in the country cannot purchase available fertilizers, due to the large pack size (IFDC 2012).

2.4.7Pests

The presence of pests was a cross-cutting constraint for all households. Pests included diseases, arthropods (millipedes) and vertebrates. The major potato diseases were late blight and bacterial wilt, whereas the major arthropod pests were millipedes. Vertebrate pests were porcupine, monkeys and mole rats which were more prevalent on farms in the vicinity of shrub vegetation. Most of the farmers do not know the causes or preventive and control measures of diseases; this may be due to lack of awareness as a result of limited training services. Bacterial wilt is a relatively recent phenomenon and needs special attention to prevent its expansion. Pesticides are not locally available and seeds of resistant varieties are not easily accessible.

2.4.8 Product Use and Access to Market

The practice of selling surplus produce was largely confined to rich, well-educated and adopter households. This demography cited inadequate access to market as their main constraint. All of the farmers in the area harvest their potato nearly at the same time and immediately sell the produce in the nearby local markets at lower prices as a result of temporary oversupply. Farmers have a low capacity to access markets outside their vicinity to sell their produce at a better price. Moreover, most of them have a low financial and technical capacity to construct improved storage to store and sell their produce when prices improve. Low prices of ware potato was also reported as a constraint in Oromia and Amhara regions (Agajie et al. 2013).

2.5 potato marketing and constraints in Ethiopia.

Marketing of agricultural products consists primarily of moving products from production sites to points of final consumption. In this regard, the market performs exchange functions as well as physical and facilitating functions. The exchange function involves buying, selling and pricing. Transportation, product transformation and storage are physical functions, while financing, risk bearing and marketing information facilitating marketing (Branson and Norvell, 1983). Market channel is a business structure of interdependent organizations from the point of product origin to the consumer with the purpose of moving products to their final consumption destination (Kotler and Armstong, 2003).

The analysis of marketing channels is intended to provide a systematic knowledge of the flow of goods and services from their origin (producer) to their final destination (consumer). This knowledge is acquired by studying the participants in the process, i.e. those who perform physical marketing functions in order to obtain economic benefits (Getachew, 2002). A marketing chain is used to describe the numerous links that connect all actors and transactions involved in the movement of agricultural products from the farm to the consumer (Lunndyet al., 2004). It is the path one good follow from their source of original production to ultimate destination for final use. vegetables for both fresh and processed have a huge domestic market in Ethiopia which is by far significant than that of the export volume. The major export markets for vegetables for Ethiopia are the surrounding countries Djibouti, Sudan and Somalia and the main products exported to these countries is non-graded fresh fruits Whereas, higher valued fresh produce that includes graded and pre-packed are exported to the United Arab Emirates, United Kingdom and the Netherlands. about 85% of the fruits are exported to Djibouti and the second export market destination is the Emirates (EHDA, 2011).

2.5.1 Marketing constraints of potato.

Habtamu Gebre in his research on potato value chain reviewed that there are many challenge to potato marketing system. These are

- ✓ Lack of improved storage facility; seed potato.
- ✓ Poor road and transport facilities.
- ✓ Availability of potato throughout the Low skill in post-harvest year technology.
- ✓ Lack of market information.
- ✓ High market price instability.
- ✓ Lack of capital; Lack of marketing facilities.
- ✓ Lack of integration among chain actors.

DOI: dx.doi.org/10.7324/IJASRE.2018.32660

According to Mulat (2000) the largest constraints in Ethiopian agricultural markets are the limited number of traders that have a scarce amount of capital together with a large number of farmers, which leaves the farmers with a weak bargaining power.

Akalu,(2013) also reviewed different market constraints like Lack of market to absorb the production; large number of middlemen in the marketing system; absence (weakness) of marketing institutions safeguarding farmers' interest and rights over their marketable produces (e.g. cooperatives); lack of coordination among producers to increase their bargaining power; imperfect pricing system of traders was a major problem to producers.

Traders charge low price at peak supply periods which is not based on the real demand and supply interaction. this implies, the middlemen decide on the price of fruit products. Producers cannot negotiate since they may be denied even a low price and their products could be liable to rotting, since it is perishable, and lack of semi-processing industries Yimer,(2015)

2.5.2 Potato Value Chain Actors Function and Value Addition

According to KassaAlemu,(2014) the key actors in potato value chain and their role is reviewed bellow.

1. **Suppliers** Potato producers used agricultural inputs from different **Input** sources. One of these inputs is seed potato. Producers were asked whether they use local or improved variety of seed and the largest proportion of the producers (93.6%) grows the local seed. The most common seed sources for local varieties are producers themselves. In the study areas, producers usually select small sized potato, from the

2. **Producers** The small-scale producers are the key actors who are directly involved in potato production activities. They are generally smallholder producers having different land size with an average land holding of only 1.35 ha per household ware potato, and use them as seed. They perform most of the value chain functions right from farm inputs preparation on their farms to post harvest handling and marketing. The major value chain functions that potato producers perform include land preparation, growing/planting/, protecting [from weed, pest/disease], harvesting and post-harvest handling.

3. **Local traders /collectors**. They collect potatoes from producers, assemble them in one place and then sell it to wholesalers or transport it to other towns. These local traders collect potato for wholesalers and wholesalers pay small fee for their se89rvices. However, every cost is covered by the wholesalers themselves. Local traders can also purchase potatoes by themselves and store them for some time, negotiate the price with wholesalers and sale it when necessary

4. **Processors** Large scale potato processing is non-existent in Ethiopia in general and in the study areas in particular. Potato is commonly consumed in the form of boiled and cooked meals in different traditional dishes or „wat". Nowadays, consuming potato chips, crisps, and roasted potato are becoming common practices. Supermarkets started to sell potato products like chips and crisps.

5. **Wholesalers** There are very few wholesalers, who have the license to do wholesale in the study areas. Wholesalers in the local market are closely working with local traders/collectors to buy the potato collected in bulky and sell it to other wholesalers in other cities. Wholesalers at local market sell potato through brokers in different cities of the country. They started collecting potato from local traders or order them to collect only when they got call from brokers. Brokers play crucial role in potato marketing system by facilitating potato transaction by linking local wholesalers with regional and national wholesalers.

According to Lalem, one of the wholesalers at the local market, the brokers sometimes go beyond facilitation of transaction and tend to set prices and make extra benefits from the process.

1. **Retailers** are key actors in potato value chain. They are the last link between producers and consumers. They mostly buy from wholesalers and sell to urban consumers. Sometimes they could also directly buy from the producers. Retailers not only sell potato but also trade other vegetables. During the market visit, it was observed that retailers keep small amount of potatoes with tomato, onions and other vegetables. Consumers usually buy the product from retailers as they offer according to requirement and purchasing power of the buyers. But the producers transported their ware or seed potato to the nearby market and sell it to rural and urban consumers.

2.Consumers Potato consumers are individual households [rural and urban dwellers] and institutions. The researcher reviewed that the demand for improved varieties is increasing from time to time since producers need to grow improved varieties and sell it for seed with relatively better price but the supply is very limited.

3.Support providers Support service providers are essential for value chain development and include sector specific input and equipment providers, financial services, business management services, and market information access and dissemination, technology suppliers, advisory service, etc.
Getachew, (2015) also reviewed the value chain actors in his study as follows.

1. **Primary actors** the primary actors in potato seed tuber value chain were seed and other input suppliers, farmers, traders and consumers. Each of these actors adds value in the process of changing product title, time of delivery and etc. Some functions or roles are performed by more than one actor, and some actors perform more than one role.

A. **Input Suppliers** At this stage of the value chain, there are many actors who are involved directly or indirectly in agricultural input supply**.**

B. **Producers** Potato producers are the major actors who perform most of the value chain functions right from farm inputs preparation on their farms or procurement of the inputs from other sources to post harvest handling and marketing. The major value chain functions that potato seed producers perform include ploughing, planting, fertilization, digging, and weeding, harvesting, and postharvest handling.

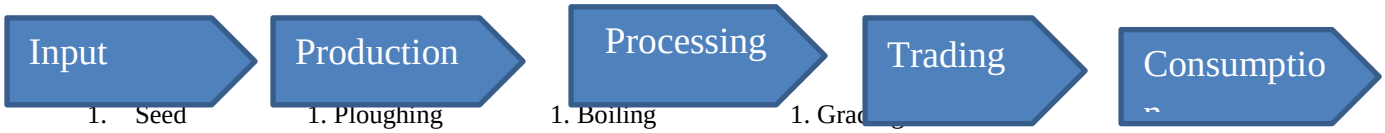
C. **Collector**s These are farmer traders who collect potato seed tuber from farmers in village markets and from farms of the farmers for the purpose of reselling it to wholesalers and consumers. They use their financial resources and their local knowledge to buy potato seed tuber from the surrounding area. They play important role in the non-cooperative member's village of farmers and they do know areas of surplus well and where to sell in the district.

D. **Wholesalers.** are mainly involved in buying potato seed tuber from farmers and collectors in larger volume and supplying it to traders who come outside the district and consumers either from outside of the district or inside the district. Survey result shows that wholesale markets are the main assembly centers for potato seed tuber from non-cooperative member in their respective surrounding areas. They have better storage), transport and communication access than other traders.

E. **Potato consumers.** Consumers of potato seed tuber purchase the products to saw it for the next cropping season: as the seed is expected to give high yield. About three types of potato seed tuber consumers were identified; farmers in the district and around, Governmental organizations (BoARD of different areas), and non-governmental organizations. These different bodies distribute the seed to farmers of their locality.

F. **Supporting actors (Enablers**) Such actors are those who provide supportive services including training, extension, information, financial and research services. Access to information or knowledge, technology and finance determines the state of success of value chain actors (Martin et al., 2007) these enablers contribute for betterment of potato seed value chain. Administration offices of the district, micro finance and NGOS (mostly local seed business) are the main supporting actors who play a central role in the provision of supporting services like training how to form and manage primary producers 'cooperative, providing extension and financial service

2.5.2 Potato value addition



Input	Production	Processing	Trading
1. Seed	1. Ploughing	1. Boiling	1. Grad
2. Fertilizer	2. Planting	2. Chips	2. Sorting
3. Chemicals	3. Weeding	3.wot	3. Packaging
4. Technology	4. Harvesting	4. Local food	4. Storing
5. Labor	5. Storage		5. Tansporting
6. Farm tools			

Source Habtamu Gebre, 2015

DOI: dx.doi.org/10.7324/IJASRE.2018.32660

3.CONCLUSSION

Ethiopia enjoys various growth conditions that support optimal cultivation of many vegetables in general and potato in particular however, a small proportion of this potential is used. Potato cultivation in Ethiopia is characterized by low production per Ha and production practice is poorly supported by scientific agronomic practice.

Practice of cultivating unimproved seedlings, poor vegetables quality, shelf life, taste, and devastation by pestsand diseases is still a problem. Simultaneously, marketing activity is poorly linked along value chain, edaphic suitability for production, cheap provision of labor are opportunities for future investment However, declining prices due to oversupply, poormarket integration, inadequacy of improved post-harvest technologies, and provision of extension services forgrowers are hindering production and marketing of avocados in Ethiopia. Constraints hindering the development of avocados are found in all stages of the value chain.

At the farm level,lack of clean disease-free seedlings and grafted seedlings has compelled farmers to use inferior and lowyielding varieties. Storage facilities are scarce all along the chain and absence of collective bargaining power hasforced individual farmers to accept unfavorable deals. Low value adding activities of potato take place at thefarmer, broker or wholesaler level in the value chains and the products are sold unprocessed Moreover, potato tubers crop has significant importance with a potential for domestic and export markets and industrial processing.However, the production, marketing and consumption of potatoes are restricted due to improper post-harvest handling.

Absence of organized institution and system group marketing has made traders in a better position todominate pricing. Therefore, intervention strategy needs to be undertaken in order to promote the development of potato value chain. This particularly includes, capacity building, post-harvest technology, improved extension,organized plant protection and plant breeding activities.

REFERENCES

1. Abush, T., M. Githiri, J. Derera, and T. Debele. 2011. Subsistence farmers' experience and perception about the soil, and fertilizer use in Western Ethiopia. *Ethiopian Journal of Applied Science and Technology 2(2): 61–74.*
2. Agajie, T., G. Woldegiorgis, W. Kaguongo, B. Lemaga, and D. Nigussie. 2013. Adoption and impact of potato production technologies in Oromia and Amhara Regions. Paper presented at the national workshop on seed potato tuber production and dissemination, 12–14 March 2012, Bahir Dar, Ethiopia.
3. APHRD (Animal and Plant Health Regulatory Directorate). 2009. Crop variety register, Issue No. 12, June, 2009, Ministry of Agriculture and Rural Development, Addis Ababa, Ethiopia.
4. Ayelech. T, 2011, Market chain analysis of fruits for Goma woredaJimma zone, Oromia regional state' A Thesis Submitted to School of Graduate Studies of Haramaya University.
5. Baye, B., and G. Woldegiorgis. 2013. Potato research and development in Ethiopia: Achievements and trends. Paper presented at the national workshop on seed potato tuber production and dissemination, 12–14 March 2012, Bahir Dar, Ethiopia.
6. Belete G. 2006. Impact of male out-migration on rural women's livelihood: the case of Chencha Woreda, South Ethiopia, MSc thesis, Addis Ababa University, Addis Ababa, Ethiopia.
7. Beliyu, L., T. Tefera, and E. Lahiff. 2013. Determinants of adoption of improved potato varieties in Welmera Woreda. Paper presented at the national workshop on seed potato tuber production and dissemination, 12–14 March 2012, Bahir Dar, Ethiopia.
8. Berga, L., and G. Woldegiorgis. 1994. Prospects of seed potato production in Ethiopia. Paper presented at the second national horticultural workshop of Ethiopia, Addis Ababa, Institute of Agricultural Research and FAO.
9. BerhanuMegerssa, 2013, 'The Role of Avocado Production in Coffee Based Farming Systems of South Western Ethiopia' JASA Volume 2, Issue 2 Jun. 2013 PP. 86-95 DOI: 10.14511.
10. Bezabih Emana and Hadera Gebremedhin, 2007, Constraints and Opportunities of Horticulture Production and Marketing in Eastern Ethiopia DCG Report No. 46
11. Bezabih, E., and M. Nigussie. 2011. Potato value chain analysis and development in Ethiopia: case of Tigray and SNNP Regions. Addis Ababa Ethiopia: International Potato Centre (CIP-Ethiopia).
12. Bonabana, J. 2013. The performance of potato markets in South Western Uganda.
13. CSA (Central Statistical Agency of Ethiopia). 2013/14. *Crop and Livestock Product Utilization. Addis Ababa, Ethiopia. September – January 2013/2014). Volume (vii).*
14. CSA (Central Statistics Agency) & World Bank. 2013. *Ethiopia rural socioeconomic survey report. http://siteresources.worldbank.org/INTLSMS/Resources.*

15. CSA (Central Statistics Agency). 2011a. Agricultural sample survey 2010 / 2011 (2003 E.C.), *volume III, report on farm management practices (private peasant holdings, meher season)*, May, 2011, Addis Ababa.
16. CSA (Central Statistics Agency). 2011a. Statistical abstract 2011. Addis Ababa:
17. CSA (Central Statistics Agency). 2012. *Agricultural Sample Survey 2011/2012. Volume-I. Report on area and production of major crops (private sector meher season)*. CSA, Addis Ababa.
18. CSA, 2012, Agricultural Sample Survey 2012 / 2013; *Volume I, Report on Area and Production of Major Crops,Statistical Bulletin 532;* Addis Ababa, Ethiopia.
19. Daniel, Z., and D.F. Larson. 2010. Incomplete markets and fertilizer use: evidence from Ethiopia, The World Bank, Development Research Group, Agriculture and Rural Development Team, Policy Research Working Paper 5235.
20. DeYimer ,2015 'Factors Affecting Fruit Supply in the Market: The Case of HabruWoerda, North Wollo, Ethiopia European Journal of Business and Management Vol.7, No.4, 2015velopment and Agricultural Economics,Vol.5(6), pp225-235.
21. Dunne, A. 2001. Supply chain management: fad, panacea or opportunity? Occasional paper Vol 8(2) 1 –40. School of Natural and Rural Systems Management, University of Queensland, Gatton,
22. EHDA (Ethiopian Horticulture Development Agency). *2011. Exporting Fruit and Vegetables from Ethiopia: Assessment of development potentials and investment options in the export-oriented fruit and vegetable sect*or. Technical Report. Addis Ababa, Ethiopia.Queensland, Australia.
23. EndaleGebre and Gebremedhin Woldegeorgisse. 2008. Potato seed management
24. Gebremedhin Woldegiorgis, EndaleGebre, KifluBedane and Bekele Kassa. 2001. Country Profile on Potato Production and Utilization: Ethiopia. Ethiopian Agricultural Research Organization (EARO), Holetta Agricultural Research Centre. National Potato Research Program.uber crops. The untapped resources. Ethiopian Institute of Agricultural Research
25. Endale, K. 2011. Fertilizer consumption and agricultural productivity in Ethiopia, the Ethiopian Development Research Institute (EDRI), Working Paper 003, Addis Ababa, Ethiopia.
26. Gebremedhin, W., G. Endale, and B. Lemaga. 2008. Potato variety development. In Root and tuber crops: The untapped resources, ed. W. Gebremedhin, G. Endale, and B. Lemaga, 15–32. Addis Ababa: Ethiopian Institute of Agricultural Research.
27. Gumataw, K.A., B. Jos, P. Stefano, and O. Omta. 2013. Adoption of improved potato varieties in Ethiopia: The role of agricultural knowledge and innovation system and smallholder farmers' quality assessment. Agricultural Systems 122: 22–32.
28. Habtamu Gebre,2015 analysis of potato value chain in hadiya zone of Ethiopia
29. Hirpa, A., M.P.M. Meuwissen, A. Tesfaye, W.J.M. Lommen, A. Oude Lansink, A. Tsegaye, and P.C. Struik. 2010. Analysis of seed potato systems in Ethiopia. American *Journal of Potato Research* 87: 537–552.
30. IFDC (International Fertilizer Development Centre). 2012. *Ethiopia fertilizer assessment. http://www.ifdc.org/r-d/research/ethiopia-fertilizer-assessment.*
31. Josephson, A.L., R. Jacob, and R.J.G.M. Florax. 2014. How does population density influence agricultural intensification and productivity? Evidence from Ethiopia. Food Policy 48: 142–152.
32. Mesfin, M., G. Girmay, and F. Woldeyes. 2014. Enhancing household food security through Irish potato production in Gamo Highlands of Southern Ethiopia. Scholarly Journal of Agricultural Science 4: 410–419.
33. Nascimento, L.C., G. Pio-Ribeiro, L. Willadino, and G.P. Andrade. 2003. Stock indexing and potato virus Y elimination from potato plants cultured in vitro. Scientia Agricola 60: 525–530.
34. Porter, M. 1985. Competitive advantage: creating and sustaining superior performance. The Free Cramers, L. and Jensen, W. 1982. Agricultural economics and agribusiness, 2ndEdition
35. Schmitz, H. 2005. Value Chain Analysis for Policy-Makers and Practitioners. ILO, Geneva
36. Schulte-Geldermann, E. 2013. Tackling low potato yields in Eastern Africa: an overview of constraints and potential Strategies. Paper presented at the national workshop on seed potato tuber production and dissemination, 12–14 March 2012, Bahir Dar, Ethiopia.
37. Seid.H and Zeru. Y 2013,' Review ment of production potentials and constraints of mango (Mangiferaindica) 'at Bati, Oromia zone, Ethiopia, *International Journal of Sciences:*
38. AEHDA, 2011. Exporting fruit and vegetable from Ethiopia. *Review of development potentials and investment options in the export-oriented fruit and vegetable sector*. Addis Ababa, Ethiopia. p51pplied Research.
39. SeifuZeberga, 2010,' Production and quality evaluation of spray dried Vegetables products'
40. Teklemariam T. M. 2014. The impact of international potato center's nutrition project on smallholder farmers' income and adoption of improved potato varieties: Tigray region, Northern Ethiopia, MSc Thesis, Mekelle University College of Business and Economics.

DOI: dx.doi.org/10.7324/IJASRE.2018.32660

41. Tewodros, A., P.C. Struik, and A. Hirpa. 2014. Characterization of seed potato (Solanum tuberosum L.) storage, pre-planting treatment and marketing systems in Ethiopia: The case of West-Arsi Zone. *African Journal of Agricultural Research* 9: 1218–1226
42. UNDP (United Nations Development Program). 2014. Ethiopia: *Quarterly Economic Brief.Third Quarter, 2014.* Addis Ababa, Ethiopia.
43. USAID (United States Agency for International Development). 2013. *Agricultural Growth Program-Agribusiness and Market Development) Nine Months Report October 2013 June 2013.* Addis Ababa, Ethiopia.