

RESEARCH ARTICLE

Opportunities, Constraints and Strategic Interventions in Onion Value Chain: The Case of Ambo and Toke Kutaye Districts, West Showa Zone, Oromia Regional State, Ethiopia

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ABSTRACT

Onion crop is one of the most important vegetables produced in Ethiopia for both commercial and consumption purposes. However, due to different constraints the potential of the crop was not utilized to the fullest extent by economic entities along the commodity chain. Thus, the study was conducted in order to assess the opportunities, constraints and to develop strategic interventions in onion production and value chain in Ambo and Toke Kutaye districts of West Showa Zone, Oromia Regional State, Ethiopia in the year 2015 with the objective of identifying the constraints and opportunities for onion value chain functions in the study areas. From the districts, seven onion producing kebeles were selected randomly and the data were collected from both primary and secondary sources. The primary data were collected using interview guided questionnaires from 183 respondents of different actors in onion value chain and four focus group discussions of onion producers. Descriptive statistics and value chain analysis were used to analyze the constraints and opportunities data. Onion value chain in the area contains different actors at the stages of input suppliers, onion producers, wholesalers, retailers and consumers. Thus, diseases, drought, insects, lack of sufficient irrigation water, limited supply of agricultural inputs, limited knowhow and skill, low price of produce and poor linkage with value chain actors were major producers' constraints identified in the study areas. Supply shortage, lack of organized market information, low produce quality, loss of produce due to poor handling, competition with unlicensed traders, price fluctuation and lack of support from government bodies were major marketing constraints studied on the traders. Thus, onion value chain is affected by several aforementioned constraints at each stage of the chain functions those influenced the efficiency and competitiveness of the whole chain in the study areas. The recommendations forwarded to accelerate the onion value chain's development are strengthening extension system and other supportive services; supporting producers in order to use improved agricultural inputs, modern technologies, controlling diseases and insects (pests) problems; constructing additional irrigation facilities/schemes; organizing, strengthening and supporting vegetable producer cooperatives and controlling unlicensed traders.

Keywords: Actors, constraints and opportunities, marketable supply and channel, onion value chain and strategic interventions

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INTRODUCTION

Various types of fruits and vegetable crops are grown in Ethiopia under rain-fed and irrigation systems (Alemayehu et al., 2010). Ethiopia has favorable climate and edaphic conditions for the production of tropical, sub-tropical and temperate fruits and vegetables. However, the amount and mode of production is still weak (EHDA, 2011). Horticultural crops play important role in poverty alleviation through employment generation, improving the feeding behavior of the people and creating

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opportunities particularly for poor farmers (Weignberger and Lumpkin, 2005). Onion (*Allium cepa* L.) is considered as one of the most important vegetables produced on large scale in Ethiopia for both commercial and consumption purposes and can be grown under a wide range of climatic conditions (FAO, 2005). It grows well under mild climatic conditions without extreme heat or cold or excessive rainfall. According to Olani and Fikre (2010), in Ethiopia onion is produced in many parts of the country by small farmers, private growers, state enterprise mainly in Awash Valley and Lake Region. The climatic requirement for onion production is tropical, high altitudes or semiarid of temperature range of 15 °C to 25 °C, annual rainfall of 750-1000 millimeter and altitude of 1000-1600 meters above sea level are averagely suitable for onion production. Regarding to soil type fertile sandy and silt loam or peat soil are suitable for onion production.

Despite the enormous potential for onion crop production, its productivity has been low and variable under farmers' local condition in Ethiopia. This is presumably due to lack of improved crop varieties, shortage of adapted varieties to different agro-ecologies, lack of inputs, and lack of appropriate agronomic package, disease and poor extension activities (Shimeles, 1994 as cited in Adugna, 2009). Its productivity is very low compared to the potential yield obtained in the research centers and on farmers' field technology verification sites. Attained productivity was about 90 quintals per hectare while potential yield of 400 quintals per hectare in research centers (Dawit et al., 2004). Onion performance gap is not limited to production stage in the value chain. Losses along the chain represent a significant setback for subsector's development. For instance, according to USAID (2013) report the proportion of post-harvest loss of onion in Ethiopia was about 10.7%. Also Almaz et al. (2014); identified constraints impeding the improvement of onion value chain in all stages of the chain in Ethiopia. Onion value chain was complicated by substantial problems including low yield, lack of production and marketing skill, lack of capital, poor quality of seed, lack of market information, low price of onion produce, lack of vegetable marketing policy, problem of rural road access, storage problem, improper shading and lack of demand. Bezabih et al. (2014) also; identified factors affecting the production of vegetable crops in Ethiopia; like susceptibility nature of the crop to moisture stress, post-harvest losses due to perishable nature and lack of appropriate post-harvest product management, lack of access to improved and quality seed varieties, lack of institutionally coordinated seed supply system, lack of sufficient irrigation water and low prices for the product.

Despite the potential from onion farming and significant performance gap on productivity and marketing of onion in Ethiopia, there was no research done that assessed the production and marketing performances of onion value chain in the study areas. Therefore, this entails need for more comprehensive study which rigorously examined the performance of the onion value chain. This study was based on holistic value chain approach analyzing the performance of onion value chain for the study sites. This research was conducted to fill the gap of this value chain through characterizing value chain actors and their roles, identifying market channel, estimating the distribution of market margin and benefit share along main stage of the chain, analyzing the determinants of marketable supply of onion produce and analyzing the existing situation of this value chain by identifying opportunities and constraints among main actors in the chain. In doing so, the study made attempted to identify leverage points and intervention strategies for further development of onion value chain. To this end, this research was initiated with the specific objectives of assessing the constraints, opportunities and strategic intervention areas for increasing the competitiveness of onion value chain in the study areas.

MATERIALS AND METHODS

Description of Study Areas

This study was conducted in West Showa Zone, Oromia Regional State in two major onion producing districts (namely Ambo and Toke kutaye). Both districts are more known in onion production in the Zone. Ambo district is located in center of West Showa, found at 110km West of Addis Ababa (ADAO, 2014). Toke Kutaye district is located at 12 km from capital town of West Showa Zone, Ambo (TKAO, 2014). The detail Quantitative description of the districts is explained by different parameters below (Table 1).

Research Design and Sampling Techniques

The study applied both qualitative and quantitative approaches of mixed methods of descriptive research design. Both qualitative and quantitative methods of data analysis were used. Key informant interview, interviewing different value chain stakeholders and secondary document analysis were used. Samples were taken from the total population in the study area. Therefore; total sample size was 151 out of this (97) from Toke kutaye district, (54) from Ambo district was selected randomly based on number of onion growers' household in their kebeles (Yamane, 1967) and the required sample size was

determined at 92% confidence level. In addition to 151 sample respondents of onion producers, further data sources were also collected from other value chain actors namely; input suppliers, traders, consumers, and supporting service providers. Totally, 183 sample respondents were selected from various stages of value chain actors in the study areas.

Table 1. Quantitative description of districts

Description	Ambo*	Toke kutaye**
Total area of land	835.97km ²	788.87 km ²
Geographical location	8°47'N-9° 21'N & 37°32'E-38°3'E	08°N59'01.1N & 37°E46'27.6E
Altitude range	1500-3100 masl	1500-3194 masl
Temperature range	23 °C -25 °C	15 °C – 29 °C
Average annual rainfall	1000-1700mm	1000-1588mm
Total population	121,744	134,767
Male	60734	66,492
Female	61010	68,275
Agro climatic zones		
Lowland	17%	18%
Midland	60%	55%
Highland	23%	27 %
Number of kebeles		
Rural	32	31
Urban	1	4

Sources: * ADAO, 2014 and ** TKAO, 2014

Data Analysis

Both qualitative and quantitative methods of data analysis were used. Key informant interview, interviewing different value chain stakeholders and secondary document analysis were used. Constraints and opportunities analysis was used to analyze the challenges and opportunities for technological, institutional and organizational innovation across the value chain. Both production and marketing constraints and opportunities along main stage of value chain were analyzed. The questionnaires were checked for clarity and consistency in answering questions. This was followed by coding of answers and data entry into the computer for analysis. Statistical package for social science (SPSS) version 20.0 and STATA version 11.0 are used for entering data to computer and analysis of data.

RESULTS AND DISCUSSION

Demographic characteristics of sample households

The demographic and socioeconomic characteristics of the sample respondents characterized the onion crop production and marketing systems (Tables 2 and 3). The total sample size of farmer respondents handled during the study was 151. Of the total sample respondents, 87.04% and 83.51% were male-headed households and only 12.96% and 16.49% were female headed in Ambo and Toke Kutaye districts, respectively. This indicated that the majority of the household respondents were male who taken part in crop production, management and marketing activities of onion as households head in the study areas. The report of World Bank (2007) illustrated that women-owned agricultural businesses faced greater constraints and received far fewer services and less support than those owned by men. These disadvantages reduce women's effectiveness as actors in value chain and also restraint their overall engagement in market activities.

The educational background of the sample household head is believed to be an important feature that determines the readiness of household heads to accept new ideas and innovations. About 57.41% and 52.58% of the sample households were literate; however, 42.59% and 47.42% of the sample household heads were illiterate in Ambo and Toke Kutaye districts, respectively. The chi-square test indicated that there was a significant difference between the two districts at 10% significance level in their education level. The study indicated that more than half of the respondents were educated, and households who have better education level can easily adopt better production practices and accepting new agricultural inputs and innovations;

thus, they can increase productivity and marketable supply. Also this finding is supported by the report of Astewel (2010) who found that as rice producers gets educated, the production and amount of rice supplied to the market became increased. The marital statuses of the majority of households head in the districts were married.

Table 2. Demographic and socioeconomic characteristics of producers (categorical variables)

Variables	Items	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)		χ^2 - TEST
		N	%	N	%	N	%	
Sex	Female	7	12.96	16	16.49	23	15.23	0.3351
	Male	47	87.04	81	83.51	128	84.77	
Education level	Illiterate	23	42.59	46	47.42	69	45.70	7.5929*
	Primary	14	25.93	35	36.08	49	32.45	
	Secondary	7	12.96	11	11.34	18	11.92	
	Diploma	10	18.52	5	5.15	15	9.93	
Marital Status	Married	49	90.74	94	96.91	143	94.70	4.9869
	Single	1	1.85	2	2.06	3	1.99	
	Divorced	2	3.70	0	0	2	1.32	
	Widowed	2	3.70	1	1.03	3	1.99	

Note: N=sample size, and * is significant at 10% significance level

The average households head age was 40.7 and 39.84 years in Ambo and Toke Kutaye districts, respectively (Table 3). The average family size of the total sample respondents was found to be 5.22 and 5.48 persons in the two districts, respectively. The study showed that there was no significant family size difference between the two districts as it was indicated in independent sample t-test. The study indicated that the average age of the households' respondents were in active productive age. In other way, the study showed that average family size of households' respondents in the study areas were also more than five persons per household. Thus, if they are efficiently engaged in production activities there were labor opportunities to increasing production and marketable supply of onion in study areas.

In onion farming experience; it is found that farmers in Ambo have more years of experience as compared to those of Toke Kutaye. The study also indicated that majority of farmers in the study areas were started onion production in more recent times. The independent sample t-test revealed that there was difference at 10% level of significance on the mean years of onion farming experience between two districts. Thus, the more experienced in onion production in Ambo district, the more knowledgeable and skillful to increase productivity and marketable supply of onion produce. This result is supported by the findings of Almaz et al. (2014) who found that lack of production and marketing skill and farming experience affected negatively the marketing activities of onion and the improvement of onion value chain in Ethiopia.

Production Status and Inputs Available for Onion Production

Inputs are very important to improve the productivity of onion and lead to increase the production and supply of onion to the market. According to primary data collected from respondents, all of them were used Urea and DAP fertilizers and improved onion seed (Bombay red or Adam red) in 2014/15 production year. The study result revealed that the producers used on average about 54.15 kg of Urea and 68.04 kg of DAP per hectare during 2014/15 production year in the study areas.

There was also differences between the two districts in amount of fertilizers utilized (Table 4). The independent t-test showed that there was statistically significant difference between the two districts at 1% significance level in DAP fertilizer utilization. The study indicated that Ambo district used more amount of fertilizer than Toke Kutaye district as a result the yield per ha of Ambo district was more than Toke Kutaye district.

Table 3. Demographic and socioeconomic characteristics of producers (continuous variables)

Variables	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)		t-test
	Mean	SD	Mean	SD	Mean	SD	
Age	40.76	9.07	39.33	8.66	39.84	8.80	0.9560
Family size	5.22	1.94	5.49	1.97	5.39	1.96	-0.7874
Experience	3.85	1.92	3.33	1.46	3.52	1.65	1.8803*

Note: N=sample size,* is significant at 10% significance level

The study result also showed that both Urea and DAP fertilizers utilization of both districts were less than the nationally recommended rate of 100-150kg/ha Urea and 200-250kg DAP fertilizers for particular commodity although it was vary depending on soil fertility of an areas (Olani and Fikre, 2010). This indicated that farmers used on average only about 54% and 34 % of the recommend amount of Urea and DAP fertilizers, respectively in the study areas. This might be the reason for low productivity of onion in the study areas when compared to yield recorded in research centers in Ethiopia.

The improved onion seed utilization was 4.82 and 4.71 kg/ha in Ambo and Toke Kutaye districts, respectively. This showed that the utilization of improved onion seed in the study areas was higher than the recommended rate of 3.5–4.0 kg/ha, which might be due to seed quality problem in the study areas. This indicated that improved onion seed with quality problem was the cause for low germination. The farmers were faced the problem of over utilization of seed rate to minimize the risk of germination problem. Thus, these exposed farmers to addition expenses that affect their efficiency in doing this agricultural business. This result also supported by the findings of Olani and Fikre (2010) who found that in many parts of Ethiopia due to seed quality problems the farmers used high rate of onion seed application to reduce the risk of germination problem.

There was a significant difference in terms of the number of farmers utilized insecticides in both districts; about 22.22% and 92.78% of the sampled household respondents in Ambo and Toke Kutaye districts used insecticide, respectively (Table 5). The chi-square test indicated that there was significant difference between the two districts at 1% significance level in number of producers used insecticide. This might be due to awareness difference on side effect of it on environment between two districts as problems stated by farmers in connection to this input. In general the study result showed that proper utilization of agricultural inputs (fertilizers, improved seed and insecticides) are important factors to increase production and productivity of onion produce, and enhance efficiency and competitiveness of the farmers in the market.

All of the fertilizers sources were primary cooperatives in the study areas for the sampled respondents (Table 6). All sample respondents in both districts also used local market as a source of improved seed and insecticide due to unavailability of these inputs through cooperatives. Data collected from key informants and cooperatives revealed that the cooperatives weren't supplied improved onion seed and insecticide to the producers in the study areas.

Table 4. Rate of inputs utilization per ha for onion production in 2014/15 in kg

Variables	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)		t-test
	Mean	SD	Mean	SD	Mean	SD	
Urea	55.17	20.13	53.58	13.77	54.15	16.28	0.5736
DAP	74.94	22.59	64.20	13.58	68.04	18.02	3.6513***
Improved seed	4.82	1.19	4.71	0.93	4.75	1.03	0.6314

Note: N=sample size, *** significant at 1% significance level

Table 5. Number of household respondents used insecticide in 2014/15

Variables	Items	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)		χ ² -test
		N	%	N	%	N	%	
Insecticide Usage	No	42	77.78	7	7.22	49	32.45	78.7915***
	Yes	12	22.22	90	92.78	102	67.55	

Note: N= sample size, and *** is significant at 1% significance level

Table 6. Sources of inputs for household sample respondents

Variables	Source	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)	
		f	%	f	%	f	%
Fertilizer	Cooperatives	54	35.76	97	64.24	151	100
Improved seed	Local market	54	35.76	97	64.24	151	100
Insecticide	Local market	12	11.76	90	88.24	151	100

Note: N= sample size and f = frequency of house hold respondents

Types of services and its sources

Access to services like agricultural extension, credit and market information, which are the most important factors that promote production and productivity thereby increasing marketable supply of onion, showed differences between the two districts (Table 7). Only 31.79% of the total sampled household had access to different types of extension services on different agronomic practices performed in onion production. More number of respondents/farmers in Ambo (37.04 %) had access to extension services than Toke Kutaye farmers (28.87%) (Table7). The survey result also showed that from the total household accessed extension service 50%, 89.58% and 95.83% of them got extension service by experience sharing, visiting demonstration site/fields of model farmers and training, respectively. The study result of focus group discussion identified that the quality of extension services given for them was low as a result there was low satisfaction on the service in the study areas. This descriptive analysis also showed that there were positive relationship between extension service and productivity of onion produce in the study areas. The finding of this study is supported by the result of Adugna (2009) who found that poor extension service was a cause for low productivity of onion in Alamata district, Southern Zone of Tigray. Regarding to access to credit service 52.98% of respondents had received it; more of the Ambo farmers (61.11%) were accessed to credit than Toke Kutaye (48.45%) farmers. The descriptive analysis result indicated that credit service has positive relationship with yield/ha of household respondents in the study areas.

It is assumed that producers who have market information can decide how much to produce and market. In the study areas, there was no organized market information system. However, the study result revealed that 66.89% of the total sampled households had access to market information on produce price, market place and buyers' information (Table 7). As

the result indicated more of Toke Kutaye farmers (73.20%) had access to market information than that of Ambo district farmers (55.56%). The chi-square tests result on access to market information indicated that there was statistically significant difference at 5% significance level between the two districts. This indicated that as farmers accessed to market information, the marketable supply of onion produce also become increased. Also this finding is supported by the result of Abay (2007) who concluded that those farmers who had better market information supplied more fruit to the market Fogera in district.

Table 7. Access to services of household respondents in 2014/15 production year

Variables	Items	Ambo (N=54)		Toke kutaye (N=97)		Total (N=151)		χ^2 -test
		N	%	N	%	N	%	
Extension service	No	34	62.96	69	71.13	103	68.21	1.0681
	Yes	20	37.04	28	28.87	48	31.79	
Credit service	No	21	38.89	50	51.55	71	47.02	2.2310
	Yes	33	61.11	47	48.45	80	52.98	
Market information	No	24	44.44	26	26.80	50	33.11	4.8738**
	Yes	30	55.56	71	73.20	101	66.89	

Note: N=sample size, ** is significant at 5% significance level

Constraints in Onion Value Chain

A number of constraints and opportunities for further technological, institutional and organizational innovation for upgrading the value chain in the study areas were identified along the main value chain stages. In this subsection, the major constraints and opportunities are briefly discussed.

Production constraints

Natural factors

There were natural factors those affected the production of onion produce in the study areas. The majority (96%) of the sample producers indicated that diseases, drought, insects and lack of sufficient irrigation water were the major natural constraints of onion production system in study areas (Table 8). The result of this study is in line with Bezabih et al. (2014) who identified factors affecting the production of vegetable crops in Ethiopia.

Table 8. Major production constraints of onion producers

Types of constraints	Respondents (N=151)	
	Frequency	%
Diseases and insects	145	96.0
Drought and lack of sufficient irrigation water	146	96.7
Limited knowhow and skill	89	58.9
Lack of money to invest	76	50.3

Limited access to supply of agricultural inputs

The most important inputs for onion production are improved seeds, fertilizers and pesticide/herbicides. Among the total sample of respondents, 98.67%, 92.05% and 96.68% of them replied that there were the problems of unavailability, high price and poor quality of onion improved seed, respectively in study areas (Table 9). As a result, farmers faced problems of low germination capacity of onion seed. For instance, the study result showed that the utilization of improved onion seed during 2014/15 production year was more than the nationally recommended rate of 3.5-4.0 kg/ha (Olani and Fikre, 2010). The result of focus group discussion indicated that over utilization of improved onion seed was due to quality problem; and this exposed farmers to addition costs that affected the efficiency of them in production process.

In general focus group discussion and key informant indicated that limited access to supply of agricultural inputs problems' were caused mainly due to the absence of vegetable seed multiplying and distributing agency and inappropriate delivery mechanisms of inputs. This finding is supported by Abraham (2013) who found that farmers were small-scale and unorganized in Habro and Kombolcha districts in Oromia Region. He suggested that policy intervention to strengthen farmers' cooperative and encourage collective action of farmers to lower transaction costs to access modern input technologies through their organization that is essential in increasing the production and productivity of vegetables. Additionally the majority of the respondents also revealed that there were the problems of shortage of supply, delay of supply and high price in delivering inorganic fertilizer in the study areas.

Limited knowhow and skill

The study result showed that 58.9% of the sample household heads mentioned that there were the problems of limited knowhow and skill of farmers that affected the increment of production and productivity of the districts (Table 8). This is mainly related with limited extension service in the study areas (Table 7). Also this finding is supported by the result of Ayelech (2011) who found that if fruit producer gets extension their knowhow and skill increase; as a result the production and amount of marketable supply of fruits is increasing in Gomma district.

Limited access to credit

The study result showed that only 52.98% of respondents had received credit access (Table 9). Table 25 summarized that 82.8%, 51% and 48.3% of sampled household heads identified that huge bureaucracy, limited supply of credit and high cost of credit were the causes for limited access to credit, respectively.

Table 9. Problems in accessing credit service in study areas

Type of problem	Respondents (N=151)	
	Frequency	%
Limited supply of credit	77	51
Huge bureaucracy	125	82.8
Limited access to transport	1	0.7
High cost of credit	73	48.3

Post harvest loss of onion produce

The result of focus group discussion identified that due to absence of appropriate post harvest handling practices and perishability nature of the onion produce there was about 2.67% post harvest loss of onion produce at production level of the chain. The study result showed that totally there was 11.64% onion produce losses' starting from harvesting up to consumption of the product in the study areas (Table 10). The result of this study was more than the findings of USAID (2013) which reported that the proportion of post-harvest loss of onion in Ethiopia was about 10.7%. This might be due to lack of proper handling and insufficient value added activities performed along main chain and it was highest at wholesalers' stage.

Marketing constraints

The majority of onion producers responded that there were marketing problems in the study areas (Table 11). The study result showed that 94%, 96% and 90.73% of the respondents identified that low price of produce at harvesting time, poor linkage with value chain actors and perishability nature of the produce as major marketing constraints in the study areas. The study result showed that there was lack of coordination among producers that help them to increase their bargaining power and participating in onion marketing activities in organized ways. There was no any onion marketing institution that was linked with producers to safeguard farmer's interest and rights over their onion marketable produces. The result of this study is in line with Bezabih (2008) who identified lack of coordination among producers as one of the problems of the horticulture value chain in Kombolcha district of Eastern Oromia.

Table 10. Onion produces losses per chain actors per quintals in the study areas

Types of actors	Losses per chain actors (%)	Percentage of total chain losses (%)
Producer	2.67	22.94
Wholesaler	4.49	38.57
Retailer	3.18	27.32
Consumer	1.3	11.17
The whole chain	11.64	100

Source: computed from the study result of 2014/15

The study result of traders' also confirmed that there was marketing problems in the onion value chain in the study areas. The major onion marketing constraints mentioned by traders were lack of credit, supply shortage, lack of organized market information, low product quality, competition with unlicensed traders, price fluctuation and lack of support from concerned bodies (Table 12). In addition to these the study result showed that there were 4.49% and 3.18% of onion produce losses at wholesaler and retailer level, respectively in the study areas (Table 10).

Table 11: Major onion marketing constraints of producers

Marketing problems	Respondents (N=151)	
	Frequency	%
Low price of produce at harvesting time	142	94
Poor linkage with value chain actors	145	96
Perishability nature of the produce	137	90.73

Opportunities in Onion Value Chain

Production opportunities

The districts are also naturally endowed though they have some production and marketing constraints. Some of the production potentials of the districts are; the districts are very suitable to produce not only horticultural products but also other market oriented commodities of cereal, pulses and/or animal production; and the favorable agro-ecology of the area help to produce horticultural crops is a good opportunity to boost production in the area. On top of this, relatively fertile arable land and abundant underground water potential are some to mention. Even if it is not meet the demand of the producers, the availability of some irrigation facilities also taken as the opportunities for the producers to produces vegetables and generating income in short period.

Government agriculture policies and employment of development agents to give extension support for farmers at each kebeles are also taken as important production opportunities. The result of this study is in line with Bezabih and Hadera (2007) who identified that government policy and development strategy on agriculture provided opportunities for increased

horticulture production in the Eastern Ethiopia.

Furthermore, provision of infrastructure facilities like roads, telecommunication, power supply and presence of financial institutions are the infrastructural advantages that facilitate the production and marketing of onion in the study areas. Organizations and institutions such as Ambo and Holeta research institutes, Agricultural growth project, Sustainable land management project, Ambo University and other institutes in the area are those that have direct or indirect potential roles in onion value chain development which can be taken as opportunities.

Market opportunities

The study result of key informant showed that availability of market demand throughout the year and growing number of buyers were the most important market opportunities of the study areas. This study result is supported by the finding of Bezabih and Hadera (2007) who identified the presence of demand for horticulture product played important role increasing market integration, and enabling livelihood diversification of the communities in the Eastern Ethiopia. The location proximity of the districts to Addis Ababa and Ambo markets are also the opportunities that enhance level of commercialization in the study areas. The survey result of key informant replied that even if they aren't accessed equal for all farmers' infrastructural development such as telecommunication, electric power and road are also the other advantages to improve the marketing system in the area. Generally, these market opportunities are the most important factors to expand the production and marketing activities of onion produce in the study areas.

Core Intervention Areas for further Development of Onion Value Chain

One of the merits of value chain approaches is that it helps to clearly identify bottlenecks to the development of the value chain right from input supply up to the consumption level in vivid way.

Table 12. Summary of opportunities and constraints along main value chain actors

Function	Opportunities	Constraints
Input supply	<ul style="list-style-type: none"> ▪ Demand for quality seed, fertilizer and farm implement tools ▪ Availability of fertilizer from cooperatives 	<ul style="list-style-type: none"> ▪ Poor quality, high price & inadequate supply of improved seed ▪ Un organized way of supply of inputs required by producers
Production	<ul style="list-style-type: none"> ▪ Favourable land and climatic condition for horticulture production ▪ Enabling policy environment and support from government and non-government organizations ▪ Proximity to market and demand for produce 	<ul style="list-style-type: none"> ▪ Disease, pest & insect problems ▪ Low productivity ▪ Limited irrigation facilities & lack of sufficient irrigation water ▪ Perishability of produce ▪ Inadequate value added activities ▪ Low price for produce at peak harvesting time ▪ Inadequate know how on agronomic practices
Wholesalers	<ul style="list-style-type: none"> ▪ High market demand ▪ Infrastructure and proximity to market center 	<ul style="list-style-type: none"> ▪ Price fluctuation ▪ Lack of storage facility ▪ Competition with unlicensed traders
Retailers	<ul style="list-style-type: none"> ▪ Market demand ▪ Availability of onion throughout the year 	<ul style="list-style-type: none"> ▪ Competition with unlicensed traders ▪ Inadequate value added activities and loss of produce
Consumption	<ul style="list-style-type: none"> ▪ Demand for consumption 	<ul style="list-style-type: none"> ▪ Inadequate value addition ▪ Loss of produce

Source: Own computation from study result, 2014/15

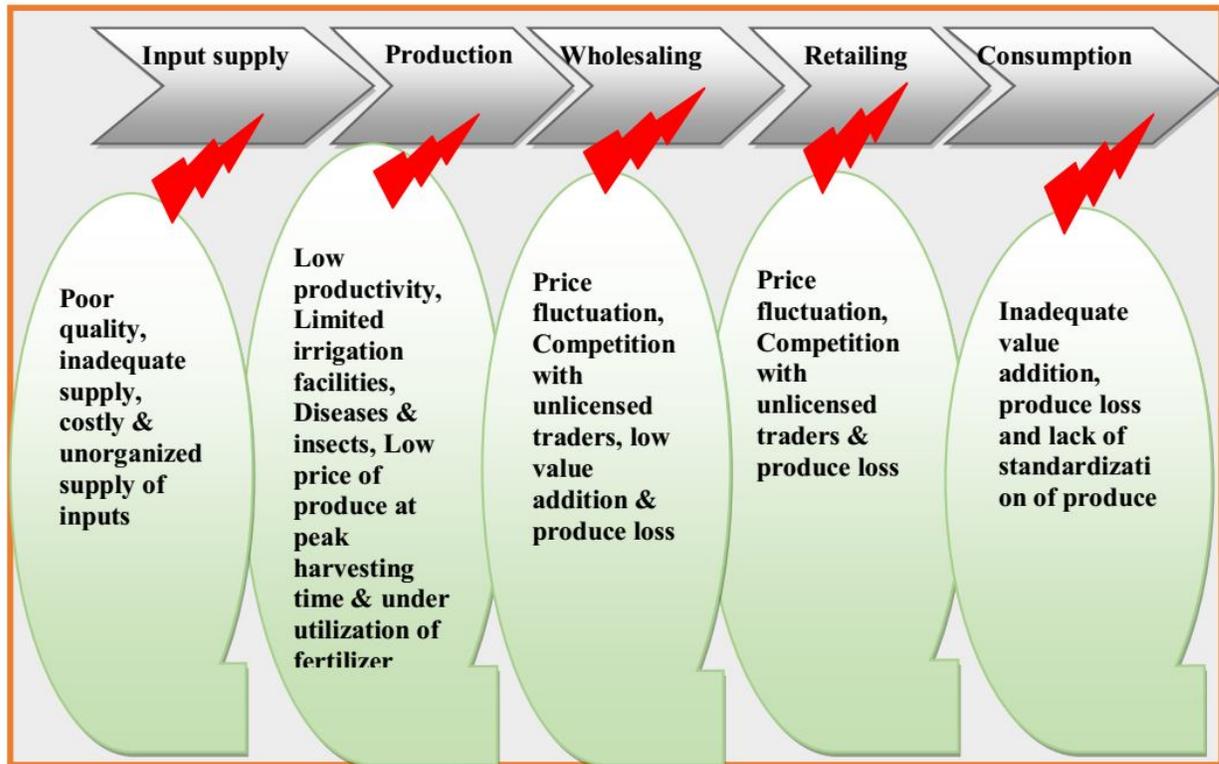


Figure 1. Summary of core intervention areas in onion value chain in the study areas

Summary and Conclusion

Onion crop is one of the most important vegetables produced in Ethiopia for both commercial and consumption purposes. However, due to different constraints the potential of the crop was not utilized to the fullest extent by economic entities along the commodity chain. Diseases, drought, insects (pests) and lack of sufficient irrigation water were the major naturally occurring production constraints of onion production in the study areas. Additionally, limited knowhow and skill on agronomic practices and limited supply of agricultural inputs were identified as production constraints. Low price of produce at peak harvesting time, poor linkage with value chain actors and perishability nature (loss of produce) were also the identified major marketing constraints of producers in the study areas. Lack of credit; supply shortage; lack of organized market information; low quality of produce; onion produce loss; competition with unlicensed traders; price fluctuation; and lack of support from concerned government bodies were major marketing constraints faced traders in the study areas. The total post harvest loss of onion produce was 11.6% during 2014/15 production year in the study areas. Thus, from the study results it is possible to conclude that, even though there were potential conditions for onion production in the study areas; the sector was constrained by different production and marketing problems discussed above. Onion value chain is affected by several aforementioned constraints at each stage of the chain functions those influenced the efficiency and competitiveness of the whole chain in the study areas. Therefore, it is known that intervention is required to improve the efficiency of onion value chain in the study areas.

RECOMMENDATIONS

Based on the summarized findings and conclusions of the study, the following recommendations that call for policy measures (interventions) so as to improve onion value chain are forwarded. Thus, government and extension agents in the study areas should give attention to promote agricultural activities like using of quality improved seed varieties, application of inorganic fertilizers properly, using of modern technologies, controlling diseases and pests' problems to increase the production and productivity of onion; and in construction of irrigation facilities for onion production. Also, extension service provider should support farmers in onion seed production technologies either at private or cooperative level and/or create strong institutional linkage with those producing good planting seed to solve the problems associated to improved onion seed

supply and quality; and should give attention in organizing and supporting vegetable producers associations to increase the bargaining power of them that help producers to participate in marketing activities through their association and delivering of inputs for their members on the base of on time, fair price and quality. Lastly but not least, the government and other concerned bodies should give attention to solve the problems associated with the competition of unlicensed traders and increase the marketing systems of perishable horticultural crops like onion and the like.

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