Wheat production and marketing in Ethiopia: Review study
Adugnaw Anteneh and Dagninet Asrat

Abstract: The objective of the study was to review the status of wheat production and marketing in Ethiopia. The data are analyzed using graphs, figures, tables and narrations. Ethiopia shows remarkable economic growth, and the agricultural sector takes the highest contribution. Crops take the highest share in total production and area coverage which constituted on average 68% of the Ethiopian agricultural gross domestic product. Consequently, wheat is an important cereal crop which makes a significant contribution to the development of the agricultural sector in general and to the farm household food security status in particular. In Ethiopia, wheat production and productivity has shown increasing rate, especially from 2005 to 2017. This makes Ethiopia as one of the largest wheat producers in sub-Saharan countries. Even though it shows potential, wheat production and productivity is relatively small by global standards. The main reason is that mostly subsistence farming of wheat is produced by small-scale farmers through rain feed production system with less irrigated production. Additionally, existing wheat production and marketing system is exacerbated by constraints which have their own influence on decreasing yield of wheat. But, in opposite to the constraints, there are also important opportunities which motivate wheat production and marketing trends of farmers and traders. Finally, to bring wheat production and marketing development in Ethiopia, attention from responsible bodies on the expansion of infrastructure, awareness creation for wheat farmers through training on value-adding activities,
intervention on the expansion of irrigable land and motivating large-scale farms have been suggested.

Subjects: Agriculture & Environmental Sciences; Agriculture; Agriculture and Food

Keywords: Ethiopia; wheat; production; marketing; constraint; opportunity; productivity

1. Introduction

Agriculture is a key to Africa’s future. The continent has most of the world’s arable land, and over half of the population is employed under the agricultural sector and it is the largest contributor to the total gross domestic product (GDP). Yet, still Africa is producing too little food and low value-added products, and productivity has been broadly stagnant since the 1980s (AGRA, 2018). Most of the hungry live in low-income countries, and many of them make the necessary headway towards the structural transformation of their economies. Such successful transformation is driven by agricultural productivity growth which enables the peoples to shift from agriculture towards manufacturing, industry, increase in per capita income and reduction in poverty and hunger (FAO, 2017).

Agriculture is also the backbone of the Ethiopian economy, and more than 85% of the national growth domestic product of the country is derived from the agricultural sector. Its economy was registered 7.7% growth in 2017/2018, slower than the 10.9% expansion recorded in 2015/2016. This growth was attributed to 12.2% rise in industrial output, 8.8% expansion in service sector and 3.5% growth in agriculture (NBE, 2018). Crop production is a major contributor to GDP, accounting for approximately 28% from the sub-sectors of agriculture. On the other hand, livestock rearing is an integral part of agriculture, and the contribution of live animals and their products to the agricultural economy accounts for 40% (Duguma et al., 2012). According to Ejersa (2011), coffee, pulses, oilseeds, potatoes, sugarcane, vegetables and cereals are the principal crops grown in Ethiopia. Among the above-listed types of crops, cereals are the most important food crop which provides daily food calories to the people. Hence, cereal production and marketing are the means of livelihood strategy for millions of smallholder households in Ethiopia (Taffesse et al., 2012).

Teff, wheat, maize, sorghum and barley are the major cereals that occupy almost three-quarters of the total area cultivated (Taffesse et al., 2012), and households spend an average of 40% of their total food budget on cereals (GAIN, 2014). In the production season of 2011/2012, from the total grain produced in Ethiopia, cereals account for 188.09 million quintals (CSA, 2012). But in another production year of 2014/2015, the total grain production reached to 270.4 million quintals, of which cereal production accounted for 235.45 million quintals (CSA, 2015). The total grain crops produced during the year 2015/2016 increased by 2.41% from the 2014/2015 total production (CSA, 2016). On the other hand, the report of CSA (2018, 2019) indicates that the total cereal production of wheat was 267.8 million quintals and 277.7 million quintals in 2017/2018 and 2018/2019 production seasons, respectively. Based on the report, there is 3.67% change in production between the two production seasons.

Wheat (*Triticum aestivum* L.) is one of the globally produced and marketed cereal crops which covers 15% of the total sowing areas of cereal crops in the world (Kiss, 2011). It is an important industrial and food grain which ranks second among the most important cereal crops in the world after rice and traded internationally (Asadallah, 2014; Falola et al., 2017). In sub-Saharan African countries, wheat is also a strategic commodity which generates farm income and improves food security status (Amentae et al., 2017; Minot et al., 2015; Negassa et al., 2013). Many African countries are producing wheat for both consumption and sale, but the level of production and sale is varied between countries. Ethiopia is one of the largest wheat producers in terms of total wheat area cultivated and total production (CSA, 2012). Wheat and wheat products represent 14% of the total calorie intake in the country which makes wheat the second-most important food
behind maize (19%) and ahead of teff (10%), sorghum (11%) and enset (12%) (FAO, 2014). In Ethiopia, wheat ranks fourth after teff, maize and sorghum in area coverage and third after maize and teff in total production (CSA, 2012; Minot et al., 2015). But, the production of wheat is tremendously of a subsistence nature and dominated by the country’s numerous smallholder farmers that cultivate more of wheat for consumption and less of it for the market (Matouš et al., 2013). Of course, as discussed by Minot et al. (2015) and CSA (2013), it is produced by both small-scale and large-scale commercial farms. However, according to Demeke and Marcantonio (2013), except some government-owned large-scale and commercial farms, wheat is produced predominantly by smallholder farmers under rain feed conditions. It is clear that in the country small-scale wheat farmers dominate large-scale commercial farms, and it has its own negative influence on production and productivity in the country and it affects the competitiveness of wheat quality at the world market.

The highlands of the central, south-eastern and northwest parts of the country are the main wheat-growing areas of Ethiopia. Regionally, the national production of wheat comes from Oromia (57.4%), Amhara (27%), SNNP (8.7%) and Tigray (6.2%) (CSA, 2014). Wheat has many uses like that of other cereal crops produced in the country. In Ethiopia, wheat grain is used in the preparation of different traditional as well as modern processed food products such as injera and other industrial processed products like pasta and macaroni (Nigussie et al., 2015). Besides, wheat straw is commonly used as a roof tacking material and as a feed for animals. So, wheat is an important cereal crop which should get emphasis on both its production and its marketing.

As we understand from the above-discussed information, wheat in Ethiopia is an important stable and cash crop in increasing income of the people, food security, employment and national GDP increment. However, its production and marketing is challenged by factors such as shortage of agricultural inputs, diseases and pests, shortage of infrastructures, shortage of institutional services, shortage of storage materials, product quality, low selling price and price cheating. But, in opposite to these challenges, available opportunities such as government policy, expansion of market, increasing demand for wheat and potential of the area for wheat production encourage wheat producers and traders to engage in wheat production and marketing activities.

A number of research articles are conducted so far about wheat in different parts of Ethiopia. Reviewing different researches in one document is very important, and it can be used as a reference for policymakers, researchers and others who want to know about wheat. Of course, Abate (2018) conducted a review paper on market chain analysis of wheat in Ethiopia and Gemeda (2016) reviewed on value chain analysis of wheat and barley in Ethiopia. In addition to them, Tadesse et al. (2018) reviewed on wheat production and breeding challenges and opportunities in face of climate change in sub-Saharan Africa. This indicates little bit is done on reviewing conducted papers on wheat in the country. Therefore, we found that it is important to review additional conducted researches, identify gaps and give future directions on production, productivity and marketing of wheat.

1.1. Objective
The overall objective of the review was to assess wheat production and marketing in Ethiopia and specifically

- To review wheat production status in Ethiopia
- To review wheat production and marketing constraints in Ethiopia
- To review wheat production and marketing opportunities in Ethiopia

1.2. Methodology
Basically, this paper is a review article, and it has no direct data which collected from the population, rather it is based on secondary data which conducted previously on wheat production,
opportunities and constraints by different researchers and reviewers. This paper reviewed the most recent research articles and review papers. Therefore, the review of this article is based on an intensive reading of published and unpublished journals, articles and books. To make the review articles more brief, in addition to narrations, tables and figures were used as reviewing techniques.

1.3. Conceptual framework for the review study

This section explores the conceptual framework adopted from the reviewed literature. This conceptual framework (Figure 1) which guides the review study is built on the relationship between wheat production and marketing and opportunities and constraints of the wheat sector. As indicated in the figure, there are a number of opportunities which encourage the farmers and traders to enter into production and marketing. Such opportunity can be a means of increasing production, productivity and marketing of wheat. However, on the other hand, these opportunities are affected by different production and marketing constraints which are the main reasons for the low development of the wheat sector.

2. Review of related literature

The literature part of this review mainly discusses the previously conducted researches and their findings regarding wheat production status, production and marketing constraints and opportunities in Ethiopia.

2.1. Wheat production and productivity in Ethiopia

Agriculture is the pillar for the growth of the Ethiopian economy. The agricultural sector has shown improvement from time to time and takes the highest contribution to the development of the country’s economy. Sustained growth in agricultural productivity and modernization supported by continued investment in a large public extension structure that extends from the federal to regions were the main drivers for the large contribution of the agricultural sector to the country’s economy (AGRA, 2018; Bachewe et al., 2018). Under agricultural production system, commodities like crops, pulses, oilseeds, vegetables and fruits are produced every year. From those commodities, crops take the highest share in total production and area coverage (CSA, 2012, 2013, 2016, 2017, 2018) and hence crop agriculture constituted on average 68% of the Ethiopian agricultural growth domestic product.

Among the types of crops, cereals are the most important crop which provides food calories in day-to-day life of the people. To strengthen their life and to change their living standards, peoples use various livelihood strategies. Thus, cereal production and marketing are the means of
livelihood strategy for millions of smallholder households which enables them to get high produce for consumption and sale (Taffesse et al., 2012). Teff, wheat, maize and sorghum occupy almost three-quarters of the total area cultivated, and they are the major cereal crop for the country. In Ethiopia, wheat can be produced by both small-scale subsistence farmers (Tadesse et al., 2018) and large-scale commercial farms. However, small-scale farmers dominate large-scale commercial farms in area coverage and the amount produced. As Minot et al. (2015) indicated, large-scale commercial farms have only 50–80 thousand hectares of land and produced 1.5–2.0 million quintals of wheat.

Ethiopia ranks 31st in the world with 4.2 million quintals produced on 1.7 million hectares of land (Goshu et al., 2019) and is one of the largest sub-Saharan African wheat producers and ranks second to South Africa in terms of total wheat area coverage and the amount produced (Hei et al., 2017). On the other hand, according to CSA (2012) and Negassa et al. (2013), Ethiopia takes the first rank with an average annual production of 360 million quintals between 2011 and 2014 production seasons. Yet, regarding total yield, since small-scale farmer’s dominance relied on rain feed agriculture, and due to their traditional production system, Ethiopian wheat ranks 67th worldwide even below other sub-Saharan countries (Goshu et al., 2019; Hei et al., 2017; Minot et al., 2015; Tadesse et al., 2018). Empirical studies on assessment of wheat yield indicate that other African countries such as Egypt, South Africa and Kenya have 67, 35 and 30 quintals per hectare, respectively. However, the report of FAOSTAT indicates that the average wheat yield of

Figure 2. Yield status of wheat, maize and teff from 1994 to 2016 (source: PARI, 2015).

Figure 3. Status of wheat production, area coverage and productivity from 2000 to 2017 (source: FAOSTAT, 2018 online report).
Ethiopia is 28 quintals per hectare in 2017 (Figure 3). Thus, still, the Ethiopian wheat yield is lower than that in other African countries. But when we see other African countries for instance, in Egypt in addition to rain feed production system, wheat is also produced by large-scale commercial farms through irrigated production system. This enables them to produce the required amount of wheat with its required quality by the market.

The production of wheat makes a significant contribution to the farm household food security status, especially in the highland areas of the country (Bekele & Shiberu, 2014). It ranks fourth after teff, maize and sorghum in area coverage and third in total production and productivity (CSA, 2012, 2016). The mean production and yield of wheat in quintals per household per hectare from 2011 to 2012 were 7.43 quintals and 13.68 quintals, respectively, which are next to maize with 7.58 quintals and 24.96 quintals in the same way (Minot & Sawye, 2012). As indicated in the figure, the yield of all teff, maize and wheat shows an increasing trend from the year 1994 to 2016 (Figure 2). However, even if their yield trend is increasing through time, their increasing rate is different between them.

Again with regard to the estimated yield, the report by CSA (2018) also mentioned that maize, teff and wheat within the category of cereals have shown increasing range from 7.32 to 28.93 quintals per hectare for maize; from 5.05 to 26.76 quintals per hectare for teff; and from 2.28 to 29.67 quintals per hectare for wheat over the last 5 years (2012/2013–2017/2018) post-harvest estimates. This indicates that wheat shows the highest increasing rate which is 22.39 quintals than teff (21.61 quintals) and maize (21.71 quintals). Such increasing rate of wheat production is due to the implementation of several government programs and initiatives which drive agricultural growth and food security in the country (Gebreselassie et al., 2017). Report of FAOSTAT indicates that on average wheat production and total area coverage increased from 2000 to 2017. Specifically, there was an increasing rate of production and area coverage from 2000 to 2001, but it also shows a decreasing rate during 2002 and 2004 (Figure 3). As indicated in Figure 3, production, productivity and area coverage vary between years. According to Gebreselassie et al. (2017), the main reason for this significant annual variation is primarily due to variation in rainfall which means that if the rainfall is good, the production is also good, whereas if the rainfall is not sufficient, the status of the production is also insufficient.

Despite good production and productivity trends made, Ethiopia has faced a growing supply deficit (Bergh et al., 2012). Even if it shows increasing trend domestically, still Ethiopian wheat production is relatively small by global standards (Hei et al., 2017). To increase the demand of wheat globally, the government should give attention through working together with large-scale commercial investors.

### 2.1.1. Potential wheat-producing areas in Ethiopia

Wheat is produced in most highlands of the northern, central and south-eastern parts of Ethiopia (CSA, 2017; Demek & Marcantonio, 2013). This means that it can be produced in almost all regions of the country including pastoral and agro-pastoral areas like Afar, Gambela and Somali regions. However, the majority (85%) of domestic production of wheat is grown in Oromia and Amhara regions of Ethiopia (Bergh et al., 2012). In terms of regional contribution, the production of wheat originates from Oromia (57%), Amhara (28%), SNNP (8.7%) and Tigray (6.2%) (CSA, 2013).

There are 4.7 million wheat-producing farmers in Ethiopia. Of these, more than three-quarters (78%) live in Oromia and Amhara regions. Southern Nations, Nationalities, and Peoples’ of Ethiopia (SNNP) accounts for 13% and the Tigray region accounts for only 8%. Less than 1% of the wheat farmers live in other regions of the country (Minot et al., 2015).

The average wheat area per farm is also largest in Oromia regional state of the country where farmers plant an average of 0.43 ha per farm. This is the result of the existence of large farms in Bale and Arsi areas which are the main wheat-growing zones of the country. That is why the two
zones of the country are known as the **belt** of wheat production areas in Ethiopia (Bergh et al., 2012; Minot et al., 2015). In contrast, the smallest area cultivated for wheat is found in SNNP with an average of 0.19 ha per farm. The average wheat area in Amhara, Tigray and other regions is between 0.28 and 0.39 ha per farm.

We can understand that in Ethiopia wheat is mostly produced from Oromia, Amhara and SNNP regions in terms of both total production and area coverage. But, as indicated in Table 1, in terms of productivity, still the Oromia region takes the first rank, and SNNP and Amhara region take the second and the third ranks, respectively. According to CSA (2018, 2017) report as indicated in Table 1, from the listed potential wheat-producing regions, Amhara region shows the highest increasing trend of wheat yield (1.53 quintals per hectare) in 2017/2018 production season as compared to 2016/2017 production season.

### 2.2. Wheat production and marketing constraints in Ethiopia

Agriculture in general and cereals in particular are the means of livelihood for millions of households in Ethiopia (Dessale, 2019). Cereal production is the single largest sub-sector within Ethiopian agriculture far exceeding all others in terms of its share in rural employment, agricultural land use, calorie intake and contribution to national income. Wheat is one of the most important staple crops of the country in terms of production and consumption (Rashid, 2010). However, still, the Ethiopian government imported approximately 180 million quintals of wheat per year (WorldBank, 2018). There are two main reasons for the import of wheat in the country. The first is to stabilize domestic price and the second is to meet the overgrowing wheat demand of the consumer in the country. Wheat production is mostly farm to fork which means the farmers produce more of it for their consumption at home and less of it for the market (Gebreselassie et al., 2017; Mamo et al., 2016). But the main question is why those farmers produce wheat for only consumption? The reason behind this is due to the existence of several production constraints (Hei et al., 2017). These directly lead to less production and productivity, incompetency and underdevelopment of the wheat market.

Production and marketing problems of wheat start from access to varieties and variety selection systems. There are many factors that are directly or indirectly affecting the rate of adoption of improved wheat varieties. Farmers’ low purchasing capacity with that of shortage of required credit results lack of resistance to the increasing cost of improved seed from time to time. Seed quality variability, problems of availability and timely delivery of improved seed and insufficient quantity of delivery were the major problems of the rate of adoption of improved wheat varieties.

Hei et al. (2017) tried to discuss wheat seed source in Arsi, Bale and West Shewa administrative zones of Ethiopia. Their finding indicates that informal wheat seed sector was the source of 84.4% of the farmer. Out of this, 68.1% of them used seed which is retained from the previous harvest, and 8.9% and 7.4% of them used seed from other farmers and local market, respectively. However,
only 15.5% of the farmers used seed from formal wheat sector, where 12.2% of them get it from agricultural offices, 1.1% from research centers and the rest is from other farmer cooperatives. Hence, breeding programs and formal seed sources in the country should give more emphasis on increasing the frequency with which releases new varieties that yield well. Of course, farmers’ low educational level has also a negative influence on their readiness to accept the new wheat varieties (Bekele & Shiberu, 2014; Minot et al., 2015). As the educational level of the farmers is low, their readiness to accept the newly coming wheat seed varieties also becomes low.

Similarly, Hei et al. (2017) and Tadesse et al. (2018) addressed wheat production and appraisal on farmers’ wheat production constraints and breeding priorities in rust-prone agro-ecologies of Ethiopia by applying participatory rural appraisal tools and stated that wheat rust diseases, the high cost and shortage of input, unpredictable rain, lack of credit access and weed were among the major wheat production constraints. Specifically, as the researchers discussed, limited availability of rust-resistant varieties exposed wheat products to a variety of diseases, and they conclude that to enhance wheat production and productivity in Ethiopia, there should be development of disease-resistant varieties which considers farmers’ preference and their capacity to purchase it. This is because producers may have a range of preferences regarding types of wheat variety and its trait.

Seasonality is also a major constraint which leads to an imbalance between wheat market supply and its demand. The imbalance between these two points may have both negative and positive influence on producers and consumers. At favorable production season, the wheat farmers can produce more, and it can satisfy the demand of consumers, and even sometimes, it leads to surplus which is cost for producers and it needs more storage. On the other hand, during bad production season, less production leads to shortage, and consumers may face the highest expense which is out of their capacity. Of course, availability of storage facility can solve the problem of imbalance between supply and demand which is the result of variation of season. However, due to lack of storage facility, wholesalers and other wheat traders could not store their required amount of wheat, and they are forced to rent another warehouse (Gebreselassie et al., 2017).

To start any types of farming including wheat production, capital or simply access to finance is mandatory. It is obvious that due to the shortage of working capital, the farmers are forced to produce less amount of wheat with less quality. Producing quality wheat may be determined not only by access to capital but also by applying appropriate threshing equipment during the time of threshing. A study by Willy (2018) using descriptive statistics around Ambo district of Ethiopia indicated that shortage of working capital to start wheat production and trading, lack of appropriate threshing facilities which leads to high post-harvest losses and lack of quality indicators such as grade and standardization of traded wheat were the biggest problems of Ethiopian wheat production and marketing system. According to the finding of the researcher, the threshing method and the material which the farmers used were primitive and the local type of threshing material cases loses of wheat seed during time of threshing.

Both naturally occurred and human-made problems challenge producers and traders to produce and trade more amount of wheat. Research by Taffesse et al. (2012) on productivity growth in Ethiopia identified that both naturally occurred and human-made gaps that are hinders for low development of wheat sector include low levels of input use by the farmers, low levels of irrigation, soil degradation and soil erosion and inadequate agricultural research and extension services. Here, especially, application of low level of irrigation has become the major bottleneck for the production and productivity of the Ethiopian wheat sector. As we observe from the trial of developed countries, it is possible to produce wheat more than two times within a year by using irrigation, and this is a key for the development of their agricultural sector. Yet, as Hei et al. (2017) found in Ethiopia, wheat is produced solely under rain feed conditions in most parts of the country like Arsi and West Shewa zones. This is one of the important and critical issues which should get attention from the government.

Most of the Ethiopian farmers are subsistence wheat producers who follow traditional production system (Tadesse et al., 2018), and they are smallholder farmers who have small size of land (Minot
et al., 2015). Even if they have small land size holding, it is possible to increase productivity by applying good agronomic management. Yet, according to Assefa (2016) and Yokamo et al. (2018) on enhancing wheat productivity, end-use quality and value chain through community action research in the northern and southern parts of Ethiopia found that wheat producers suffer from various institutional, socioeconomic and biophysical constraints. For instance, farmers’ small landholding and less soil fertility due to their poor agronomic management ability highly constrained the wheat production. Based on researcher’s finding, these production constraints directly lead to the existence of marketing problems such as production of low quality of produce and low selling price at the market due to its low quality, and finally, it leads to gaining of low profit to the farmers.

Infrastructures is the basic necessity which can facilitate both production and marketing activities. However, as Bayeh (2010) identified on the assessment of production, marketing and selection of nitrogen-efficient bread wheat in northwestern Ethiopia, specifically in Adet Research Center (ARC) and Burie district, lack of standardized road or transport and lack of market to exchange produced wheat were the constraints of wheat marketing. Shortage of infrastructure can lead to other multiplier effects to other sectors. According to the report of FAO (2017) due to lack of basic infrastructures which can be a bridge between rural and urban areas, the growth of agro-industry did not reach its required level of development. Indirectly, various actors who are engaged in wheat production and marketing may not get their expected profit.

Less demand for processors for locally produced wheat and rely on imported subsidized wheat highly constrained marketing of wheat in the country. Specifically, the subsidized wheat creates disincentives for domestic production and marketing of wheat (WorldBank, 2018). Lack of coordination and planning among grain-importing entities; lack of transparency in price discovery and asymmetric price information between different agents; unclear and arbitrary tax practices; and poor regulation and enforcement of quality and standards were also the other problems of cereal market performance in Ethiopia. As discussed in the above part of this review paper, in the form of subsidy, the Government of Ethiopia is still importing wheat from abroad. Indirectly this influenced domestic wheat-producing farmers because of consumer expectation that subsidized wheat from abroad has good quality than the domestically produced one. That is why wheat producers do not get attractive profit from the sale of wheat. It needs attention from the responsible body to do more on empowering domestic producers to produce quality and the required amount which can satisfy consumer demand and substitute the imported amount of wheat.

Most of the Ethiopian farmers, especially those living in the rural areas of the country, have not that much know-how about good management practice for their farming. Research by Mahamud (2016) on wheat production and marketing constraints in Sinana and Holaba special districts of Ethiopia revealed that less awareness of farmers about improved crop management practices incurs loss of values to their income. Application of less crop management practice is one of the reasons for loss during production, harvesting, threshing and even during storage and sale. In parallel to this, lack of timely and sufficient market information; low price of the product at harvest time; weak market linkages among value chain actors, trader’s price cheating and less bargaining power of farmers in the market and unfair competition from illegal traders were the major marketing constraints faced by wheat farmers and traders.

Researchers in different agricultural research institutions have undertaken activities on wheat diseases, productivity and performance in various agroecology of the country. Goshu et al. (2019) investigated that diseases (stem rust, leaf rust and stripe rust), environmental factors (difference in agroecology) and pests (aphids, armyworms and birds) were the primary wheat production constraints in Ethiopia. Their further explanation indicates that the existence of these constraints highly affects the production performance and yield efficiency of wheat.

The selection of large breeding population is an important pre-requirement for the development of smallholder farmers (Hei et al., 2017). In Ethiopia, there are different research institutes which
undertake agricultural activities like seed multiplication, giving various training for the farmers and conducting community problem-solving researches. However, still the farmers face shortage of wheat seeds in the country. This indicates that the problem of seed multiplication is among the reason for less development of wheat production. According to Bekabil (2014), reviewed research article on challenge and prospects of wheat production and productivity indicates that the available research institutions have not that much capacity to multiply wheat seed. In addition to this, low profitability and efficiency of fertilizer, less irrigation development, prevalence of land degradation and desertification were also among the constraints to agricultural production and productivity in general and wheat production and marketing in particular in Ethiopia.

Innovation and searching for new production and marketing system is a road map to develop the wheat sector and the livelihood of the people. It can change the previous traditional production and marketing system of the farmers. Yet, in many countries like Ethiopia, smallholders still have limited access to innovation, technology, knowledge and information which needed to enhance productivity and income (FAO, 2017; Tadesse et al., 2018). Therefore, it is crucial to connect the smallholder farmers to the source of technology and information in research and development which tailored to their needs.

Supplying of factor of production at an optimal cost which considers farmers’ capacity to buy it can be an encouraging means to use more amount of fertilizer. In the current situation, Ethiopian wheat farmers are complaining about the cost of production (Hei et al., 2017; Tadesse et al., 2018), specifically regarding the cost of inputs. Specifically, the cost of fertilizer is increasing from time to time (Tadesse et al., 2018), and it becomes out of the purchasing capacity of the farmers. According to Hei et al. (2017), most of their sample respondents (93%) in Arsi, Bale and West Shewa zones reported that the price of fertilizer was the second most important constraint next to the existence of rust diseases. The implication behind this is due to the high price of fertilizer, and farmers are forced to apply less amount of it per unit area which is below the recommended rate (Taffesse et al., 2012). This has a direct influence on the production and marketing of wheat in the country.

It is clear that the unavailability of resources in their required amount becomes an important bottleneck for gaining less amount of wheat produce. But shortage of the necessary resources in the country may not be the only reason for low production. It may be due to either efficient or inefficient use of the available resources. As economics told us resources in this world are scarce in supply, and they need their efficient utilization. Unless as Dessale (2019) indicated, inefficiency in production of the wheat sector may be due to inefficient use of available but scarce resources.

As it is discussed below, urbanization is the golden opportunity for the development of the wheat sector. However, it can also be a challenge specifically for smallholder farmers in Ethiopia. As FAO (2017) mentioned, more profitable markets can lead to the concentration of food production in large commercial farms, to value chains dominated by large processors and retailers and to the exclusion of smallholder farmers which needs appropriate policy measures.

2.3. Wheat production and marketing opportunity in Ethiopia
Introduction of economic reform in the form of structural adjustment programs, aiming at sustaining a liberalized market-oriented economy, has given opportunities for smallholder farmers to diversify their products and to target high-value markets such as export and processing-oriented market channels in sub-Saharan countries (Negassa et al., 2013). Over the past 20 years, despite the existence of strong markets for potential substitute grains, both wheat production and consumption have increased in Ethiopia. The government has played an active role in wheat market by starting large investments in extension programs and adopting protectionist policies to ensure government control of all commercial grain imports (Bergh et al., 2012).

In Ethiopia, there are various opportunities to install the agro-processing capacity of the wheat sector for domestically produced wheat. Currently, urbanization is the golden opportunity for the
development of marketing of agricultural cereal crops like wheat (FAO, 2017). Similarly, favorable climate conditions; increased domestic demand for industrial wheat products due to urbanization and lifestyle change; increased wheat consumption (AACC, 2017); and several policy initiatives (Taffesse et al., 2013) are among the major available opportunities which have been taken to stimulate production and productivity of Ethiopian wheat.

Ethiopia has huge irrigable land and fertile soil to produce different agricultural grain crops including wheat. A study by Willy (2018) in Ambo district found that the availability of irrigable and fertile land, motivated and hardworking farmers, location of the districts for agricultural marketing and good weather condition were found to be good opportunities for wheat production of Ethiopia; however, still it is underutilized.

The interest of farmers to use improved varieties; strong interest of national and international research organizations for crop improvement; the importance of the crop in food self-sufficiency as a strategic crop at regional and national levels; the diverse use value of the crop; and availability of human resource and knowledge for the improvement and development of the crop were also the other available wheat production opportunities. On the other hand, to some extent, the built-up of asphalt road and provision of infrastructure facilities in and around the towns were the important opportunities which can support the marketing of wheat in Ethiopia (Mahamud, 2016).

The study by Bekabil (2014) mentioned that people’s readiness to accept new technologies, the presence of perennial rivers for irrigation, government’s suitable agricultural policies designed to support farmers at the grassroots level and presence of NGOs working on development projects are important production and marketing opportunities of wheat at Halaba special districts of Ethiopia. The number of population and town development also have their own contribution to the development of the wheat sector. According to Tadesse et al. (2018), in the previous time, traditionally wheat was not considered as the leading staple food crop in sub-Saharan African countries including Ethiopia, but nowadays, rapid population growth in combination with expansion of towns and changes in easy and fast food preference of the people becomes the opportunity for wheat production as well as its marketing. Similarly, the report by FAO (2017) reveals that increasing urban demand for more food and higher value of processed food provides a good opportunity for producers and agribusiness including suppliers of production inputs.

From the above-reviewed empirical studies, it is possible to understand that constraints and opportunities are varying from place to place either due to their location suitability or due to different socio-economic and institutional activities performed to the society. Thus, giving emphasis on increasing the development of the wheat sector to each regions accordingly is very important.

3. Conclusion and recommendations

3.1. Conclusion
Crop takes the highest share in total production and area coverage, and they constituted on average 68% of the Ethiopian agricultural GDP. Cereals are the most important crop which provides food calories in the daily food consumption of the people. Wheat is included under the group of cereal crops which makes its production a significant contributor to the development of the agricultural sector in general and to the farm household food security status in particular.

In Ethiopia, on average, wheat production, area coverage and its productivity have shown increasing rate specifically from 2005 to 2017. This makes Ethiopia as one of the largest wheat producers in sub-Saharan African countries. Even if wheat shows an increasing trend in production and productivity domestically, still Ethiopian wheat yield is relatively small by global standards. The main reason is mostly due to the existence of various problems. Limited storage capacity, lack of demand due to poor quality of local wheat, lack of grade and standardization, existence of crop worm and diseases, shortage and price of input, shortage of infrastructure, subsistence or traditional production system, farmer price cheating by traders and very limited irrigation access were the major production and marketing problems for the
development of Ethiopian wheat sector. However, in opposite to the above problems, factors like suitable climate conditions; increasing domestic demand for wheat through time; availability of motivated and hardworking farmers; farmers’ interest to use newly coming technology; diverse use value of wheat; presence of perennial river for irrigation; and establishment of processing industries like pasta and macaroni factory were among the important opportunities that encourage wheat production and marketing in Ethiopia.

3.2. Recommendation

To develop the wheat sector at the required level, the following recommendations will have little bit contribution:

Routine awareness creation to the farmers through training on value-adding activities like grading and standardization which can increase the quality of wheat, how the farmers select improved wheat seed, what type of improved production technologies they used and how they can increase the productivity of wheat on their limited land size are very important issues which enable the farmers to gain a high return.

Ethiopia has a number of irrigable rivers which are suitable for large-scale production. Therefore, designing appropriate policy which motivates large-scale farming industries for wheat production and expanding irrigable land are the benchmark to bring satisfactory productivity of wheat which make Ethiopia a competitor to other African wheat-producing countries.

Shortage of infrastructures like road and telecommunication leads to shortage of important market information delivery between input suppliers, producers, distributors and consumers. So, built-up of infrastructure is the pre-requirements which can harness production and marketing of wheat constraints in Ethiopia.

Cooperatives are service render organizations that are not striving for profit. They can minimize the problem of price cheating of the producers by wheat traders. Therefore, encouraging cooperatives is an important issue from responsible body.

To ensure small-scale wheat producers participate fully in meeting urban wheat demand, appropriate policy measures are needed which facilitate farm mechanization and reduce barriers limiting the adoption of environmentally sustainable approaches and technologies.

Intervention on strengthening access to education, credit service, extension service, market information and forward and backward linkage of farmers with the other stockholders are very important points which should get attention from responsible bodies.

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Author details

Adugnaw Anteneh1
E-mail: adugna.abhm@gmail.com
E-mail: dagninet60@gmail.com
Dagninet Asrat1
ORCID ID: http://orcid.org/0000-0001-5457-5000
1Agribusiness and Value Chain Management, Samara University, Semera, Ethiopia.

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