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# Digital Finance and Agri-Food Value Chains

## Case Studies from Ethiopia

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# 1. INTRODUCTION

Agriculture is of paramount importance to Ethiopia's economy. Agriculture accounts for 40 percent of the country's GDP, 80 percent of export earnings, and employs 75 percent of the population (Tamene & Ali, 2022). Crop and livestock production account for roughly 65 percent and 25 percent of agricultural GDP, respectively (International Trade Administration, 2024). Cereals account for roughly 90 percent of total grain production. Teff, known for its gluten-free nutritional aspect, takes the leading share of cereals by production area (ESS 2022). Ethiopia is also the second-largest wheat producer in Africa, following South Africa, with an expansion potential of 1.3 million hectares (Senbeta & Worku, 2023). Coffee, a crop with high cultural and economic importance in Ethiopia, accounts for 30 percent of exports and 25 percent of total employment. Ethiopia stands as Africa's leading coffee producer and among the top five coffee-producing nations worldwide (Tefera & Torry, 2023).

Within Ethiopia's overall agri-food system, most agricultural value chain activity fits the traditional definition, where subsistence farming dominates, postharvest value addition is minimal, and grain production constitutes the largest share (Barrett et al., 2022). However, some commodities in Ethiopia are progressing from traditional to transitional and modern value chains. The dairy value chain can be considered transitional, as it is characterized by a growing processing and logistics sector and emerging pre-urban supply chains (which disfavor remote regions with high production potential as they need more advanced logistics). The coffee value chain in Ethiopia can be considered as a modern value chain – i.e., characterized by product standardization and quality control aimed at the global market/export (Ambler et al., 2023; Barrett et al., 2022).

The dynamics of transforming the agri-food system through the value chain have been widely investigated through the lens of production value, post-harvest value-addition, export share, employment share, and domestic consumption value (ibid). Value addition in the midstream includes processing activities, such as milling grains, drying coffee, treating milk, or more broadly, the conversion of raw commodities into consumable products (Ambler et al., 2023). While Ethiopia's agriculture share of GDP is one of the highest in Africa, the country remains underdeveloped in its agro-processing (EIC, 2020).

There are three main areas of agro-processing in Ethiopia: i) processing products grown locally (e.g., teff flour); ii) processing of raw imports (e.g., palm oil); and iii) consumer goods manufacturing, such as pasta (EIC, 2020). Ethiopia is a net importer of agricultural and food commodities. In 2022, the government allocated $3.6 billion for agricultural imports (palm oil, wheat, and sugar), while the total value of exported products amounted to $3.3 billion. Ethiopia's export sector depends on a few primary agricultural products (i.e., coffee, fresh-cut flowers, legumes, and oil seeds) and is largely unstable in terms of volume and price. Ethiopia is a net exporter (importer) of the above-mentioned export (import) commodities. With respect to wheat, the government is working to reduce imports by expanding irrigated farming and agro-processing (Alemayehu and Tilahun 2021; International Trade Administration, 2024).

Domestic consumption is a critical market for agricultural production in Ethiopia. A significant portion of the agricultural output is consumed within the country. In fact, even half the coffee produced in Ethiopia is consumed domestically (Tefera and Torry 2023). Likewise, 65 percent of the total grain, 78 percent of vegetables, and 45 percent of fruits produced are consumed in Ethiopia (ESS 2021). Hence, any improvements to agricultural productivity will contribute to food self-sufficiency in the country. Overall, improved inputs, enhanced management techniques, and expansion of irrigation farming help to boost agricultural output, significant constraints, such as limited access to finance and technology, slow potential

gains (International Trade Administration 2024). Modernizing the market through a digital financing system will improve the efficiency of actors along the value chain. Therefore, in this report, we document the value chains of selected agricultural products, emphasizing the characteristics and roles of various value chain actors, as well as the status and potential for digital payments.

## 1.1. Value Chain Selection

To select value chains for this report, we considered the volume of production/consumption, economic importance, and government priorities. Cereals (teff, wheat, and maize), coffee, vegetables (avocado), animal products (milk and milk products), and oil crops (sesame) are represented in the report. These value chains represent commodities widely consumed in Ethiopia, those with higher production potential, and/or those with high export demand. Details about the selection criteria and rationale are presented in the Appendix.

## 1.2. Data and Resources

An initial search was undertaken to identify and map relevant existing evidence. The major search engines and databases employed include Google Scholar, CGIAR repositories, USDA, FAOSTAT, Science Direct, and ESS (Ethiopian Statistical Service). The search strategy was also complemented by the snowballing technique, where we followed references of important articles to get a comprehensive set of related literature. The criteria for inclusion in this review are as follows: (1) studies conducted in Ethiopia, (2) research focusing on the selected seven commodities, (3) analyses centered on value chains and digital financial services, and (4) studies and reports published after 2020, with exceptions made in cases where relevant literature is scarce.

The keywords used to search are derived from research questions shared by the IFPRI team. For example, for the coffee value chain characteristics section, we used “Coffee value chain in Ethiopia, Coffee value addition in Ethiopia, Role of coffee value chain on employment in Ethiopia, Characteristics of coffee value chain actors in Ethiopia, Coffee growing season and consumption in Ethiopia, etc.”. After organizing the literature by commodity, we apply eligibility criteria to screen relevant studies. This process involves reviewing abstracts or summaries, and in cases where those sections are unavailable, conducting a more in-depth assessment of the full text. While this has been the dominant approach followed, the literature reviewed was also iteratively updated using snowballing and further reading throughout the review period.

## 1.3. Key Findings

Despite agriculture's substantial contribution to Ethiopia’s GDP, the country remains underdeveloped in agro-processing, resulting in the export of primary products. While coffee is among the major exportable commodities, it mainly exported as raw. Further, teff exports of raw grain are restricted to protect domestic food security. Sesame is a major export crop, primarily moving through the ECX. Exporters are key actors for crops with significant international markets like coffee, sesame, and avocado. Organizations like the ECX are pivotal in regulating and facilitating trade for commodities like coffee, wheat, and sesame.

The recent digital agricultural road map demonstrates the government’s commitment to improving the digital ecosystem. Digital financing can reduce transaction costs, enhances access to credit, and strengthens market linkages. Pilot programs have shown satisfactory results, especially when farmers

are near cash-out infrastructure or are part of well-functioning cooperatives. In conclusion, while opportunities exist in increasing productivity, value addition, and leveraging digitalization, challenges remain significant, including underdeveloped processing capacity, limited access to finance for producers, gender disparities, and constraints to digital adoption.

# 2. COFFEE VALUE CHAIN

## 2.1. Value Chain Characteristics

Ethiopia is the largest coffee producer in Africa and the world's fifth-largest exporter. In 2020, Ethiopia produced 5,455,663 quintals of coffee, with an average productivity of about 6.9 quintals per hectare (ESS, 2022), which is far below the global average of 8 quintals/ha (Motebayenore, 2021). In response to this, Ethiopia carried out extensive rejuvenation of coffee production over the last four years (2020/21-2023/24), covering 400,000 hectares and producing 7.73 million bags, a new record level, in 2022/23 (International Coffee Organization, 2023). This has improved the productivity of coffee in Ethiopia to be comparable with the global average of 0.84 tons/ha or 8.4 quintals/ha.

Ethiopia is expected to generate $1.45 billion in national revenue from coffee exports by 2024, accounting for 30-35 percent of the country's total export earnings. Coffee is among the top exportable commodities of Ethiopia, with about 60 percent of the total production exported to the global market. Coffee is also widely consumed (40 percent) domestically and is an integral component of Ethiopian culture and society – i.e. Ethiopians drink more coffee than in any other African country (Global Agricultural Information Network, 2019). Coffee directly or indirectly supports the livelihood of approximately 25 percent of the country's population (Global Agricultural Information Network, 2023).

Midstream actors play an important role in the Ethiopian coffee value chain and generally earn higher profits than producers. Cooperatives and traders purchase coffee from smallholder coffee growers. Cooperatives typically trade coffee through their cooperative union, but they can export it directly or through the Ethiopian Commodity Exchange (ECX) (Tolesa & Tolesa, 2024). Evidence also shows that coffee cooperatives in the Ilubabor Zone, Oromia Regional State of Ethiopia, earn 6.95 percent of the total sales as a net profit (Singh, 2022). Another study conducted in the Sidama Region, Ethiopia, showed that the profit margin for exporters, collectors, and producers in the value chain was 79.45 percent, 15.57 percent, and 4.97 percent, respectively, suggesting that farmers are the least profitable actors across the value chain (Ashenaf, 2022).

There is high potential for coffee value addition due to its differentiated upstream markets (Daviron & Ponte, 2005). However, the Ethiopian coffee market demonstrates little value addition compared to its potential (Gurmessa et al., 2022). About 88.9 percent of small-scale farmers (producers) in Ethiopia do not engage in any value addition (Tikuneh et al., 2023). Most smallholder coffee farmers sell their cherries to wet or dry processing facilities instead of processing them into washed or unwashed beans themselves. Washed coffee receives a premium price compared to dry-processed or 'natural coffee'. However, the share of washed coffee exported remains low (about 30 percent) and stagnant over the years. This is because the production of red cherries for wet processing is labor demanding, and more patient farmers prefer to store the coffee as a rewarding saving (Tamru & Minten, 2023). Coffee farmers' decision to sell as washed or unwashed, therefore, plays a role in coffee value addition.

## 2.2. Types of Actors

The coffee value chain actors include coffee-producing farmers, collectors, cooperatives/unions, exporters, domestic wholesalers, retailers, and local consumers (Kemal et al., 2019; Negasa et al., 2019). The Ethiopian statistics service report shows that 6.78 million households (of the total 16.78 million) are involved in coffee production (ESS, 2022), contributing ninety-five percent of the total coffee production in Ethiopia (Tolesa & Tolesa, 2024). Activities like planting, hand weeding, harvesting, transporting, sorting, and drying coffee are largely women's responsibilities (Kemal et al., 2019; Negussie et al., 2022; Stoian et al., 2018). While women contribute 75 percent of the labor in coffee production, only 25 percent are engaged in the coffee trade and cooperative membership (Ayele, 2024; Fortier, 2021; Tefera & Torry, 2023), mainly due to prevailing social norms, time constraints, and limited mobility (International Coffee Organization, 2018; Stoian et al., 2018).

Cooperative unions collect coffee in bulk from primary cooperative members, engage in value-addition practices such as hulling/processing, clearing, sorting, and packaging, and then export directly, bypassing the auction (Kemal et al., 2019; Duguma, 2017; Negasa et al., 2019). Cooperatives handle both dry and wet local processing of coffee, like hulling, pulping, sorting, grading, packing, and weighing (International Coffee Organization, 2018; Minh & Osei‐Amponsah, 2021). A study in Sidama Zone, Ethiopia, showed that cooperatives buy coffee from their members and supply it to the ECX warehouse at Hawassa for quality inspection and grading, and then transport it to the Sidama Coffee Farmers Cooperatives Union in Addis Ababa for export (Ashenaf, 2022). However, evidence shows that cooperative members sell less than half (36.9 percent) of their marketable surplus through cooperatives due to immediate cash needs (Singh, 2022), suggesting the need for access to credit.  In response to this

Collectors gather coffee from small-scale growers at the farm gate and deliver it to processors and/or wholesalers (Alemayehu & Petit, 2021). Coffee collectors add value by facilitating the delivery of coffee from remote areas and aggregating a sufficient volume (Global Agricultural Information Network, 2019). Traders and/or processors purchase red coffee cherries from producers or collectors, prepare the beans, put them up for auction, and finally sell them to exporters at the Addis Ababa auction market through ECX (Alemayehu & Petit, 2021; Ethiopian Coffee and Tea Authority, 2023; Shibeshi & Barasa, 2024). Wholesalers are middle actors that have a legal license to operate at ECX, buy processed coffee from collectors, sell the best quality to exporters, and sell non-standard export coffees to domestic retailers (Duguma, 2017). Processors have processing equipment like milling houses and hulling and washing machines to add value before they supply coffee to the ECX auction market (Kemal et al., 2019).

Ethiopia has over 400 coffee exporters and 395 coffee farmers directly exporting coffee (Global Agricultural Information Network, 2019). Exporters buy coffee from cooperative unions, private growers, wholesalers, and private dealers through ECX following the auction market and sell it to consumers around the globe. Exporters sort the coffee by color and differentiate coffees that meet export standards through ECX (Kemal et al., 2019). ECX provides a centralized and standardized service by labeling coffee by geographical origin, controlling the quality using modern warehousing and grading, and providing a trading platform (Pines, 2022).

The Ethiopian Coffee and Tea Authority (ECTA) and ECX are responsible for regulating and supporting the coffee value chain. While ECX provides market information and ensures quality grading and storage, which are crucial for coffee supply and marketing (Pines, 2022), ECTA regulates coffee production and

export standards, ensuring compliance with international quality requirements and certifications. The Ethiopian Coffee Exporters Association also serves as the main contact with the world market and provides technical support for its members (Negasa et al., 2019; Alemseged, 2012). Ethiopia is also a member of the International Coffee Organization (ICO), which aims to strengthen the growth of the global coffee market (International Coffee Organization, 2025).

Cooperative unions are often used as a guarantee for credit for coffee producers. For example, the Sor Gaba coffee cooperative union, found in the Ilubabor Zone of the Oromia Region of Ethiopia, serves as a guarantee for its members to borrow from the Oromia Cooperative Bank (Singh, 2022). In West Wollega, Ethiopia, a study revealed that 38.1 percent of surveyed coffee farmers get access to credit primarily from the Commercial Bank of Ethiopia (CBE), Oromia Credit and Saving Share Company (OCSSCO), and cooperatives (Negasa et al., 2019).

# 3. TEFF VALUE CHAIN

## 3.1. Value Chain Characteristics

Teff, a cereal grain native to Ethiopia, is widely produced in Ethiopia, and 98 percent of the world's teff production occurs in Ethiopia (Dilmeta et al., 2024). Teff has gradually spread over the outskirts of Ethiopia. Following the current 'superfood' wave, well-being fans are eager to pay a premium for teff grain, given it is gluten-free (Tadele & Hibistu, 2021). Teff production covers 2.9 million hectares – i.e., about 1/3rd of the total area allocated for cereal production (ESS, 2022) – and makes up 31 percent of the total value of cereal output, which is 27 percent higher than coffee and almost triple that of sesame, the two top agricultural export commodities (Bachewe et al., 2019). Teff production supports the livelihood of more than 6.6 million households (ESS, 2022). Overall, there has been an increasing trend in teff production in the last decade – i.e., it increased by 48 percent between 2013 and 2022 (Gizaw & Assegid, 2021; Tesfaye, 2024). The growth in teff production is primarily attributed to the expansion of land and labor use (Bachewe et al., 2019).

Teff is a staple grain in Ethiopia and plays a significant role in the country's diet and culture. It is also the most commercialized cereal in Ethiopia, with approximately 35 percent of the total production (equivalent to 56.1 million quintals) being sold (ESS, 2021). Teff plays a significant role in the domestic market and is more readily consumed by urban (61 kg/person/year) than rural households (20 kg/person/year) (Minten et al., 2016). Given increasing urbanization and commercialization, the national teff consumption and marketable surplus are expected to increase over the next two decades by about 250 percent and 300 percent, respectively (Bachewe et al., 2019; Minten et al., 2016).

Teff has two distinct production seasons in Ethiopia: the major production season, which typically takes place during the main rainy period (the Meher season), and the minor Belg season. In the 2021 Meher season, farmers produced 56.1 million quintals of teff from a total of 2.9 million hectares, while the Belg season—a shorter, less productive rainy period—contributes only about 2 percent of the annual output (ESS, 2022). Evidence also shows that the lowest prices of teff are typically observed just after the harvest and threshing period (January– March), and the highest prices toward the end of the year (August–October) (Minten et al., 2016).

In Ethiopia, there are three primary types of teff —white, mixed, and red. White teff is regarded as the highest grade, attracting the top prices; conversely, red teff is considered the lowest grade and is sold at

a lower price. To this end, farmers adopt this grading to maximize the benefits from teff production, while other actors in the value chain add further value through sorting, cleaning, and creating time utility, albeit at some extra cost (Tadele & Hibistu, 2022). Midstream stakeholders in the teff value chain primarily enhance value by aggregating teff from multiple sources and efficiently distributing it to subsequent market players. Local food processors play a crucial role in creating job opportunities, especially for women in urban areas (Smith et al., 2022).

Teff producers' market profit was the highest in the producers–cooperatives–consumers channel, emphasizing the role of cooperatives in commercialization (Degef et al., 2023). Dibaba (2021) found that the share of profit margin for producers, local traders, regional wholesalers, regional retailers, urban wholesalers, and urban retailers was 15.93 percent, 18.31 percent, 23.50 percent, 11.19 percent, 24.29 percent, and 6.78 percent, respectively. Evidence also showed that value addition (through injera preparation) leads to the highest benefit (35 percent), followed by producers (26.5 percent) and wholesalers (20.2 percent) (Tekalign et al., 2020).

Ethiopia has implemented restrictions on teff exports to protect domestic food security and stabilize local prices. The government banned the export of raw teff grain in 2006, allowing only processed teff products like injera and teff flour to be exported under strict regulations. In 2015, the government permitted 48 commercial farmers to start producing teff to fulfill increasing export demand (Bachewe et al., 2019; Moguldom, 2015). The existing export policy does not support teff producers to profit from the increasing global demand for teff, due to its gluten-free properties (Tadele & Hibistu, 2022). Consequently, other countries have stepped in to fill the supply gap in the global teff market. According to the 2024 Teff Global Market Overview, the five largest exporters of teff in 2023 were: France ($23.9 million; 14.5 percent of world export value), the United States ($22.5 million; 13.7 percent), India ($12.4 million; 7.6 percent), Belgium ($12.2 million; 7.4 percent), and China ($10.1 million; 6.2 percent). Ethiopia does not appear among the top 10 exporters, despite being the largest producer by far (Tridge, 2025). Conversely, while the 2006 export ban restricts the already limited volume of exports, it has opened a new door for value addition. Since 2008, injera exports have surged, reaching 2.5 million kilograms by 2012 — an increase of over 270 percent (FAO, 2015).

## 3.2. Types of Actors

The value chain structures, actors, and activities differ by geographic context and agricultural products, making broad generalizations difficult (Ambler et al., 2022). Major teff value chain actors in Ethiopia include producers, local collectors, wholesalers, retailers, and consumers. More than 6.6 million households are directly involved in teff production (ESS, 2022). Evidence shows that gender disparities in access to productive resources, education, and market information negatively affect women's productivity in the teff value chain (Gebrehiwot & Ndinda, 2024). Women also play a crucial role in baking injera, but their labor is often invisible in related policies. The literature suggests that women are primarily involved in upstream activities, while men dominate the profitable downstream segment (Smith et al., 2022). Thus, initiatives aimed at empowering women have the potential to enhance teff productivity and supply.

Cooperatives play an important role in the teff value chain. For example, the Ghion Agricultural Cooperative Union, located in Dejen town in the East Gojjam zone, has 134,000 members, out of whom 18 percent are women. The union plays a significant role in the teff supply chain, handling 16,000 quintals of teff during the 2014/2015 production period. Similarly, primary cooperatives like the Gozamen Woreda Primary Agricultural Cooperative maintain strong connections with member teff producers (FAO, 2018).

Contrary to cooperatives, which often have defined membership rules and formal agreements, local traders have informal operations with smallholder farmers (FAO, 2018). Local collectors buy teff from farmers on the side of the road near the market, on market days, and add value by transporting, storing, cleaning, and delivering it to retailers and consumers (Degef et al., 2023). Evidence shows that the marketing channel consisting of collectors (i.e., farmers-collectors-retailers-wholesalers-processors-consumers) is the dominant channel, consisting of about 60 percent of the supply, emphasizing the role of collectors in the teff value chain (Bululta and Demise, 2021).

Wholesalers buy from collectors/small traders and add value by cleaning, transporting, and reselling to retailers, other wholesalers, hotels, and injera sellers, mainly outside the main markets (Temesgen, 2021). Wholesalers leverage their high working capital, better storage houses, communication access, and governance (price-setting and volume) to benefit from the teff value chain (Degef et al., 2023). Wholesalers typically sell directly to retailers. Women tend to be more involved in retailing and processing, while men dominate wholesale (Tekalign et al., 2020). Limited processed teff exporters (i.e., flour or injera) operate under the current policy that prioritizes protecting domestic consumers over maximizing global market opportunities (Tadele and Hibistu, 2022).

Credit is a critical constraint to most actors in the value chain (Ambler et al., 2022). Hence, smallholder farmers and other value chain actors emphasize a critical need for credit, though high interest rates remain a significant challenge (World Bank, 2024). Wholesalers leverage their collateral to obtain credit from banks. On the other hand, smallholder teff producers, assemblers, and retailers mainly depend on microfinance institutions and informal credit sources (Kabeta et al., 2021).

# 4. WHEAT VALUE CHAIN

## 4.1. Value Chain Characteristics

Ethiopia accounts for 65 percent of Sub-Saharan Africa's total wheat production. During the last decade, wheat production has increased by 60 percent, making Ethiopia the largest wheat producer in East Africa (CIMMYT, 2023). Wheat production supports the livelihood of 4.5 million farmers, and it is a key priority for the Ethiopian government (ESS, 2022). This can be demonstrated by the recent wheat sector development strategy of Ethiopia, which aims to boost production through irrigation, cluster farming, and the adoption of improved varieties (Tefera & Mello, 2022).

Wheat production recorded consistent growth between 2021 and 2024. Nevertheless, despite the substantial efforts invested in its development, a significant gap persists between the increasing demand and the production trend. Data on wheat utilization highlights that 59 percent of the wheat produced by smallholder farmers is consumed, while 23.8 percent is sold and 14.7 percent is preserved as seed (ESS, 2021). This underscores wheat's dual role as both a vital food crop and a significant source of income for Ethiopian farmers.

Wheat is the second most important consumption crop in the country (after maize), accounting for 14 percent of the national calorie intake (Meester & Lanfranchi, 2024). Annual wheat consumption has grown by 9 percent, outpacing the 7.8 percent annual increase in production. The increasing wheat consumption is driven by population and income growth, a rising preference for wheat-based products, particularly in urban areas, and the increasing cost of traditional staples like teff (ibid). This imbalance has led to a steadily widening gap between wheat consumption and production (Abate & Walelign, 2023). To bridge

this gap, Ethiopia imports 1.3 million metric tons of wheat annually (USDA, 2025b). The country relies on imports to meet 15–20 percent of its total wheat consumption, with 36 percent of the imported wheat processed into pasta, wheat flour, and pastry products (EIC, 2020). In response, the government has prioritized summer wheat production through irrigation and clustered farming approaches, aiming to achieve wheat import substitution (Tefera & Mello, 2022).

Midstream stakeholders in the wheat value chain – from local traders buying wheat at the farm gate to larger aggregators that sell in bulk to agri-processors – benefit most by aggregating wheat from multiple sources and efficiently distributing it to subsequent market players. Compared to other traders, wholesalers have better storage and communication access (Ayele et al, 2021). Millers acquire large quantities of wheat from sources like traders, cooperatives, or the government, process it into flour, and supply it to agri-processors (e.g., bakeries, pasta factories, etc.), wholesalers, and retailers, primarily in urban markets (Meester & Lanfranchi, 2024). Flour processors operate at an average capacity of only 40 percent, sometimes dropping as low as 18 percent, due to shortages and inconsistent or substandard supplies of raw materials. Hence, flour mill plants enter manufacturing relying solely on the subsidized government wheat imports (Manufacturing Industry Development Institute, 2023; Meester & Lanfranchi, 2024).

## 4.2. Types of Actors

The major wheat value chain actors include input suppliers, producers, local collectors, wholesalers, processors, retailers, cooperatives, and unions (Ayele et al., 2021; Mekonnen et al., 2024; Zewdu & Lemma, 2022). Private input suppliers and primary cooperatives/unions provide improved technologies – i.e., improved wheat variety seeds, fertilizer, chemicals, herbicides, and pesticides, as well as farm equipment – for more than 6 million wheat farmers operating in the value chain (Mekonnen et al., 2024; Tefera & Mello, 2022). Improved varieties are widely promoted as part of the government-led wheat initiative. Female farmers prefer traits associated with disease resistance, possibly because they could not afford chemical pesticides, and had limited information on the suitable chemicals to control the diseases (Sinkie & Getasew, 2024). Overall, women primarily engage in weeding and crop storage, while men take on roles like ploughing and marketing (Mercy Corps AgriFin, 2019).

In Ethiopia's wheat value chain, the intermediary role between farmers and the market is performed by two actors: cooperatives and traders (Meester & Lanfranchi, 2024). Cooperatives supply the required inputs (fertilizers and improved seeds) for wheat producers at a reasonable price (Ayele et al., 2021; Zewdie et al., 2020). Cooperatives also play a stabilizing role in the wheat market by purchasing the product from farmers at a better price and delivering wheat grain to flour processing factories (Ayele et al., 2021; Tefera et al., 2019). However, their role in channeling sales is limited compared to traders, mainly due to capacity and organizational shortcomings. Limited funds and storage prevent cooperatives from purchasing and holding wheat until optimal selling conditions arise (Meester & Lanfranchi, 2024). Cooperatives, though it is limited, also provide credit for smallholder farmers (Mercy Corps AgriFin, 2019).

Collectors/Assemblers – usually unlicensed traders or part-time farmers – collect wheat in bulk from the surrounding area by utilizing their local knowledge from growers and distribute it to various wholesalers and retailers. Wholesalers in the wheat value chain are authorized with large capital and good communication skills (Ayele et al., 2021). Wheat marketing operates as a semi-structured value chain, providing formal market access to key players such as local consumers, bakeries, millers, wholesalers, processors, and farmer cooperative unions (Mercy Corps AgriFin, 2019).

Millers and flour factories buy wheat from wholesalers, commission agents/brokers, and cooperatives. There are more than 600 flour mills in Ethiopia, both small and large, with a total production capacity of between 4 to 4.5 million tons of wheat flour per year. However, the mills operate at less than 50 percent of their capacity, mainly due to wheat shortages (Tefera & Mello, 2022). There are 20 pasta processors in the country, but they managed to supply only 20 percent of the total demand in the country due to limited availability of durum wheat and high cost of production (EIC, 2020).

The Ethiopian government plays an active role in wheat production and marketing by providing services ranging from input provision (fertilizer and seed) and extension advisory to making investments and adopting policies (Meester & Lanfranchi, 2024; Tefera & Mello, 2022). Wheat is one of the commodities traded through the Ethiopian Commodity Exchange (ECX), and the Ethiopian Grain Trade Enterprise (EGTE) also plays a role in connecting the flow between producers and consumers (Amentae et al., 2017). Besides the direct role of these government-owned organizations (i.e., EXC and EGTE), the government has implemented an initiative that aims to boost wheat production by expanding wheat-cultivated areas, including lowland regions like the Somali region, which were traditionally not utilized for this purpose (Meester & Lanfranchi, 2024).

Credit plays a crucial role in Ethiopia's wheat value chain by enabling smallholder farmers to access essential inputs like seeds, fertilizers, and pesticides. It also empowers cooperatives and traders to aggregate and market wheat more effectively, enhancing market linkages and ensuring better prices for farmers. Smallholder farmers unable to access formal financing often rely on credit from downstream actors like local traders, enabling them to purchase inputs but reducing their bargaining power and incomes due to power imbalances (Meester & Lanfranchi, 2024).

# 5. MAIZE VALUE CHAIN

## 5.1. Value Chain Characteristics

Maize accounts for around 33 percent of cereal production in Ethiopia, making it the second most important crop following teff. More than 11.1 million smallholders produced 10.7 million metric tons of maize from a total of 2.5 million hectares (ESS, 2022). The production value of maize in Ethiopia has surpassed $1 billion annually, making it a vital staple crop for food security (Mercy Corps AgriFin, 2019).

Maize yields in Ethiopia have surged from approximately 1.6 t/ha in 1990 to over 3.7 MT/ha in recent years, demonstrating that the growth in production is primarily driven by enhanced productivity rather than the expansion of cultivated land (Tefera & Mello, 2022). This may be because of the high uptake (50 to 60 percent) of improved hybrid seeds (Mercy Corps AgriFin, 2019). Maize is produced both in the Meher (main production season) and the Belg seasons. The harvest for the Meher season maize production starts in September and ends in December. Maize prices show significant seasonality, with lean season prices rising to 36 percent higher than post-harvest prices. The seasonal price fluctuations force farmers to determine how to manage their consumption needs shortly after harvest. On average, farmers store maize for about 3 months after harvest, even though prices reach their peak 5 months later (Negedea et al., 2021).

Farmers primarily produce maize for consumption – i.e., 77 percent of the total production is consumed (ESS, 2022). Maize is also the most important consumption crop in the country (Meester & Lanfranchi, 2024), making it one of the strategic crops in the national agricultural development plan of the country.

This could be because maize is the most affordable grain for rural communities and poor urban consumers compared to other cereals (Tefera & Mello, 2022). Although maize is vital for food security, its industrial use remains underdeveloped. Recently, industries have begun producing maize-based oil, snacks, and cereals (Tefera & Mello, 2022).

The key actors of the maize value chain include producers (farmers), input suppliers, traders (wholesalers and retailers), processors, and consumers. Smallholder farmers are the primary actors in the value chain producing more than 95 percent of the national maize production, with women and youth being heavily involved during production, harvesting, and storage (Mercy Corps AgriFin, 2019).

Traders play a central role in the maize value chain, bridging producers and urban markets. With limited market linkages and producers' low bargaining power, traders often control pricing (Desalegn et al., 2019; Galtsa et al., 2022). Rashid et al (2019) further argue that due to limited bargaining power among producers and generally weak market connections and producers, annually prices fluctuate by between 40 and 50 percent.

Limited processing facilities restrict value addition in the maize value chain, but there is potential for growth in producing maize flour, animal feed, and cereals (Rashid et al., 2019). Unlike other major cereals (e.g. wheat and teff), maize is neither imported nor exported (USDA, 2025). In fact, the Ethiopian government has imposed an export ban on maize since 2008 (Tefera & Mello, 2022). Even without the ban, trade is inhibited by high transport costs, volatile prices and disperse production zones (Mercy Corps AgriFin, 2019).

## 5.2. Types of Actors

In Ethiopia's maize value chain, intermediary actors include assemblers, cooperatives, wholesalers, processors, and retailers (Desalegn et al., 2019). These actors facilitate the movement of maize from producers – i.e., more than 11 million smallholders producing nearly 95 percent of the total production – to consumers by handling aggregation, storage, processing, and distribution (ESS, 2022). While there is no single entity that dominates the entire value chain, wholesalers dictate maize prices due to weak market connections and limited bargaining power among producers (Rashid et al., 2019).

Cooperatives are key actors in input and output marketing and can simplify the burden on farmers and the value chain in general by selling standardized input packages and buying maize at published and transparent prices (Abate et al., 2015; Rashid et al., 2019). Cooperatives primarily focus on supplying inputs, with minimal involvement in marketing (approximately 3.6 percent), and face significant organizational challenges (Mercy Corps AgriFin, 2019). Their role is subject to many constraints, including working capital, lack of market linkages, poor access to updated market information, limited technical and management capacity, limited physical resources, and shortage of working capital were the key challenges to cooperatives (ILO, 2021).

Assemblers purchase from farmers and transport to the nearest town for resell (Desalegn et al., 2019). Wholesalers/unions purchase from assemblers, farmers and others, and search for brokers to find buyers in the main market or other deficit areas and may store up to one month (Rashid et al., 2019). For example, wholesalers found in Mercato, Addis Ababa, search for brokers to source maize from surplus areas and sell to retailers and processors. Most retailers/processors do not directly source from farmers or rural assemblers. They source from wholesalers and clean and sell to end consumers with little or no grain storage (Abate et al., 2015).

Maize processing in Ethiopia is largely underdeveloped. The maize value chain comprises only a few processors, including Faffa, Healthcare Foods, Guts, and Hilina Enriched Food Products. On average, food processors produce 5 to 10 thousand tons of Maize-Soya blends (Yetneberk et al., 2018). Family labor is the major source of labor, where women play a crucial role in maize production at different stages, including 60 percent of the maize processing in Ethiopia (Rashid et al., 2019).

Credit access encourages smallholder farmers to use different agricultural technologies and high-yielding varieties. Studies also show that access to credit increases farmers' probability of engaging in contract farming (Fikiru and Han, 2024) and boosts maize productivity by 26.6 percent (Lemane et al.2020). Conversely, insufficient credit and extension services significantly hinder the maize value chain (Dagmawe et al., 2024).

# 6. SESAME VALUE CHAIN

## 6.1. Value Chain Characteristics

Sesame ranks as the second most valuable export commodity in Ethiopia, following coffee in terms of export earnings (Kassie et al., 2022; Tridge, 2024). As of 2023, Ethiopia ranked fourth among global sesame seed exporters, accounting for approximately 7.73 percent of the total global export value, with an estimated export value of USD 233.2 million (Tridge, 2024). Ethiopian sesame is primarily exported with little or no processing – i.e., cleaning and packaging are the only value additions to keep the purity standards the international market requires (ibid). Humera, Gondor, and Wollega are prominent sesame-producing regions in Ethiopia, widely recognized on the global market. Humera and Gondor are primarily utilized in bakeries and confectioneries, while Wollega is predominantly used for producing edible oil (Endalkachew, 2019; Mercy Corps AgriFin, 2019).

Ethiopia produces 137,807 tons of sesame annually from a total area of 204,511 hectares. The annual production value of sesame is estimated at $250 million. Sesame production supports the livelihood of 295,113 farmers, the majority of whom are smallholders (ESS, 2022; Mercy Corps AgriFin, 2019). However, around 5,000 large-scale farmers manage a substantial portion (40 percent) of the sesame acreage (Schrader et al., 2020). Sesame is a commercial crop, with 78 percent of the total production sold and 10.5 percent consumed (ESS, 2021). Likewise, a study in southern Omo shows that the marketable surplus is about 94 percent of the total production (Kutoya et al., 2022).

Sesame is cultivated during the main rainy season, with harvesting typically occurring between early October and mid-November (Endalkachew, 2019). Timely harvesting is critical, as delays can result in yield losses exceeding 50 percent due to shattering (Qureshi et al., 2022). The volume of sesame seeds traded through the Ethiopian Commodity Exchange (ECX) peaks shortly after the harvest period in November and December, gradually declining thereafter, highlighting the seasonal nature of the supply (USDA, 2021).

Sesame is a labor-intensive crop, making up most of the production cost (Kassie et al., 2022; Teshome & Esubalew, 2022), requiring approximately 89.33 man-days per hectare per season (Gidey et al., 2021). Women play an active role in planting, weeding, and threshing on smallholder farms, while commercial farms rely predominantly (95 percent) on male labor, offering significant seasonal employment (Mercy Corps AgriFin, 2019). The sector employs approximately half a million laborers (60 percent seasonal),

which fosters informal employment opportunities and drives local economic growth in sesame-producing regions (Schrader et al., 2020).

The value chain actors in sesame production and marketing include farmers, investors/commercial farms, primary cooperatives, cooperative unions, traders, local processors, processing companies (e.g. Selet Hulling, Richland), and exporters. A large majority of sesame production comes from smallholder farmers, with commercial farms contributing approximately 18 percent to the total production (Kassie et al., 2022). Most farmers don't use adequate harvesting, packaging, or handling technologies to manage on-farm sesame produce (Usman et al., 2022). Likewise, while farmers' cooperatives and unions act as middle-man actors between producers and wholesalers, they also do not engage in the value-addition process (Teshome and Esubalew, 2022).

The Ethiopian Commodity Exchange (ECX) has a sesame grading system that considers seed purity and color as the key criteria (Kassie et al., 2022). However, other actors like collectors, wholesalers, and retailers often grade sesame only after it has been aggregated from multiple farmers, making it difficult to provide a premium to individual farmers (Kutoya et al., 2022).

## 6.2. Types of Actors

The producers, local collectors, cooperatives, wholesalers, retailers, and exporters are core actors in the sesame value chain in Ethiopia (Endrias, 2020; Kutoya et al., 2022). Ethiopia's sesame sector comprises 295,000 farming households, 5 thousand investors/commercial farmers, and 10 unions with 249 member cooperatives. Women contribute to smallholder farms, while commercial farms mainly employ men (Mercy Corps AgriFin, 2019). Women account for 16 percent of farming households and 26 percent of cooperative members (Schrader et al., 2020).

In Ethiopia, cooperatives are formed to provide inputs, aggregate produce, and offer credit and advisory support to their members. In this context, the Sesame Business Network (SBN), in partnership with banks and cooperatives, provides a guarantee fund that seeks to share the risks of financial institutions, benefiting over 15,000 farmers (Kassie et. al., 2022). Evidence also indicates that cooperative membership significantly increases the sesame market supply – i.e., cooperative members have a 20 percent higher marketable surplus than their counterparts (Agegnehu et al., 2022).

Midstream actors, such as local collectors, wholesalers, retailers, and processors, are essential for transforming sesame into a marketable commodity and ensuring its distribution to various market outlets. Local collectors aggregate product directly from farmers, serving as middlemen between producers and wholesalers (Kutoya et al., 2022). Traders in districts are not allowed to buy or sell sesame other than in primary markets established by ECX, suggesting a high level of market formality. Primary cooperatives through unions are also involved in the collection of sesame (Gebremedhn et al., 2019). Wholesalers resell the sesame seeds to exporters and processors, although their operations are sometimes constrained by limited access to finance and market information (Gebretsadik, 2020).

Ethiopia has several hundred vegetable oil processing plants, however, few are sesame specific, presumably because sesame oil is relatively expensive and not widely used in Ethiopian cooking. While it is not limited to sesame export and/or processing, the Ethiopian Pulses and Oilseeds Exporters Association (EPOSEA) aims to support its members by providing market information, creating international opportunities, and enhancing members' capacity (Kassie et al., 2022).

The government heavily regulates the sesame market, requiring primary traders to sell exclusively through ECX platforms. However, cooperatives (through their unions) and commercial farmers can choose to sell either through ECX or direct export channels, though nearly all (98 percent) sesame exports pass through the ECX platform (Kassie et al., 2022). Hence, ECX can be regarded as an "apex" actor within the sesame value chain.

Access to finance has a significant role in increasing farmers' efficiency (Kassie et al., 2022). Although sesame is a priority crop for the country, smallholders and other value chain actors remain largely underbanked, and smallholders rely heavily on informal financing offering loans at high interest rates (Schrader et al., 2020). Limited access to finance compels farmers to sell their produce immediately after harvest, to repay debts and address urgent financial needs. Amhara and Tigray Credit and Saving Institutions primarily extend small loans through group lending mechanisms to low-income farmers. This has limited their relevance for sesame producers due to a misalignment between their lending approach and the specific financial needs of sesame cultivation (Kassie et al., 2022). For example, a study in the Humera area of Ethiopia shows that smallholder farmers get credit ranging from 5,000 to 15,000 Ethiopian birr in total (US$ 259 to 777) from Dedebit microfinance, which covers only one-third of their expected operational costs (Gebremedhn et al., 2019).

# 7. MILK VALUE CHAIN

## 7.1. Value Chain Characteristics

Ethiopia is Africa's largest cattle-keeping nation, with a total of 66 million cattle. Livestock accounts for 39 percent of Ethiopian agricultural GDP, out of which one-third is contributed by milk and milk products (Zelalem & Mounde, 2023). It also accounts for about 30 percent of total agricultural employment (TRAIDE Ethiopia, 2021). Milk and milk products play an important role in human nutrition and contribute significantly to smallholder food security (Chalachewu et al., 2023). The Ethiopian government, therefore, implemented initiatives such as "Yelemat Tirufat", a nationwide program launched in 2022, to increase dairy productivity. Milk production is expected to quadruple by 2031 through strategic initiatives designed to enhance the productivity of dairy cows, camels, and goats (Legese et al., 2023).

Despite the substantial efforts invested in its development, a significant gap persists between the increasing demand and the production of dairy products (Gebregziabher et al., 2021; TRAIDE Ethiopia, 2021). On the demand side, the growing population, economic growth, and urbanization increase the demand for milk and milk products, mostly used for diversifying primarily plant-based diets and promoting child growth (Minten et al., 2020). On the supply side, the gap can be at least partially attributed to low dairy productivity, which averages 1.9 liters per cow per day. Dairy productivity is low presumably because nearly all (97 percent) producers practice a traditional production system with local breeds (Belay, 2022; TRAIDE Ethiopia, 2021; Zelalem & Mounde, 2023). Crossbred cows outperform the indigenous-breed cows (Borena) by 833 kg to 2600 kg (3 to 7 folds) milk yield per lactation (Hunde et al., 2022).

Milk producers (98 percent are smallholders) consume 85 percent of the total milk production (Getachew et al., 2023; TRAIDE Ethiopia, 2021). Ethiopia's per capita milk consumption is 19 liters annually, only 11 percent of the WHO recommended 205 liters/capita/year (Farrell, 2021). Annual per capita consumption is notably much lower than Kenya's (115 liters) and Uganda's (65 liters) consumption (TRAIDE Ethiopia,

2021). Over half (53.3 percent) of respondents observed seasonal fluctuations in milk consumption. Specifically, 64.4 percent noted a decline during the dry season, while 34.4 percent reported reduced intake during major Orthodox Christian fasting periods, such as Christmas and Easter (Belay, 2022).

The informal dairy marketing system, operated by unorganized markets through dealers and brokers, is the dominant practice in Ethiopia (Kedir & Mohammed, 2024). The informal marketing channel that involves a direct sale to consumers – i.e., producers directly sell to consumers and retailers (cafes, hotels, and restaurants) – is the dominant marketing channel (Belay, 2022). Midstream stakeholders in the milk value chain, from local traders collecting milk at the farm gate to larger processors having processing plants, add value by efficiently distributing it to subsequent market players. In the formal milk marketing system, cooperatives or private milk collection centers collect and transport it to processing plants. A study showed that of the total milk supplied to the market, nearly half of the milk was sold to consumers at 16.8 Birr/liter, while only 9 percent went to processing plants at 14.4 Birr/liter due to additional collection and transportation costs (Mamo et al., 2021).

Ethiopia's dairy processing industry is still in its early stages (Ararsa, 2024), leading to a significant reliance on imports. The country spends $15–25 million annually on dairy products, with milk powder accounting for 80 percent of total imports (Ethiopian Investment Commission, 2020). Ethiopia's formal dairy exports are minimal, with nearly all exports going to Somalia and Djibouti (TRAIDE Ethiopia, 2021). Overall, low production, poorly organized marketing systems, and an underdeveloped milk market infrastructure characterize the Ethiopian dairy sector (Gebregziabher et al., 2021).

## 7.2. Types of Actors

The major milk value chain actors include smallholder farmers, village collectors, cooperatives, processors, hotels and cafés, and consumers (Betelhem et al., 2020; Nyokabi et al., 2023). Smallholder dairy farmers produce 98 percent of the total milk production. Women are more often involved in the earlier steps of the value chain (production and processing), while men are more involved in the later steps (sales and marketing) (Garsow et al., 2022). Men also manage tasks like feed preparation and herding, with male children often responsible for grazing and watering. Over 66 percent of milk marketing is handled by men, and as farms expand or move closer to urban areas, women's roles in production and marketing significantly decline. This shift is evident in the decreasing female labor contribution, which drops from 40 percent on smaller farms to 16 percent on larger farms (Minten & Tamru, 2022).

Cooperatives and other formal farmers' group organizations play a crucial role in modernizing the milk marketing system (Abay & Abrha, 2023). There are about 180 primary dairy farmers' cooperatives in the country. Ninety-six are part of six dairy cooperative unions. Smallholder milk producers in peri-urban regions and near major milk sheds typically sell their milk to farmers' cooperatives or collectors, either small- or large-scale. Cooperatives, in turn, either sell to their unions or deal directly with processors (TRAIDE Ethiopia, 2021). For example, Hiwot Dairy Cooperative in Dangila improved its milk collection performance from 2,754 liters of milk per month to 35,643 liters after establishing a partnership with the Ever Green milk processor in Bahir Dar (Gebregziabher et al., 2021). Currently, the forty-five dairy officially registered processors in the country process 345,950 liters of milk every day, which is only 30 percent of their capacity and 2.6 percent of annual milk production (Legese et al., 2023; TRAIDE Ethiopia, 2021). This is partly due to a fragmented milk supply and financial constraints (Mercy Corps AgriFin, 2019).

The Ethiopian government plays an active role by giving the Ethiopian dairy sector strategic priority (TRAIDE Ethiopia, 2021), aiming to boost milk production from 7.1 billion to 28.4 billion liters over ten years (2022 to 2031). The priority interventions include genetic improvement, improved technologies, feeding, health, input and output marketing, value addition, product quality, and consumer safety as the identified targeted interventions (Legese et al., 2023).

Financial institutions play a key role in providing finance to entrepreneurs and investors in the dairy industry. The Development Bank of Ethiopia offers loans to Ethiopian and foreign investors with an equity-to-loan ratio of 25:75 and 50:50, respectively, for dairy investment (TRAIDE Ethiopia, 2021). Credit services have a positive and significant effect on enhancing value addition in dairy production (Fiseha & Mohamed, 2023). Nonetheless, smallholder dairy producers have limited access to finance (TRAIDE Ethiopia, 2021). The problem is particularly pronounced for women dairy producers, due to limited collateral and gender biases in financial institutions (Alem & Arebu, 2025), leaving them bound to small-scale production processes despite their important role (Minten & Tamru, 2022).

# 8. AVOCADO VALUE CHAIN

## 8.1. Value Chain Characteristics

Ethiopia ranked third, following Kenya and South Africa, in avocado production for both domestic consumption and commercial markets in Africa (FAO, 2025). Avocado is an important alternative crop produced by 2.9 million farmers (ESS, 2022), and if it is coupled with high-value market channels, it can significantly improve food security among smallholder farmers (Tibebu et al., 2024). Avocado increases land productivity, enhances the economic situation of rural farmers, and supports food security and dietary diversity (Hadia et al., 2024; Zerihun, 2021).

Ethiopia has one main avocado production season, which runs from mid-June to October, with peak harvesting occurring in July, August, and September (Freshela Exporters, 2025). During this season, farmers sell 64 percent of their total production (Temesgen & Erko, 2024). Ethiopia's avocado production fluctuated over four years, peaking at 245,335.63 tons in 2020 before dropping to 167,556.71 tons in 2023, with yield per hectare declining from 8,020.7 Kg/ha to 5,737.1 Kg/ha. Despite decreased production, export quantities rose, reaching 4,870.64 tons in 2023 with an export value of $1,479,000. Despite the substantial efforts invested in its development, a significant gap persists between potential and actual production. Avocado productivity in Ethiopia also falls significantly below the East African average (10,659 Kg/ha), suggesting room for substantial improvements in productivity (FAO, 2025; Zerihun, 2021). These trends highlight that Ethiopia’s avocado market is expanding, but productivity must improve.

Growing domestic demand, the current development of export markets, and favorable agro-ecological conditions present a lucrative opportunity for Ethiopian avocado producers (Efrem & Zinash, 2024). In Ethiopia, avocados are widely consumed as pure juice, in salads, or in combination with other vegetables, and it is becoming a food regularly eaten with bread or enset (Bebru et al., 2022). Moreover, avocado flesh is a key ingredient in cosmetics used by women to enhance their beauty. Fruit size (pyriform), skin colour (black), and flesh taste (buttery) were the most preferred qualities that can influence consumers’ impressions while buying or consuming avocados (Sina et al., 2023).

Midstream stakeholders, particularly middlemen, play a key role in the avocado value chain. Approximately 70 percent of the production is sold at the point of first sale through middlemen at local markets

(Habetamu & Takele, 2023). Wholesalers have better financial and information access and purchase avocados either directly from farmers or local collectors in bulk (Temesgen & Erko, 2024). Accordingly, they received the highest marketing margin (34.6 percent), while producers were relatively disadvantaged in the market, as they received the lowest share (15.2 percent) of the consumers' price (Selamawit et al., 2019). Avocado processing plants are in their infancy and still play a limited role in the Ethiopian Economy. They are limited to cafeterias, restaurants, and juice houses that change avocado fruit into processed goods like juice. Overall, inadequate grading and packaging, as well as a lack of adoption of postharvest management technologies for transportation, are the major problems for the downstream actors (Lutta et al., 2024).

### 8.2. Types of Actors

The major avocado value chain intermediary actors include collectors, wholesalers, processors, and retailers (Selamawit et al., 2019; Shewaye et al., 2021). Collectors gather avocados from various producers, often in rural areas, and transport them to central collection points. Wholesalers then purchase the avocados in bulk and distribute them to retailers and other market outlets. Retailers serve as the final point of sale before avocados reach consumers (Selamawit et al., 2019). While the role for selling varies by commodity, avocado is mostly sold by women. Women primarily manage small-scale home gardens for household use and petty trading (Dabessa & Jaleta, 2023). Throughout the avocado value chain, men play a major role in production, including land preparation, seedling preparation, transplanting, and weeding, whereas women are involved in collection, transporting to the market, and selling (Feyisa & Megersa, 2019; Sina et al., 2024).

Avocado processors in Ethiopia are comprised of both small-scale (cafeterias and juice houses) and large-scale processors – i.e., Oil processing firms. While there are many small-scale avocado processors – mainly in the form of juice and fresh cuts – the number of oil processing companies is limited in number. According to Freshela (Freshela Exporters, 2025), major oil processors in Ethiopia (namely Sunvado, YBM, Aevo, and Green Gold Avocado) source organic avocados from farmers, improving market access and boosting Ethiopia's avocado industry. For example, Sunvado operates 81 avocado fruit collection centers, including 22 multipurpose centers and 51 fruit & vegetable cooperatives, supporting 78,000 smallholder farmers—22 percent of them women—across seven districts (UNIDO, 2025).

The Ethiopian Horticulture Producer Exporters Association (EHPEA) plays a key role in supporting avocado exporters in Ethiopia. EHPEA works to enhance market access, improve production standards, and facilitate international trade for Ethiopian avocados (EHPEA, 2025). The Ministry of Agriculture, with previous support from USAID and current support from Israel's MASHAV, has also supported farmers by introducing improved avocado varieties to 2000 farmers, enhancing Ethiopia's competitiveness in European and Asian markets (Zerihun, 2021).

## 9. CONDITIONS FOR DIGITALIZATION

### 9.1. Current Status of Digital Payments

The integration of digital payment systems into Ethiopia's agricultural value chains remains at an early but accelerating stage, influenced by a combination of government strategy, public-private partnerships,

and pilot-level interventions. As articulated in Ethiopia's Digital Ethiopia 2025 policy and the Digital Agricultural Roadmap (2025–2032), digital financial services are considered instrumental in improving agricultural productivity, financial inclusion, and transparency across value chains (Wamicwe et al., 2024). These efforts aim to address significant gaps in financial infrastructure and service delivery, particularly for rural populations that remain largely excluded from formal financial systems.

Nationally, digital payment adoption has seen marked growth through platforms like Ethio Telecom's "telebirr," which processed $12.3 billion in transactions from 34.3 million subscribers in 2022/23, indicating growing consumer engagement with digital financial platforms (World Economic Forum, 2024). The government has set a target to increase the percentage of adults using digital payments from 20 percent in 2020 to 49 percent by 2025 (Shahid, Humeau, & Bahia, 2023), signaling a strong policy commitment to digital financial inclusion. However, beneath this national trajectory, adoption patterns vary widely across commodity-specific agricultural value chains. IFC (2024) found that the willingness to adopt digital services is notably higher in vegetable value chains. The same study showed that value chains have specific characteristics; hence, a financial product that works well for one value chain may not work for another.

In the coffee sector, digital finance systems have shown promising developments, particularly in cooperative-based systems. In the Bench Maji Zone, nine primary cooperatives representing over 3,000 coffee farmers have adopted digital payment systems (International Trade Centre, 2024). Similarly, the Oromia Coffee Farmers' Cooperative Union—the largest in Ethiopia with more than 400,000 members—is piloting digital payments with two cooperatives, aiming to reach 1,000 farmers by 2024 (Better Than Cash Alliance, 2023). These initiatives are designed to reduce payment delays and enhance efficiency in transactions. Digital payment platforms are especially beneficial for women, who face mobility constraints and restrictive gender norms limiting access to traditional financial services (International Coffee Organization, 2018). Downstream, digital technology is even more entrenched; all interviewed coffee exporters (N=30) were found to use mobile phones and internet-based tools to manage communications and transactions (Tadesse et al., 2024).

In contrast, the teff value chain remains dominated by cash-based transactions. Digital payments are not widely used, and most financial interactions occur informally (Bachewe et al., 2019). Despite teff's significance in the Ethiopian diet and domestic market, the value chain has not yet benefited from focused digitization initiatives.

Digital innovations in the wheat sector appear more promising. A partnership involving Safaricom Ethiopia, the Japan International Cooperation Agency (JICA), Lersha, and Hibret Bank launched a digital platform that includes a mobile application, multilingual features, a call center, and digitally enabled youth actors across five regions (Abate et al., 2023). These tools facilitate access to credit and technical support. Moreover, farmers who used mobile phones to access wheat price information across different market actors received better prices for their products, demonstrating the positive economic impact of digital tools on marketing outcomes (Tadesse & Bahiigwa, 2015).

The sesame value chain, structured around the Ethiopian Commodity Exchange (ECX), presents a relatively conducive environment for digitization, particularly downstream. ECX already facilitates digital transactions, but upstream processes still heavily rely on cash. Credit services in the sesame value chain are both limited and non-digital (Mercy Corps AgriFin, 2019). Despite these limitations, the World Bank (2024) notes that digital payments could streamline bulk payments and offer affordable credit services to both traders and farmers, provided key adoption constraints are addressed.

In the dairy sector, digital financial services are virtually nonexistent. The informal nature of milk marketing systems, coupled with weak internet infrastructure and regulatory limitations, has inhibited adoption (Abate et al., 2023; Mercy Corps AgriFin, 2019). However, studies from other African contexts suggest that integrating digital technology with financial inclusion can improve dairy productivity by lowering transaction costs and enhancing market linkages (Okano et al., 2022; Kateryna et al., 2021).

The avocado value chain is similarly constrained by a preference for cash transactions, even among smallholders with bank accounts. Most use their accounts only to receive payments or store occasional savings (Selamawit et al., 2019). Nonetheless, pilot programs involving Kifiya Financial Technology have yielded satisfactory results, particularly for farmers located near cash-out infrastructure or organized through well-functioning cooperatives (IFC, 2024). Kifiya's broader digitization initiative has already reached 750,000 farmers, offering bundled services that integrate payments, credit access, and market connections (Kifiya Financial Technology, 2025).

## 9.2. Driving Factors of Digital Payment Adoption

Financial service providers (FSPs) demonstrated interest in supporting the agricultural sector, but their limited knowledge of the sector requires gradual learning and exposure for effective and profitable engagement. Across all these value chains, the uptake of digital payments has been consistently more successful when bundled with complementary services (IFC, 2024). Financial service providers have found that digital payments alone are rarely sufficient unless linked with high-quality inputs, technical assistance, or storage support (World Bank, 2024). Cooperatives and farmer organizations play a central role in facilitating adoption, as they can reduce transaction costs and provide trust-based platforms for financial transactions (ibid). There have been successful experiences piloting digital payments in value chains (IFC, 2024).

However, widespread adoption remains hindered by several systemic challenges. These include low levels of digital literacy, poor mobile network coverage in rural areas, and entrenched preferences for cash-based transactions (World Bank, 2024; Shahid, Humeau, & Bahia, 2023). Among adults who are aware of mobile money and have access to mobile phones, only 18 percent own a mobile money account, reflecting a significant gap between awareness and usage (Shahid, Humeau, & Bahia, 2023). Gender disparities further compound the problem, as women face additional barriers related to mobility, access to credit, and social norms (International Coffee Organization, 2018).

In conclusion, Ethiopia's agricultural value chains remain predominantly cash-based, but significant progress in digital payment adoption is observable in sectors like coffee, wheat, and sesame. These examples show that with supportive infrastructure, targeted policy, and cooperative facilitation, digital financial services can enhance operational efficiency, inclusiveness, and resilience across agricultural markets.

# A. APPENDIX

| Value Chain Selection Matrix | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Criteria** | **Sub-Criteria** | **Coffee** | **Teff** | **Wheat** | **Maize** | **Sesame** | **Milk** | **Avocado** | **Barley** | **Beans** | **Sugarcane** |
| **Value Chain Structure** | **Vertical Integration:** | 7 | 2 | 6 | 2 | 7 | 5 | 5 | 5 | 2 | 2 |
| | **Horizontal Integration**: | 7 | 2 | 2 | 2 | 2 | 8 | 2 | 2 | 2 | 2 |
| | **Level of Formality**: | 8 | 5 | 8 | 5 | 5 | 6 | 8 | 5 | 5 | 6 |
| | **Infrastructure & Market** | 7 | 5 | 5 | 5 | 7 | 7 | 6 | 5 | 5 | 5 |
| | **Value Addition**: | 8 | 6 | 8 | 6 | 6 | 8 | 6 | 6 | 5 | 5 |
| | **Innovation**: | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| ***Subtotal*** | | ***29*** | ***22*** | ***27*** | ***22*** | ***24*** | ***27*** | ***26*** | ***22*** | ***21*** | ***22*** |
| **Scale and Market Potential** | **Production Value**: | 9 | 9 | 9 | 8 | 6 | 8 | 6 | 6 | 6 | 6 |
| | **Market Demand**: | 8 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 |
| | **Export Potential**: | 9 | 8 | 6 | 6 | 8 | 5 | 8 | 5 | 8 | 6 |
| | **Growth Potential**: | 9 | 6 | 9 | 6 | 6 | 6 | 6 | 8 | 6 | 6 |
| | **Cost Competitiveness**: | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 6 | 6 | 6 |
| | **Market Potential**: | 8 | 8 | 8 | 6 | 8 | 6 | 8 | 6 | 6 | 6 |
| ***Subtotal*** | | ***42*** | ***39*** | ***39*** | ***34*** | ***38*** | ***31*** | ***38*** | ***33*** | ***34*** | ***30*** |
| **Socio-economic Impact** | **Employment Generation**: | 8 | 8 | 8 | 9 | 5 | 8 | 5 | 6 | 6 | 8 |
| | **Households Benefitting**: | 8 | 8 | 8 | 10 | 5 | 8 | 5 | 6 | 6 | 8 |
| | **Inclusivity & Equity**: | 6 | 6 | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 |
| | **Accessibility for the Poor**: | 8 | 8 | 8 | 9 | 5 | 8 | 5 | 6 | 6 | 6 |
| ***Subtotal*** | | ***30*** | ***30*** | ***30*** | ***34*** | ***21*** | ***32*** | ***21*** | ***24*** | ***24*** | ***28*** |
| **Food Security** | **Food Availability & Access**: | 5 | 6 | 8 | 8 | 5 | 8 | 6 | 6 | 6 | 6 |
| | **Price Stability**: | 5 | 7 | 8 | 8 | 5 | 6 | 6 | 6 | 6 | 6 |
| | **Nutrition & Health Impact**: | 5 | 8 | 6 | 6 | 6 | 8 | 8 | 6 | 6 | 6 |
| ***Subtotal*** | | ***15*** | ***21*** | ***22*** | ***22*** | ***16*** | ***22*** | ***20*** | ***18*** | ***18*** | ***18*** |
| **Other Considerations** | **Institutional Support:** | 9 | 6 | 9 | 7 | 8 | 8 | 7 | 6 | 6 | 8 |
| | **Sustainability**: | 8 | 7 | 6 | 6 | 7 | 5 | 6 | 6 | 6 | 6 |
| | **Cultural Importance**: | 10 | 10 | 7 | 6 | 6 | 6 | 5 | 6 | 5 | 5 |
| ***Subtotal*** | | ***27*** | ***23*** | ***22*** | ***19*** | ***21*** | ***19*** | ***18*** | ***18*** | ***17*** | ***19*** |
| **TOTAL SCORE** | | **143** | **135** | **140** | **131** | **120** | **131** | **123** | **115** | **114** | **117** |
| **RANK** | | **1** | **3** | **2** | **T4** | **7** | **T4** | **6** | **9** | **10** | 8 |

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## REFERENCES

Abate, F., & Walelign, W. (2023). Ethiopia's wheat production pathways to self-sufficiency through land area expansion, irrigation advance, and yield gap closure. Heliyon, 9(10), 1-14. doi:https://doi.10.1016/j.heliyon.2023.e20720.

Abate, G. T., Abay, K. A., Chamberlin, J., Kassim, Y., Spielman, D. J., & Tabe-Ojong, M. P. J. (2023). Digital tools and agricultural market transformation in Africa: Why are they not at scale yet, and what will it take to get there? Food Policy, 116, 1-12. doi:https://doi.org/10.1016/j.foodpol.2023.102439

Abate, G.T., Kasa, L., Minot, N., Rashid, S., Lemma, S., & Warner, J. (2015). Maize value chain in Ethiopia. IFPRI, Washington, DC. doi: 10.13140/RG.2.1.2229.0804

Abay, T., & Abrha, M. (2023). Dairy Farmers' choice of milk market outlets: evidence from farm households in Central Ethiopia. Journal of Food Quality, 2023(1), 17. doi:https://doi.org/10.1155/2023/5684470

Adegboye, F. (2020). Digitalization in the Agribusiness Value Chain and Payment Systems: Evidence from Sub-Saharan Africa. Journal of African Development, 21(1), 96–115. https://doi.org/10.5325/jafrideve.21.1.0096

Agegnehu, W., Engida, G., & Kusse, H. (2022). Market Chain Analysis of Sesame in Bench Sheko and West Omo Zones, Southwest Ethiopia. Harla Journal of Sustainable Development In Business and Economics, 1(2), 61-75. doi:https://doi.org/10.20372/hjsdbe.v1i2.104

Ahairwe, P., & Bilal, S. (2022). AgrInvest-Food Systems Project–Leveraging private finance for sustainable agrifood value chains in Burkina Faso, Ethiopia, Kenya and Niger. Food & Agriculture Org., Rome. https://openknowledge.fao.org/items/586bd994-04f1-4429-85e3-ac0b9f411f81

Ajambo, S., Ogutu, S., Birachi, E., & Kikulwe, E. (2023). Digital agriculture platforms: Understanding innovations in rural finance and logistics in Uganda's agrifood sector (Vol. 5). Intl Food Policy Res Inst. Retrieved from https://cgspace.cgiar.org/items/23a567a4-b263-488f-ac86-df029f2d03b9

Alem, D., & Arebu, N. (2025). The Role of Gender Norms in Transforming Dairy Farming and Empowering Women in Ethiopia: A Review. Asian Journal of Research in Biology, 8(1), 34–41. https://doi.org/10.56557/ajrib/2025/v8i145

Alemayehu, S., & Tilahun, S. (2021). Agricultural Export and Economic Growth Nexus: A Case Study of Ethiopia. International Journal of Rural Development, Environment and Health Research, 5(2), 1–5. https://doi.org/10.22161/ijreh.5.2.1

Alemayehu, Y., & Petit, K. (2021). Market chain analysis of smallholder coffee producers in Debub Ari district of South Omo Zone, SNNPR, Ethiopia. Int. J. Agril. Res. Innov. Tech, 11(2), 61-68. Retrieved from https://doi.org/10.3329/ijarit.v11i2.57256

Alemseged Assefa (2012). Ethiopia's coffee export performance report F/Y 2011/2012. Ethiopian Coffee Exporters Association. Addis Ababa, Ethiopia https://www.scribd.com/document/227335564/

Ambler, K., de Brauw, A., Herskowitz, S., & Pulido, C. (2022). Financial needs and the prospects of digital financial services in the agricultural midstream: Phase 1 synthesis. Washington, DC 20005 USA https://cgspace.cgiar.org/server/api/core/bitstreams/4c582aa1-bad9-4790-bea4-3f1228b01961/content

Ambler, K., de Brauw, A., Herskowitz, S., & Pulido, C. (2023). Finance needs of the agricultural midstream. Food Policy, 121, 102530. https://doi.org/10.1016/j.foodpol.2023.102530

Ararsa, G. (2024). Trend of raw milk collection, milk processing constraints and opportunities in Ethiopia. J. Nutrition and Food Processing, 7(2), 5. doi:https://doi.org/10.31579/2637-8914/156

Ashenaf, D. (2022). Value Chain Analysis of Coffee Product in The Case of Sidama Region, Ethiopia. Journal of Research in Business and Management, 10, 1-10. Retrieved from https://www.questjournals.org/jrbm/papers/vol10-issue4/Ser-1/A10040115.pdf

Ayele, A., Erchafo, T., Bashe, A., & Tesfayohannes, S. (2021). Value chain analysis of wheat in Duna district, Hadiya zone, Southern Ethiopia. Heliyon, 7(7), 1-8. doi:https://doi.org/10.1016/j.heliyon.2021.e07597

Ayele, K. K. (2024). Assessment of the Role of Women and Traditional Values and Aspects of Coffee Production and Brewing Ceremony. https://ethiolatincoffee.com/wp-content/uploads/2024/06/WiCE-Assessment.pdf

Bachewe, F., Regassa, M. D., Minten, B., Taffesse, A. S., Tamru, S., & Hassen, I. W. (2019). The transforming value chain of Ethiopia's "orphan" tef crop. Planta, 250, 769-781. doi:https://doi.org/10.1007/s00425-019-03224-0

Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food value chain revolutions in low-and middle-income countries. Journal of Economic Literature, 60(4), 1316-1377. DOI: 10.1257/jel.20201539

Belay, D. (2022). Milk composition, traditional processing, marketing, and consumption among smallholder dairy farmers in selected towns of Jimma Zone, Oromia Regional State, Ethiopia. Food Science & Nutrition, 10(9), 2879-2895. doi: https://doi.org/10.1002/fsn3.2884

Betelhem, T., Abebaw, A., Zework, A., & Fikremariam, B. (2020). Value Chain Analysis of Smallholder Dairy Production in Debark District, Ethiopia. 13. doi:https://doi.org/10.21203/rs.3.rs-84177/v1

Better Than Cash Alliance. (2023). Responsible Payment Digitization in the Coffee Value Chain. Retrieved from https://www.betterthancash.org/explore-resources/responsible-payment-digitization-in-the-coffee-value-chain#

Bululta, M., & Demise, T. (2021). Structure, Conduct and Performance of Teff Market: The Case of Adola Rede Woreda, Guji Zone, Oromia National Regional State, Ethiopia. Academy of Marketing Studies Journal, 25(3), 1-22. Retrieved from https://www.abacademies.org/articles/Structure-conduct-and-performance-of-teff-market-1528-2678-25-3-401.pdf

Chalachewu, D., Essa, C., Marelign, A., & Tegegne, D. (2023). Impact of dairy production on smallholder households Food Security in the central Gondar zone, Ethiopia. International Journal of Rural Management, 19(3), 436-455. doi:https://doi.org/10.1177/0973005222112

CIMMYT. (2023). CIMMYT wheat varieties help Ethiopia's farmers mitigate devastating rust diseases. https://www.cimmyt.org/news/cimmyt-wheat-varieties-help-ethiopias-farmers-mitigate-devastating-rust-diseases/

Dabessa, T., & Jaleta, M. (2023). Gender Dimension of Fruit and Vegetable Value Chains in Ethiopia: Review. Journal of Agric. Food Nat. Resources, 1(2). https://doi.org/10.20372/afnr.v1i2.667

Dagmawe, M., Yibeltal, W., Fentahun, B., Ahmed, A., Belayneh, A., Hailu, D., & Aden, M. (2024). Analysis of constraints and opportunities in maize production and marketing in Ethiopia. Heliyon, 1-9. doi:https://doi.org/10.1016/j.heliyon.2024.e39606

Daviron, B., & Ponte, S. (2005). The coffee paradox: Global markets, commodity trade and the elusive promise of development. Zed books.

Degef, K., Abebe, G., & Biru, G. (2023). Tef value chain analysis in western Oromia, Ethiopia: evidence from Tef producers and traders. Glob. J. Agric. Econ, 11, 1-11. doi:http://doi.10.15651/2408-5510.23.11.418

Deichmann, U., Goyal, A., & Mishra, D. (2016). Will digital technologies transform agriculture in developing countries? Agricultural Economics, 47(S1), 21-33. doi:https://doi.10.1111/agec.12300

Desalegn, W., Tewodros, T., & Yitna, T. (2019). Value Chain Analysis of Maize: The Case of Dembecha District, West Gojjam Zone, Ethiopia. International Journal of Arts Humanities and Social Sciences Studies, 4(8), 63-73. https://www.researchgate.net/publication/342261151

Dibaba, T. (2021). Market chain analysis of teff in Tole Woreda, Ethiopia. International Journal of Agricultural Science and Food Technology, 7(1), 20-30. doi:https://dx.doi.org/10.17352/2455-815X.000083

Dilmeta, A. A., Nevin, D., & M. Metin, A. (2024). Teff as a Superfood: Evaluating Ethiopia's Teff Production and Export Potential. Paper presented at the Africa 6th International Conference on New Horizons in SciencesAt Cairo/Egypt. https://www.researchgate.net/publication/385489896

Duguma, T. (2017). Value chain analysis of Ethiopian coffee (Coffea arabica). Archives of Current Research International, 11(1), 1-15. doi:http://doi.10.9734/ACRI/2017/31486

Efrem, A., & Zinash, N. (2024). Trends and Drivers of Avocado Production in Ethiopia: A Review. World Journal of Food Science and Technology, 8(4), 72-78. doi:https://doi.org/10.11648/j.wjfst.20240804.11

EHPEA. (2025). 'Avocado' The New Trend of Ethiopian Horticulture Business. Ethiopian Horticulture Producer Exporters Association. https://ehpea.org/avocado-the-new-tend-of-ethiopian-horticulture-business

EIC. (2020). Agro-processing sector overview. https://manufacturingafrica.org/wp-content/uploads/2022/09/Ethiopia_Agro-processing-overview.pdf

Endalkachew, M. (2019). Assessing the core challenges on the process of exporting quality sesame seeds in Ethiopia. MSc thesis, St. Mary's University. Retrived from http://repository.smuc.edu.et/bitstream/123456789/5853/1/Endalkalkachew%20project%20report%202.pdf

Endrias, O. (2020). Market Chain Analysis of Sesame in Melekoza and Basketo Districts. Business and Economics Journal, 11(1), 2-8. Retrived from https://www.hilarispublisher.com/open-access/market-chain-analysis-of-sesame-in-melekoza-and-basketo--districts.pdf

ESS (2021). Crop and livestock product utilization (private peasant holdings, meher season). Ethiopian Statistical Service. Addis Ababa, Ethiopia.

ESS. (2021). Report on Area, Production, and Farm Management Practice of Belg Season Crops for Private Peasant Holdings. Ethiopian Statistical Service (ESS). Addis Ababa, Ethiopia.

ESS. (2022). Agricultural sample survey 2021/ 2022. Volume I. Report on Area and Production of Major Crops (Private Peasant Holdings, Meher Season). Ethiopian Statistics Service. Statistical Bulletin, 593. Addis Ababa, Ethiopia.

ESS. (2022). Area and Production of Major Crops: (Private Peasant Holdings, Meher Season). Addis Ababa, Ethiopia.

Ethiopian Coffee and Tea Authority. (2023). Economic Benefit of Ethiopian Coffee Retrieved from http://www.aigaforum.com/article2018/Economic-Benefit-of-Ethiopian-Coffee.pdf

Ethiopian Investment Commission. (2020). Agro-processing sector overview. UKaid Retrived from https://manufacturingafrica.org/wp-content/uploads/2022/09/Ethiopia_Agro-processing-overview.pdf

FAO. (2018). Food loss analysis: causes and solutions - Case study on the teff value chain in the Federal Democratic Republic of Ethiopia. Food and Agricultural Organization, Rome, Italy. https://openknowledge.fao.org/items/02140f16-6a6d-4221-9daa-1aa602180dc0.

FAO. (2025). FAOSTAT: Value of Agricultural Production. Food and Agriculture Organization. https://www.fao.org/faostat/en/#data/QV

Farrell, J. (2021). Dairy in Ethiopia. Application of the Supply Chain Analysis for Nutrition (SCAN) Tool. Global Alliance for Improved Nutrition (GAIN), Switzerland. GAIN Briefing Paper 07. Reterived from https://www.gainhealth.org/sites/default/files/publications/documents/gain-briefing-paper-series-7-dairy-in-ethiopia.pdf

Feyisa, T. G., & Megersa, H. G. (2019). Gender differences in fruit production and selection of avocado and banana varieties: Case study at Wondo Genet and Wondo Woredas, Southern Ethiopia. Int. J. Agr. Ext, 8(2), 77-83. Reterived from http://dx.doi.org/10.33687/ijae.008.02.3059

Fikiru, T., & Han, J. (2024). Rural credit access and contract farming nexus in Ethiopia: A meta-analysis. Heliyon, 10(1). doi:https://doi.org/10.1016/j.heliyon.2023.e23154

Fiseha, N., & Mohamed, A. (2023). Dairy Enterprises' Market Participation Decisions and the Level of Value Addition: Evidence from Addis Ababa and Its Vicinity, Ethiopia. Ethiopian Journal of Economics, 32(1), 70-95. Retrieved from https://www.ajol.info/index.php/eje/article/view/265625/250655

Fortier, G. (2021, June 19). Empowering women in Ethiopia's coffee sector. BORGEN Magazine. https://www.borgenmagazine.com/women-in-ethiopias-coffee-sector/

Freshela Exporters. (2025). Three types of Ethiopian avocados you should know about. https://www.freshelaexporters.com/avocado/varieties/ethiopia

Galtsa, D., Tarekegn, K., Kamaylo, K., & Oyka, E. (2022). Maize Market Chain Analysis and the Determinants of Market Participation in the Gamo and Gofa Zones of Southern Ethiopia. Advances in Agriculture, 2022, 1–9. https://doi.org/10.1155/2022/2784497

Garsow, A. V., Biondi, M. R., Kowalcyk, B. B., Vipham, J. L., Kovac, J., Amenu, K., . . . Colverson, K. E. (2022). Exploring the relationship between gender and food safety risks in the dairy value chain in Ethiopia. International Dairy Journal, 124, 29. doi:https://doi.org/10.1016/j.idairyj.2021.105173

Gebregziabher, G., Zelalem, Y., Moyo, S., & Okeyo, A. M. (2021). Dairy industry development in Ethiopia: Current status, major challenges and potential interventions for improvement. . N. ILRI, Kenya https://hdl.handle.net/10568/114840

Gebrehiwot, N. T., & Ndinda, C. (2024). Do gender disparities in socioeconomic status affect Teff productivity? A comparative analysis in Ethiopia. CABI Agriculture and Bioscience. https://doi.org/10.1186/s43170-023-00209-8

Gebremedhn, M. B., Tessema, W., Gebre, G. G., Mawcha, K. T., & Assefa, M. K. (2019). Value chain analysis of sesame ( Sesamum indicum L.) in Humera district, Tigray, Ethiopia. Cogent Food & Agriculture, 5(1), 1705741. https://doi.org/10.1080/23311932.2019.1705741

Gebretsadik, D. (2020). Marketing Chain and Structure, Conduct and Performance of Sesame: The Case of Kafta Humera District, Western Zone of Tigray, Ethiopia. Asian Journal of Agricultural Extension, Economics & Sociology, 14–36. https://doi.org/10.9734/ajaees/2020/v38i230306

Gebru, M., Baye, K., Demissie, M., Bogala, S., Ekesa, B. (2022). Incorporating avocado production in agri-food systems: Benefits, opportunities, and challenges: Lemo Woreda's experience in Hadiya Zone, Southern Ethiopia. Alliance Bioversity and CIAT, 5(11), 1-25. Reterived from https://cgspace.cgiar.org/items/390658c6-17d1-46d9-be06-ad1e19c94e79

Gidey, K., Dawit, G., & Kidane, T. (2021). Do smallholder farmers ensure resource use efficiency in developing countries? Technical efficiency of sesame production in Western Tigrai, Ethiopia. Heliyon, 7(6), 2-18. doi:https://doi.org/10.1016/j.heliyon.2021.e07315

Gizaw, W., & Assegid, D. (2021). Trend of cereal crops production area and productivity, in Ethiopia. Journal of Cereals and Oilseeds, 12(1), 9-17. doi:https://doi.10.5897/JCO2020.0206

Global Agricultural Information Network. (2019). Ethiopia Coffee Annual Report, GAIN Report (Number: ET1904). Retrived from https://www.fas.usda.gov/data/ethiopia-coffee-annual-8

Global Agricultural Information Network. (2023). Coffee Annual (ET2023-0014). Addis Ababa, Ethiopia https://www.fas.usda.gov/data/ethiopia-coffee-annual-8

Gurmessa, N. E., Agwanda, C., Oduor, G., Musebe, R. O., Akiri, M., & Romney, D. (2022). Sustainability and gender dynamics of coffee value-chain development intervention: Lessons from Ethiopia. Sustainability, 14(19), 11928. doi:https://doi.org/10.3390/su141911928

Habetamu, N., & Takele, M. (2023). Determinants of avocado commercialization among smallholder farmers in Shebediono Woreda, Sidama Zone SNNPRS of Ethiopia. International Journal of Agricultural Research, Innovation and Technology, 13(1), 89-95. doi:https://doi.org/10.3329/ijarit.v13i1.68054

Habib, A. M., Ren, J., Matellini, B., Jenkinson, I., & Paraskevadakis, D. (2024). Critical factors to adopt sustainable agrifood supply chain management in developing countries: The case of Ethiopian coffee industry. Business Strategy & Development, 7(4), 1-15. doi:http://doi.10.1002/bsd2.70032

Hadia, S., John, K., Dahlinb, A. S., & Zebene, A. (2024). Homegarden improved avocado cultivation, income diversification, and food security for rural households in Central Ethiopia. Cogent Economics & Finance, 12(1), 2-16. doi:https://doi.org/10.1080/23322039.2024.2426537

Hunde, D., Tadesse, Y., Getachew, T., & Tadesse, M. (2022). Estimation of genetic parameters for crossbred dairy cattle in Central Ethiopia. Ethiopian Journal of Agricultural Sciences, 32(1), 105–123. Reterived from https://www.ajol.info/index.php/ejas/article/view/222237

IFC. (2024). Digitizing value chain payments for smallholder farmers in Ethiopia. International Finance Corporation. https://www.ifc.org/en/insights-reports/2024/digitizing-value-chain-payments-for-smallholder-farmers-ethiopia

ILO (2021). Assessment of the potential for cooperative Development in selected Agriculture sectors in Ethiopia. International Labour Organisation. Ethiopia ILO Country Office https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_emp/%40emp_ent/%40ifp_seed/documents/publication/wcms_827557.pdf

International Coffee Organization. (2018). Gender Equality in the Coffee Sector; An insight report from the International Coffee Organization. London, UK https://www.ico.org/documents/cy2017-18/icc-122-11e-gender-equality.pdf

International Coffee Organization. (2023). Coffee report and outlook London, United Kingdom https://icocoffee.org/documents/cy2023-24/Coffee_Report_and_Outlook_December_2023_ICO.pdf

International Coffee Organization. (2025). Coffee Market Report – January 2025. London, United Kingdom https://www.ico.org/documents/cy2024-25/cmr-0125-e.pdf

International Trade Administration. (2024). Ethiopia - Agricultural Sectors. U.S. Department of Commerce. Retrieved from https://www.trade.gov/country-commercial-guides/ethiopia-agricultural-sectors#:~:text=Overview,help%20to%20boost%20agricultural%20output

International Trade Centre. (2024). Ethiopian coffee farmers take digital leap with new planning system. Retrieved from https://www.intracen.org/news-and-events/news/ethiopian-coffee-farmers-take-digital-leap-with-new-planning-system

Kabeta, T. (2021). Review of Coffee Value Chain in Ethiopia on the course crop value chain management. American journal of supply chain management 6, 60 - 78. doi: 10.47672/ajscm.266

Kabeta, T., Haji, J., & Abarago, R. N. (2021). Value chain analysis of teff in East Wollega, Ethiopia. Journal of Agribusiness and Rural Development, 59(1), 17-28. doi:https://doi.org/10.17306/J.JARD.2021.01313

Kassa, T., Akililu, A., Yishak, S., & Tesfaye, G. (2020). Dairy value chain analysis in bench Sheko and Sheka zones, south Western Ethiopia. Trends in Applied Sciences Research, 15(1), 21-28. doi:https://doi.10.3923/tasr.2020.21.28

Kassie, G. T., Worku, Y., Bachewe, F. N., Asnake, W., & Abate, G. T. (2022). Scoping study on Ethiopian Sesame Value Chain. Scoping Study Number 03. International Food Policy Research Institute, Washington, DC. Retrived from https://cgspace.cgiar.org/server/api/core/bitstreams/96733d38-deae-4df1-88f3-36e57b3e88c5/content

Kateryna, S., Julian, L., & Ghada, E. (2021). What's Cooking: Digital Transformation of the Agrifood System. W. World Bank, DC. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/417641615957226621/whats-cooking-digital-transformation-of-the-agrifood-system

Kedir, A., & Mohammed, A. (2024). Review on quality attributes of milk and commonly produced dairy products in Ethiopia. Heliyon, 12. doi:https://doi.org/10.1016/j.heliyon.2024.e40089

Kemal, F., Emana, B., & Shumeta, Z. (2019). Analysis of Gender Role in Coffee Value Chain in Jimma Zone, Oromia National Regional State, Ethiopia. Eur. J. Bus. Manag, 11-31. Retrieved from https://core.ac.uk/download/pdf/270185158.pdf

Kifiya Financial Technology. (2025). About Kifiya. Kifiya Financial Technology. https://kifiya.com/about-kifiya/

Kutoya, K., Gedion, E., & Dawit, D. (2022b). A Value Chain Analysis of Sesame (Sesame indicum L.) in South Omo Zone, Southern Ethiopia. J Agri Sci Food Res. 13(4). doi:10.35248/2593-9173.22.13.502

Legese, G., L., Ulfina, G., Temesgen, J., Tamrat, D., Seyoum, B., Tariku, T., . . . Segni, C. (2023). Ethiopia National Dairy Development Strategy 2022–2031. F. D. R. o. E. A. A. Ministry of Agriculture, Ethiopia. Retrived from https://cgspace.cgiar.org/server/api/core/bitstreams/246012fe-9c0b-4130-a9fe-8ea14e0f1f55/content

Lemane, G., Bezabih, E., & Fikadu, M. (2020). Impact of agricultural credit on maize productivity among smallholder farmers in Hababo Guduru district, Oromia, Ethiopia. Ethiopian Journal of Applied Science and Technology, 11(1), 23-35. Retrived from https://journals.ju.edu.et/index.php/ejast/article/view/2856#:~:text=We%20find%20that%20access%20to,47.8%25%20and%2033.6%25respectively.

Lutta, A., Kehbila, A., Sitati, C., Sunguti, E. M., Suljada, T., & Osano, P. (2024). Challenges and opportunities for upgrading the avocado value chain in East Africa. S. Stockholm Environment Institute. https://doi.org/10.51414/sei2024.032

Mamo, T., Haji, J., Bekele, A., Teklewold, T., Berg, S., Moore, H. L., & Hodge, C. (2021). Determinants of milk marketing channel selection by urban and peri-urban commercial dairy producers in Ethiopia. Ethiopian Journal of Agricultural Sciences, 31(3), 69-100. Retrieved from https://www.ajol.info/index.php/ejas/article/view/211863

Manufacturing Industry Development Institute. (2023). National Import Substitution Strategy for Selected Manufacturing Industry Sectors in Ethiopia. Ministry of Industry. Addis Ababa, Ethiopia. https://www.moi.gov.et/sites/default/files/resource/Import Substitution Strategy_Final_VF.pdf

Meester, J., & Lanfranchi, G. (2024). Food, power and politics: The political economy of wheat value chains in fragile settings. Netherlands Institute of International Relations 'Clingendael'. The Hague, Netherlands. https://www.clingendael.org/sites/default/files/2025-03/food-power-politics.pdf

Mekonnen, A., Yitea, S., Biruk, K., Sisay, A., & Eden, D. (2024). Value chain analysis of wheat in the case of North Shewa Zone, Amhara region, Ethiopia. Sustainable Environment, 10(1), 1-14. doi:https://doi.org/10.1080/27658511.2024.2426834

Menza, M., Jerene, W., & Oumer, M. (2024). The effect of financial technology on financial inclusion in Ethiopia during the digital economy era. Cogent Social Sciences, 10(1). https://www.tandfonline.com/doi/full/10.1080/23311886.2024.2309000#d1e172

Mercy Corps AgriFin. (2019). Ethiopia Value Chains Summary. https://www.mercycorpsagrifin.org/wp-content/uploads/2020/03/Mercy-Corps-Agrifin-Ethiopia-Select-Value-Chain-Analysis-2019.pdf

Mesfin, Y., & Kishore, B. (2018). A study on challenges and opportunities of sesame production (With reference to sesame farmers, tigray regional state, Ethiopia). International Journal of Academic Research and Development, 850-857. Retrived from https://allstudiesjournal.com/assets/archives/2018/vol3issue2/3-2-225-320.pdf

Minh, T. T., & Osei‐Amponsah, C. (2021). Towards poor‐centred value chain for sustainable development: A conceptual framework. Sustainable development, 29(6), 1223-1236. doi:http://doi.10.1002/sd.2220

Minten, B., & Tamru, S. (2022). The gender imbalances in Ethiopia's dairy value chains. https://www.theigc.org/blogs/gender-equality/gender-imbalances-ethiopias-dairy-value-chains

Minten, B., Tamru, S., Engida, E., & Kuma, T. (2016). Feeding Africa's cities: The case of the supply chain of teff to Addis Ababa. Economic Development and Cultural Change, 64(2), 265-297. doi: 10.1086/683843

Minten, B., Yetimwork, H., Seneshaw, T., & Agajie, T. (2020). The transforming dairy sector in Ethiopia. Plos one, 15(8), 24. doi: 10.1371/journal.pone.0237456

MoA. (2024). Postharvest Management Strategy of Ethiopia (PHMSE). https://www.moa.gov.et/wp-content/uploads/2024/08/Post-Harvest-Managment-Strategy-of-Ethiopia-1.pdf

Moguldom. (2015, April 16). Ethiopia lifts ban on teff flour exports. https://moguldom.com/95724/ethiopia-lifts-ban-on-teff-flour-exports/

Motebayenore, E. (2021). Review on coffee production constraints and opportunities in Ethiopia. J Hortic, 9(1), 1-7. Retrieved from https://www.longdom.org/open-access-pdfs/review-on-coffee-production-constraints-and-opportunities-in-ethiopia.pdf

Ndambi, A., van der Lee, J., Endalemaw, T., Yigrem, S., Tefera, T., & Andeweg, K. (2017). Four important facts on opportunities in the Ethiopian dairy sector. Practice brief dairy BISS project. Wageningen Livestock Research, Wageningen University and Research, Wageningen. Retrieved from https://edepot.wur.nl/459820

Negasa, E., Mitiku, A., & Mitiku, F. (2019). Analysis of coffee value chain finance in Bodji Dirmeji District of West Wollega, Ethiopia. Ethiopian Journal of Environmental Studies & Management, 12(1). doi:https://ejesm.org/doi/v12i1.3

Negedea, B. M., Grooteb, H. De, Mintenc, B., & Voors, M. (2021). Maize price seasonality in Ethiopia: Does access to improved grain storage technology increase farmers' welfare? [Wageningen University]. https://www.wur.nl/en/show/Maize-price-seasonality-in-Ethiopia-Does-access-to-improved-grain-storage-technology-increase-farmers-welfare.htm

Negussie, E., Charles, A., George, O., Richard, M., Morris, A., & Dannie, R. (2022). Sustainability and gender dynamics of coffee value-chain development intervention: Lessons from Ethiopia. Sustainability, 14(19), 1-16. doi: https://doi.org/10.3390/su141911928

Nyokabi, N. S., Phelan, L., Gemechu, G., Berg, S., Lindahl, J. F., Mihret, A., . . . Moore, H. L. (2023). From farm to table: exploring food handling and hygiene practices of meat and milk value chain actors in Ethiopia. BMC Public Health, 23(1), 17. doi:https://doi.org/10.1186/s12889-023-15824-3

Observatory of Economic Complexity. (2025). Ethiopia country profile. https://oec.world/en/profile/country/eth

Ogola, J. R. O. (2021). Climate Resilient Agriculture and Food Systems in Ethiopia. Wageningen Centre for Development Innovation, Wageningen University & Research. Wageningen. Retrieved from DOI: 10.13140/RG.2.2.15009.74082

Okano, M. T., Vendrametto, O., & Langhi, C. (2022). Digital Transformation in the Milk Production Chain. Paper presented at the IFIP International Conference on Advances in Production Management Systems. https://doi.org/10.1007/978-3-031-16411-8_11

Pines, L. (2022). The Ethiopia Commodity Exchange: The Dynamic Trading Floor Connecting Buyers & Sellers. Commodity.Com. https://commodity.com/trading/exchanges/ethiopia/

Powell, W., Foth, M., Cao, S., & Natanelov, V. (2022). Garbage in garbage out: The precarious link between IoT and blockchain in food supply chains. Journal of Industrial Information Integration, 25, 1-18. doi:http://doi.10.1016/j.jii.2021.100261

Qureshi, M., Langham, D. R., Lucas, S. J., Uzun, B., & Yol, E. (2022). Breeding history for shattering trait in sesame: classic to genomic approach. Molecular Biology Reports, 49(7), 7185-7194. doi:https://doi.org/10.1007/s11033-022-07636-2

Rashid, S., Getnet, K., & Lemma, S. (2019). Maize value chain potential in Ethiopia: Constraints and opportunities for enhancing the system. Gates Open Res, 3(354), 1-65. Retrieved from https://www.researchgate.net/publication/282729771

Schrader, T., Terefe, G., Mekuria, A., Dirks, F., Tadesse, A., & Jacobs, J. (2020). Agricultural sector transformation is teamwork: experiences of the Sesame Business Network support programme in Northwest Ethiopia. Wageningen Centre for Development Innovation. https://doi.org/10.18174/536894

Selamawit, M., Dubale, A., Chigign, A., Aklok, Z., & Yonnas, A. (2019). Value chain analysis of fruits: The case of mango and avocado producing smallholder farmers in Gurage Zone, Ethiopia. Journal of Development and Agricultural Economics, 11(5), 102-109. doi:doi.10.5897/JDAE2018.1038

Shahid, N., Humeau, E., & Bahia, K. (2023). Mobile Money in Ethiopia: Advancing financial inclusion and driving growth. Cham, Switzerland: Palgrave Macmillan.

Shen, Y., Guo, X., & Zhang, X. (2023). Digital financial inclusion, land transfer, and agricultural green total factor productivity. Sustainability, 15(8), 1-25. doi:https://doi.org/10.3390/su15086436

Shewaye, T., Yedenek, B., & Abebe, W. (2021). Market Chain Analysis of Avocado Fruit in Case of Kabena District, SNNP, Ethiopia. Wolkite Universty, Ethiopia. https://www.academia.edu/127764879/MARKET_CHAIN_ANALYSIS_OF_AVOCADO_FRUIT_IN_CASE_OF_KABENA_DISTRICT_SNNP_ETHIOPIA_SENIOR_RESEARCH_REPORT

Shibeshi, F., & Barasa, F. (2024). An examination of ethiopian data on the coffee value chain from a systemic perspective. . International Journal of Business Research and Management, 2(1). doi:http://doi.10.61148/3065-6753/IJBRM/021

Sina, B., Demissie, H., & Rezene, Y. (2023). Evaluation of smallholder farmers' use of indigenous knowledge in Ethiopian avocado (Persea americana Mill.) production and fruit preference criteria. CABI Agriculture and Bioscience, 4(1), 2-17. doi:https://doi.org/10.1186/s43170-023-00198-8

Sina, B., Demissiea, H., & Rezenec, Y. (2024). Assessment of the constraints and challenges in avocado (Persea Americana Mill.) production and marketing in Southern Ethiopia. International Journal of Fruit Science, 24(1), 60-72. doi:https://doi.org/10.1080/15538362.2024.2317775

Singh, S. (2022). Coffee Value Chain in Ethiopia: A Case Study. Financial Markets, Institutions and Risks, Volume 6, 76-100. doi:http://doi.org/10.21272/fmir.6(4).76-100.2022

Sinkie, A., & Getasew, D. (2024). Analysis of wheat traits that determine female farmers' preferences for wheat varieties: Gender insight from southern tigray, ethiopia. CABI Agriculture and Bioscience, 5(1), 89. doi:https://doi.org/10.1186/s43170-024-00300-8

Smith, D., de Regt, M., & Tekalign, A. A. (2022). Baking injera in Addis Ababa, Ethiopia: Women's invisible labor in the teff value chain. Gender, Work & Organization, 29(5), 1428-1442. doi:http://doi.10.1111/gwao.12834

Stoian, D., Donovan, J., Elias, M., & Blare, T. (2018). Fit for purpose? A review of guides for gender-equitable value chain development. Development in Practice, 28(4), 494-509. doi:https://doi.org/10.1080/09614524.2018.1447550

Tadele, E., & Hibistu, T. (2021). Empirical review on the use dynamics and economics of teff in Ethiopia. Agriculture & food security, 10, 1-13. doi:https://doi.org/10.1186/s40066-021-00329-2

Tadele, E., & Hibistu, T. (2022). Spatial production distribution, economic viability and value chain features of teff in Ethiopia: Systematic review. Cogent Economics & Finance, 10(1), 2020484.

Tadesse, M. D., Gebresenbet, G., Ljungberg, D., & Tavasszy, L. (2024). Digital Traceability Capabilities: The Case of the Ethiopian Coffee Supply Chain. Future transportation, 4(3), 780-794. doi:https://doi.org/10.3390/futuretransp4030037

Tadesse, G., & Bahiigwa, G. (2015). Mobile phones and farmers' marketing decisions in Ethiopia. World development, 68, 296-307. doi:https://doi.org/10.1016/j.worlddev.2014.12.010

Tamene, L. D., & Ashenafi, A. (2022). Digital Agriculture Profile: Ethiopia. Alliance of Bioversity International and CIAT. Retrieved from https://alliancebioversityciat.org/publications-data/digital-agriculture-profile-ethiopia

Tamru, S., & Minten, B. (2023). Value addition and farmers: Evidence from coffee in Ethiopia. Plos one, 18(1), e0273121. doi:https://doi.org/10.1371/journal.pone.0273121 January 30, 2023

Tefera, A., & Mello, E. (2022). Grain and Feed Annual: Ethiopia. United States Department of Agriculture, Foreign Agricultural Service. Addis Ababa, Ethiopia. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Grain and Feed Annual_Addis Ababa_Ethiopia_ET2022-0014.pdf

Tefera, A., & Torry, J. (2023). Coffee Annual: Ethiopia. USDA Foreign Agricultural Service. Addis Ababa, Ethiopia. Retrieved from https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Coffee%20Annual_Addis%20Ababa_Ethiopia_ET2023-0014.pdf

Tefera, E., Cho, Y.-B., & Kwag, S. (2019). Role of Cooperatives and Participation of their Members in Agricultural Output Marketing: Empirical Evidence from Hetosa District, Ethiopia. International Journal of Emerging Trends in Social Sciences, 5(1), 1–11. https://doi.org/10.20448/2001.51.1.11

Tekalign, S., Eneyew, A., & Mitiku, F. (2020). Gender roles in teff value chain in Borecha District of Southwestern Ethiopia: husband and wife comparisons. Journal of Agribusiness and Rural Development, 1(55) 93–105. doi: 10.17306/J.JARD.2020.01212

Temesgen, M., & Erko, B. (2024). Mapping the Value Chain: Key Characteristics of Ethiopia's Avocado Production. World Journal of Economics, Business and Management, 1(1). https://wasrpublication.com/wp-content/uploads/2025/03/WJEBM-042024-GP.pdf

Tesfaye, M. A. (2024). The Production and Marketing of Teff in Ethiopia. Journal of Economics and Trade, 9, 39-49. doi: 10.56557/jet/2024/v9i29020

Teshome, S., & Esubalew, T. (2022). Economics of sesame and its use dynamics in Ethiopia. The Scientific World Journal, 2022(1), 1263079. https://doi.org/10.1155/2022/1263079

Tikuneh, D. B., Issa, M. M., & Tefera, Y. D. (2023). Assessing the demand and current status of agricultural mechanization in major coffee-production areas of Ethiopia. Pelita Perkebunan (a Coffee and Cocoa Research Journal), 39, 149-172. doi: 10.22302/iccri.jur.pelitaperkebunan.v39i2.547

Tolesa, A. (2024). Wheat Production and Consumption Trends and prospects in Ethiopia. Ethiopian Journal of Agricultural Sciences, 34(1), 1-15. Retrieved from https://www.ajol.info/index.php/ejas/article/view/276012/260490

Tolessa, K., D'heer, J., Duchateau, L., & Boeckx, P. (2017). Influence of growing altitude, shade and harvest period on quality and biochemical composition of Ethiopian specialty coffee. Journal of the Science of Food and Agriculture, 97(9), 2849–2857. https://doi.org/10.1002/jsfa.8114

TRAIDE Ethiopia. (2021). Investment Opportunities in the Ethiopian Dairy Sector. T. F. Kingdom of the Netherlands. Retrieved from https://www.agroberichtenbuitenland.nl/binaries/agroberichtenbuitenland/documenten/rapporten/2021/09/29/ethiopie-borzuivel/2021+Dairy+Business+Opportunity+Report+-+TRAIDE+Ethiopia.pdf

Traore, S., & Moussa, R. K. (2025). Digital finance, maize productivity, and welfare of farm households in Burkina Faso. Cogent Economics & Finance, 13(1), 1-14. doi: 10.1080/23322039.2024.2448226

Tridge. (2024). Ethiopia Sesame Seed: Suppliers & Market Trends. Retrieved May 28, 2025, from https://www.tridge.com/tridge-woods/sesame-seed/ET

Tridge. (2025, May 28). 2024 Teff global market overview [Data set]. Retrieved from https://www.tridge.com/intelligences/teff

UNIDO. (2025). Agro-food park linkage with smallholder farmers (avocado value chain). United Nations Industrial Development Organization. https://ipp.unido.org/solution/agro-food-park-linkage-small-holder-farmers-avocado-value-chain

Urugo, M. M., Worku, M., Tola, Y. B., & Gemede, H. F. (2025). Ethiopian coffee: Production systems, geographical origin traceability, and European Union deforestation regulation directive compliance. Journal of Agriculture and Food Research, 19, 101695. https://doi.org/10.1016/j.jafr.2025.101695

USDA. (2021). Ethiopia Oilseeds Report Annual. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Ethiopia Oilseeds Report Annual_Addis Ababa_Ethiopia_03-04-2021

USDA. (2025). Production, Supply, and Distribution Online database. U.S. Department of Agriculture, Foreign Agricultural Service (USDA-FAS). https://apps.fas.usda.gov/PSDOnline/app/index.html#/app/home/statsByCountry

USDA. (2025). Ethiopian wheat production. Retrieved from https://ipad.fas.usda.gov/countrysummary/Default.aspx?id=ET&crop=Wheat

Usman, M., Razzaq, M., Khan, R. A. R., Rehman, M. A., Ali, M. M., Gull, S., . . . Golokhvast, K. S. (2022). Factors affecting postharvest losses of sesame (Sesamum indicum L.) and their mitigation strategies. Agronomy, 12(10), 2-16. doi: 10.3390/agronomy12102470

Wamicwe, P., L.E. Born, C. Anchala, G. Abera, G. Grosjean, R. Newman, E. Derenoncourt, L. Hientz, S. Mufti, C. Mwongera, D. Masika, M. Yemaneh, S. Firdissa, S. Workeneh, S. Alemayehu, N. Abdulhamid, Y. Balcha, L. Tesfaye, L. Molina, P. Imbach, T. Skrinjaric, J. Chaves Porras, C. Bouroncle, A. Zamora, G. Mamo, L. Gebre, T. Abera, C. Mwongera, A. Mohammed, F. Jelaludin, G. Njoroge, E. Makau, V. Clause, E. Awol, A. Abraham, T. Assefa, W. Howe, M. Benitez, & D. Merrey. 2024. Investing in Resilience A Guide to Climate Risks and Opportunities in Ethiopia's Key Agricultural Value Chains. Addis Ababa, Ethiopia. https://cgspace.cgiar.org/items/e3a10822-23eb-411d-b126-3a3201ef0bd2

World Bank (2024). Digitizing value chain payments for smallholder farmers in Ethiopia. International Finance Corporation. Washington DC. Retrieved from https://www.ifc.org/en/insights-reports/2024/digitizing-value-chain-payments-for-smallholder-farmers-ethiopia

World Economic Forum. (2024). How digital payments can change the lives of women in Ethiopia's coffee industry. Retrieved from https://www.weforum.org/stories/2024/02/coffee-ethiopia-wages-female-workers/

Yetneberk, S., Teamir, M., & Teklewold, A. (2018). Maize-Based Food Products in Ethiopia: A Review of Traditional Practices and Research Outputs. https://nume.cimmyt.org/wp-content/uploads/sites/15/2018/11/Review-of-Maize-Food-Products-in-Ethiopia-1.pdf

Zelalem, Y., & Mounde, A. (2023). Re: Ethiopian's Dairy Sector: A Developing Industry with Auspicious Investment Prospects. Message posted to https://www.nfpconnects.com/conversations/the-ethiopian-dairy-industry-available-resources-ongoing-initiatives-and-investment-opportunities

Zerihun, J. (2021). Current Status, Potentials and Opportunities of Avocado Production as an Alternative Crop: the Case of Ethiopia: A Review. Agricultural Reviews, 42(3), 336-341. doi:10.18805/ag.R-179

Zewdie, H., Belaineh, L., Jema, H., & Moti, J. (2020). Governance structures and incentives in the wheat value chain in Ethiopia. African Journal of Agricultural and Resource Economics, 15, 1-21. doi:https://doi.10.53936/afjare.2020.15(2).11

Zewdu, T., & Lindi, S. (2022). Review of Wheat Value Chain in Ethiopia. International Journal of African and Asian Studies, 77, 1-12. doi: 10.7176/JAAS/77-03

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