



DOI: <https://doi.org/10.20372/afnr.v4i1.2020>

ISSN: 2520-7687 (Print) and 3005-7515 (Online)

Journal of Agriculture, Food and Natural Resources

J. Agric. Food Nat. Resour. Jan-Apr 2026, 4(1):16-23

Journal Home page: <https://journals.wgu.edu.et>

Original Research

Leveraging Value Chain for Enhancing the Domestic and Export Markets of Avocado in Ethiopia

Tamirat Fikadu^{1,*}, Edossa Etissa¹, Mekonnen Sime¹

¹Melkassa Agricultural Research Center, Ethiopian Institute of Agricultural Research, P. O. Box 436, Melkassa, Ethiopia

Abstract

Avocado is emerging as an important alternative fruit crop for farmers in many regions of Ethiopia. A multistage sampling method was used to choose representative households in the study region. 268 target households were randomly selected for a household survey, and qualitative data were gathered through various methods, including key informant interviews, focus group discussions, and document reviews. The household survey shows average avocado yields of 6.4 t/ha in the Amhara Region, 5.7 t/ha in the Oromia Region, 4.7 t/ha in the Sidama Region, and 3.2 t/ha in the SNNP Region. Higher productivity in Amhara is linked to commercial, irrigated, and cluster-based farming, such as the Koga Irrigation Project. The average number of fruit-bearing trees is 14, with each hectare producing an average yield of 5 tons. Farmers earned an average of 95,000 ETB from avocado sales in a single production season. The survey results also showed that about 66.8% of avocado growers in the study area used traditional varieties, while 33.2% used improved/grafted varieties, though the proportions vary by region. Key challenges include a lack of irrigation, low productivity, limited input support, inadequate farmer experience, poor market information, perishability, seasonal supply, and weak organization among actors. The avocado value chain is characterized by weak coordination among chain actors, as well as poor information sharing among stakeholders. Strengthening market systems, infrastructure, and stakeholder coordination will improve efficiency, reduce losses, and help farmers access better-paying markets.

Copyright©2026 AFNR Journal Wollega University. All Rights Reserved

Article Information

Article History:

Received: 17-02- 2026

Revised: 21-04-2026

Accepted: 22-04-2026

Keywords:

Avocado

Domestic

Export market

Multistage sampling

Value chain

*Corresponding Author:

E-mail:

tamiratmosisa93@gmail.com

INTRODUCTION

Fruit development is a key pathway for sustainable livelihood improvement in rural Ethiopia (FAO, 2021). Ethiopia's fruit production plays a crucial role in the local economy by enhancing the livelihoods for just about five million smallholder farmers, creating job opportunities, and generating foreign exchange earnings (GAIN, 2018). The country has immense potential for growing fruit crops due to its favorable production conditions, access to affordable labor, and growing local and international markets for both processed and fresh fruits (Edossa *et al.*, 2019).

Current avocado initiatives in Ethiopia are increasingly focused on value chain development, commercialization, and export promotion. The government, in collaboration with the United Nations Industrial Development Organization, is implementing Integrated Agro-Industrial Parks that link farmers with processors and export markets, significantly improving coordination, market access, and value addition in the avocado sector (UN Ethiopia, 2025). Current forecasts predict that domestic food and beverage consumption will increase by 75% between 2020 and 2030 (EIC, 2020). The Ethiopian Institute of Agricultural Research and other institutions are also advancing avocado through research, seedling multiplication, and cluster-based commercialization

efforts. These initiatives are transforming Ethiopia's avocado sector into a more market-oriented, export-driven, and sustainable industry

Avocado is a high-yielding crop, and its nutritional value makes it especially beneficial for people facing nutrient deficiencies in developing countries, including Ethiopia. Despite this, avocado productivity in Ethiopia remains low about 4.2 t ha⁻¹ (CSA, 2022) compared to the global average of about 9 t ha⁻¹ (FAOSTAT, 2022), indicating a significant yield gap. This highlights the need for greater focus on avocado improvement. In response, improved avocado varieties have recently been introduced and distributed to smallholder farmers by the Ethiopian Ministry of Agriculture in collaboration with organizations such as USAID, Mashav, and ATA. (Jaleta, 2021). In recent years, the demand for improved avocado varieties, including Hass significantly increased.

According to FAOSTAT (2022), Ethiopia ranks as the fifth-largest avocado producer in sub-Saharan Africa. Kenya leads the region with a production of 176,045 tons. At present, Ethiopia produces about 84,793.7 tons of avocados from an estimated 19,758.75 hectares (Figure 1). While Ethiopia has the largest area devoted to avocado cultivation among major producing countries, its production and productivity levels are relatively low compared to the country's existing

potential. The local avocado varieties currently grown in Ethiopia are of poor quality, which makes them unsuitable for both domestic and international markets. To address this issue, there is a need to introduce improved high-yield varieties of better quality.

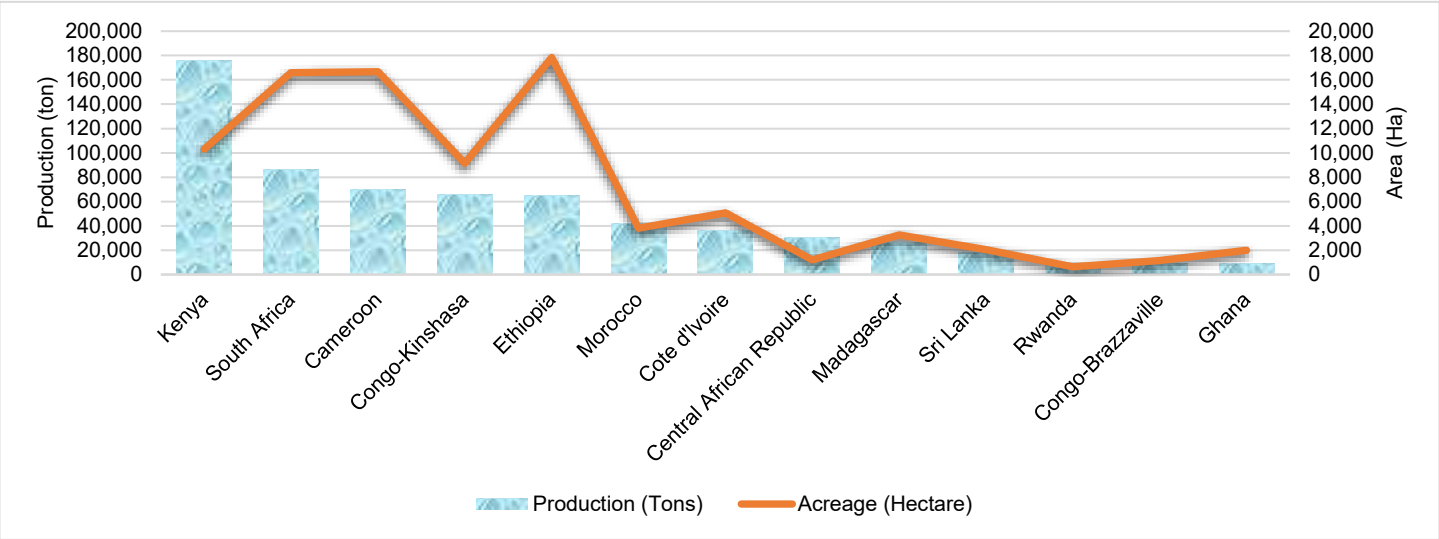


Figure 1. Avocado yield and area in Ethiopia compared to averages of African countries Source: FAOSTAT, 2022)
The avocados have been steadily increasing in the global market over the last 20 years (Dorantes *et al.*, 2004). UN Comtrade reports that in 2021, Ethiopia's avocado exports brought in just over \$1 million USD (roughly 52 million Ethiopian birrs). In the history of the nation, this is the highest value ever noted. Compared to the prior year, it represents an 11% increase (Figure 2).

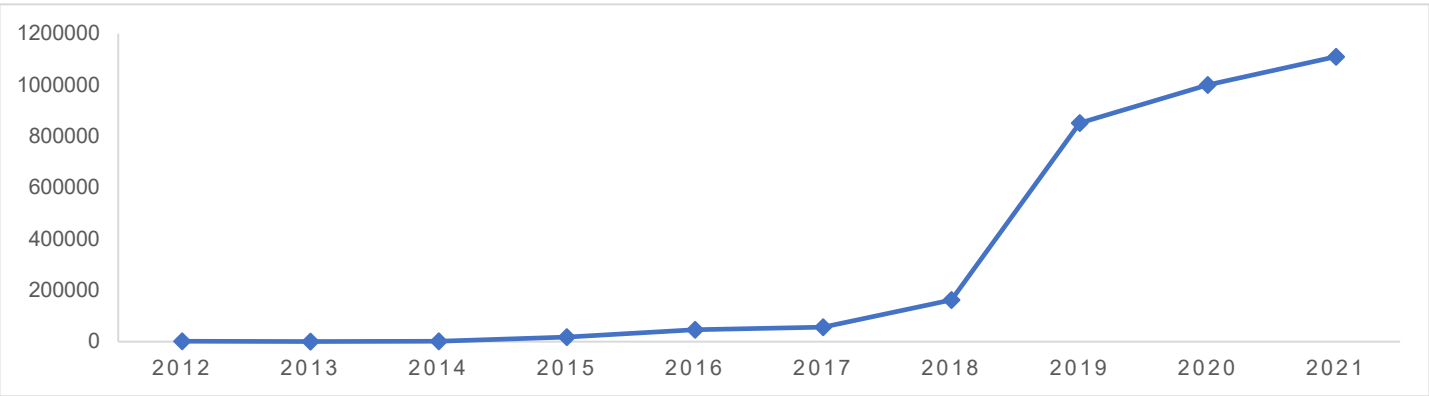


Figure 2. The total values in export (in USD) for avocados from Ethiopia between 2012 and 2021 (Source: UN Comtrade, 2022)

Avocado value chain in Ethiopia offers strong opportunities for high-value domestic and export markets. The government's agricultural transformation agenda aims to shift smallholder farming toward commercial production. However, the sector's performance is constrained by low productivity and poor quality due to limited improved varieties and weak practices, inadequate inputs, and high post-harvest losses. Weak coordination, lack of producer organizations, and limited market information further reduce efficiency and farmers' bargaining power. As a result, Ethiopia is unable to fully exploit its avocado production potential in both domestic and export markets. Addressing these challenges requires a comprehensive value chain analysis to identify gaps and design targeted interventions for improving efficiency, quality, coordination, and market competitiveness. The objectives of the study are stated as follows:

To enhance efficiency, quality of production, aggregation, processing, and marketing systems to increase competitiveness in both domestic and export markets. Strengthen coordination and organization of value chain actors, including input suppliers, producers, traders, and exporters, through effective institutions. Develop sustainable and inclusive value chain governance, promote compliance with quality and phytosanitary standards required for domestic and international markets.

Methodology
Description of the study area

The study focuses on Ethiopia's key avocado-producing regions, South Ethiopia, Sidama, Oromia, and Amhara, which together contribute a substantial share of national production and market supply. These regions were selected because they encompass some of the most important and high-potential districts identified among six locations.

The districts included in the study are Dale (Sidama), Boloso Sore (South Ethiopia), Kersa and Ada'a (Oromia), and Semen Mecha and Jabina Tena (Amhara). This study aims to highlight the diverse production and marketing practices across these key avocado-growing zones in Ethiopia. The accompanying map (Figure 3) illustrates the four regions where these six districts are situated.

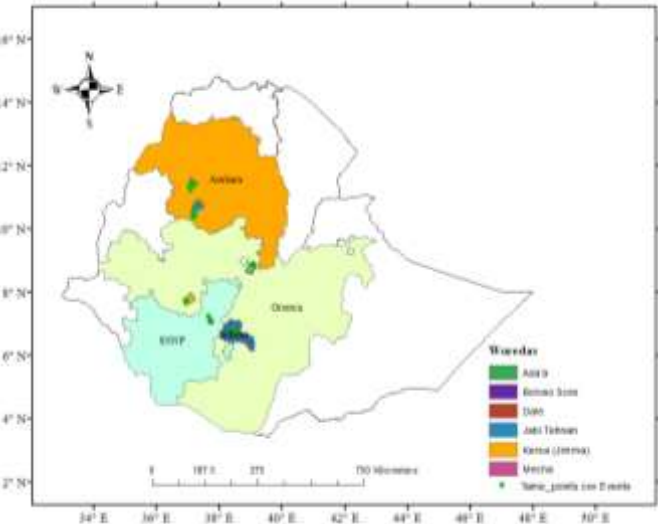


Figure 3. Map of the study areas

Data Collection Methods

This study applied a mixed-methods approach, integrating both qualitative and quantitative techniques for data collection and analysis. Primary data were gathered from avocado producers, local buyers, wholesalers, and retailers through a questionnaire. A household survey was carried out among randomly selected target households (HHs) following the Sample Size Proportion to Population (SSP) principle. Qualitative information was obtained through various data collection methods such as key informant interviews, focus group discussions, and document analysis.

Table 1: Demographics and Socioeconomic characteristics of sampled households (N=268)

Socioeconomic variables	Mean	SD	Minimum	Maximum
Age of HH head	45.7	12.71	24	83
Education year	5.6	3.34	0	21
Sex of HH head (Male %)		93.4		
Experience in fruits growing (years)	15.2	9.68	1	43
Experience in avocado growing (years)	13.7	8.53	1	43
Walking distance to the nearest market (Minutes)	44.5	36.61	2	180
Walking distance to the nearest agricultural input dealers (Minutes)	44.1	39.57	2	240
Walking distance to the nearest agricultural extension office (Minutes)	32.4	29.25	2	150

Source: Household Survey data (2023)

Out of the total respondents in the sample, a notable 93.4% were found to belong to households led by men, highlighting a significant prevalence of male-headed households in the study. In contrast, only 6.6% of the respondents reported living in households headed by women, indicating a less common but important representation of female leadership within these families. The results presented in Table 1 indicate that the average distance for respondents involved in avocado growing to reach the nearest market is approximately 44.5 minutes, with a standard deviation of 36.6 minutes. This suggests that proximity to the nearest avocado market has a positive impact on both avocado production and marketing.

Sampling and Sample Size Determination

The selection of samples was carried out through a multi-stage sampling method. Initially, six districts were purposefully chosen from likely regions due to their potential for avocado production and marketing. In the subsequent stage, 12 avocado-producing Kebeles were identified within each district. In the final stage, about 268 household heads were selected from all Kebeles to ensure the necessary level of precision. The samples were then allocated to the respective Kebeles based on a population proportional to the sample size.

Methods of data analysis

A combination of qualitative and quantitative data analysis techniques was employed to evaluate information gathered from household surveys, focus group discussions (FGDs), key informant interviews (KII), and secondary sources. The data sourced from the selected avocado producers and traders were analyzed using descriptive statistics. Subsequently, value chain mapping was utilized to illustrate and consolidate the findings derived from grounded theory. To assess how returns are distributed, the growth-marketing margin was calculated, which was then used to determine the net marketing margin, total marketing cost (TC), and gross marketing margin for different actors. The data analysis software utilized includes STATA, SPSS, and Excel.

Results and Discussion

Demographic and socioeconomic characteristics of sampled households

Table 1 summarizes the demographic and socioeconomic characteristics of the sample respondents. Educational attainment is regarded as an important factor influencing avocado production and marketing. The respondents had an average of 5.6 years of schooling, with levels ranging from no formal education to a maximum of 21 years. The average experience in avocado farming among households was 13.7 years, indicating that the person responsible for avocado production and marketing in each household possesses significant experience. This experience is crucial, as it influences whether the household can effectively benefit from their knowledge and make informed decisions based on the risk-taking attitudes of farmers.

Avocado productivity and proportion of improved avocado variety planted

The household survey findings revealed that, on average, the productivity of avocado in each region, Amhara, Oromia, Sidama, and SNNP regions, constitutes 6.4 ton/ha, 5.7 ton/ha, 4.7 ton/ha, and 3.2 respectively. This result is consistent with the quantity of avocado produced in Amhara from commercial, irrigated, and cluster-based, particularly the case of the Koga project in North Mecha Woreda. The findings of Table 2 showed that the proportion of irrigation facilities for avocado constitutes 97, 29.5, and 21% in Amhara, Oromia, and SNNP regions. This indicates that there is a significant opportunity to assist producers in enhancing both productivity and overall avocado

production across all regions. According to the survey results, the highest percentage of farmers planted new grafted avocados is in the Amhara region at 93%, followed by the SSNP region at 49%, Oromia at

39.6%, and Sidama at 34%. Given the total area on which avocado is cultivated, it looks like the farmers in Amhara have a higher proportion compared to other regions.

Table 2. Proportion of improved avocado variety planted and harvested in the main regions

Region	Mean area (Ha.)	Irrigation facility (%)	No. of new seedling planted	Proportion of improved avocado varieties (%)	Mean avocado harvest in ton/ha.
Sidama (N=105)	0.27	14.3	14.8	36.7	4.7
SSNP (N=43)	0.37	21	6.5	45.8	3.2
Amhara (N=59)	0.23	97	19.3	93.6	6.4
Oromia (N=61)	0.12	29.5	9.4	39.3	5.7

Source: Household Survey data (2023)

On average, farmers had 14 productive avocado trees, achieving a yield of about 5 tons per hectare. This level of production generated an average income of 95,000 ETB from avocado sales within a single production season (Table 2). The survey results showed that about 66.8% of avocado growers in the study area used traditional varieties, while 33.2% used improved/grafted varieties, though the proportions vary by region (Figure 4). The study indicated that the main reasons for the improved or grafted avocado preferred are fast-growing rate (early maturing), higher yield per tree, preferred by consumers for consumption, meet export standards, bigger fruit size, achievement of better price, etc.

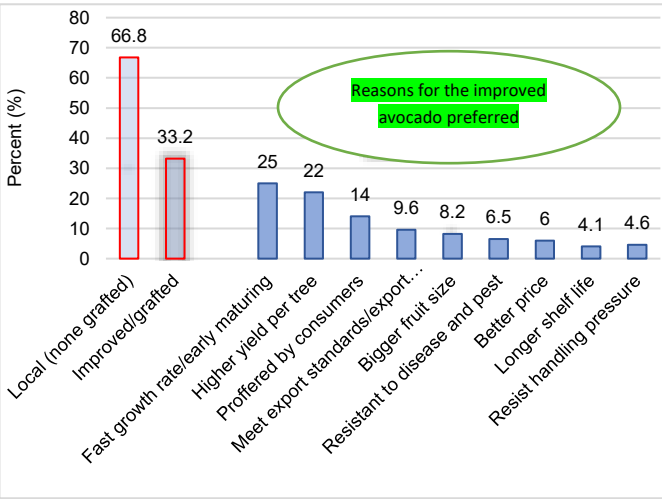


Figure 4. Types of avocado varieties under production and reasons for the preferred improved varieties

Input utilization

The usage of grafted seedling varieties, along with their appropriate recommendations, is expected to expressively enhance the production and productivity of avocado fruit in the study area. However, the proportion of avocado seedlings succeeded at 61.8 that means 38.2% of grafted seedlings failed to succeed due to less concern and management (Table3). Proper application of the fertilizer is important to obtain the required avocado production and marketable supply. However, the survey results indicated from sample respondents who applied DAP/NPS and Urea fertilizer on their avocado field were only 6.2% and 2.3%, respectively. Most smallholder producers (89%) apply manure to their avocado trees, but rarely manage them effectively. Despite using minimal inputs like fertilizers and manure, the avocado yield in the study areas is significantly lower than the optimal potential.

Table 3. Types of input used and percentage of farmers' input use

Input use/Ha.	Mean	SD	Maximum	% of farmers used
Number of new avocado seedling planted	13.9	8.3	200	55.2
Number of avocado seedlings succeeded	8.6	26.2	187	--
% of avocado seedling succeeded			61.8	
Amount of DAP used in kg/tree	0.45	0.4	2	6.2
Amount of UREA used in kg/tree	0.2	0.1	1	2.3
Pesticide's amount used in kg/lit.	0.1	0.6	0.5	16.8
Manure amount used in kg/tree	14.5	6.1	21	89

Source: Household Survey data (2023)

Farmer's perception of avocado management practices

The result of Figure 5 indicated that the perception of management practices improved slightly from ten years ago, from 7 to 33.2%, and consequently, the situation encouraged building up the farmers' awareness to adopt plantation of improved varieties. Over the last ten-year period, the avocado management practices the slightly increased for mulching (79.9%), pruning (61.6%) and tilling/hoeing (92.2%).



Figure 5. Avocado management practices changes (in percent) within 2 years and 10 years ago

The avocado season of production and sales

Different avocado cultivars are harvested at different times of the year. Results of the study (Figure 6) indicated that avocado harvest times vary

by cultivar, but production occurs year-round in Ethiopia due to agroecological diversity. Peak harvest and sales occur from May to July and again from November to March, with a decline from August to October; the November–March period offers the best flavor.

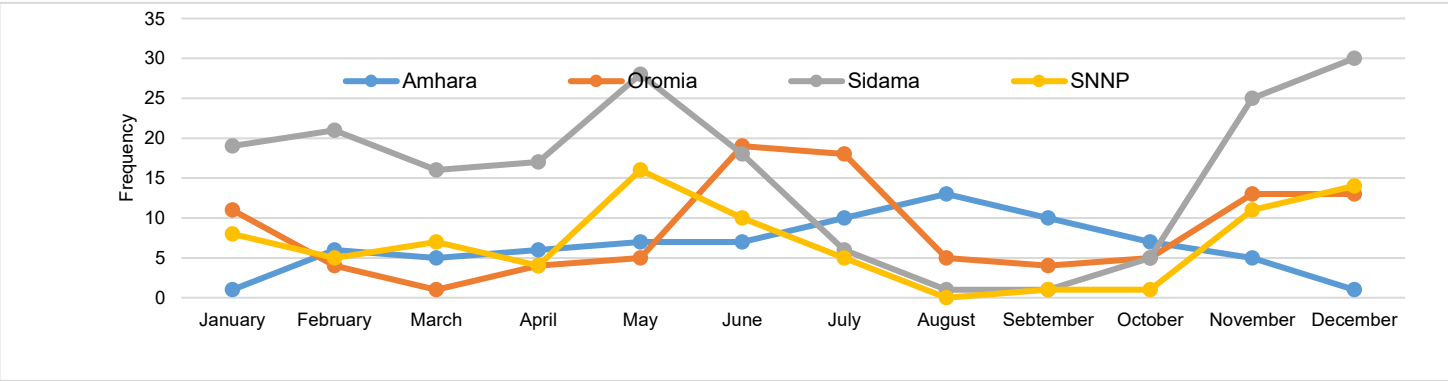


Figure 6: Avocado production season with a sold

Avocado value chain actors and their major roles

Actors in the avocado value chain are those who have had a direct or indirect part in the development of the avocado value chain (Figure 7). The avocado value chain involves various actors, including input suppliers, producers, traders (collectors, retailers, wholesalers), processors, consumers, and supporting institutions such as research bodies, cooperatives, NGOs, transport, and financial services.

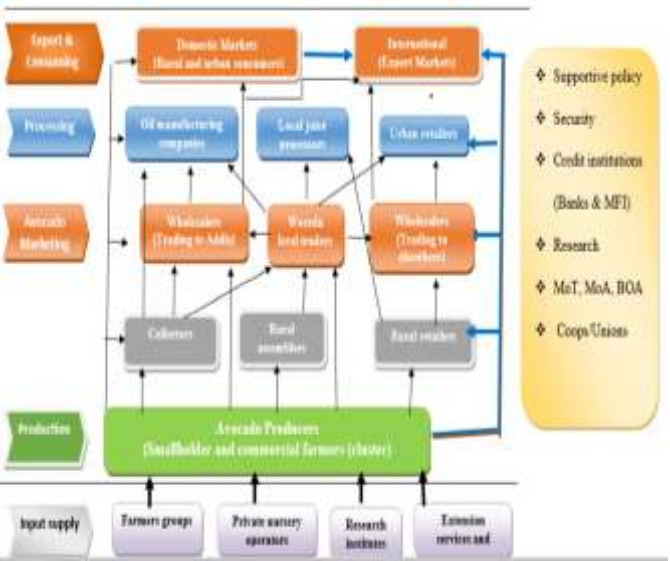


Figure 7. Avocado value chain map

Input suppliers

The research finding indicates that 35% and 29.3% of the seedlings are from government agencies (BoA) and farmers' groups, and 13.8% of the seedlings are from public nurseries, which are supported by projects. The results of Figure 8 show that Government agencies and NGOs perform more than one activity in the chain, including inputs. supplying,

supporting, and enabling service functions. To sum up, 11.4% and 6.5% of the seedlings are sourced from private nurseries and research centers, respectively. The main reasons for farmers not planting improved or grafted avocado varieties are the cost of seedlings, the unavailability of improved seedlings and the shortage of land.

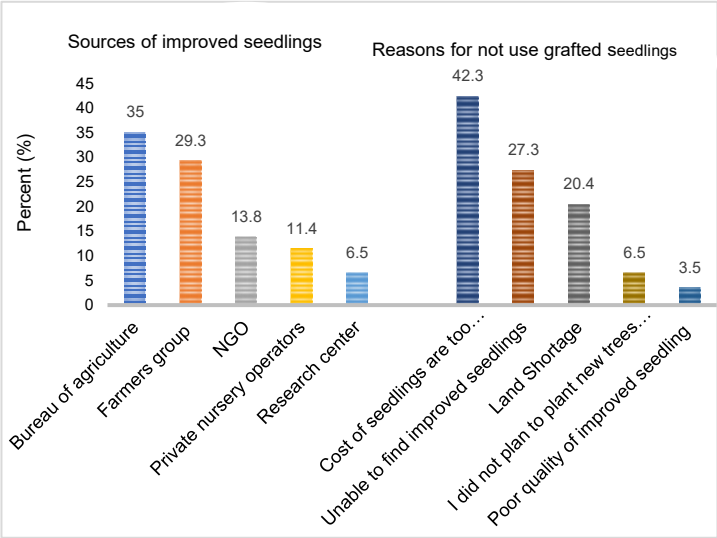


Figure 8: Figures of avocado seedlings source

Avocado producers

Producers play a key role in both the production and marketing of the avocado surpluses they produce. Mainly, they start from input preparation, production, and offer a surplus to the market. The results of a survey showed that producers had a variety of choices for selling their avocado output. The respondents said that for the production year 2022/2023, producers sold 38.3, 17, 12, 9, 6.7, 5.6, 5.3, 3.7 and 2.2 % to traders in the village (collectors), wholesalers traders traveling to elsewhere, wholesale traders traveling to Addis Abeba, Rural retailer, Processors, Consumers, Exporter, Institutions (hotels, universities, etc.), and cooperatives respectively (Table 4).

Table 4. Main buyers of avocado harvests

Main buyers	Number of households	Proportion to Sample (%)
Trader in the local market (Collectors & Assemblers)	84	38.3
Rural retailers	24	9
Wholesalers traveling to Addis Abeba	32	12
Wholesalers traveling to elsewhere	46	17
Cooperatives	6	2.2
Consumers	15	5.6
Processors	18	6.7
Exporter	14	5.3
Institutions (hotels, universities, etc.)	10	3.7
Total	268	100.0

Source: Household Survey data (2023)

Assemblers/Local collectors in the avocado business

Assemblers are traders or part-time traders who collect avocado fruit from farmers and rural markets. They play a crucial role, particularly in collecting and transporting fruit from inaccessible or distant markets. The producers, retailers, processors, and wholesalers consider collectors as key people in the avocado value chain. Farmers depend on them to get market information and buy the entire standing tree for their own harvesting. They sell avocado fruit to consumers directly and to fruit wholesalers. The value-adding activities of collectors include: buying, assembling, and selling mainly to wholesalers.

Wholesalers

The study result indicated that domestic wholesaler purchases avocado through intermediaries and sometimes buy from the farm gates. They are the actors in the avocado value chain who frequently purchase in greater quantities than the other actors do in the marketing system and resell the products to other suppliers. During the collection of trader data, two categories of wholesalers traveling to Addis and other main towns were distinguished. Moreover, according to survey results, wholesalers delivered avocado products they purchase to urban retailers, processors, exporters, and to consumers in the same year. Grading and use of plastic crates should be adopted along all these supply chains rather than using fiber sacks, where much damage of fresh fruits is happening.

Retailers

Retailers are infamous for having limited financial and knowledge resources, which restricts their capacity to purchase and handle goods. They also purchase and deliver avocados to consumers, making them important participants in the market chain. The results of the survey indicate that there are two types of retailers: urban and rural. They sell all the fresh fruits to people in remote areas. Urban retailers bought buy avocado products largely from wholesalers, whereas rural retailers buy the products mostly from farmers, of which they sell 100% of the fresh fruits to consumers.

Exporters

The findings indicated that avocado export for Ethiopia is new, and 1.6% of fruits are directly sourced from out-grower farmers in districts including North Mecha, Ada'a, Kersa, Dale, Boloso sore, and Wendo genet. Inconsistent supply, an assemblage of products on time, and snubbing agreements are the main identified constraints among exporters. Fresh avocados are supplied from wholesalers at Adama and exported to Djibouti, Somalia, and some EU countries. The containers farmers used for local farm transport to the pack house are plastic boxes. The fruit is assessed to remove any with physical external skin

quality faults and sizes, and the target avocado weight per carton is achieved by hand sorting. The cartons are packed at the pack house using dry wooden pallets. Air freight requires 144 boxes per pallet, whereas sea freight requires 276 cartons per pallet. In order to minimize field heat right away after packing, we pre-cool our avocado pallets to 5°C in the cold rooms.

Export market requirement for avocado

According to the findings of KII interviews, quality standards can lead to waste by restricting the lowest acceptable quality when there is demand for goods that fall below the standards' lowest allowable limit and when the requirements are mandatory. Standards won't create waste, though, if they accurately represent market demands, because consumers would still have the same needs in the absence of standards. There is some reciprocal impact between market demands and standard setting. Requirements must be appropriately set when standards are created or modified.

Fresh avocados should, at the very least, be clean, undamaged, free of pests, free of abnormal external dampness, have a stalk no longer than 10 mm in length, and be able to survive handling, transportation, size, and packaging. If actors utilize a carton with a poly sheet near the conclusion of the ripening phase, packaging materials may also have an impact on avocado shelf life (Nardos and Wakgari, 2016). Customers and market sectors have different packaging needs. To avoid damage and adequately protect the product, they must at the very least be packaged in brand-new, hygienic, high-quality packaging (CBI, 2017).

The KII result suggests that commercial quality distinction systems for perishable avocado products are based on extrinsic attributes of the product, for instance: shape, color, size, weight, and blemishes. Harvesting mature the fruit is crucial to ensure that fruit has an acceptable eating quality and will ripen effectively. Avocado oil content and dry matter determine eating quality and increase as the fruit develops to maturity (Canete *et al.*, 2018). The dry matter level of Hass and Fuerte types should not go below 21% and 20%, respectively, according to UNECE (2017) standards. Specifications for avocado products, however, may vary by nation and variety. Fresh avocados range in size from 1 to 30, and they weigh at least 123 grams (or 80 grams for Hass). The ideal Hass avocado sizes in Europe are between 16 and 20 (14 to 16 for the Fuerte variety) (CBI, 2017).

Processing

Avocado for the oil agro-industry was the most important crop that is utilized as an industrial input for industrial processing. The major suppliers of avocado to the agro-industry were direct farmers, farmers' cooperatives, and local traders. They are segmented as oil companies and juice-making houses, which are the ones that purchase mainly from rural and urban retailers. Immature avocado fruits should not be harvested and damaged fruits should not be supplied to the oil producing factories. The avocado fruits used for juice-making should be handled properly from harvesting to juice preparation so that the juice is not contaminated and safe for use.

Consumers

Consumers represent the ultimate players in the value chain, eagerly acquiring products for diverse and fulfilling consumption experiences. The study shows that retailers are the primary link between avocado producers and consumers. Most buyers, mainly domestic consumers, purchase directly from rural and urban retailers in places such as local markets, shops, and hotels. These consumers typically buy both local and improved avocado varieties.

Governance and coordination in the avocado value chain

FGD and key informant findings show that weak coordination and the absence of an avocado stakeholder platform led to inconsistent supply

and poor export quality. Market governance is price-driven, with mistrust, weak relationships, no producer organization, and no formal agreements causing unclear pricing and inefficiencies. Wholesalers hold more power due to better market information, capital, and bulk purchasing capacity. Overall, poor governance and coordination hinder effective avocado export performance. As reported by UNIDO (2009), the distribution of economic benefits and risks among participants in a chain, along with the obstacles to entry that chain actors encounter, ultimately influences the dynamics of power relations.

Table 5. Marketing margins of avocado in different channels

Avocado business type	Average Purchasing Price ETB/Kg	Average selling Price ETB/Kg	Market cost	Gross margin ETB/Kg	% of GMM	GMM _p	% of profit margin
Producers	7.3	13	2.63	7.7	12.8	82.8	7.54
Rural retailers	14.5	18.5	2.75	4	6.7	91	3.07
Collectors/Assemblers	14.5	23	3.28	8.5	14.1	81	12.81
Wholesalers traveling to AA & elsewhere	20	39.5	3.35	19.5	32.2	56.6	39.64
Urban retailers	35	42.5	1.75	7.5	12.4	83.3	14.11
Exporter	32.3	45.5	3.9	13.2	21.8	70.6	22.83
Consumer	45	—	—	—	—	—	—

Source: Own survey result, 2023

Production and marketing constraints in the avocado value chain

Table 6 shows that despite avocado's potential to improve livelihoods, production is constrained by several challenges, including lack of irrigation, low productivity, poor post-harvest handling, limited extension services, weak pest and disease management knowledge, and shortages and high costs of quality seedlings. Avocado growers in Ethiopia face challenges in accessing enhanced grafted varieties due to the high expenses and a shortage of skilled nursery operators. There is a lack of advanced post-harvest technology, insufficient processing facilities, minimal private investment in the avocado value chain, and an absence of a platform for avocado producers.

Table 6. Major Avocado Production Constraints

Major constraints for avocado production	Frequency	Percent	Rank
Shortage of land	160	59.7	6
Lack of irrigation facilities	218	81.3	1
Low productivity	215	80.2	2
Lack of true type seedlings /poor seedlings quality and high price	179	66.8	5
Lack of scion sources	146	54.5	7
Lack of extension services and limited knowledge on avocado management	207	77.2	3
Disease and insect pest constraints	192	71.6	4
DE fruiting/aborting constraints	146	54.5	7
Poor postharvest management	207	77.2	3

Source: Household Survey data (2023)

The key constraints in the value chain that influenced the marketing of avocados and its participants throughout the chain were: the low market price of avocado, lack of links between producers and consumers, perishability nature of the product, weak information stream, quality

Marketing margins of avocado in different channels

Marketing margins were calculated across all actors in the avocado value chain. Wholesalers captured the largest share of both market margin (32.2%) and profit (39.64%), followed by exporters, collectors, urban retailers, producers, and rural retailers, who had comparatively lower shares. Table 5 shows that prices and profit margins vary across channels. Wholesalers capture the highest margins (32.2% gross and 39.64% profit), while rural retailers have the lowest. Producers receive the highest share when selling directly to consumers, but the lowest profit margin (7.54%) in the wholesaler channel, indicating uneven benefit distribution among actors. The distribution of profit margin among actors in each channel showed significant differences and shows a relatively unfair distribution.

problems, poor infrastructure, transportation systems, and packaging problems were critical (Table 7).

Table 7. Major Avocado marketing constraints

Major constraints for avocado marketing	Frequency	Percent	Rank
Low market price of avocado	246	91.8	1
Distant to avocado markets	188	70.1	5
lack of access to market information	156	58.2	7
Quality problem	194	72.4	4
Lack of proper packing and transportation facilities	181	67.5	6
Poor market linkage	239	89.2	2
Traditional weight measures	110	41.0	9
Perishability and seasonal maturity of avocado	181	87.5	3
Poor infrastructure	151	57	8

Source: Household Survey data (2023)

CONCLUSION

The avocado value chain in Ethiopia involves many stakeholders, but their impact is limited due to poor coordination, low yields, inadequate irrigation, weak input and market support, limited producer knowledge, and lack of organization among actors. A key constraint to avocado productivity in Ethiopia is the lack of improved varieties, as local types yield low quantity and quality. Efforts to improve the sector remain insufficient, with major gaps in governance and coordination.

Ethiopia's avocado value chain is weakly governed, with spot-market negotiations, poor coordination, and inconsistent supply. Inefficient marketing, limited facilities, and high margins dominate, while wholesalers hold most power due to better resources and information.

Producers often neglect quality and standards, hindering exports. Stronger public-private collaboration and trust are essential for improvement. To promote sustainable development within Ethiopia's avocado value chain, it is crucial for both private and public stakeholders to collaborate, fostering trust through consistent communication via stakeholder meetings and acknowledging the importance of each participant in the chain.

Avocado farming is scattered and poorly organized, resulting in low yields. The sector also faces gaps in policy, nursery management, improved varieties, market integration, post-harvest technology, farmer organization, and infrastructure. To support Ethiopia's growing avocado sector, key actions include: (1) Close collaboration and organization are essential among stakeholders in the avocado value chain, (2) Establishing a platform for the avocado value chain and fostering mutual benefit and trust will help promote the inclusion of small avocado producers; (3) Developing a well-equipped avocado collection center at the community level, which will be overseen by producer organizations alongside exporters.

Acknowledgments

The authors express their gratitude to the Integrated Project for providing financial support. They also sincerely thank the management of EIAR/MARC for facilitating and supporting the research activities during the project coordination period.

Conflict of Interest Statement

The authors declare that there is no conflict of interest.

Data Availability Statement

The data used to support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

- Canete M., Cobos, and Hueso, (2018). Influence of harvest date on sensory quality attributes of avocado 'Hass'. In *VIII International Postharvest Symposium: Enhancing Supply Chain and Consumer Benefits-Ethical and Technological Issues* 1194 (pp. 1127-1132).
- CBI, (2017). Exporting fresh avocados to Europe. [Online] Available at: <https://hortintl.cals.ncsu.edu> [Accessed 23 May 2019]
- CSA, (2022), Agricultural Sample Survey; Volume I, Report on Area and Production of Major Crops, Addis Ababa, Ethiopia.
- Dorantes L., Parada, Ortiz A., (2004), Avocado Post-Harvest Operations. In: Food and Agriculture Organization of the United Nations, [GST/FAO: Danilo Mejía (eds.)], FAO, Rome.
- Edossa Etissa, Asmare Dagne, Wagayehu Assefa, Lemma Ayale, Mikiyas Damtew, Girma Kebede, Merkeb Ayalew, Kidist Firde, (2019). Fifty Years of Major Achievements, Challenges, and Future Prospects of National Subtropical Fruit Crops Research at Melkassa. pp 49-60. Proceedings of 50th Anniversary of Melkassa Agricultural Research, 27-31 August 2019, Adama, Ethiopia.
- Ethiopian Investment Commission (EIC), (2020). Ethiopia Packaging Sector Overview. Ethiopia Investment Commission. December 2020.
- FAO, (2021). Food Security and Rural Poverty Reduction: Fostering Rural Diversification through Enhanced Youth Employment and Better Labor Mobility. Addis Ababa, Ethiopia.
- FAOSTAT, (2022). Ethiopia. Economic Indicators. Available at: EIA (Ethiopian Investment Agency), 2012. Investment Opportunities profile for the Production and Fruits and Vegetables in Ethiopia.
- Global Agriculture Information Network (GAIN), (2018). Assessments of Commodity and Trade Issues Made by USDA Staff and Not Necessarily Statements of Official U.S. Government Policy, Ethiopia Fresh Fruits Market Update Report, Addis Ababa, Ethiopia.
- Jaleta A., (2021). Climate Change and Coffee Production: A Review. J Earth Science Clin Change 12:1:533
- Nardos T. and Wakgari T., (2016). Packaging Material Affects Quality Attributes and Ripening Period of Avocado (*Persia americana*) Fruit. World Journal of Agricultural Sciences, 12(3), pp. 229-235.
- UNECE, (2017). Standards concerning the marketing and commercial quality control of avocados. New York: United Nations
- UNIDO, (2009). Value Chain Diagnostics from Industrial Development, Vienna: United Nations Industrial Development Organization: Working paper
- United Nation Ethiopia (2025). Agro-Industrial Parks Transform Ethiopia's Avocado Value Chain.