

Revitalizing Agricultural Value Chains: Unraveling Challenges and Unlocking Opportunities in Southwest Shewa, Ethiopia

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Abstract

Robust and adaptable agricultural value chains can generate significant socioeconomic benefits, particularly in developing countries. However, various structural and systemic constraints often limit their potential. This study explores the key challenges and opportunities for enhancing the agricultural value chain in the Southwest Shewa Zone of Ethiopia's Oromia Region. Drawing on both primary and secondary data sources, the study engaged 120 farm households selected through a multistage sampling method, along with wholesalers, retailers, and institutional experts. Value chain mapping was conducted to analyze the flow of activities, key actors, and relationships within the selected chains. The finding revealed that smallholder farmers encounter several production constraints, notably land scarcity (29.2%), limited access to training (20%), insufficient availability of fertilizers and pesticides (17.5%), and labor shortages (6.7%). On the marketing side, they confront low prices, insufficient market information, weak bargaining power, and price volatility. Traders also experience challenges such as capital shortages, inconsistent supply, and low product quality. These constraints significantly reduce the value chain's potential to deliver equitable benefits. The study recommends the implementation of context-specific, adaptive farming practices and the development of efficient, inclusive market systems. Strengthening these areas is essential for building resilient value chains that benefit all actors involved.

Categories: Marketing and Market Issues in Business, Sustainability in Supply Chain Management, Value chain
Keywords: value chain, crop, constraints, opportunities, small-scale farmers

Introduction

Agriculture plays a critical role in Ethiopia's political, economic, and social development. As of 2018-19, the sector accounted for approximately 33.3% of the country's Gross Domestic Product (GDP), with crop production contributing 64.8%, livestock 26.2%, and forestry 8.8% to the agricultural GDP ([National Bank of Ethiopia, 2019](#)). Despite a gradual decline in its GDP share, agriculture remains the primary source of employment, engaging a significant portion of the labor force. Cereals such as wheat, maize, teff, sorghum, and millet serve as staple foods and constitute the bulk of crop production. In the 2017-18 season, smallholder farmers produced approximately 30.61 million tons of grain ([Central Statistical Agency, 2018](#)). The country also cultivates a variety of vegetables, fruits, root crops, pulses, oilseeds, and spices.

Ethiopia has a total land area of approximately 110.4 million hectares, of which 15.1 million hectares are considered arable ([Ethiopian Agricultural Transformation Agency, 2017](#)). However, only about 15.7 million hectares are currently under cultivation, representing just over 14% of the total land area ([Central Statistical Agency, 2018](#)). Despite this significant potential, agricultural productivity remains low. This is largely due to the sector's reliance on rain-fed farming systems, which are highly vulnerable to climatic variability and recurring droughts ([Tran et al., 2019](#)).

Recognizing the importance of agriculture, successive Ethiopian governments have prioritized the sector in national development agendas. The current administration introduced the Home-Grown Economic Reform Agenda, aiming to address key limitations in food production and improve output quality to achieve food self-sufficiency ([Ministry of Finance, 2020](#)). Nevertheless, despite various policy initiatives, the sector remains underdeveloped-largely because of a persistent focus on increasing raw production rather than enhancing value addition across the supply chain ([Asfaw et al., 2012](#)), ([Watabaji et al., 2016](#)), ([Biggeri et al., 2018](#)), and ([Lule et al., 2024](#)).

To overcome these structural bottlenecks, there is a need for a strategic shift in government investment priorities. Areas such as transportation infrastructure, energy access for processing activities, cold storage and packaging technologies, as well as research, extension services, and market training must be emphasized ([Biggeri et al., 2017](#)) ([Alemu et al., 2020](#)). Enhancing these value chain components would not only improve productivity but also generate multiplier effects across the agricultural economy.

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Agricultural value chains refer to the full range of activities required to bring a product from the farm to the consumer, encompassing input supply, production, processing, marketing, and distribution. They also include the transfer of knowledge, services, and information throughout the process (Martin and Patrick, 2010) (Barua et al., 2021). Strengthening these value chains presents a key opportunity to increase efficiency, reduce post-harvest losses, and capture higher value at each stage of the agricultural cycle.

In Ethiopia, agricultural value chains are primarily composed of smallholder farmers-who account for more than 80% of production-alongside a few commercial processors. However, the system is hampered by multiple challenges, including inadequate input supply, outdated technology, weak market linkages, limited access to finance, and continued dependence on rainfall (Abebaw and Haile, 2013).

Given this context, the present study aims to examine the major challenges and opportunities within selected agricultural value chains in the Southwest Shewa Zone of the Oromia Region, Ethiopia. Specifically, it explores how these value chains can be strengthened to improve the availability, quality, and adaptability of food products in line with local agro-ecological and market conditions.

Research Method

Description of the study area

This study was conducted in the districts of Ameya, Goro, Woliso, and Sedan Sodo, located in the Southwest Shewa Zone of Oromia Regional State. Southwest Shewa is one of the 20 zones within Oromia Regional State, Ethiopia. Southwest Shewa is situated between 8°16' and 9°56'N latitude, and 37°05' and 38°46'E longitude, with an altitude ranging from 1,600 to 3,576 m above the sea level. This zone has a total population of 1,101,129 of whom 556,194 are men and 544,935 women (Central Statistical Agency, 2007). It has 13 administrative Woredas. Woliso is the administrative center of Southwest Shewa zone. Woliso town is located 114 km from Addis Ababa.

The area receives 1,300 mm mean annual rainfall. The mean maximum and minimum temperatures are 14°C to 27°C, respectively. The zone's economy relies on a mixed crop-livestock farming system, where both livestock rearing and crop cultivation serve as primary livelihoods.

The major crops cultivated in the area include cereals (teff, maize, barley, wheat, sorghum), pulses (faba bean, peas, haricot beans, chickpeas), and oilseeds (Niger seed and linseed). Major cash crops include vegetables, root crops, fruits, khat, sugarcane, and enset. The major livestock in the region includes dairy cattle, small ruminants, poultry, and beef fattening. Figure 1 illustrates the location map of the study area.

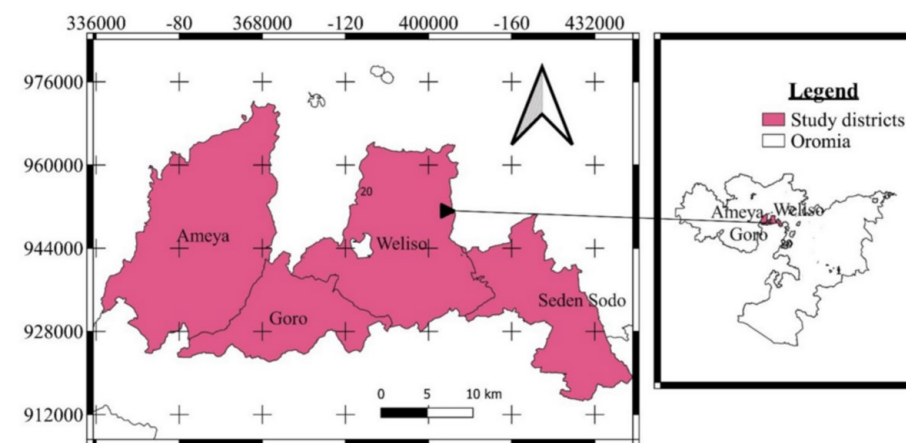


FIGURE 1: Location map of the study area

Source: Author.

Sample size determination

In agricultural socio-economic research, a 95% confidence level and an error margin of less than 10% is considered representative (Hustvedt and Dickson, 2009).

Where:

n = sample size.

z = statistical certainty usually chosen at 95% confidence level, that is, $z = 1.96$.

p = estimated level to be investigated, usually $p = 0.5$ is chosen.

$q = 1 - p$.

d = precision desired, expressed as a function of 1, usually $d = 0.1$ is chosen

$$\frac{(1.96)^2 \times (0.5 \times 0.5)}{(0.1)^2} = \frac{3.8416 \times 0.25}{0.01} = \frac{0.9604}{0.01} = 96.04 \approx 96 \text{ (1)}$$

The total sample small-scale farmers respondents were 120 (96 +25% of 96) to get more variability in responses and to improve the precision and reliability of findings (Equation 1).

An essential aspect of assessing the agriculture sector and stakeholder linkages in value chain analysis is conducting a comprehensive and suitable survey. Therefore, a comprehensive survey instrument and methodology were developed and validated by field experts.

General methodological approach

The analysis relied on logical reasoning and evidence from reliable primary and secondary sources. The findings underwent rigorous testing and validation through extensive reviews and consultations with experts from various fields. In order to obtain relevant information from the selected agricultural value chain, different data collection instruments were used: survey, key-informant interviews, and focus group discussion. The primary data collection tool was a structured survey instrument, which included closed-ended questions. Additionally, to gain deeper insight into individual perspectives, key-informant interviews and focus group discussions were used as complementary methods. These interviews used semi-structured or open-ended questions, allowing for flexibility while ensuring alignment with the study's core objectives. Combining these instruments, quantitative and qualitative data were collected from the study area in order to address the study objectives.

Value Chain Analysis Methodology

The Value Chain Analysis (VCA) approach and methodology provide a sound basis for formulating interventions that meet the goals of sector development (Martin and Patrick, 2010). The analyses provide a detailed evaluation of each stage in the value chain and the stakeholder's constraints and opportunities. A comprehensive, step-by-step guide was developed for analyzing the value chains of selected agricultural crops. The process involves value chain analysis of a specific agriculture crops with focus on its value adding activities as well as socio-economic implications. Figure 2 outlines steps for agriculture VCA, which are explained in detail below.



FIGURE 2: Outline of steps for agriculture value chain analysis

Source: Author.

Step 1. Identifying point of entry/prioritizing value chain for analysis

Value Chain Prioritization: this step helps the study to prioritize and select target agricultural crops for VCA. Prior to undertaking a VCA, a decision needs to be made on which agricultural crops should be

prioritized for analysis. Given limited resources, a systematic method was required to prioritize agricultural crops for VCA among the available options.

It is therefore imperative to prioritize agricultural crops based on value-adding activities as well as socio-economic implications. However, due to a lack of detailed and specific data needed to support the selection process of agricultural crops to be subjected to the VCA, the researchers have developed an agricultural crops value chain prioritization tool given the aforementioned constraints.

Value chain prioritization tables were developed within an Excel spreadsheet, and selected participants were asked to assign values (a scoring range from 1 to 5) to the agricultural crops against criteria that are listed across the first row. Then, the scores were multiplied by the weights. The values from the table were then used to generate a means of ranking the agricultural crops. The findings of the selection process were tested with local communities to gain their insights too.

The prioritization tool enables the researchers to organize information and make decisions on which agricultural crops to select for VCA.

Step 2. Mapping the value chain

Mapping selected agricultural value chain: to identify key players and their roles in a value chain, and to identify constraints that exist at various levels in the agricultural value chain and possible solutions at different levels, value chain mapping was conducted.

In this step, the following key aspects of value chain of the selected agricultural crops mapping were included for further analysis.

- Core processes
- Actors and their respective roles
- Number of actors
- Product and information flow
- Volume and value of product
- Formal, informal rules and standards
- Relationships and linkages between actors
- Constraints, opportunities, and potential solution

Step 3. VCA

In the final step, comprehensive VCA of the selected agriculture crops was conducted.

The Approach (SWOT Analysis)

SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis helps assess the strengths, weaknesses, opportunities, and threats within the selected agricultural value chain by incorporating insights from discussions with key actors. SWOT is an analytical technique that addresses key questions related to the four elements that form its acronym. Strengths encompass advantages, areas of excellence, available resources, and supporting institutions. Weaknesses highlight areas needing improvement and poor performance factors. Opportunities are available enabling factors, favorable trends, and comparative advantages while Threats are obstacles and constraints that interfere with and hinder success, and areas to avoid. Carrying out an analysis using the SWOT framework helps to focus selected agricultural VCA into areas of strengths and where the greatest opportunities lie.

Results

This section presents the key findings of the study derived from the three primary research methods used: surveys, in-depth interviews, and focus group discussions conducted with agricultural stakeholders in Southwest Shewa Zone.

Selected agriculture crop production

This section describes average yield produced per each household in each district, the area allocated and

average income in the 2022-23 production year. The majority of farmers involved in the production of cereals. Teff and maize are the dominant cereal crops in the project area, both in terms of farmer participation and land allocation. Here, Table 1 below gives an overview of the selected agriculture crops.

Variables	Description	Seden Sodo	Ameya	Goro	Woliso	Total (%)
No. of respondent		30 (25%)	30 (25%)	30 (25%)	30 (25%)	120 (100%)
Main crop produced						
Teff	Yes	28	28	27	29	112 (93.3%)
	Land allocated (ha)	1.11	1.75	.76	.72	1.08
	Average yield (quintal)	7.85	10.68	5.91	8.19	8.18
	Average income (Birr)	16,742	25,375	14,097	17,425	18,358
Wheat	Yes	25	9	0	6	40 (33.3%)
	Land allocated	.4	.41	-	.29	.39
	Average yield (quintal)	12.1	4.94	-	4.1	9.28
	Average income (Birr)	19,742	3,633	-	5,600	17,188
Maize	Yes	2	29	29	12	72 (60%)
	Land allocated	.18	.62	.61	.21	.54
	Average yield (quintal)	5	12.51	7.72	4.91	9.1
	Average income (Birr)	3,867	9,034	9,925	6,400	8,883
Barely	Yes	28	0	0	0	28 (23.3%)
	Land allocated	.63	-	-	-	.63
	Average yield (quintal)	19.8	-	-	-	19.8
	Average income (Birr)	30,795	-	-	-	30,795
Potato	Yes	12	10	4	8	34 (28.3%)
	Land allocated	.18	.2	.13	.14	.17
	Average yield (quintal)	34.4	6.7	4.25	7.1	16.28
	Average income (Birr)	17,714	4,530	-	3,183	8,540
Pulses	Yes	30	18	7	0	55 (45.8%)
	Land allocated	.85	.81	.3	-	.78
	Average yield (quintal)	15.25	8.58	3.21	-	11.53
	Average income (Birr)	30,246	85,192	9,600	-	46,011

TABLE 1: Average yield, land allocated, and income of growers of selected agricultural crops

Data source: Survey

This table provides quantitative data on land allocation, average yield, and average income earned by farmers. It serves as a foundation for assessing productivity and crop-level profitability.

Variables	Description	Seden Sodo	Ameya	Goro	Woliso	Total (%)
No. of respondent		30 (25%)	30 (25%)	30 (25%)	30 (25%)	120 (100%)
Income from chat	Yes	2	1	6	22	31 (25.8%)
	Average income (ETB)	6,000	1,500	2,300	13,977	10,800
Income from coffee plantation	Yes	1	0	0	3	4 (3.3%)
	Average income (ETB)	5,000	-	-	600	1,700
Income from eucalyptus	Yes	15	9	5	3	32 (26.7%)
	Average income (ETB)	5,380	9,111	2,740	4,666	5,950
Enset	Yes	24	14	18	28	84 (70%)
	Average number	373	37	101	130	178

TABLE 2: Average income gained from chat, coffee, and eucalyptus selling

Data source: Survey

Table 2 highlights the average income generated from high-value perennial crops. It illustrates the economic relevance of chat, coffee, and eucalyptus in the local farming economy.

Mapping the existing and potential value chain in the agricultural sector

In Figure 3 below, both chain actors and chain supporters are mapped. The key actors in this value chain include input suppliers, smallholder farmers, retailers, wholesalers, cooperatives/unions, processors, and consumers. The value chain begins with input suppliers, who provide resources to producers. The main supportive actors in the selected agricultural value chain include Non-Governmental Organizations (NGOs) (like CEFA), Zone and Woreda Agriculture Bureau, Financial Sectors, Ambo University, Woliso Campus, and Federal and Regional Research Institutions.

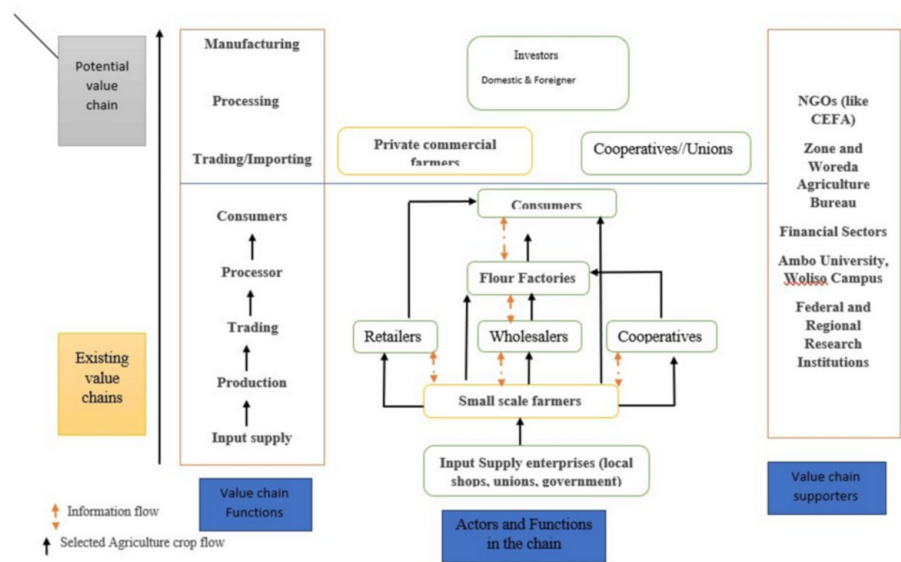


FIGURE 3: Selected agriculture crops value chain map in southwest Shewa

Data source: (Survey, Interviews, focus group discussions)
This value chain map illustrates the flow of selected crops from production to market, identifying key actors, stages, and value-adding processes.

The main roles played by each actor in the value chain are presented in Table 3:

Input suppliers: Cooperatives and unions serve as the primary input providers for the agricultural sector in the area. According to sampled farmers, the input suppliers provided fertilizer, seed, herbicides, and pesticides.

Variables	Description	Seden Sodo	Ameya	Goro	Woliso	Total (%)
No. of respondent		30 (25%)	30 (25%)	30 (25%)	30 (25%)	120 (100%)
Input suppliers	Cooperatives/Unions	28	30	16	26	100 (83.3%)
	Private	18	—	13	4	19 (15.8%)
	Government	—	—	1	—	1 (.8%)
Access to market information	Yes	27	27	22	25	101 (84.2%)
	No	3	3	8	5	19 (15.8%)
Source of market information	TV/Radio	0	0	8	3	11 (10.9%)
	Neighbor/friends	27	27	13	21	88(87.1%)
	DA	0	0	1	1	2 (2.0%)
Extension advise	Yes	24	30	24	27	105 (87.5%)
	No	6	0	6	3	15 (12.5%)
Credit access	Yes	17	26	16	5	64 (53.3%)
	No	13	4	14	25	56 (46.7%)
Credit received	Yes	14	10	7	5	36 (56.3%)
	No	3	16	9	0	28 (43.7%)
Training attained	Crop management	19	30	19	28	96 (80%)
	Input use	18	24	16	21	79 (65.8)
	Importance of cooperatives	7	14	7	2	30 (25%)
	Credit use	11	6	7	0	24 (20%)
	NRM	18	27	22	17	84 (70%)
	Pre-and post-harvest management	18	23	2	0	43 (35.8%)
	Seed production	10	6	2	10	28 (23.3%)
	Marketing of agricultural products	3	12	3	0	18 (15%)

TABLE 3: Summary of major inputs accesses by sampled respondents

Data source: Survey

This table summarizes the types and sources of agricultural inputs used by respondents.

The survey results also showed that majority of the respondents had access to market information (84.2%), which were mainly obtained from neighbor/friends. Formal information sources like TV/Radio only were representing 10.9% of the information sources.

The majority of respondents (87.5%) had received extension advice, although there were slight differences between Woredas/districts in the frequency of such advice. Similarly, almost half of the respondents mentioned that there was credit access; likewise, 56.3% of the respondents received credit. Microfinance was the main provider of credit to the farmers.

Government and other interested stakeholders provided different trainings to improve the skill and attitude of smallholder farmers in the area. About 80%, 70%, and 65.8% of the farmers took training on crop management, natural resource management and input use, respectively. Only 15% of the respondents took training on marketing of agriculture products.

Producers/Farmers: Teff, Wheat, Maize, Barley, Onion, Potato, and Faba Bean are the main agricultural products grown in the selected districts mainly for home consumption and increasingly for income through the marketing of surplus product. The surplus products mainly sold to cooperatives/unions, local consumers, retailers, and wholesalers. Smallholder farmers are value chain actors that participate in both

productions and the marketing of agriculture commodities they produce.

Retailer: These are mainly business-oriented urban and rural dwellers that have working capital. Retailers collect agricultural products from the smallholder farmer and supply to other retailers, wholesaler, or directly to consumers. Retailers were preferred by 18.3% of respondents for selling agricultural products.

Wholesalers: Wholesalers act as a link between the main producing centers and main regional or national markets. These wholesalers collect agricultural products from both farmers and retailers. Then, they packed each agricultural product in a hundred kilograms and transported mainly to Addis Ababa (central market). Urban wholesalers are the major actor of the agricultural value chain and resell the products to consumer and processors in the selected districts. Wholesalers are responsible for storing products until they are sold to customers. These store houses are mainly located nearby market areas. The study revealed that about 30% of the selected respondents preferred to sell their agricultural products to wholesalers. Table 4 shows the distribution of preferred customer types for farmers, reflecting market linkage dynamics.

Variables	Description	Seden Sodo	Ameya	Goro	Woliso	Total (%)
No. of respondent		30 (25%)	30 (25%)	30 (25%)	30 (25%)	120 (100%)
Preferred customer	Consumer	13	0	17	27	57 (47.5%)
	Retailer	13	0	7	2	22 (18.3%)
	Wholesaler	2	30	3	1	36 (30%)
	Cooperatives/Unions	2	0	3	0	5 (4.2%)

TABLE 4: Preferred customer by sampled respondents
Data source: Survey

Cooperatives: Cooperatives are farmer-established entities primarily designed to supply agricultural inputs and create market opportunities for their products. However, only 4.2% of farmers preferred selling their agricultural products to cooperatives.

Consumer: Consumers were the preferred buyers for smallholder farmers, with 47.5% opting to sell directly in nearby markets. Farmers' choice of buyers was influenced by price differences (71.7%), proximity (17.5%), and transport availability (12%).

Supporting actors: Supporting actors include government agencies, NGOs, financial institutions, cooperatives, and academic institutions that provide financial services, training, extension programs, and market information. The actors need finances for different purposes. The different services provided by the above actors in different stages of the value chain helps a lot in making the agricultural value chain more effective and efficient in terms of productivity, profitability, and sustainability. For instance, the above table indicates the different services provided to smallholder farmers in the area. The supportive services provided are essential for the smooth functions of different actors in the agricultural value chain.

Production and marketing constraints of the selected agriculture value chain

Existing Production and Marketing Constraints of Producers

The results of the selected agricultural VCA on major constraints in the production and marketing system of farmers presented in this subsection.

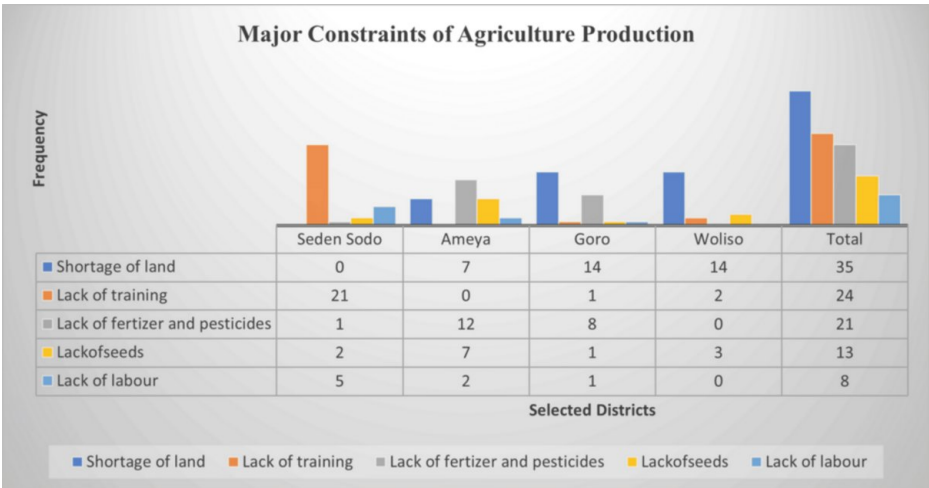


FIGURE 4: Major agricultural production constraints

Data source: Survey
This figure visualizes the primary barriers faced by farmers in agricultural production.

Production constraints: The major production constraints (Figure 4) encountered by smallholder farmers include land shortage 29.2% (n = 35), lack of training 20% (n = 24), lack of fertilizer and pesticides 17.5% (n = 21), lack of seeds 10.8% (n = 13), and lack of labor 6.7% (n = 8). Additional constraints like limited access to credit, markets, storage, and rainfall variability were identified. Moreover, Key informant interviews (KII) with CEFA experts highlighted similar production constraints, including high fertilizer prices and lack of information.

Marketing constraints: Despite the predominant subsistence nature of agriculture in the area, 96.7% of smallholder producers sell at least one of their agricultural products in nearby markets. For example, 48.3% of smallholder producers sell most of their agricultural products immediately after harvest without considering optimal pricing due to urgent cash needs, storage limitations, and high marketing costs. Figure 5 outlines the leading marketing challenges for producers.

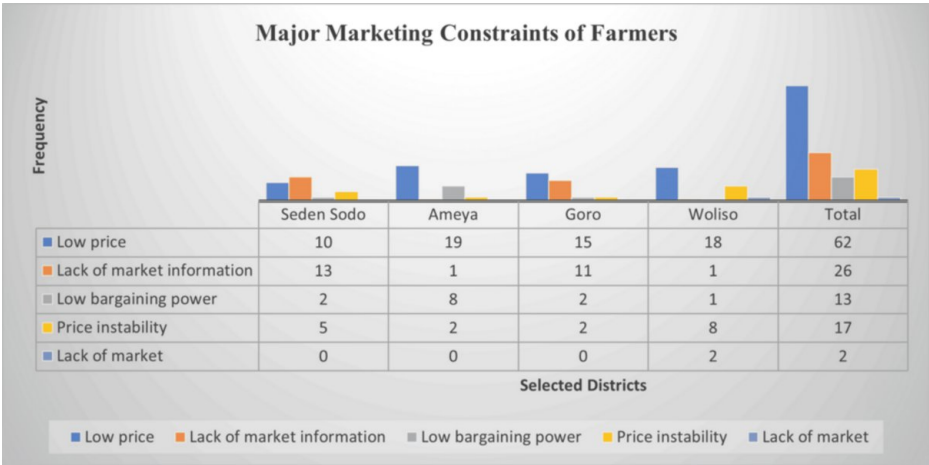


FIGURE 5: Major marketing constraints of farmers

Data source: Survey

Smallholder farmers in the area face several marketing constraints, including low prices 51.7% (n = 62) for their agricultural products. Other marketing constraints include lack of market information 21.7% (n = 26), low bargaining power 10.8% (n = 13), and price fluctuation 14.2% (n = 17). Due to the weak bargaining power of smallholder farmers, traders (60%) primarily determine the prices of major selected crops.

Marketing Constraints of Traders

The free flow of agricultural products in the value chain can enhance the profitability of the different actors in the chain and in turn improve the socio-economic conditions in different levels.

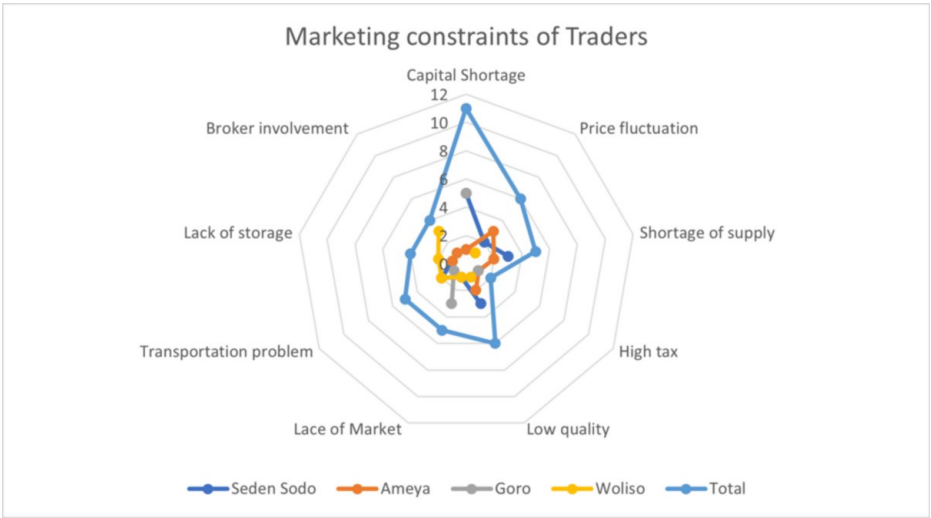


FIGURE 6: Major marketing constraints of traders

Data source: Survey
This figure presents marketing-related issues from the perspective of traders.

Traders face major marketing constraints (Figure 6), including capital shortages (45.8%), price fluctuations (25%), low product quality (25%), and supply shortages (20.8%). Other challenges include transportation issues, limited market access, broker involvement, inadequate storage facilities, and taxation. KIIs with traders revealed that mistrust among value chain actors is also a significant challenge. Moreover, most of local traders do not have their own storage facilities.

SWOT analysis: main opportunities and constraints of the selected agriculture value chain

Table 5 presents a summary of the SWOT associated with the selected agricultural value chain in the southwest Shewa Zone of Oromia Regional State. These data were gathered from various key actors within the value chain to provide a comprehensive analysis of its current state.

Strengths	Weaknesses
Favorable climate needed to grow; Large domestic and international market; Support of multiple institutions (including Government and NGOs like CEFA); Improved breeds/varieties of crops, livestock; Availability of farm land; Farmers rich experience and willingness to adopt improved technologies; Favorable production ecologies	Climate change/Flooding and rainfall variability; Short growing seasons (dependency on rain-fed agriculture); Limited local market; Limited access to irrigation facility; Transportation problem; Limited local expertise and support; Poor marketing system; Low price at harvest time; Lack of improved storage facilities; Inadequate labor; Lack of seeds and other inputs for planting; Weak agricultural extension systems
Opportunities	Threats
Many potential local, regional and international market opportunities for agricultural products; Emerging agro-processing industries for value chain development; Existence and growing network of farmer cooperatives and unions to provide complementary services; Donors and NGOs goodwill to support agriculture value chain development and marketing; The increasing number of universities and research centers for the production of skilled manpower and provision of improved seeds and technologies; Existence of farmers training centers to train improved technologies and peer-to-peer learning; Increased demands by farmers for improved agricultural inputs	Labor shortages; Marketing and Finance barriers; Poor prices due to overproduction and poor quality; Pests and diseases (for both crop and livestock); Poor transport/handling facilities; Low financial support to growers and traders; Climate change and unfavorable weather conditions; Inadequate institutional support; High cost of agriculture inputs

TABLE 5: A summary SWOT analysis of selected agricultural value chain in southwest Shewa Zone

Data source: (Survey, Interviews, focus group discussions)

This table consolidates strengths, weaknesses, opportunities, and threats identified across the selected crop value chains. It reflects a comprehensive synthesis based on triangulated data from all the three methods.

Discussion

Southwest Shewa Zone is characterized predominantly by mid- and high-altitude areas, with a smaller share of lowland terrain located in the Gibe Valley. The primary livelihood activity in the region is mixed farming, where farmers cultivate a wide range of crops influenced by agro-ecological diversity. The main crops grown include cereals such as teff, maize, wheat, and barley, along with pulses like horse beans, chickpeas, field peas, and lentils. In addition to subsistence farming, farmers also generate supplementary income through the sale of cash crops such as chat, coffee, and eucalyptus trees.

Mapping agricultural value chains is crucial for understanding the flow of goods, services, knowledge, and relationships from production to consumption. Value chain mapping provides clarity on key actors, the sequence of activities, and the interdependencies between stages (Ricciotti, 2020). For agricultural products, this process typically traces the transformation from raw materials to final goods. Relationships across the chain-both horizontal and vertical-must be understood to design effective, context-specific interventions. Ownership of the products generally shifts from one actor to the next, while value chain supporters (such as government agencies, cooperatives, and NGOs) provide critical inputs, services, training, financial access, and market information (Ketema and Megento, 2021).

Despite the presence of various actors and institutions, smallholder farmers in the study area face numerous challenges across the agricultural value chain. Constraints begin at the production stage, where limited access to quality inputs such as improved seeds and fertilizers, dependency on rain-fed agriculture, and small landholdings contribute to low yields. The study also identified that the supply of inputs does not meet the growing demand, further hindering productivity.

Information asymmetry is another significant challenge. Most farmers rely on informal sources of information, which are often unreliable and inconsistent. While cooperatives are intended to facilitate access to information, inputs, and markets, their effectiveness in marketing remains limited in the study area. This ineffectiveness is attributed to low member participation, inadequate empowerment, lack of capital, strong competition, and weak leadership (Dessie et al., 2018) (Gebre et al., 2020).

Furthermore, a lack of training in both crop production and management practices affects the quality and volume of agricultural output. Access to credit plays a positive role in improving productivity, as it enables farmers to purchase inputs and invest in better practices (Hailegiorgis, 2017). Similarly, access to timely and accurate information helps farmers adopt suitable strategies for production, preservation, and

storage. However, many smallholder farmers lack knowledge about proper storage and preservation methods, resulting in post-harvest losses and reduced product quality (Kenea et al., 2019).

This highlights the vital role of external stakeholders, particularly the government and NGOs, in supporting infrastructure development, training, and awareness programs. These organizations possess the resources needed to establish storage facilities, introduce preservation technologies, and deliver capacity-building efforts to smallholder farmers (Tarekegn et al., 2020).

Marketing remains one of the weakest links in the value chain. Smallholder farmers face a range of marketing constraints, including lack of access to market information, low bargaining power, and inadequate infrastructure. These limitations diminish their incentives to improve productivity, which in turn affects other value chain actors such as traders and consumers (Ulisido and Abebe, 2020) (Wosene and Gobie, 2022). Most agricultural traders in the region operate within local markets, with limited capacity to access broader markets such as Addis Ababa. They also face challenges in securing institutional credit and require financial incentives to scale their operations and compete in larger markets.

To improve the performance and inclusiveness of agricultural value chains in the study area, the following actions are recommended:

Strengthen Farmer-Customer Linkages: Develop strategies to connect smallholder farmers directly with preferred markets-including wholesalers and consumers-thereby reducing dependence on intermediaries such as retailers. This can enhance farmer incomes and improve product traceability and quality.

Improve Access to Credit and Inputs: Expand access to affordable credit to enable farmers and local processors to invest in productivity-enhancing inputs and technologies. Strengthening cooperatives to facilitate group purchasing and collective bargaining is also essential.

Promote Small-Scale Processing and Value Addition: Encourage the establishment of local agro-processing units to add value to raw agricultural products. This would create employment opportunities, reduce post-harvest losses, and improve market competitiveness.

Foster Innovation and Market Orientation: Encourage innovation across the value chain through the adoption of market-driven quality standards, continuous learning, and value chain upgrading. Tailoring production to meet market demand will increase competitiveness and resilience.

Enhance Operational Planning and Coordination: Introduce better systems for demand forecasting, inventory management, and production planning in collaboration with public and private sectors. Improved coordination among stakeholders is essential for a well-functioning value chain.

By addressing these challenges and opportunities, the agricultural value chain in southwest Shewa can be transformed into a more efficient, inclusive, and market-oriented system that benefits smallholder farmers and strengthens regional food security.

Conclusions

The study identified mixed farming as the dominant livelihood strategy in the southwest Shewa Zone, where farmers cultivate key cereal crops-such as teff, maize, wheat, and barley-as well as pulses including horse beans, chickpeas, field peas, and lentils. In addition to staple crop production, smallholder farmers supplement their income through the sale of cash crops such as chat, coffee, and eucalyptus trees.

Mapping the agricultural value chain in the region revealed the involvement of several actors, including input suppliers, smallholder farmers, cooperatives and unions, retailers, wholesalers, processors, and consumers. However, the current value chain remains limited in scope, primarily encompassing input supply, production, and trading, with minimal involvement in processing and manufacturing.

At the production level, smallholder farmers face several challenges that hinder agricultural productivity. These include land scarcity, lack of training, insufficient access to fertilizers and pesticides, a shortage of improved seed varieties, and limited labor availability. Moreover, weak linkages among value chain actors reduce the efficiency and profitability of agricultural production and marketing.

Appendices

Please find the questionnaire used in this study (Table 6)

Date (Eth Calendar)	Name of Woreda	Respondent Code	Name of Peasant Association

_____	_____	_____	_____
Enumerator Name	Signature	Supervisor Name	Signature
_____	_____	_____	_____

General Background	
Question	Response Options
1.1. Sex of respondent	A. Male B. Female
1.2. Age of respondent	_____ years
1.3. Years the household has lived in the village	_____ years
1.4. Marital status of household head	A. Married B. Single C. Divorced D. Widowed
1.5. Education level of household head	A. Illiterate B. Read and Write C. Primary Education (1-8) D. Secondary Education (9-12) E. Above Secondary Education
1.6. If literate, highest level of education attended (years)?	_____ years
1.7. Has the household head held a social position in the community?	A. Yes B. No
1.8. If yes, specify position	A. Administrative Leader B. Spiritual Leader C. Elder D. Member E. Other (Specify) _____

Land Use System	
Question	Response Options
2.1. How long have you been farming?	_____ years
2.2. Do you own farmland?	A. Yes B. No
2.3. Total land size (hectares)	_____ ha
2.4. Do you lease-in land?	A. Yes B. No
2.5. Area of land leased in (hectares)	_____ ha
2.6. Do you lease-out land?	A. Yes B. No
2.7. Area of land leased out (hectares)	_____ ha
2.8. Do you sharecrop-in land?	A. Yes B. No
2.9. Area of land sharecropped-in (hectares)	_____ ha

Land Allocation	
Land Use Type	Allocated in Hectares
Cultivation	_____ ha
Forest & Woodland	_____ ha
Grazing Land	_____ ha
Inset	_____ ha
Chat	_____ ha
Other (Specify)	_____ ha

3. Agriculture						
A. Crop Production						
Crop Type	Land Cultivated (ha)	Amount Produced (qt)	Home Consumption (qt)	For Seed (qt)	Quantity Sold (qt)	Price/qt
Maize						
Sorghum						

Wheat						
Barely						
Teff						
Others (Specify)						
B. Livestock Production						
Livestock Type	Number Owned	Number Sold	Price per Animal	Total Revenue Gained		
Oxen						
Cows						
Goats						
Horses						
Others (Specify)						
C. Honey Production						
Type of Hive	Produced (kg)	Sold Last Year (kg)	Price per kg	Total Revenue Gained		
Modern						
Traditional						
D. Agricultural Constraints						
No.	Constraint	Rank (1-5)				
1	Lack of Seeds					
2	Lack of Tools					
3	Lack of Fertilizer/Pesticide					
4	Lack of Household Labor					
5	Lack of Training					
6	Low Soil Fertility					
7	Pests and Diseases					
8	Heavy Rains					
9	No Marketing Opportunities					
10	Lack of Storage Facilities					
11	Lack of Land					
12	Late/Insufficient Rain					
13	Ill Health/Sickness					
14	Lack of Access to Credit					
15	Other (Specify)					
E. Inset Production						
Question				Response Options		
3.5. Does the household own inset?				A. Yes B. No		
3.6. If the household owns inset, how much do you have (in number)?				_____		
F. Off-Farm Activities						
Main Source of Income		Annual Average Income		Yes	No	
Charcoal Making				☐	☐	
Petty Trade				☐	☐	

Employment in an urban/rural area						☐	☐
Remittance						☐	☐
Other (Specify)						☐	☐
Marketing							
Input Marketing							
No	Inputs	Input Supplier	Units	Cost per Unit	Amount Used	Total Cost	
1	Seed						
2	Fertilizer						
3	Farm Equipment						
4	Family Labor						
5	Hired Labor						
6	Chemical/Pesticide & Fungicide						
7	Other (Specify)						
Output (Agricultural Products) Marketing							
Question				Response Options			
4.1. Did you sell agricultural products last year (2020/1)?				A. Yes B. No			
4.2. When did you sell last year's agricultural products?				A. Immediate after harvest B. One month later C. More than two months			
4.3. If you sold immediately after harvest, why did you do that?				A. Better price B. Storage problem C. Fear of price fall D. Bulk of production E. Others (Specify) _____			
4.4. What do you consider before supplying your agricultural products to the market?				A. Assess price information and supply if better B. When we need money, we supply C. Others (Specify) _____			
Price Information							
Question				Response Options			
4.5. What is the trend of agricultural product prices for the past five years?				A. Increasing B. Decreasing C. Stable D. I don't know			
4.6. Who decides the price during selling?				A. Traders B. Producers C. Brokers D. Negotiation between farmers and traders E. Others (Specify) _____			
Source of Market Information							
Question		Response Options					
4.7. Do you get market information before supplying your product to market?		A. Yes B. No					
4.8. If yes, how do you get market information? (Multiple choices possible)		A. TV, Radio, Newspapers B. Social Media C. Friends/Neighbors D. Development Agent E. Message Blackboards at Market Places/ECX Board F. Agricultural Associations G. Other (Specify) _____					
Market Access							
Question				Response Options			
4.9. Is there a market in this village/community?				A. Yes B. No			
4.10. If no, how far is the nearest market (by foot, one way)?				_____ km or _____ hours			
4.11. How often does the nearest market take place?				A. Daily B. Weekly/Periodic C. Twice a week			
4.12. Do people in this village have problems selling their agricultural products?				A. Yes B. No			

4.13. If yes, why?

A. Lack of improved infrastructure B. Lack of transport C. Located at a far distance D. Others (Specify) _____

Transportation

Question

Response Options

4.14. What means of transportation do you use to take agricultural products to the market?

A. Cart B. Pack Animal C. Vehicle D. Others (Specify) _____

4.15. Do you own the type of transportation you use?

A. Yes B. No

4.16. If no, how much does it cost you per 100kg to reach the market?

_____ birr

Marketing Constraints

No.

Constraints

1. Yes

2. No

Rank Severity

1

Low Price

☐☐

2

Less/No Market Information

☐☐

3

Low Bargaining Power

☐☐

4

Price Instability

☐☐

5

No Buyer/Lack of Market

☐☐

6

Others (Specify)

☐☐

Access and Utilization of Services

Extension Services

Question

Response Options

4.17. Did you have an extension contact?

A. Yes B. No

4.18. If yes, how frequently do you meet the extension agent?

A. Daily B. Weekly C. Monthly D. Rarely

Training Received

No.

Type of Training

1. Yes

2. No

1

Crop Management

☐☐

2

Use of Input

☐☐

3

Use of Cooperative

☐☐

4

Use of Credit

☐☐

5

Natural Resource Conservation

☐☐

6

Pre and Post-Harvest Management

☐☐

7

Seed Production

☐☐

8

Marketing of Agricultural Products

☐☐

9

Field Days/Demonstration

☐☐**Credit Services**

Question

Response Options

4.19. Do you have access to credit?

A. Yes B. No

4.20. If yes, have you received credit in cash last year?

A. Yes B. No

4.21. If Q2 is yes, how much was it?

_____ Birr

4.22. If Q2 is yes, for what purpose did you use it?

A. Farm Inputs Purchase B. Livestock Purchase C. HH Consumption D. Land Rent
E. Others (Specify) _____**Credit Service Providers**

Question	Response Options
4.23. From where did you get the credit service?	A. Cooperative Association B. Micro-Finance C. NGOs D. Local Money Lender E. Saving and Credit F. Others (Specify) _____
Reasons for Not Using Credit	
Question	Response Options
4.24. If the answer for Q2 is no, why?	A. High-Interest Rate B. No Need C. Lack of Collateral D. Fear of Inability to Repay E. No Service F. Others (Specify) _____
Credit Problems	
Question	Response Options
4.25. Do you have any problems in getting credit?	A. Yes B. No
4.26. If yes, what is the nature of your credit problem(s)?	A. Less Supply B. Inadequacy of Credit C. No Diversification D. Absence of Informal Sources E. Unfavorable Repayment Time F. High-Interest Rates G. Restrictive Procedures H. Others (Specify) _____
Membership in Cooperatives	
Question	Response Options
4.27. Are you a member of a farmer's cooperative?	A. Yes B. No
4.28. If yes, what is the name of the cooperative?	_____
Reasons for Joining the Cooperative	
Question	Response Options
4.29. Why did you join the cooperative?	A. Provides Better Price B. Holds the Cost Down C. Guaranteed Outlet (Market) D. Field Service/Technical Assistance E. Fair Scaling F. Timely Payment G. Others (Specify) _____
Satisfaction Level	
Question	Response Options
4.30. How satisfied are you with the work of the cooperative?	A. Very Satisfied B. Satisfied C. Unsatisfied D. Very Unsatisfied
Crosscutting Issues	
4.31. What kind of training or support do you need? (Tick all that apply and rank from 1 to 5)	
Technical Advice & Training in Farm Production Processes	☐
Technical Advice & Training in Postharvest Handling	☐
Technical Advice & Training in Product Market Development	☐
Direct Market Linkage Facilitation for New Domestic/Export Markets	☐
Technical Advice & Training to Improve Product Quality	☐
Technical Advice & Training on New Product Development	☐
Technical Advice & Training to Upgrade Worker (Employee) Skills	☐
Study Tours to Other Places in Ethiopia	☐
Trade Fair Participation	☐
Technical Advice for Accessing Formal Credit Sources	☐
Direct Support for Obtaining Agricultural Inputs	☐

TABLE 6: Questionnaire

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Zelalem Dendir

Acquisition, analysis, or interpretation of data: Zelalem Dendir

Drafting of the manuscript: Zelalem Dendir

Critical review of the manuscript for important intellectual content: Zelalem Dendir

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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