



Research Article

Small-Scale Soya Beans Enterprise in Ntandire, Lilongwe, Central Malawi

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Abstract

Introduction: Soya bean farming driven by smallholder participation faces productivity gaps due to poor access to quality seeds, limited extension services, and market constraints in Malawi. To provide strategic recommendations enhancing profitability and sustainability, this study assesses both the opportunities and challenges facing small-scale enterprises in the soya beans business in Ntandire, Lilongwe.

Methodology: The study employed a quantitative research approach with a cross-sectional survey design. Data were collected from a sample of 133 respondents, comprising farmers and traders, using structured questionnaires based on a five-point Likert scale. Data were analyzed using descriptive statistics (frequencies, percentages, and means)

Results: Key findings show that 68.5% of respondents perceived high market demand for soya beans, and 65.5% identified better income opportunities. However, over 99% cited limited storage, while 77.4% experienced price instability. Strategies such as improved input access, cooperative marketing, training, and credit availability were strongly endorsed, with over 97% agreement among participants.

Conclusion: The study concludes that soya bean farming presents viable economic opportunities if systemic constraints are addressed. The study recommends policy interventions targeting input subsidies, cooperative formation, price stabilization, and capacity building to optimize sector performance.

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KEYWORDS: Soya beans, Smallholder farming, Market challenges.

1. INTRODUCTION

1.1 Background

The soya bean business operates small-scale industries in an international arena that is marked by the growing volumes of production and huge economic prospects (Voora *et al.*, 2024). This internationalization poses a lot of opportunities to small-scale industries, particularly in developing economies. Smallholder farmers in Africa are also a significant source of

soybean production although their average yields are lower than those in the rest of the world with the average African farmer producing 19 bushels per acre versus the global average of 41 bushels per acre- meaning that the potential to enhance agricultural growth through better utilization of inputs and modern agricultural techniques is high (Mngoli, 2023). The small-scale Malawi soybean sectors, which the study areas of Ntandire in Lilongwe belong to, exist with both growing

opportunities on the one hand and serious agronomic challenges on the other hand. Malawi has national averages of soybean yields of about 1.2 tons per hectare, way lower than the yields of the crop under research conditions. Such a yield gap is aligned with the results that the smallholder farmers in Malawi are responsible for growing about 3.8 times less than the conceivable yields because of inappropriate agronomic approaches and insignificant technology utilization (Omondi *et al.*, 2023).

The socioeconomic environment in which soybean production has been carried out in Ntandire and the general Lilongwe area is indicative of the relevance of the crop in terms of diversifying income and enhancing the nutritional value of smallholder households. The studies show that the practice of soybean cultivation has a positive impact on the household income and food security but is limited by the lack of access to credits, low-quality extension services, and insufficient agronomic information (Mngoli, 2023).

Despite the existence of better soybean varieties and the existence of best-bet agronomic practices that were developed in local research, including optimum dates of planting and fertilizer recommendations, little is actually adopted. The problem of delays in releasing fertilizer recommendations and coordination between various institutions further restricts the ability to spread innovations in time among farmers in such regions as Ntandire (Thangata, 2014). Therefore, the yield-limiting conditions like inappropriate management of soil fertility and poor quality of seeds, remain at the farm level.

Soya beans are marketed on a small scale in Malawi and play an important role in rural livelihoods and food security, as well as income generation. Smallholder farmers produce about 95 % of soybeans in Malawi, and they prefer to work in groups to make it easier to access the inputs and the extension services, which are offered by government and non-governmental organizations. The industry enjoys a better variety of soybeans that includes the Tikolore (developed locally), which is high-yielding and early maturing.

Nonetheless, problems still exist, such as poor access to quality seeds and inoculants, integration within the market, marketing mechanisms, and infrastructure, which limit the small-scale producer from making high profits and increasing production (Nzima and Dzanja, 2015; Meyer *et al.*, 2018).

Smallholders are also threatened by market pressures in the value chain, such as price fluctuation, as influenced by climatic shocks and the uncompetitive business behaviors of rivals (African Market Observatory, 2025). The gaps can only be addressed by increasing the capacity of the seed systems, interventions on disease monitoring, extension services, and stabilizing markets to benefit small-scale soybean farmers in Malawi.

Market-related challenges are also prominent. Smallholder soya bean farmers in Malawi face price volatility, limited market integration, and competition from alternative crops such as tobacco, which often offer more stable returns (African Market Observatory, 2025; Mngoli *et al.*, 2023). Poor road infrastructure and inadequate storage facilities exacerbate these

issues, making it difficult for farmers to transport their produce and access profitable markets (Brivery Siamabele, 2019).

The present study is aimed at discussing the opportunities and threats that face small-scale soya bean enterprises in Malawi by analyzing the factors affecting their performance. Evidence indicates that there is a strong positive relationship between the adoption of better soybean technologies and the jacking up of yields and incomes, leading to poverty alleviation, particularly in female-headed households and those whose farm owners are more educated and have an extensive area of land (Hirpa *et al.*, 2021).

The issues with access to finance and efficient markets also stimulate profitability and sustainability, whereas environmental matters and inadequate extension services weaknesses deter productivity (Nzima *et al.*, 2015; Tufa *et al.*, 2021; Mngoli, 2023). These relationships are essential in making policies and interventions that will assist the smallholder farmers and improve the soybean value chain in Malawi.

1.2 Importance and Purpose of the Study

The study was significant as it dealt with the key issues of the small-scale soya bean producers and marketers in Ntandire, Malawi. The systematic study approach would address a large gap in knowledge and furnish empirical data that can be incorporated by policymakers, development agencies, and local stakeholders in developing interventions that would enhance the growth and sustainability of the sector.

The study was to analyze in detail the opportunities as well as limitations facing small-scale soya bean enterprises. On the one hand, the increasing demand for soy-based products in the region and in the country was a significant chance to develop economically the rural societies. Evidence-based policies based on the subsidy program, extension outreach, and market regulation to promote sector growth as well as safeguard the interests of the smallholders were provided to the policymakers. Such a broad range of stakeholders made the study relevant to various levels of the agricultural innovation system.

Another contribution of the research was the empowerment of agricultural knowledge in Malawi because the localized, data-driven insights of the research were available in understanding the smallholder soybean enterprises.

The primary goal of the research was not only to make an academic contribution but also to make a practical contribution in the form of informing programs that would develop capacity, open up more market prospects, and meet structural inadequacies in the Malawian soybean value chain.

1.3 RESEARCH OBJECTIVES

1.3.1 Main Objective

- To assess opportunities and challenges faced by small-scale industry in the soya beans business in Ntandire, Lilongwe.

1.3.2 Specific Objectives

- To find out the available opportunities in the growing of Soya beans for small-scale businesses in Ntandire, Lilongwe.
- To identify limitations faced by small-scale businesses in marketing Soya beans
- To recommend how the small-scale businesses can productively achieve maximum profits from Soya bean farming

1.4 Scope of the discussion

This study is confined to investigating the opportunities and challenges faced by small-scale enterprises involved in the soya bean business in Malawi, with a specific focus on Ntandire in Lilongwe District. The scope of the study encompasses both the production and marketing dimensions of soya beans at the small-scale level. The study targets smallholder farmers of both genders, recognizing the importance of gender dynamics in agricultural productivity and market participation.

In summary, this study is designed to generate actionable, data-driven recommendations for smallholder farmers, policymakers, agribusiness entrepreneurs, and development agencies, with the ultimate goal of enhancing productivity, market access, and sustainability for small-scale soya bean enterprises in Malawi.

2. LITERATURE REVIEW

2.1 Overview of previous studies

2.1.1 Opportunities for small-scale businesses in the growing of soya beans

Access to improved soybean seed varieties is central to increasing productivity and creating opportunities for small-scale farmers, yet this remains a major challenge. A case study in Malawi by Gondwe and Cole (2020), which covered 457 households across Lilongwe, Dedza, and Mchinji districts, revealed that women were particularly disadvantaged in seed access because men often controlled household decisions, limiting equitable adoption of improved technologies (Gondwe *et al.*, 2020). These findings show that opportunities exist, but equitable distribution and affordability of seed remain barriers to fully unlocking smallholder business potential.

Smallholders are able to convert the increased production into a business opportunity, although this depends on the market demand to know whether the produce is an improvement to the production of the products or not. According to The Mwapata Institute (2024), Malawi has a soybean production capacity of approximately 245,401 metric tons, which is only 47 percent of the overall national processing capacity, indicating that there is a high gap in supply that could be closed by smallholder farmers, given that the limitations are resolved.

In Malawi, participatory research found that interventions like manure application, inoculants, and disease management increased yields and profitability, showing that opportunities exist when soil health is addressed alongside improved seed adoption (Vugt *et al.*, 2017).

2.1.2 Marketing limitations faced by small-scale soya bean business farmers

Dorward *et al.* conducted an action-research experiment in central Malawi testing whether access to structured markets improved sales by smallholder soybean farmers; they randomized farmer groups and found that receiving price information increased willingness to sell through structured channels, but adoption was limited by lack of transport and aggregation centers (Ochieng *et al.*, 2020). The sampled population consisted of adult male and female farmers, though age was not finely disaggregated.

Chimaliro (2018) examined determinants of soybean price volatility in Malawi using a time-series model (VECM) and found that smallholders face high seasonal and regional variability, which discourages long-term planning (Chimaliro, 2018).

Nindi (2020) studied 1,739 smallholder farmers in Malawi using an RCT to test how access to post-harvest storage influenced sale timing; the study found that storage plus commitment devices enabled farmers to delay sales and earn higher prices, though adoption was constrained by cost and trust (Nindi *et al.*, 2020).

Vandeplas *et al.* (2010) conducted field surveys in rural areas with poor infrastructure and reported that high transport costs directly reduced marketed volumes of soybeans and forced reliance on local intermediaries (Vandeplas *et al.*, 2010).

In Malawi, Chiwaula *et al.* reported that farmer dependence on informal intermediaries resulted in low farm-gate prices and weak bargaining power (Nzima *et al.*, 2015).

2.1.3 Strategies or recommendations that can help small-scale businesses to productively achieve maximum profits from soya bean farming

Ali *et al.* (2019) analyzed the effects of credit on soybean farmers' welfare using household survey data and econometric methods in a study that focused on soybean producers (author E. Ali; empirical study, multi-site sampling; the paper assesses welfare and production outcomes), and they found that access to agricultural credit significantly increased soybean production and household welfare, with the largest effects among farmers who used loans to buy improved seed and fertilizer.

Ambler *et al.* (field experiment/impact evaluation) found that intensive, season-long extension and training programs led to larger investments in agriculture and higher adoption of recommended practices among participating farmers compared with short-term or one-off training sessions, and the study's methods combined program assignment with farm investment and yield monitoring (the sample included adult men and women farmers; age cohorts were not deeply disaggregated in published results) (Ambler *et al.*, 2023).

A landmark impact study using propensity score matching examined the effect of marketing cooperatives on smallholder commercialization in Ethiopia and found that membership in marketing cooperatives increased marketed volumes and reduced transaction costs for smallholders, with the study sample drawn from rural adult farmers of both sexes (the

analysis used household survey data and matching methods) (Bernard *et al.*, 2008).

Tamene & Megento and other rigorous field studies show that rural road quality and transport infrastructure have large, measurable effects on smallholder agricultural productivity and marketed volumes, using household surveys and econometric models across sampled farming communities (sample sizes commonly 400–1,000 households; adult male and female farmers included, age detail often limited) (Tamene *et al.*, 2017).

2.2 Theoretical Framework

The small-scale soybean farming is at the point of intersection of agricultural economics, value chain theory, and development economics. Production efficiency, market systems/value chains, profit maximization, and technology/adoption theory are some of the key theoretical concepts. These theories can be used in the current study to understand how small-scale producers in Ntandire can maximise profit by taking advantage of opportunities (e.g., inputs, markets, policies), and by being constrained by limitations (market, input supply, institutional constraints), and to engage in strategies.

MAIN CONTENT/DISCUSSION

3.1 Introduction

The discussion interprets the findings by highlighting their relevance to small-scale soya bean farming. It focuses on the implications of observed opportunities and challenges, linking them to practical improvements needed in input access, storage, marketing, and farmer support systems.

3.2 Opportunities in Soya Bean Business

The current observation that 68.5% of the respondents indicated a high local demand for soybeans is in line with the trends in the Petauke District of Zambia, where research revealed that the demand has as high as 92 percent, way above the supply at approximately 13.76 percent. This variation is also greatly influenced by the fact that more consumers have been informed of the nutritional value of soybeans and the variety of applications in food processing and feeding, which have, in recent studies, been reported with respect to domestic soybean processing and consumption in Rwanda (Mujawamariya, 2023). The fact that 65.5% of the respondents feel that the soya beans provide them with better sources of income is also consistent with the Malawi and Zambia findings which report that soya bean farming enhances small holder incomes in Malawi and Zambia because they have more than one avenue of selling their produce, and they also yield higher incomes per unit area compared to other crops (Mngoli, 2023; Zamasiya *et al.*, 2014).

This is informed by the fact that studies revealed that soya beans enjoy a dominant market share of the oilseed market in the region and offer a reliable source of protein meal to animals that is in demand steadily (Hichaambwa *et al.*, 2014; Chimaliro, 2018). Among the implications is that soya bean cultivation may improve the lives of rural people, provided there is certainty of access to the market and price control. Some

suggestions include the formation of cooperative marketing groups, easy availability of low-cost inputs, and government intervention in terms of ensuring fair prices and mitigating post-harvest wastages (Nalavwe, 2024; Zamasiya *et al.*, 2014).

3.3 Challenges in Marketing Soya Beans

It is evident that the commonness of respondents, who agreed or strongly agree in response to limited storage access as the main marketing challenge (more than 99 percent), refers strictly to other regions and studies. As an example, a study conducted in Gujarat, India, singled out the unavailability of stores as the most critical marketing limitation to the soybean farmers, even surpassing any fluctuations in the prices and malpractices in measuring (Nalavwe, 2024).

In addition, more studies on warehousing prove the fact that space limitation is a looming chronic problem that determines the efficiency and responsiveness of a warehouse. As Boysen (2024) expounds, the process of making decisions in choosing the storage location in a scattered storage warehouse is a complex process since it has a direct influence on the utilisation of space and accessibility, which are key factors that determine successful operations. Together, these studies indicate that inadequate access to storage is a multifaceted issue that requires an integrated design and process and technology control in order to maximize warehouse productivity.

3.5 Strategies for Maximizing Profitability

That 99.2% believe in enhancing the availability of inputs like seeds and fertilizers as a means to boost productivity can effectively be argued to be supported by the empirical evidence. An increase in access to improved seeds and fertilizers that results from improved input availability has been seen to directly increase yields and revenue generated by a farm in Sub-Saharan Africa (Bold, 2022).

The Poverty Action Lab study, however, points to the fact that alone extension is ineffective where there are no indications of marked linkages, where farmers are left without incentives to invest in inputs that can enhance their productivity (Bold, 2022). This implies that such extension programs ought to be incorporated with market access programs so as to achieve optimal results. Knowledge transfer and farmer adoption of innovations can also be given an enhanced boost by building extension based on digital tools and participation.

All the respondents agreed that the availability of credit or loans makes farming more productive in terms of investment, and this is in line with all the literature, which has also proven that credit alleviates liquidity and allows acquisition of farm inputs and adaptation of the new technology (Hemming *et al.*, 2018). Price stabilization by the government has become more common (87.2%) since studies have supported the argument that price stabilization policies lessen the volatility in income and promote investment (World Bank, 2021).

1. FINDINGS/OBSERVATIONS

4.1 Key insights derived from the discussion

Across these five dimensions, the empirical evidence is consistent: (1) timely access to credit increases the ability of smallholders to purchase profitable inputs and raise yields (Ali *et al.*, 2019). (2) Sustained, season-long extension increases adoption of profitable soybean practices and magnifies returns to inputs (Ambler *et al.*, 2016). (3) Cooperatives reduce transaction costs and improve market power when well governed; (4) targeted government price support can stabilize incomes but must be carefully designed to avoid distortions, and (5) infrastructure underpins all of the above by reducing transaction costs and enabling access to input and output markets. Major cross-cutting gaps include: lack of randomized or quasi-experimental trials that test bundled interventions (credit + extension + cooperative membership + storage/aggregation + transport vouchers), limited age-disaggregated evidence (youth vs older farmers), and sparse cost-benefit analyses of scalable infrastructure or price-support models tailored to smallholder soy contexts.

4.2 Results from statistical analysis

4.2.1 Introduction

The analyzed results provide the statistics on the demographics of respondents and their perceptions towards opportunities, challenges, and strategies in the small-scale soya bean business. The section highlights prominent trends in connection with market demand, income potential, access to inputs, and marketing constraints. It forms the basis of learning the present condition of the soya bean value chain in the eyes of the respondents.

4.2.2 Demographics

Most of the respondents were men (66.0%), with females making up a third (34.0%) (Figure 1). Age-wise, the majority of the participants were aged 35-44 years (33.1%), and next in age were the participants below 25 years (24.8%). Only a lower percentage, 12, was aged 45 and older (Table 1).

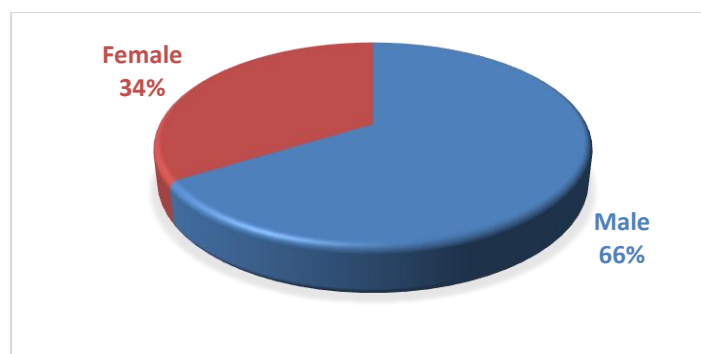


Figure 1: Gender distribution of study participants (n=133)

In terms of education, more than 50% (51.1%) of the respondents had completed primary education, and 31.6% had completed secondary. Only 17.3% had no formal education. Considering their main purpose in the soya beans business,

Most of them (63.2%) were farmers, and only 36.8% were traders. The majority of the participants (41.4%) were in the soya beans business with 2-5 years of experience, and the remaining 36.1% had less than 2 years of experience; only 22.6% had 6-10 years' experience (Table 1).

Table 1: Demographic Characteristics of Respondents (n=133)

Variable	Frequency n (%)
Age	
Under 25	33(24.8)
25-34	29(21.8)
35-44	44(33.1)
45 and above	16(12.0)
Level of education	
No formal Education	23(17.3)
Primary	68(51.1)
Secondary	42(31.6)
Primary role in the soybean business	
Farmer	84(63.2)
Trader	49(36.8)
Experience	
<2	48(36.1)
2-5	55(41.4)
6-10	30(22.6)

4.2.3 Opportunities in Soya Bean Business

A substantive percentage of the respondents (68.5%) agreed or strongly agreed that there is a high demand for soya beans in the local markets. Beyond that, over 65.5% of them believed that soya beans had superior income potential than other crops. A cumulative 66.9% of the respondents gave the affirmative that seed varieties are currently becoming available, a greater percentage of 84.9% giving the opinion that farming of soya beans has the prospects of value-added and even agro-

processing. Government/minority (41.4%) support to NGOs was also reported, with 30.8% and 27.8% disagreement and neutral, respectively. Cooperative farming came with the lowest rating of 19.6% agreeing and strongly agreeing, and more than half (57.1%) disagreeing in contributing to market access. On environmental suitability, 46.6% agreed, or strongly agreed, that Ntandire had good climatic and soil conditions, 33.9% disagreed, and 19.5% had no answer (Table 2).

Table 2: Perceived Opportunities in Soya Bean Business (n=133)

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree n (%)	Strongly green n (%)
There is a high demand for soya beans in local markets.	18(13.5)	24(18.0)	0(0.0)	32(24.1)	59(44.4)
Soya beans offer better income opportunities than other crops.	8(6.0)	27(20.3)	11(8.3)	59(44.4)	28(21.1)
Access to improved seed varieties is increasing.	21(15.8)	10(7.5)	13(9.8)	52(39.1)	37(27.8)
Soya bean farming has potential for value addition and agro-processing.	0(0)	6(4.5)	14(10.5)	66(49.6)	47(35.3)
There are government or NGO programs that support soya bean production.	25(18.8)	16(12.0)	37(27.8)	46(34.6)	9(6.8)
Group/cooperative farming has improved my access to markets.	18(13.5)	58(43.6)	31(23.3)	21(15.8)	5(3.8)
Climate and soil conditions in Ntandire are favorable for soya bean farming.	9(6.8)	36(27.1)	26(19.5)	35(26.3)	27(20.3)

4.2.4 Challenges in Marketing Soya Beans

The least frequent difficulty mentioned was access to storage or warehousing, where more than 99% of the respondents agreed (67.7%) and strongly (31.6%) agreed with the statement. Another significant problem was the unpredictable and unstable prices, with 77.4% responding in the affirmative and strongly agreeing. Likewise, 71.4% reported that the middlemen take advantage of the farmers through unfair prices. Over 62% did

Not having access to transport facilities was claimed to be a barrier, and only 25.5% stated that they struggled to access reliable markets.

Poor information in the market was also mentioned, with 58.6% not agreeing that they were provided with sufficient information and 24.9% agreeing. More than half (48.1%) did not consent with the argument that government policies are biased towards smallholder marketers (Table 3).

Table 3: Challenges Faced in Marketing Soya Beans (n=133)

Statement	Strongly Disagree (%)	Disagree (%)	Neutral N (%)	Agreen (%)	Strongly Agree (%)
I face difficulty accessing reliable markets for selling soya beans.	56(42.1)	40(30.1)	17(12.8)	8(6.0)	12(9.0)
Prices of soya beans are unstable and unpredictable.	6(4.5)	21(15.8)	3(2.3)	54(40.6)	49(36.8)
I lack access to transport facilities to deliver soya beans to markets.	22(16.5)	12(9.0)	16(12.0)	68(51.1)	15(11.3)
Middlemen exploit small-scale farmers by offering unfair prices.	14(10.5)	24(18.0)	0(0)	59(44.4)	36(27.1)
There is limited access to storage or warehousing facilities.	0(0)	1(0.8)	0(0)	90(67.7)	42(31.6)
I do not receive adequate market information on prices and buyers.	18(13.5)	78(58.6)	4(3.0)	32(24.1)	1(0.8)
Government policies do not favor smallholder soya bean marketers.	12(9.0)	52(39.1)	43(32.3)	14(10.5)	12(9.0)

4.2.5 Strategies for Maximizing Profitability

The different proposed strategies were well supported. Almost all respondents (99.20%) concurred or strongly concurred that productivity can be strengthened by improving access to inputs (seeds/fertilizers). On the same note, 97.7% had the support of training and extension of services to enhance technical farming. Skills. Respondents to the question (100%) were unanimous that the formation of cooperatives or associations improves

market power. Also, more participants perceived there might be greater investment in farming, as 66.9% and 33.1% said there would be greater investment in farming with access to credit or loans. Incidentally, 87.2% of the respondents also thought that government price support would stabilize income. Lastly, 75.2 percent aimed to change the answer in the affirmative that the lack of road infrastructure would become an issue in enhancing access to markets as well as profitability (Table 4).

Table 4: How to maximize profitability in Soya Beans Business.

Statement	Strongly Disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly Agree N (%)
Improving access to improved inputs (seeds/fertilizers) can boost productivity.	0(0)	1(0.8)	0(0)	49(36.8)	83(62.4)
Training and extension services would enhance my technical farming skills.	0(0)	0(0)	3(2.3)	93(69.9)	37(27.8)
Forming cooperatives or associations helps in gaining better market power.	0(0)	0(0)	0(0)	65(48.9)	68(51.1)
The availability of credit or loans would increase my investment in farming.	0(0)	0(0)	0(0)	89(66.9)	44(33.1)
Government price support or minimum pricing would stabilize income.	0(0)	17(12.8)	0(0)	53(39.8)	63(47.4)
Better road infrastructure would increase access to profitable markets.	0(0)	16(12.0)	17(12.8)	79(59.4)	21(15.8)

5. CONCLUSION

The research indicates that the soya bean market has both good opportunities and major challenges for the small-scale players. The prospects of income generation are high in both the local demand and the positive perception towards value addition. Nevertheless, the lack of appropriate storage, fluctuating prices, lack of credit access, and poor infrastructure remain apparent problems that hamper profitability. The results demonstrate the necessity to enhance the input availability, increase the technical capacity by offering extension services, and facilitate the cooperation structures. These insights are vital in the creation of responsive and inclusive policies to make the sector more resilient and competitive.

Recommendations for Policy Makers

- Invest and develop rural infrastructures, particularly storage and road systems that will enhance market access.
- Introduce specific input subsidies (seeds, fertilizers) and subsidize local agro-dealer networks to lower the input costs.
- Increase extension service and training based on the level of literacy to enhance technical capacity.
- Support the creation and management of farmer cooperatives to increase collective bargaining power.

Recommendations for Areas of Future Studies

- Examine gender specific limiting conditions and possibilities in the soya bean value chain to create more inclusive interventions.
- Longitudinal research on the impact of changes in prices on the behavior of farmers (decisions and investment) in the long run.
- Evaluate the success of cooperative societies in terms of improving market access and income stability.

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