Inclusive Business Analysis

Optimising Maize Grain, Maize Silage and Onion Sourcing through the Outgrower Schemes in the Southern Ethiopian Region

Luna Export Slaughterhouse Plc | Ethiopia

Public Report

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idh
transforming markets

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Disclaimer

This study examines the projected (financial) performance of Luna Exports Business Model and explores and recommends potential improvements and opportunity pathways. The findings in this report have been used by IDH, Luna, and involved value chain players to shape their strategy, project design, and future business models, but these organisations cannot be held accountable for meeting any targets included in the report.

The contents of this report are intended for informational purposes only. While every effort has been made to ensure the accuracy and completeness of the information presented, the analyses in this report rely partially on projections and assumptions. The conclusions and recommendations in this report are based on our best knowledge and expertise at the time of preparation, but their applicability or accuracy in any particular situation or circumstance cannot be guaranteed. Therefore, no rights can be derived from the information provided in this report.

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Introduction

Smallholder livelihoods

Agriculture plays a key role in the wellbeing of people and planet. 70% of the rural poor rely on the sector for income and employment. Agriculture also contributes to and is affected by climate change, which threatens the long-term viability of global food supply. To earn adequate livelihoods without contributing to environmental degradation, farmers need access to affordable high-quality goods, services, and technologies.

Inclusive Business Models

Inclusive Businesses provide goods, services, and livelihoods on a commercially viable basis, either at scale or scalable, to people living at the base of the pyramid, making them part of the value chain as suppliers and/or customers. These business models can sustainably increase the performance of farm(er)s while providing a business opportunity for the company. Using IDH's data-driven Inclusive Business methodology, IDH analyses these models to create a solid understanding of the relationship between impact on the farmer and the company.

Insights & Innovations

Our data and insights enable businesses to formulate new strategies for operating and funding service delivery, making the model more sustainable, less dependent on external funding and more commercially viable. By further prototyping efficiency improvements in service delivery and gathering aggregate insights across sectors and geographies, IDH aims to inform the agricultural sector and catalyse innovations and investment in service delivery that positively impact people, planet, and profit.

About the Program
NORAD Growing Together

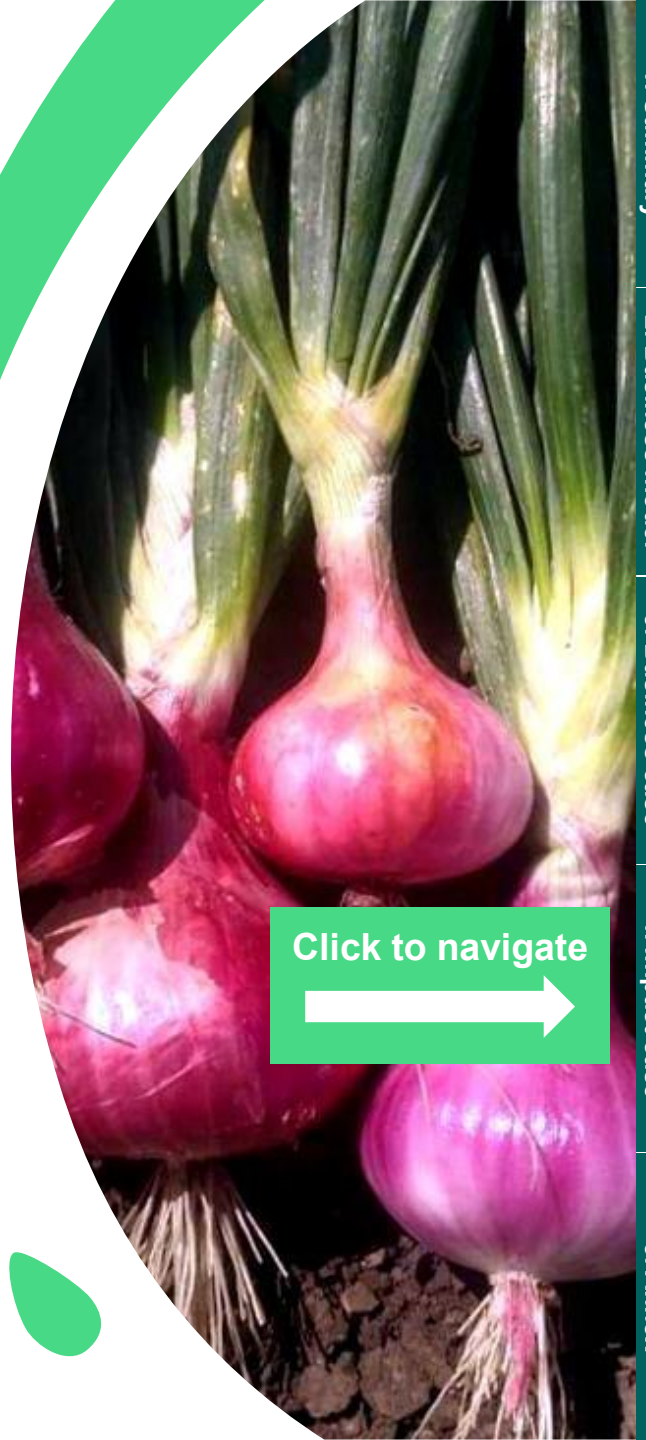
- The Growing Together Program, led by IDH in partnership with civil society (Rikolto and EAGC) and research institutions (CIAT), aims to transform food systems in East Africa by enhancing food security, climate resilience, and inclusive economic growth.
- It focuses on increasing the **production of healthy, diverse foods by smallholder farmers, improving the sustainability of production landscapes, and optimising value chains for investment and trade.**
- The program targets **Tanzania and Ethiopia. It prioritises staple crops like maize, rice, wheat, legumes, oil crops, root crops, vegetables, and fruits to improve nutrition and climate resilience**. A key emphasis is empowering women and youth through commercial participation in food value chains.
- **Five strategic intervention pathways guide implementation:** convening coalitions for policy and sector reform, transforming value chains through inclusive business models, facilitating investment via Innovation and Investment Development Hubs, building climate-resilient landscapes, and generating data-driven insights for learning and decision-making.
- The program will co-invest with **18 food businesses, mobilise USD 13 million in financing, and directly benefit 120,000 farmers and 120,000 hectares of land. It also aims to create 30,000 jobs**, half of which will be for women and youth.
- The program's sustainability is ensured through local ownership, capacity building, and embedding interventions within SME business models to drive long-term change beyond its five-year timeline.

Abbreviations

CAADP	Comprehensive African Agriculture Development Programme
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
DTA	Digital Transformation Assessment
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECX	Ethiopian Commodity Exchange
ERP	Enterprise Resource Planning
ETB	Ethiopian Birr (currency)
FTE	Full-time equivalent
GAP	Good agricultural practices
GDP	Gross domestic product
GP	Gross Profit

HR	Human Resources
IBA	Inclusive Business Analysis
IFC	International Finance Corporation
IT	Information technology
KPI	Key Performance Indicator
MT	Metric ton (1,000 kg)
NGO	Non-governmental organization
OPEX	Operating Expenses
P&L	Profit and loss statement
SHF	Smallholder farmer
SOP	Standard Operating Procedure
SWOT	Strengths, weaknesses, opportunities and threats
USD	United States dollar (currency)

Report outline



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Executive summary

Introduction | Luna seeks to increase its sourcing of maize, maize silage and onions using a dual approach through its farms and out grower schemes with smallholder farmers

Luna

- Founded in 2003, Luna is a diversified agribusiness headquartered in Addis Ababa, Ethiopia. The company is primarily involved in livestock and crop production, with operations spanning several business units, including primary production, processing, retail distribution (over 15 stores), and restaurants. Luna has a presence in the local and export markets. Luna plans to establish a poultry-feed factory in the country to provide high-quality feed at economical prices
- The company's vision is *to provide our community with a healthy diet by promoting a culture of wellness and nutrition within our community and striving for excellence in customer service. This will ensure a positive and rewarding experience for all*.
- Over next 5 years, Luna aims to increase its annual sourcing of maize to 8,500 tons, maize silage to 25,000 MT, and onions to 4,500 tons by utilizing its nucleus farms and out-grower scheme with about 3,000 smallholder farmers.[1]
- This project's focus crop is maize (for both food and feed purposes), and onions are used as a rotational crop for regenerative agriculture.

Maize and Onion value chains

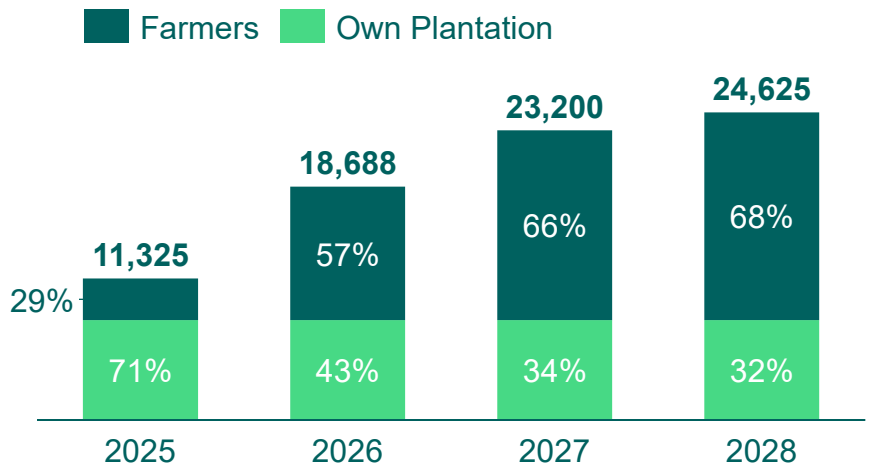
- Maize is instrumental for Ethiopia's food security and has the lowest cost per calorie among major cereals like teff and wheat. It also leads in crop yield, acres under production, and total farmers.[3]
- While productivity increases can improve farmers' welfare, marketing is a significant limitation in these value chains. Better coordination of this element can produce greater multiplier effects for the smallholder farmer.
- Onions are a vital part of the Ethiopian diet and are one of the most essential ingredients during fasting, when people only eat vegetarian food. Despite this, many farmers still consider onions a low-value crop, and the chain suffers significant losses, primarily due to post-harvest wastage.[2]
- Due to its diverse climates and geographical landscapes, Ethiopia has tremendous potential to produce onions annually. Still, high price fluctuations, a lack of set standards, poor value chain coordination, a poor flow of market information, and infrastructure issues have made progress difficult.[2]

Sources: 1) Luna Company Interviews and documents (2025), 2. Daniels & Fors (2015), 3. IFPRI

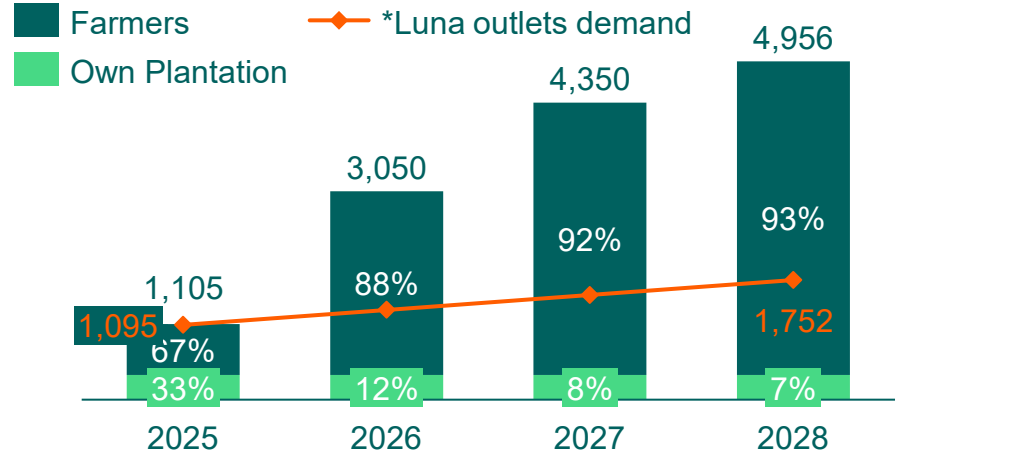
Cluster farming will enable Luna exports to scale and diversify sourcing of various materials (maize, maize silage and onions) at lower capex for Luna while improving farmer livelihoods

- Luna should enrol nearly 3,000 farmers in its cluster farming network to ensure consistency in quality and quantity of maize silage, onions and other vegetables for its meat export and fresh retailing businesses
- A differentiated production strategy of prioritising perennial tree crops such as fruits in Luna's Nucleus farms and sourcing bulk commodities such as maize, maize silage and onions will reduce supply uncertainty and price volatility for Luna's meat export and fresh retail operations
- Luna owns 1,500 hectares of farmland, and currently, 1,000 hectares are actively farmed towards supplying the produce to their fresh stores and silage production.
- Increasing hectares of Luna's own farm operations entail higher capex investment and higher political and operational risks, which are mitigated by having a strong cluster farmer sourcing
- By year 5, an increasing share of maize silage (68%) and onions (90%) will be sourced from smallholder farmers to meet Luna's raw materials requirement

Volumes of Maize Silage Sourced (MT)



Volumes of Onions Sourced (MT)



*Notes: * Estimated demand at Luna's outlet. Farmers may sell partial volumes to Luna and sell remaining to others, it is by design to keep additional production at farmers for flexibbility*

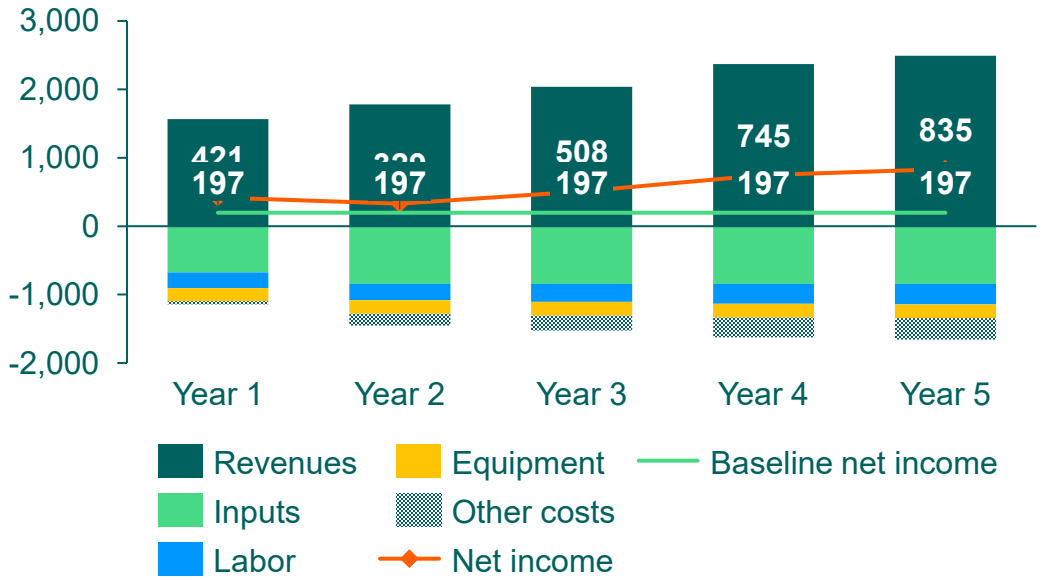
Luna's wide range of services directed towards increasing farmer income and resilience will incentivize farmers for continued business association with Luna

#	Business interventions and incentives	Business case for Luna	Benefits to the farmer
1.	Assured offtake, market access and market facilitation of farm produce	Having access to direct sourcing from farmers will enable Luna to scale and diversify its business operations at lower capex and opex	Farmers get assured market access and lesser price volatility for maize, onions and maize silage. Farmers get to grow maize silage which is more profitable for them
2	Expand service offering to farmers at competitive price	An effective service package will increase yield and improve quality of farm produce	Farmers can increase their crop substantially by having access to sufficient quantity and quality of inputs, timely availability of mechanization services
3	Premium price to farmers above market price by sharing the supply chain gains	Luna benefits from increasing farmer loyalty and stronger relationships with farmers	Since Luna can source the farm produce directly from farmers without middlemen, the price and efficiency gains due to it will be shared with farmer
4.	Post-harvest services and infrastructure	Luna gets consistent quality and quantity of produce throughout the year Investing in cold storage facility for onions and other produce can reduce supply and price volatility	Post-harvest services like assorting, transport storage will reduce post-harvest losses and quality deterioration.
5	Facilitate farmers for accessing formal financial services	Luna can leverage the production and transaction data of farmers to facilitate access to finance that will incentivise farmers to continue working with Luna	Farmers will get linked to formal financial services which will enable them to get loan at lower interest rates and access wider range of financial services

Farmer income | Luna farmers earn higher farm income and more income resilient due to associating with Luna exports which aids them in accessing a basket of higher quality services

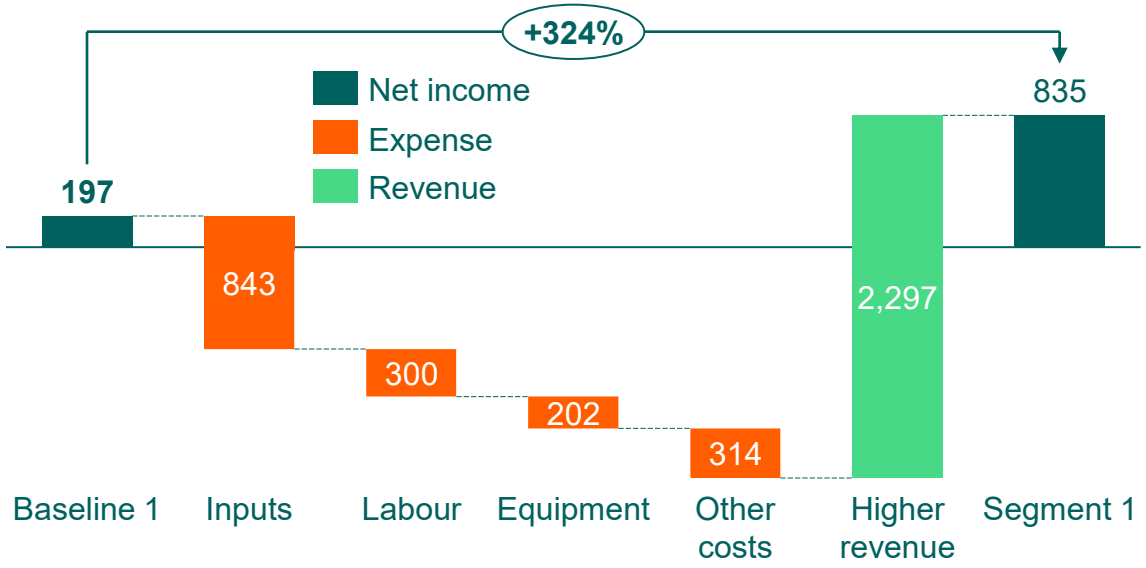
- Luna farmers' net income is expected to increase more than 2 times over 5 years, while baseline farmers' net income flatlines
- The increases in revenue and net income are mainly driven by higher quality services adopted by Luna farmers, including the use of improved seeds and fertiliser, access to credit and mechanised machinery on top of better training and post-harvest handling

Segment 1 -Profit and loss for a five-year period (USD/Farmer)



- Luna farmers spend 64% more on inputs, 28% more on labour, plus pay the service fee to Luna exports, which are the main components of the cost structure
- Despite higher costs for Luna farmers, the increase in revenue from all 3 crops of maize grain, maize silage, and onions more than offsets the cost increase, leading to a net income increase of over 3 times in 5 years

Year 5 – Income drivers of Luna farmer vs baseline farmer (USD/Farmer)



These learning questions were formulated up front in collaboration with Luna Exports Ltd. A full list of these questions can be found in the annex.

Risk Prioritisation | Implementing focused strategies to address risks at both farm and business levels is vital for the smooth integration of smallholder farmers into Luna's business model

Risk Category	Risk	Prioritisation	Next Steps for Luna/ IDH Project team
Business Level Risks	Political instability	High	Support Luna to establish contingency plans through the diversification of sourcing regions.
	Debt servicing constraints	High	Support the company in exploring alternative financing approaches such as equity and blended finance models, to raise funds for expansion.
	Service provision losses	High	Introduce cost-sharing models and digital tools to minimise overhead costs.
	Price volatility and exchange rate risks	High	Implement price stabilisation mechanisms such as forward contracts and minimum support price.
	Limited organisational capacity to scale	Medium	Build the capacity of cooperatives to support scaling, invest in farmer management systems, and strengthen Luna's internal structure to manage the growing number of SHFs.
	Governance issues within the clusters	Medium	Support Luna to build the capacity of the cooperatives and the clusters through leadership training and establishing governance frameworks.
Farm Level Risks	Unpredictable weather patterns	High	Develop the capacity of farmers to practice climate-smart agriculture including the adoption of improved seeds and practising regenerative agriculture while facilitating access to information through early warning systems.
	Inadequate access to credit and high input costs	High	Explore input credit schemes, linkages to microfinance institutions, bulk procurement of inputs and subsidising key services for farmers. Explore the use of group guarantees as an alternative form of collateral.
	Pests and diseases	High	Develop the capacity of farmers through training and extension services while facilitating access to knowledge on integrated pest management and access to agrochemicals.
	Low technology adoption	Medium	Support Luna to train lead farmers and community facilitators on the adoption of digital tools to improve digital literacy and cascade this knowledge to farmers.

Infrastructure Gaps | Achieving Luna's farmer inclusion objectives will depend on addressing key gaps in storage, mechanisation, irrigation access, processing, and farmer management

Business Level Gaps

- **Storage and Logistics** – *Investment in additional storage capacity in the sourcing regions and logistical capabilities* is pivotal as the project scales and sourcing volumes increase.
- **Processing facilities** – Offtake of the dry maize grains is pegged on the construction of a poultry feed processing plant. *Additional silage processing capacity is needed by investing in mechanisation equipment or outsourcing the service.*
- **Digital infrastructure** – *Investing in a robust farmer management system, coupled with strengthening the company's internal organisational capacity*, is critical to ensuring that Luna effectively manages the growing number of farmers while maintaining quality service delivery.
- **Mechanisation infrastructure** – The company currently has limited capacity to provide mechanization services to farmers with only a few number of tractors. *Exploring shared mechanisation services through cooperatives and other service providers* will ensure that the company meets the growing demand for these services

Institutional Level Gaps

- **Inadequate irrigation infrastructure** – A limited number of farmers in the irrigation catchment area have reliable access to irrigation water. *Supporting farmers to adopt other irrigation methods (drip) where furrow irrigation does not work.*
- **Post-harvest infrastructure** (cold storage facilities and aggregation centres) in the rural areas are limited leading to an estimated 30% in post-harvest losses for most vegetables. *Establishing cold storage hubs in the nuclear farms and deploying mobile aggregation units.*
- **Poor rural roads** affect the mobility of goods from farm to market and increase the cost of logistics. *Lobbying the government to improve the state of rural roads*.
- **Weak or non-existent cooperative infrastructure** in the regions may result in fragmented service delivery and increase service provision costs. *Establish new cooperatives and strengthen the capacity of existing ones.*
- **Inadequate financial access infrastructure** limits access to credit. *Lobbying MFIs to deploy innovative digital platforms to facilitate access to credit.*

2

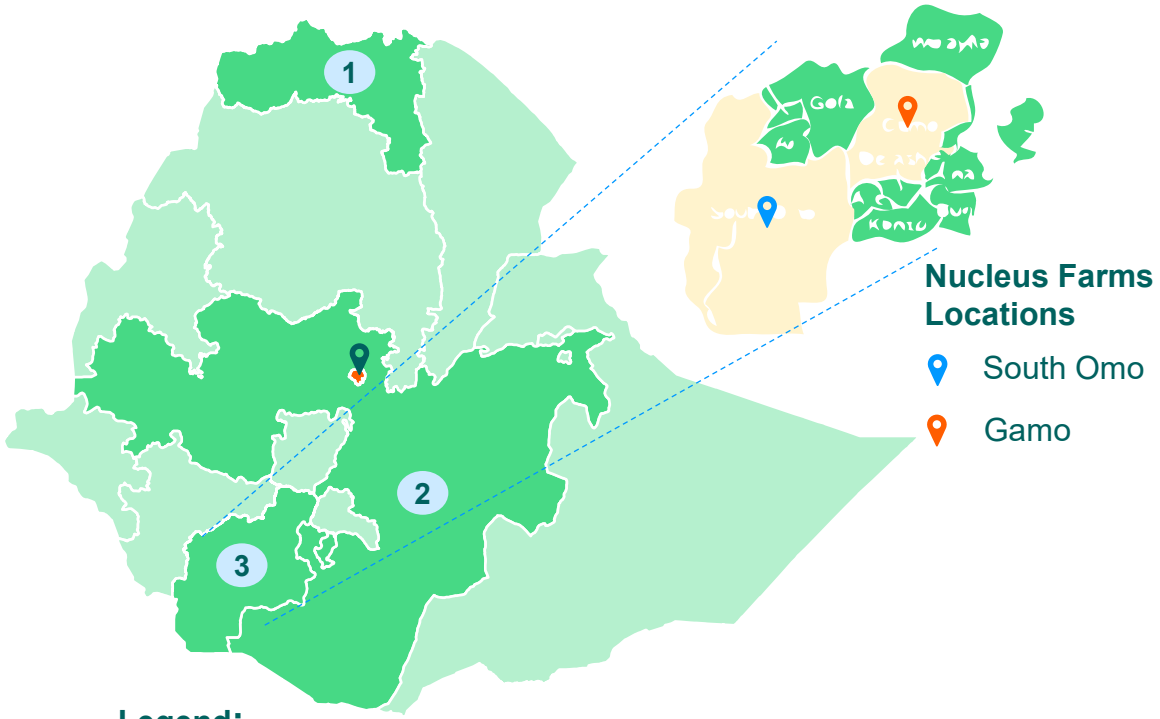
Business model

Objectives | The project aims to support Luna's backward integration strategy by integrating smallholder farmers in its raw materials supply chain

		Envisioned impact of the objective on the different actors in the project		
		Farmers	**Luna Export PLC**	**IDH**
Core objective	Increase the production of maize grains and onions for human consumption, and the production of maize silage for animal feed.	• Improved incomes, food security and income diversification.	• Secured the supply of raw materials for animal feed production and fresh corner outlets.	• Contributed to better jobs, a better environment, better income, and gender inclusion.
Secondary objectives	Provide tailored production services to 3,000 farmers through cluster farms.	• Improved yield by 50%. • Doubled income for at least 1,500 farmers.	• Ensured the availability of raw materials.	• Contributed to higher incomes leading to improved livelihoods of SHFs.
	Promote sustainable farming practices and regenerative agriculture.	• Increased climate resilience through income diversification and improved soil health.	• Ensured the availability of produce required for the fresh corner and kitchen outlets.	• Contributed to improved climate resilience at the farm level.
	Strengthen the capacity of 3 primary cooperatives to provide services to outgrower farmers.	• Improved access to key services required to drive farm productivity.	• Ensured the efficiency in services provision to farmers.	• Devised cost-effective and efficient mechanisms for service provision.
	Facilitate farmers' access to financial services through their primary cooperatives.	• Improved access to financial services such as credit and insurance.	• Addressed financial challenges that may stifle farmer investment.	• Devised effective mechanisms to enable SHFs access to financial services.

Sources: 1) Growing Together Project Proposal (2025)

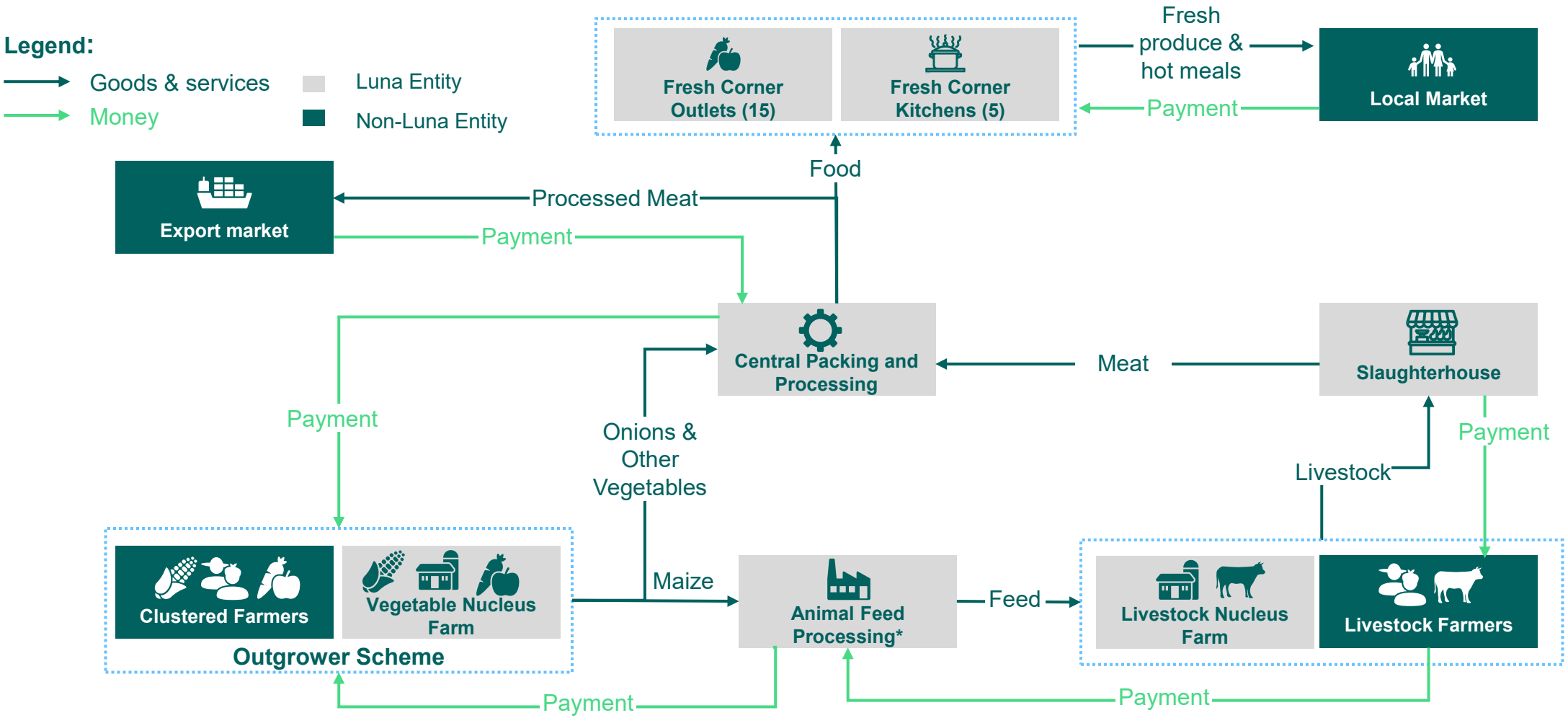
Location | Luna has operations in Tigray, Oromia and South Ethiopia regions and intends to establish outgrower schemes attached to their nucleus farms in Gamo and South Omo zones



- Luna's operations are spread across the Tigray, Oromia*, and South Ethiopia regions. The company has vegetable farms in all these regions and a livestock farm in South Ethiopia. It plans to establish out-grower schemes in the South Omo and Gamo zones in South Ethiopia. Smallholder farmers are located within a 15 km radius of the nucleus farms.
- The project region (South Ethiopia) has diverse agroclimatic conditions due to the varied topography, elevation and rainfall patterns. Jinka is in the South Omo zone and has an elevation of up to 2,300 meters above sea level, with rainfall amounts of up to 1,500mm per annum and moderate temperatures. The common crops grown in the area include maize, beans and horticultural crops. Rainfall patterns in this zone are unimodal.[1]
- Arba Minch is in the Gamo zone and has an average elevation of 2,300 meters, with annual rainfall of up to 1,800mm per annum. Common crops in the region include maize, coffee, bananas, wheat and barley. Rainfall patterns in this zone are bimodal.[1]
- The company's central processing and packing facility is in Addis Ababa. Luna has 15 Fresh Corner outlets and 5 Fresh Corner Kitchens** located in the capital and across major cities in Ethiopia.[2]

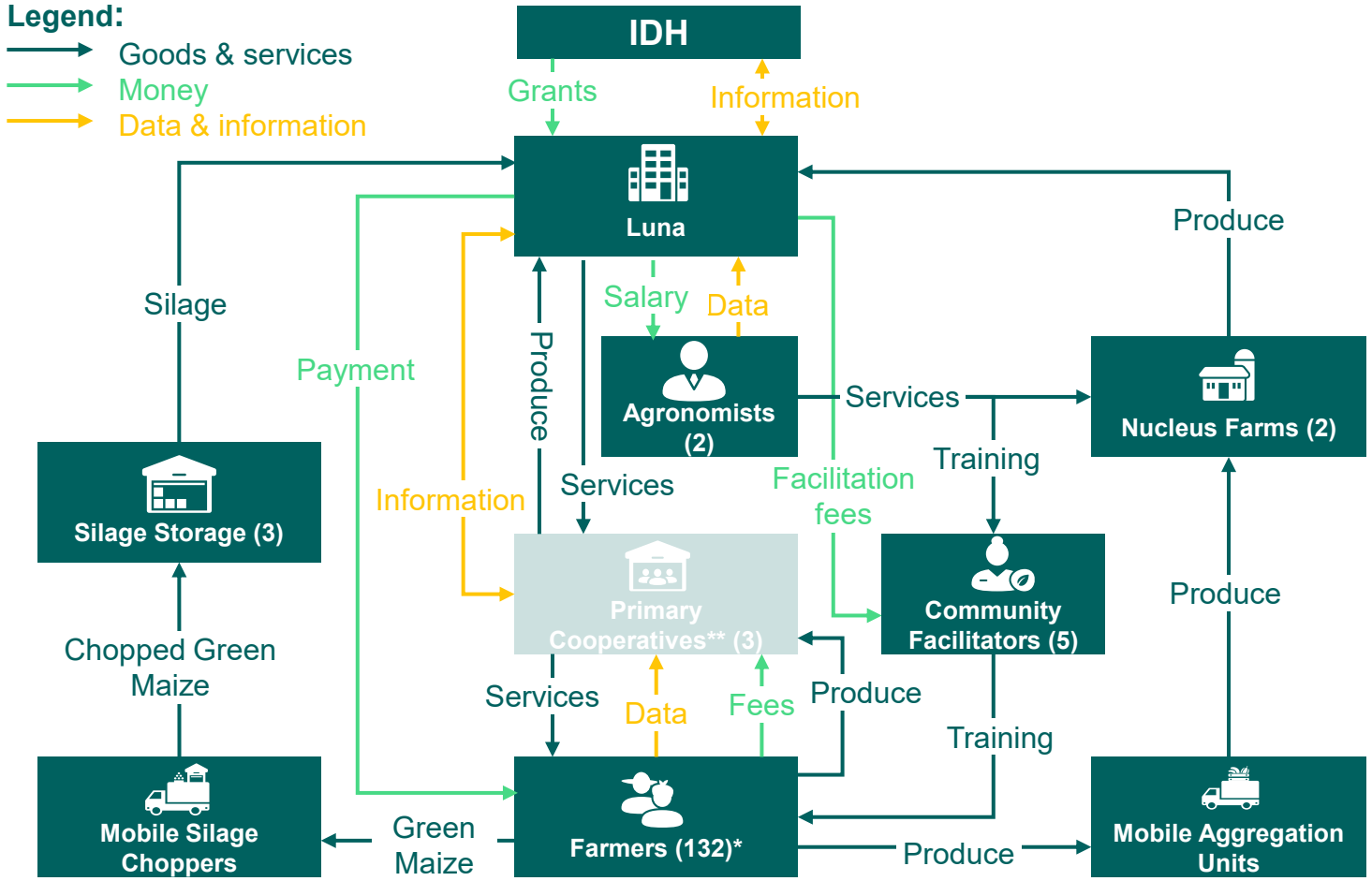
Sources: 1) Berhanu et al. (2025); 2) Luna Export Slaughterhouse Plc Strathmore Case Study (2023)
*Notes: * Operations in the Oromia region have currently been halted due to security concerns*
***Fresh corner outlets are retail outlets that sell fresh produce. Fresh Corner Kitchens are restaurants operated by Luna*

Business Model Overview | Luna runs an integrated agribusiness that combines farming, slaughtering, processing, and retail distribution serving both international and local markets



Sources: 1) Growing Together Project Proposal (2025); 2) Luna Export Slaughterhouse Plc Strathmore Case Study (2023)
*Notes: *Animal feed processing currently only consists of silage preparation. Luna intends to venture into concentrate feed processing to leverage market demand and the availability of raw materials.*

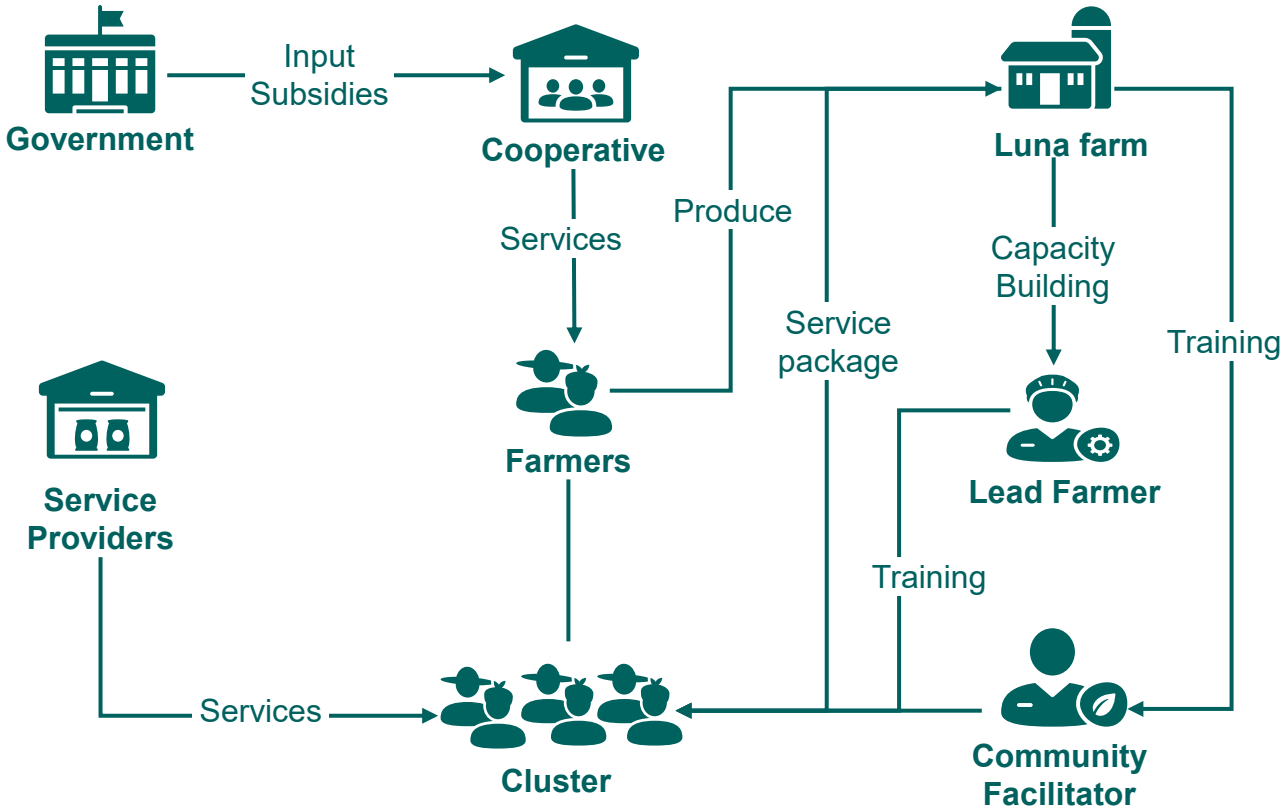
Service Delivery Model Overview | Luna delivers farmer services through nucleus farms and cooperatives and aims to scale by strengthening cooperative capacity and centralising services



1. Service provision is centred around outgrower schemes, which comprise a nucleus farm and farmers organised in clusters and cooperatives. The company currently has two outgrower schemes in South Omo and Gamo.
2. Luna directly provides training services through its agronomists and community facilitators. Farmers access mechanisation services from the nucleus farms.
3. Luna plans to strengthen the capacity of cooperatives to provide services to farmers, including access to finance, inputs, training, and last-mile aggregation.
4. Service provision to farmers remains highly fragmented, with mobile units primarily conducting aggregation and silage chopping. Centralising the smallholder service delivery model around nucleus farms and cooperatives creates an opportunity to scale services more efficiently.

Sources: 1) Growing Together Project Proposal
*Notes: *Luna has contracted 132 farmers and plans to increase this number to 3000 farmers in the next three years.*
*** Cooperatives are currently not in the sourcing model of Luna. In the medium term, Luna's plan is to support farmers in the region to establish cooperatives.*

Cluster* Farming Model Overview | The model will increase farmer income through reducing production costs, enhancing productivity, facilitating market access and improved farmer resilience through sharing resources and coordinating farming practices



- Key risks for the model will include group dynamics and governance issues, price volatility, production risks including high input costs, the incidence of pests and diseases, climate variability, inadequate infrastructure, low technology adoption, and poor agricultural practices.
- Risk mitigation measures, such as capacity building, guaranteed offtake arrangements, premium prices, access to credit and affordable inputs and training, will be critical to the model's effectiveness. Investments in the requisite physical and digital infrastructure should accompany these measures.
- Complementing community facilitators with lead farmers will be key to the sustainable and efficient scaling of the model.
- The existence of irrigation infrastructure and Luna's strong presence in the local community will provide an enabling environment for cluster farms' establishment. However, barriers, including limited institutional capacity, low farmer awareness, and resistance to change among farmers, must be addressed to sustain the model.

Sources: Luna Field Visit Interviews (2025)
*Notes: *FAO defines agro-based clusters as concentrations of producers, agribusinesses, and institutions that interact to address common challenges and build value networks*

Stakeholders | Through establishing farmer cooperatives and partnering with local communities and administration, farmers are effectively organised, facilitating efficient service provision

Actor	Legal status	Function (within this model)	Revenue model (within this model)	Incentive to participate (Within this model)
Input Providers	Private companies	Supply inputs	Margins on sales	Increased sales
Primary and Consumer Cooperatives	Cooperative societies	Partner in out-grower schemes, service delivery, aggregation and market access	Fees from members, commissions on volumes aggregated and margins on sales	Provide services to members and increased earnings from member activities
Melinda Gates Foundation	Multilateral organisation	Provide funding, technical support, or collaboration on market development	None for Melinda Gates Foundation	Drive impact and market development
IFC	Multilateral organisation	Provide funding, technical support, or collaboration on market development	Interest on loans	Drive impact and market development
Government	Government	Regulatory approvals, land access, and food safety standards	None	Protect consumers, local communities and improve livelihoods of farmers
Farmers	Individuals	Supply livestock and produce	Margins on sales of livestock and produce	Increased revenues
IDH	Non-Profit	Provide technical assistance	None	Value chain transformation

Sources: 1) Growing Together Project Proposal (2025); 2) Luna Export Slaughterhouse Plc Strathmore Case Study (2023)

Farmer segments | While Luna does not have an elaborate segmentation approach for its farmers, this analysis categorises farmers based on whether they receive services from Luna or not

	Baseline Farmers	Luna Farmers
Description	Farmers who are not affiliated with Luna and do not receive any services from the company.	Farmers affiliated with Luna who receive a service package from the company, comprising inputs on credit (seed and fertiliser) and mechanisation services.
Characteristics	• Farmers primarily rely on rainfed agriculture with single-crop seasons, though some have access to irrigation. • Maize is the main crop, primarily cultivated for grain and subsistence use • Irrigated farmers have two seasons and rotate maize with sunflower or onions. • Farmers practice conventional agriculture, with mechanisation being primarily used for land preparation.	• All farmers have access to a furrow irrigation system. • They have two cropping seasons, rotating maize and onions. Maize is primarily cultivated for silage as a commercial crop. • Farmers practice conventional agriculture, and mechanisation is adopted for land preparation and harvesting. • Better adoption of good agricultural practices compared to the baseline farmers.
Challenges	• Poor agricultural practices. • Unpredictable weather patterns (droughts & floods). • Weak market linkages and inadequate access to inputs.	• Insufficient farmer organisation. • Unpredictable weather patterns (droughts & floods). • Low adoption of improved onion seeds due to high cost and limited access.

Sources: Luna Field Visit Interviews (2025)

Farmer relationships | There is an opportunity for Luna to further strengthen its relationship with farmers through the establishment of the outgrower schemes

Outreach

- Outgrower farmers are organised in clusters of at least 5 hectares. Last-mile delivery of services is conducted by community facilitators who are managed by agronomists. Outreach is also conducted through the primary cooperatives, which are also expected to be pivotal in produce aggregation

Selection

- To be included in the outgrower scheme, farmers should ideally be within a 15 km radius of the two nucleus farms in Gamo and South Omo. Going forward, farmers will be required to have a minimum of 0.5 ha for maize and 0.1 ha for onions, with irrigation access

Contracting

- There are informal contracts between Luna and the outgrower farmers, and there are plans to introduce formal contracts. For a fee*, contracted farmers can receive a service package consisting of mechanisation, inputs, and training while committing to selling their produce to Luna.

Segmentation

- The company currently does not segment farmers. Segmentation is critical to tailor services according to the unique needs of farmers. Possible segmentation approaches that the company can consider include access to services like irrigation, land size and the location of schemes.

Graduation

- Luna does not have a graduation approach for farmers. With the planned scaling of the number of outgrower farmers from 132 to 3,000 in the next three years, farmer graduation will be pivotal to incentivising farmers based on performance. Farmers at different levels can be eligible to receive different service packages

Data collection

- Luna collects farm-level data through agronomists and community facilitators who continuously engage the farmers throughout the production cycle. Data is stored in Excel. Key data points collected include farm size, yield, and adoption of agricultural practices. The company uses the data collected to design interventions at the farmer level

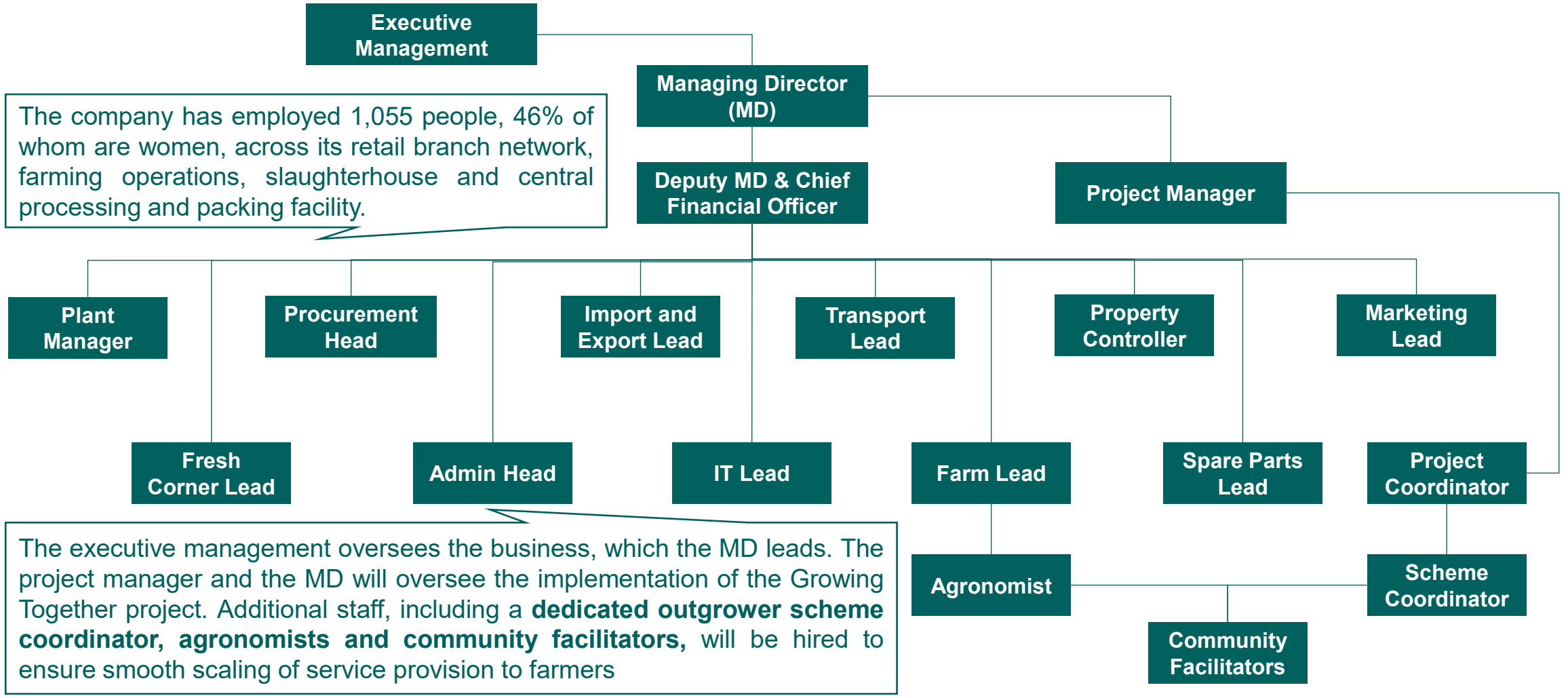
Sources: 1) Growing Together Project Proposal (2025)
*Notes: *see Service Provision P&L slide for how the service fees are computed*

Services | Facilitating training, timely access to inputs and mechanisation services are critical interventions that Luna can implement to improve productivity at farm level

Category	Service	Impact	Implementation	Revenue model	Status
Training & information	**GAP and regen-ag training**	Increase yield, resilience, & income diversification	Agronomists and community facilitators directly engage farmers	None	Ongoing
Inputs	**Improved seed and fertiliser**	Improve yield	Luna to provides inputs to contracted farmers	Service fees	Planned for 2025
Financial services	**Access to input credit**	Ensure optimum input use	Luna pre-finances the inputs to farmers	Service fees	Planned for 2025
Equipment & labor	**Mechanisation**	Increase efficiency in the production process	Luna provides the services to contracted farmers	Service fees	Planned for 2025
	Irrigation	Ensure consistent water availability for farming	The Water Users Association facilitates the maintenance of the irrigation canals	User fees	Ongoing
Post-harvest services	**Aggregation**	Ease the route to market	Luna through mobile aggregation centers	Service fees	Ongoing
	Silage Chopping	Increase reliability and access to services	Luna through mobile chopping machine trucks	Service fees	Ongoing
	Storage	Preserve the quality of silage and commodities	Luna through community-based silage storage and commodity warehouses	Service fees	Ongoing

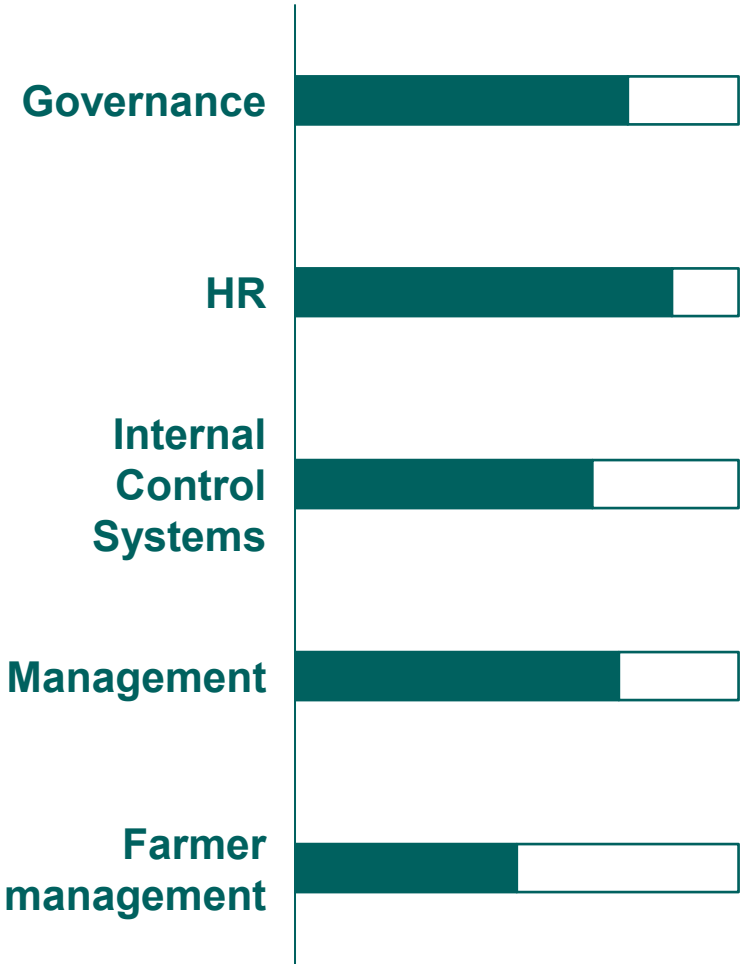
Sources: 1) Growing Together Project Proposal (2025)
Notes: once cooperatives have been established, they will play a pivotal role in supporting Luna ro deliver training, inputs and financial access to farmers. Currently all the services are provided through Luna.

Organisational structure | Luna has a centralised and hierarchical organisational structure led by the managing director and functional departmental leads, who have staff below them



Sources: 1) Growing Together Project Proposal (2025); 2) Luna Export Slaughterhouse Plc Strathmore Case Study (2023)

Organisational capacity | Luna has a well-established governance structure, HR & Internal control systems, and management with opportunities for improvement in farmer management



Strengths

- The company has a robust governance structure with clearly communicated vision and mission statements, a strategic plan, an organogram, articles of association and legal permits.
- The general assembly and company leadership meet frequently, and over half of the leadership positions are filled by women.
- Luna has an elaborate HR manual detailing the organization's various HR aspects, including the staffing plan, recruitment and performance management, and personnel policies.
- Sound internal control systems are characterized by a computerised accounting system, annual budgets, and an external audit.
- The company is adequately managed, with documented SOPs, communication policies, an M&E structure, sufficient infrastructure, and ICT systems.

Opportunities for improvement

- Establish and document a business continuity plan and appoint a substantive deputy managing director.
- Conduct formal employee satisfaction surveys to gather employee feedback.
- Establish an internal audit team.
- Scaling sourcing should be accompanied by additional infrastructure and logistics capabilities.
- Implement a dedicated farmer management system, conduct formal farmer surveys and document the guidelines for farmer selection.

** You can find the detailed organisational capacity assessment in the annex.*

Gender assessment | Luna has created a gender inclusive workplace, but it must implement strategic interventions to achieve its gender inclusion objectives at the farmer level

Sources: Luna Field Visit Interviews (2025)

Strengths

- Gender equality is the company's strategic goal, which is communicated to stakeholders, including staff.
- Luna has allocated resources to implement its gender strategy, and gender-related KPIs are being tracked at the company and farm levels.
- Luna collects gender disaggregated data, with over half of the employees and the management team being women.
- Luna has an HR manual detailing various workplace policies, including maternity and paternity leave, equal work for equal pay, and an anti-sexual harassment and violence policy.
- Luna has taken proactive steps in organising training sessions that target female farmers and supporting widowed women with labour costs.

Opportunities for improvement

- Establish internal capacity (through hiring or training existing staff) to support Luna in documenting its gender strategy and tailoring services targeting women farmers.
- Generate insights from gender disaggregated data and take action based on the insights while increasing the proportion of female field employees.
- Refine the HR manual to explicitly provide for maternity and paternity leave as a type of leave, and provide details on eligibility, duration and whether it is paid.
- Refine the anti-sexual harassment policy to include a definition of sexual harassment, a detailed procedure for reporting incidents of sexual harassment, investigative processes, consequences for violation, and training and awareness programs related to sexual harassment.
- Establish channels for collecting feedback from farmers and take proactive steps to inculcate the input in service provision, including tailoring services to the unique needs of farmers.

Enabling environment (1 of 3) | Low farmer digital literacy inhibits the adoption of technology at farm level while climate variability necessitates the adoption of climate resilient practices.

Category	Situation	Impact on business model
Technology	• Luna has adopted technology in its core operations and customer management, with a functional ERP and loyalty management systems. • 76% of the surveyed farmers reported owning a mobile phone, but only 15% reported using the internet. Among farmers who accessed mechanisation, nearly 70% relied on renting equipment, while only one in five owned their machinery[1].	• Mobile phones can serve as a key channel for disseminating agronomic advice and market information, especially in remote areas. • While mobile access is high, digital literacy and connectivity remain barriers. This limits the effectiveness of app-based solutions and online platforms for agricultural support.
Natural environment	• 85% of Ethiopia's population relies on rain-fed farming[2]. Unpredictable weather events have made climate variability the most significant threat to crop yields [3]. • 94% of the surveyed farmers expressed concern about extreme weather, 83% reported experiencing poor harvests due to pests or weather events [1]. Changes in rainfall patterns and droughts were the most cited yield-reducing events, outweighing floods, heatwaves, or landslides. 72% of farmers experienced a bad season at least once every 3–4 cycles, with 1 in 5 facing severe losses every 2 seasons [1].	• Adverse weather events predispose farmers to crop failure, resulting in losses and affecting Luna's supply chain stability. Luna aims to increase silage availability during drought to reduce animal mortality by at least 50%. • These findings underscore the urgent need for climate-resilient farming systems, including drought-tolerant seed varieties, early warning systems, and improved water management, especially for crops like maize and onions susceptible to rainfall variability.

Opportunity | Neutral | Risk

Sources: 1) Farmer Survey Data (2025); 2) Frontiers in Climate (2025); 3) FAO (2021)

Enabling environment (2 of 3) | Luna's farmers are in irrigable areas with readily available labour. Facilitating access to inputs and training can significantly increase productivity.

Category	Situation	Impact on business model
Infrastructure	• Only 5% of Ethiopia's arable land is irrigated, despite having over 3.7 million hectares of irrigable potential.[1] Rural road density remains low, limiting farm-to-market access, especially for perishables like onions. [2] • Post-harvest vegetable losses exceed 30% due to inadequate cold storage and logistics. [3]	• Limited rural road access restricts aggregation from smallholder zones • While Luna Exports benefits from modern cold chain systems for meat, its crop value chains remain exposed to these national deficits.
Labor & Workforce	• Ethiopia's labour force reached 54.5 million by 2025[4], with over 72% employed in agriculture, making it one of the most agrarian economies globally. However, labour productivity remains low, with agriculture contributing 41.4% of GDP.	• Unskilled farm labour is readily available, with family labour being primarily used for agricultural production. Training and skill development will be pivotal to improving farm level productivity.
Inputs & Financing	• Only 24% of farmers access formal credit, and 66.6% are credit-constrained, reducing productivity by up to 60%. Fertiliser use remains low at 37 kg/ha, and prices surged over 60% between 2020 and 2023. • Input distribution, especially for hybrid seeds and agrochemicals, remains fragmented.	• Input price volatility and access gaps reduce yield reliability, affecting supply consistency and quality. • Luna has an opportunity to increase access to inputs through its service package, which consists of input and mechanisation services for credit.
Trading Systems	• Ethiopia's agricultural markets remain fragmented, with most smallholders selling within 15 km of their farms and receiving just 30–40% of the final retail price [5]. • The Ethiopia Commodity Exchange (ECX) excludes most horticultural crops due to perishability and grading issues.	• Fragmented markets and price volatility make forecasting procurement costs difficult and planning long-term contracts difficult. • High transaction costs and weak contract enforcement continue to deter private investment.

Opportunity | Neutral | Risk

1) TechnoServe (2025); 2) Enhancing Agricultural Trade and Transportation in Ethiopia (2020); *3) Integrated Agro-Industrial Parks In Ethiopia (2014); 4) Trading Economics (2024)*

Enabling environment (3 of 3) | While land tenure systems limit capital investment in agriculture at farm level, Luna can utilise government interventions to further serve farmers

Category	Situation	Impact on business model
Pricing & competition	• For maize, retail prices range between $0.68 and $0.83/kg, while wholesale prices hover around $0.48–$0.58/kg [1], reflecting significant markups due to transport and intermediary costs. Onion farmers, meanwhile, often receive just 30–40% of the final retail price, with the rest absorbed by middlemen.	• To remain competitive, Luna must invest in direct sourcing models, price stabilisation mechanisms, and cold chain infrastructure to reduce post-harvest losses and capture more value across the supply chain.
Institutional stability	• The government has aligned with the Comprehensive Africa Agriculture Development Programme (CAADP), launched digital input voucher systems reforms, upgraded over 200 Farmer Training Centres, and supported over 240,000 farmers with improved seeds [2].	• Luna must strengthen local partnerships, invest in resilient sourcing models, and engage proactively with government and development actors to shape a more stable enabling environment.
Land tenure	• In Ethiopia, all land is publicly owned, and farmers hold only usufruct rights; they can use land indefinitely but cannot sell, mortgage, or use it as collateral [3]. While this system aims to ensure equitable access, it creates tenure insecurity, especially in regions where land redistribution remains a perceived risk.	• Insecure land tenure systems deter long-term investment on the farm. • Inability to use land as collateral limits farmers' access to credit.
Social norms	• In Ethiopia, the gender productivity gap is 23%, which is attributed partly to limited access to extension services tailored to women's needs [4]. Women have limited access to and control over productive resources such as land.	• Social norms restrict women's participation in agricultural value chains. Luna is keen to implement gender-responsive interventions to increase participation.

Opportunity | Neutral | Risk

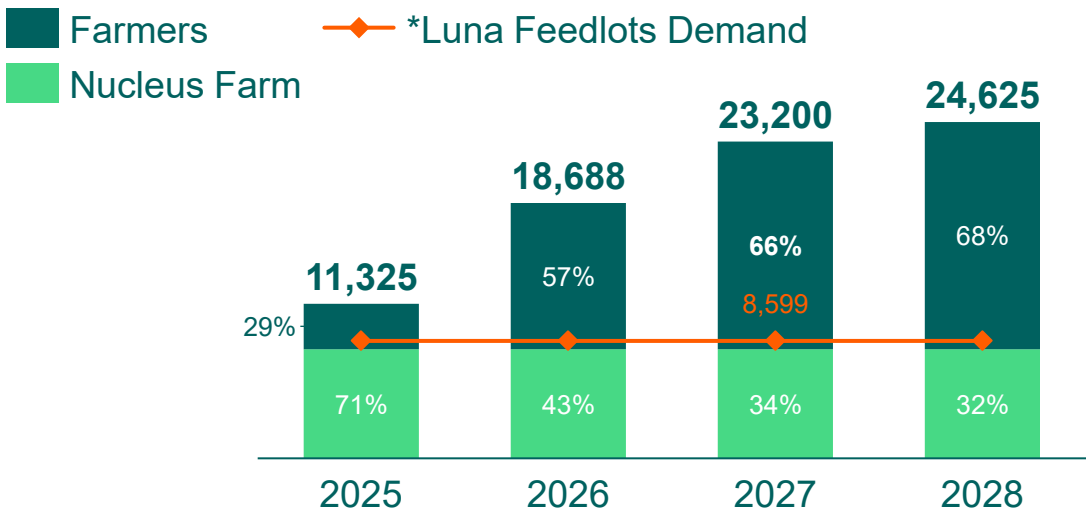
1) *Wamucci (2025)*; 2) *AGRA (2023)*; 3) *Berhanu land policy in Ethiopia*; 4) Gender Mainstreaming in the Ethiopian Agriculture Sector (2022)

3

Business Case

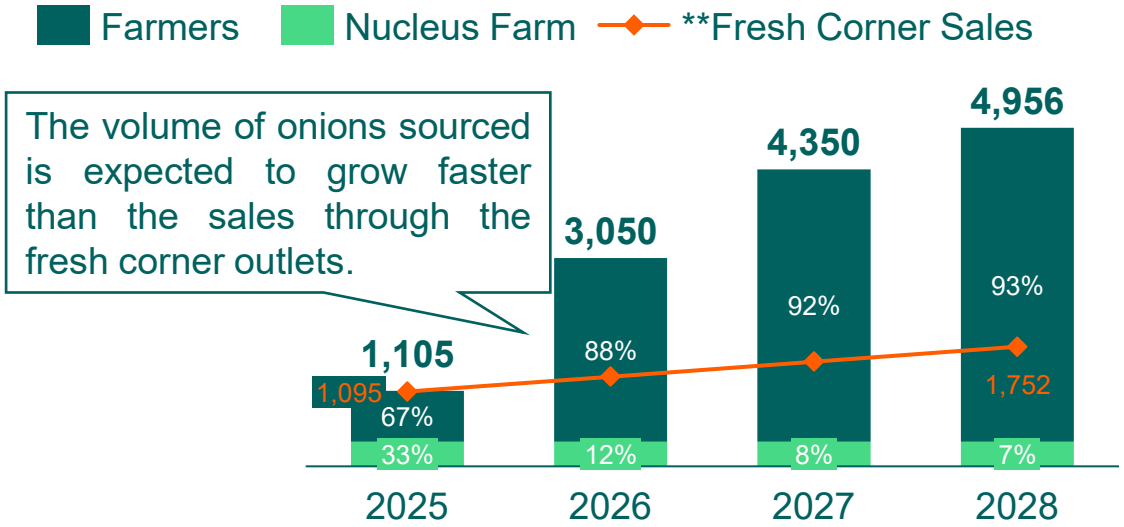
Scale | From the outset, the scale of sourcing maize silage and onions is sufficient to meet the internal demand of Luna owned feedlots, Luna's livestock farmers and the onion requirement of Luna Fresh Corner outlets

Volumes of Maize Silage Sourced



	2025	2026	2027	2028
Hectarage Farmers	125	375	500	500
Hectarage Plantation	200	200	200	200
Total	**325**	**575**	**700**	**700**

Volumes of Onions Sourced

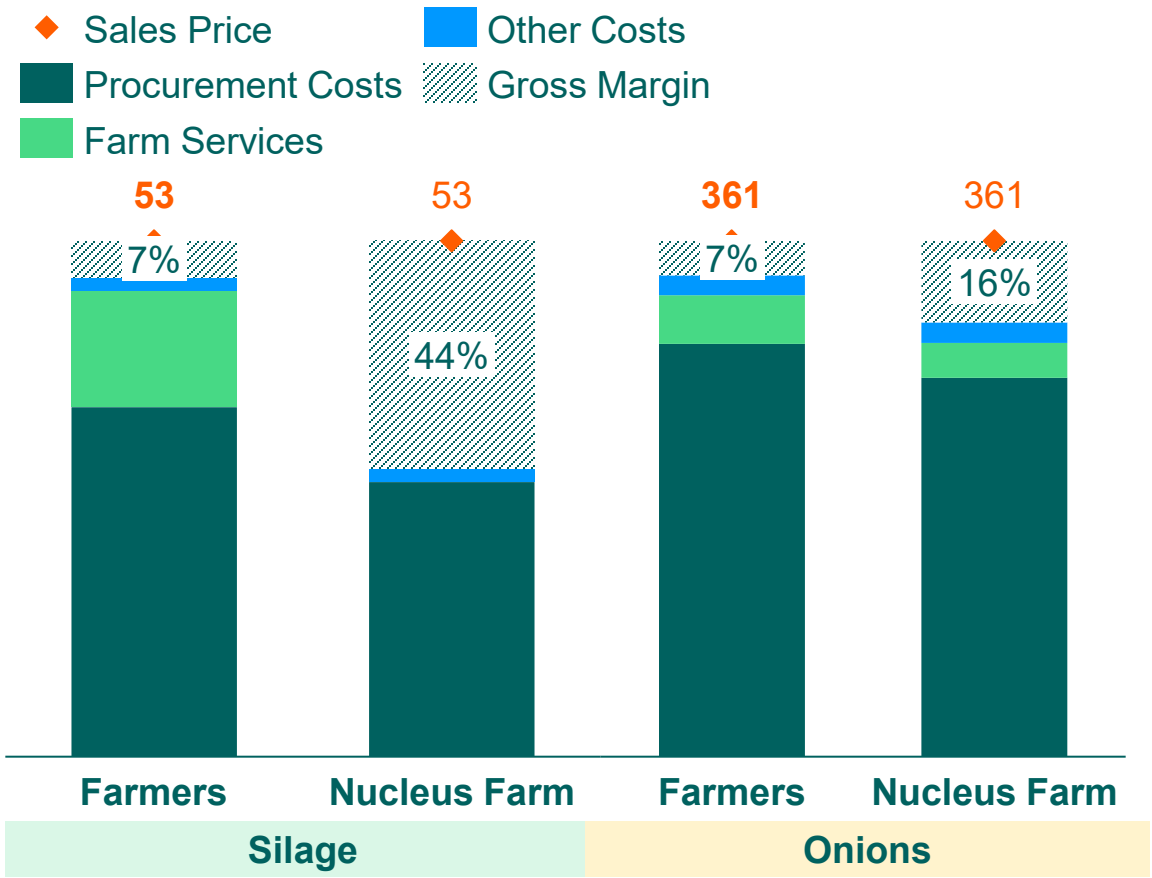


	2025	2026	2027	2028
Hectarage Farmers	63	188	250	250
Hectarage Plantation	20	20	20	20
Total	**83**	**208**	**270**	**270**

*Notes: 1) * Luna Feedlots Demand – Estimates the silage requirements for Luna's feedlots. Silage volumes exceeding the internal demand are sold to the livestock farmers.*
*2) **Fresh Corner Sales – Estimates the volumes of onions sold through Luna's retail outlets.*
3) In the medium term, Luna will not source dry maize from farmers but will provide them with a service package for which they will charge a service fee. The volume of maize grain available is estimated to be 241 MT in 2025 and expected to grow to 1865 MT in 2028.
4) See subsequent slides for a detailed analysis of the financial viability of the sourcing operations.

Sourcing unit economics | While production in Luna's farms can see the company earn higher gross margins, scaling the volumes will hinge on the inclusion of smallholders in the model

Gross Margins per Crop (USD/MT)



Contextual Drivers

- Luna primarily sources maize silage and onions from farmers in the region. There are no established farmer cooperatives in the area.
- Increasing silage availability is critical to Luna as it can reduce animal mortality during periods of drought by up to 50%. The company equally pays a premium price for silage-fed animals and earns a market premium of up to 25% for the animals finished on grain silage.

Design Drivers

- To complement the farmers' sourcing, Luna operates its Nucleus farms, which cultivate maize silage and onions. The cost of production per MT is estimated to be USD 28.30 and USD 265.33 for maize silage and onions, respectively.
- While the cost of production in the nucleus farm per MT is 8% and 13% lower than the farm gate price for onions and maize silage, respectively, scaling of the sourcing volumes will heavily depend on growing the number of outgrower farmers.

Notes: Gross margin calculations exclude the revenues earned directly from charging farmers a fee for services provided by Luna.

4

Impact Case

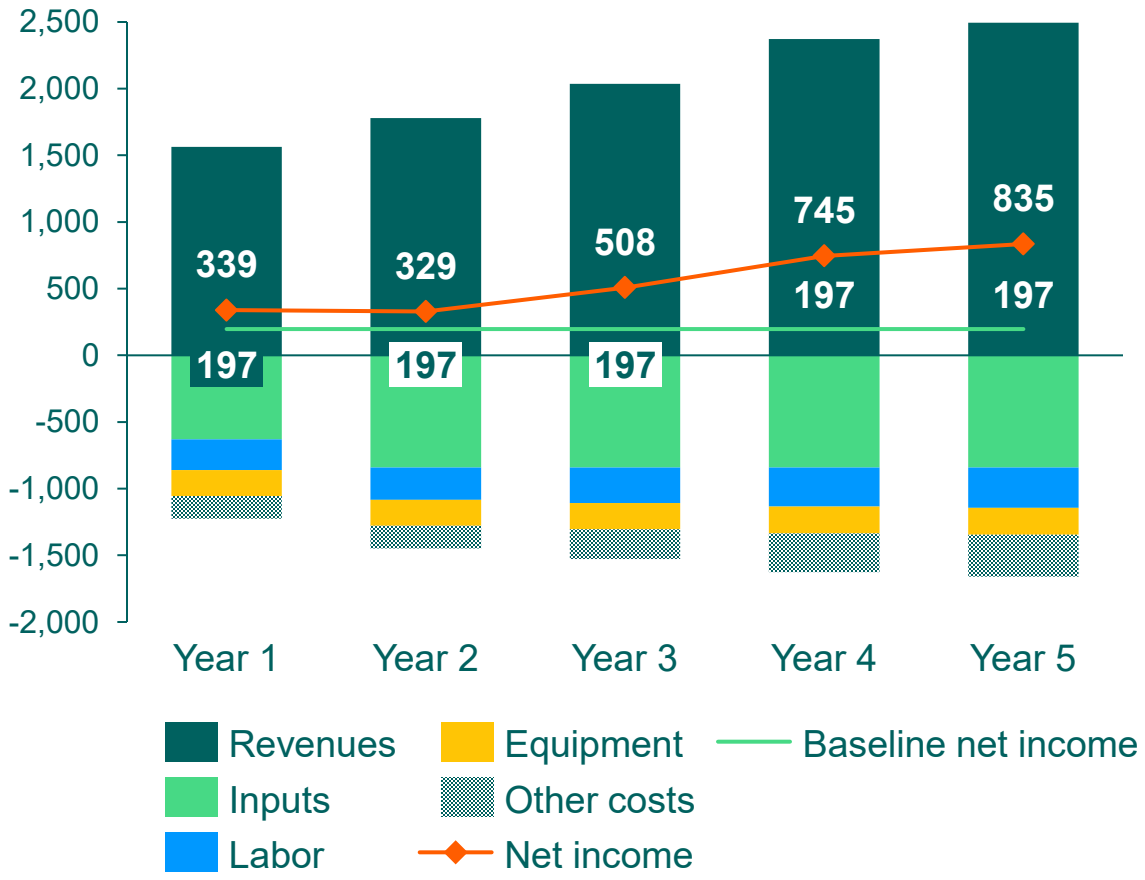
Farmer segments | Service provision positively impacts Luna farmers leading to consistent productivity gains

Characteristics	Baseline 1 (Maize grain)	Segment 1 (Maize grain)
Current yield	1.5 MT/ha	3 MT/ha
Maximum yield	1.5 MT/ha	5 MT/ha
Total Farm size	1.0 ha	1.0 ha
Farm-gate price	0.23 USD/kg	0.23 USD/kg
Premium received	N/A	N/A
Main crops grown	Maize, Onion	Maize, maize silage, onions
Services		
Training	N/A	GAP and Regen training
Inputs	Minimal use of inputs i.e. fertilizer and reliance on reusing seeds	Improved seeds
		Fertilizer
Equipment & labor	Limited access to mechanized services	Mechanization
		Irrigation
Financial services	Informal lending	Credit and insurance provision
Post-harvest services	N/A	Aggregation and storage

- The core crop for both farmer segments is maize grain thus forms the threshold for this analysis. Currently, Luna farmers already yield twice as much as baseline farmers. This can be widely attributed to the provision of better services.
- Notably, Luna farmers adopt maize silage production as a third crop beyond maize grain and onion. Maize silage involves value-addition on the farm in the form of chopping and fermenting in the silage pits, leading increase in farmer income and diversification of market for maize crop based produce.
- Furthermore, onions which are utilized as a rotational crop, result in significant yields for both farmers segments.

Farm P&L | Luna farmers adoption of higher quality inputs, practices and diversified crop portfolio leads them to earn higher farm income and income resilience

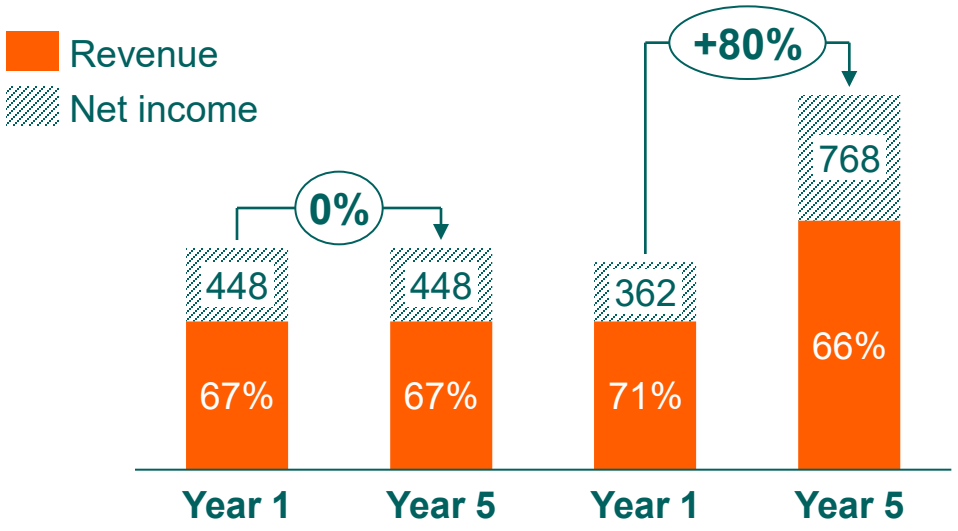
Segment 1 -Profit and loss for a five-year period (USD/Farmer)



- The year 2 dip in Luna farmers' net income is due to the increased investments, primarily in inputs and labour. However, these investments pay off with net income rising more than 2 times over 5 years, while baseline farmers' net income flatlines.
- Onions contribute about 58% of revenue for Luna farmers (segment 1), whereas onions account for 80% of baseline farmers. Maize and maize silage contribute about 22% and 20% of Luna farmers' overall revenue.
- These increases in revenue and net income are mainly driven by higher-quality services adopted by Luna farmers, including the use of improved seeds and fertiliser, access to credit and mechanised machinery, better training, and post-harvest handling.
- Inputs make up the largest cost component, nearly 47% in the second year, with labour costs at a distant second. This raises the need for credit financing and the adoption of insurance products to enable farmers to switch to higher-yielding varieties and safeguard them against any potential risks.

Profitability per Hectare | Onion farming has a higher contribution to revenue and farmer income but incurs higher production costs and higher price volatility

Onion crop revenue and net income (USD/farmer)



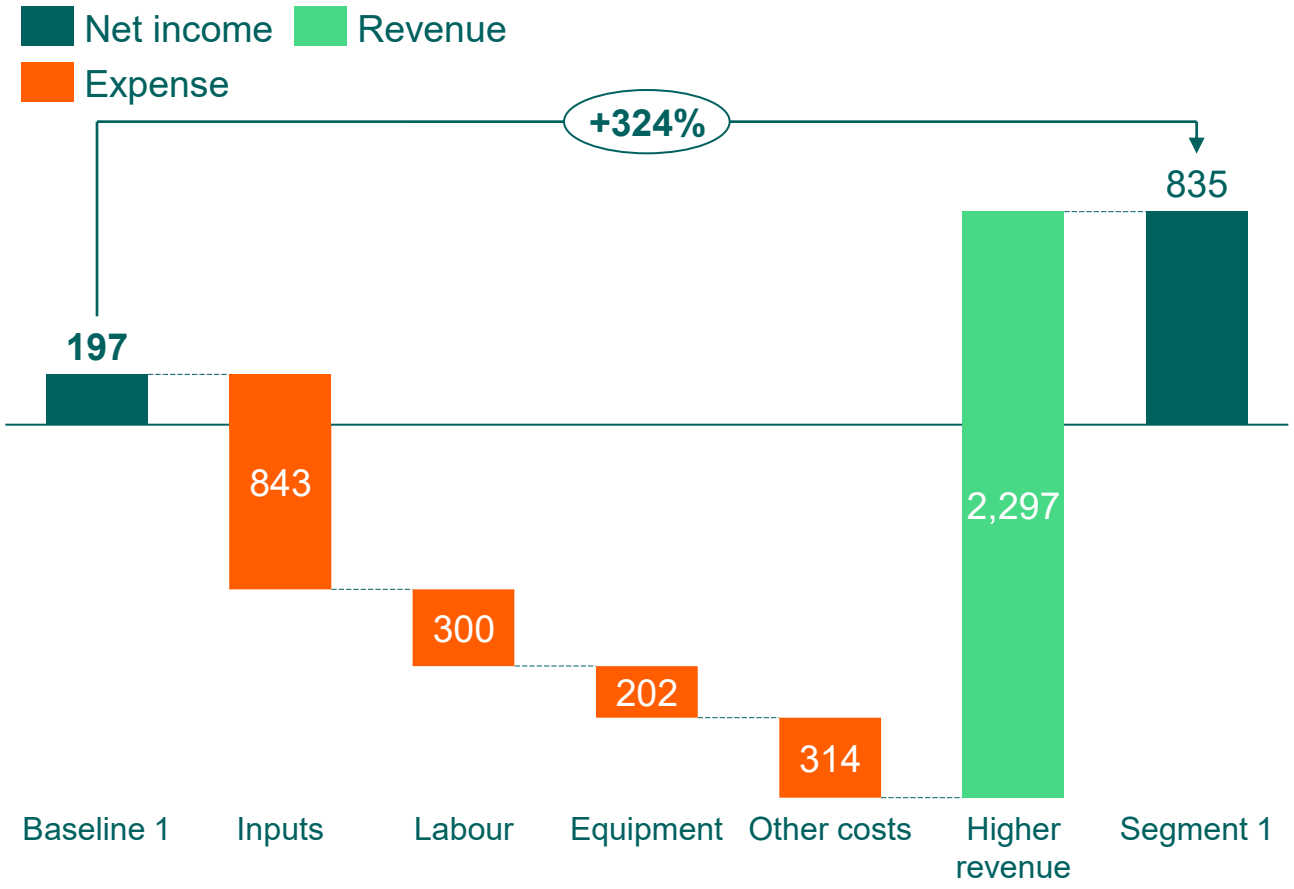
	Baseline Farmers		Segment 1 Farmers	
Profit[1] (USD/Ha)	3105	3105	4011	6705
Marketable surplus (Kg/ha)*	12,550	12,550	12,550	21,050
Profit (USD/Kg)*	0.99	0.99	1.26	1.27

- From the onset, Luna farmers outperform baseline farmers in net income terms due to higher yields even with farm-gate prices being held constant and production on the same acreage of land.
- Luna farmers also adopt maize silage as an additional income stream which further cushions their earnings beyond maize grain and onions.
- Over the five-year period, it is expected that Luna farmers' onion revenues will rise by 80%, primarily driven by productivity increases, but net income from onion will increase from $362 to $768, an increase of 120%. The primary differentiator between the two cohorts is host of better services provided by Luna exports to it cluster farmers.
- Importantly, onions make up over 80% of revenues for baseline farmers and about 60% of revenues for Luna farmers. Given that onions are primarily farmed on only 0.25 ha, it makes for a good diversification crop. However, notably production costs for the crop are much higher than that of maize signalling the low adoption by both farmer segments.

Figures under Marketable surplus and profit per MT only reflect onion production due to the crop's significant share in revenue generation.
Notes: 1. Figures are shown for 1ha for illustrative purpose but farmers plant only 0.25 ha of onions on average to hedge production and price volatality

Income build-up | Luna farmers earn much higher income than baseline farmers due to increase in crop yield, better quality and crop diversification although at a higher production cost

Drivers of income improvement between baseline 1 and segment 1 farmers (USD/farmer) – Year 5



- By the fifth year, there is a considerable difference between Luna farmers and their baseline counterparts. Compounded investments in higher quality inputs and mechanized equipment result in greater productivity, for instance, a 67% increase in maize grain yields to a high of 5 MT/ha.
- Luna farmers spend 64% more on inputs and 28% more on labour which are the two main components of the cost structure. Furthermore, Luna farmers spend 1,041 USD more on service fees over the five-year period.
- Therefore, even though farm plot sizes remain the same (1.0 ha) and farm-gate prices are held constant; In 5-years of working with Luna, segment-1 farmers will earn higher income with net income over 3 times higher than baseline farmers.
- Luna farmers greater performance is attributed to a 68% rise in onion revenue from the first year and a 93% rise in maize grain revenue.

Source: Luna farmer interviews, IBA analysis

Sensitivity analysis | Farmer income is highly sensitive to onion productivity and yield; this will be an even bigger driver of farm income variance if the area onion grown is increased

Total farm[1] income of Luna farmers in year-5 (USD/farmer)

Farm-gate price (ETB/kg) ↓ / Yield (MT/ha) →	19	21	23	25	27	29	31
25	219	272	325	378	431	484	537
30	335	400	465	531	596	661	727
35	450	528	605	683	760	838	916
40	565	655	745	835	925	1,015	1,105
45	681	783	885	987	1,089	1,192	1,294
50	796	910	1,025	1,139	1,254	1,368	1,483
55	911	1,038	1,165	1,292	1,418	1,545	1,672

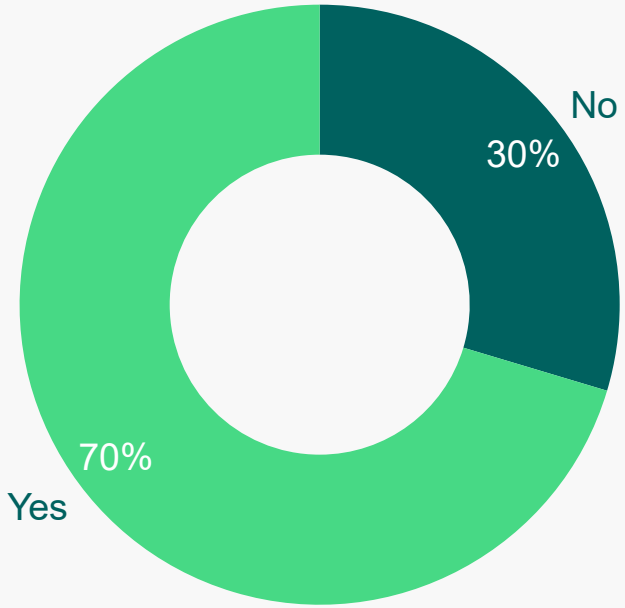
Base case situation

- Onion crop is estimated to contribute largest share of Luna farmer income by year-5 due to increase in onion yield. Farm income is highly sensitive to both yield and farm gate price of onions
- It is assumed farmers continue to grow onion only in 0.25 ha due to irrigation, higher cost of production and higher price volatility. However, any increase in area onion is grown will directly result in higher farm income
- If the market demand for large volume of onion is secure, Luna should encourage farmers to increase area onions are grown

Note: 1. On average farmers own a farmland of 1 hectare

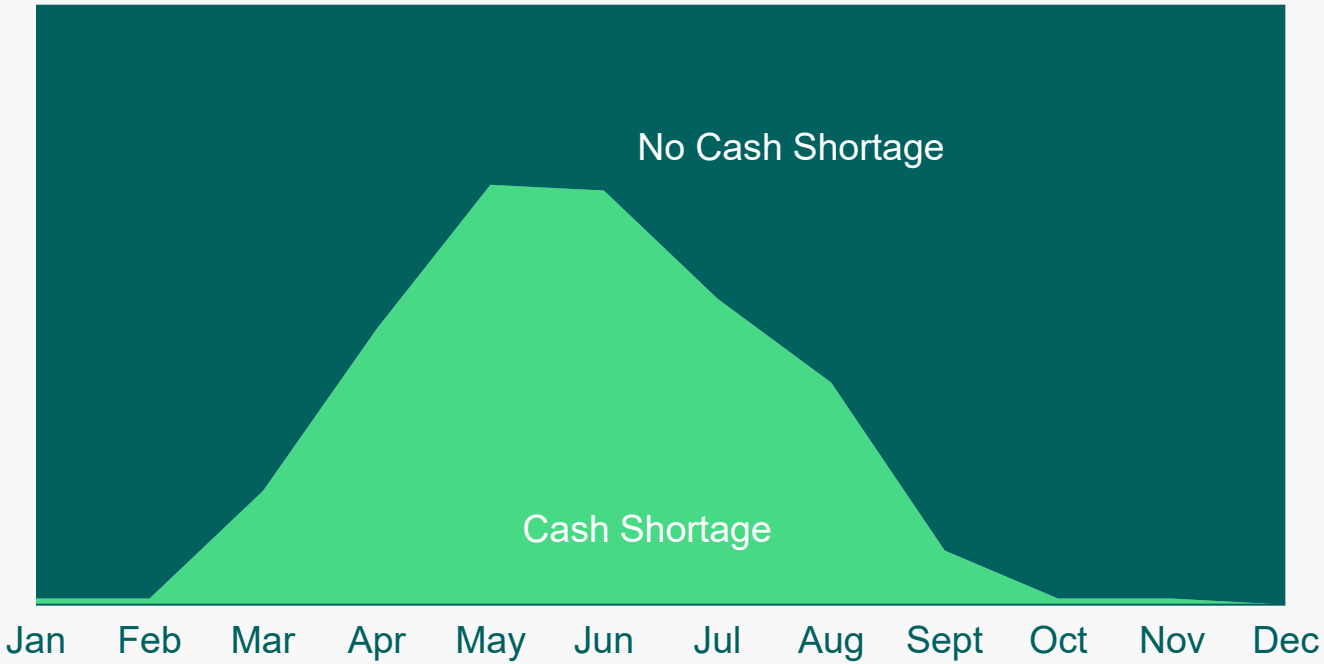
Monthly cash flow | Between October and February, most farmers have sufficient cash to meet there needs, with cash flow shortages being experienced between March and September

In the last 12 months, have you experienced a shortage of cash or mobile money to meet your household's basic needs?



70% of the surveyed farmers reported experiencing cash flow challenges in the past 12 months

In the last 12 months, in what month(s) did you experience a shortage in cash/mobile money?



Across the year, the proportion of farmers reporting cash shortages peaks in May and June before steadily declining in the subsequent months. These months are typically characterized by significant investment on the farms.

Sources: 1) Farmer Survey Data (2025)
Notes: 1) See crop calendars here

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idh
transforming markets

IDH Annual Report (2024)

Farmfit Insights Hub

Thanks

IDH would like to sincerely thank Luna for their openness and willingness to partner through this study. By providing insight into their model and critical feedback on our approach, Luna is helping to pave the way for service delivery that is beneficial and sustainable for farmers and providers

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LUNA
SLAUGHTERHOUSE · FRESH CORNER · FARM · CATERKOMAT

Partners

Ministry of Foreign Affairs

Swiss Confederation
Federal Departement of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

BILL & MELINDA GATES foundation

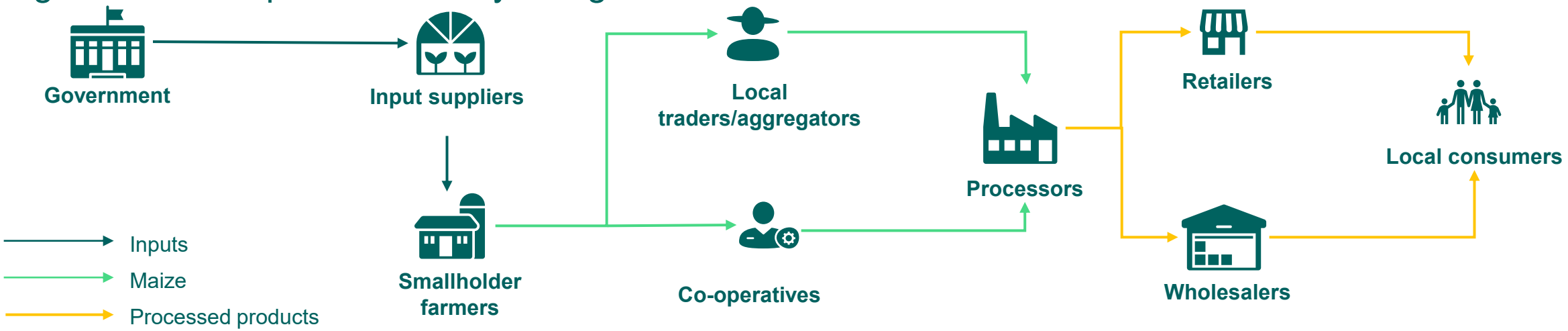
UKaid
from the British people

5

Annex

5.1 Context

Maize Value chain | Low farm productivity and informal market systems force consumers to pay higher costs despite the country being maize sufficient.



Production

1. Farm productivity levels remain low due to inadequate access to quality inputs. Less than 5% of farmers use high yielding seeds and chemical fertilizers.[1]
2. Furthermore, Most of harvested produce (80%) is for household consumption. Farmers often sell their harvest immediately at low prices due to risk of post-harvest losses. [1]
3. Post-harvest losses are estimated to lead to 20-40% loss of harvests due to antiquated harvesting methods and poor storage facilities on-farm.[1]

Aggregation

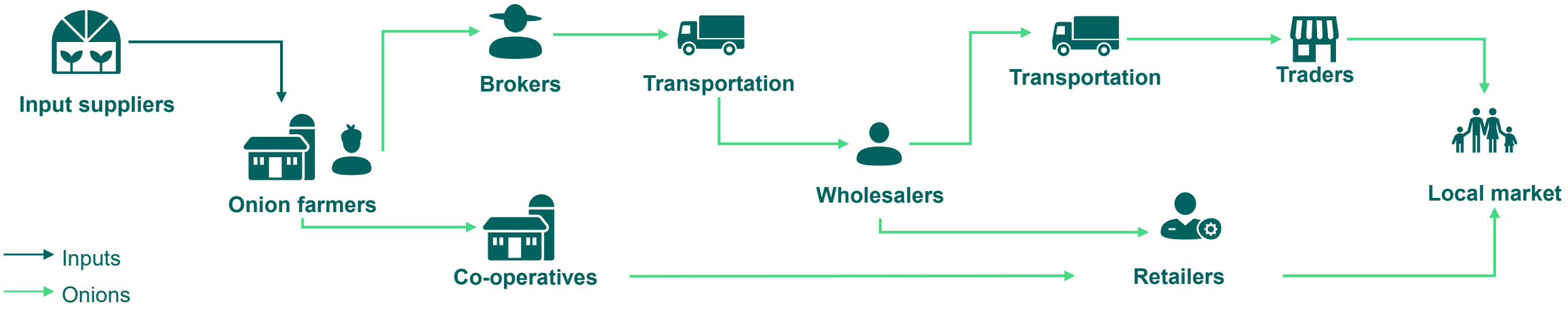
3. Route to market for maize produce is often long and complex with multiple actors who largely depend on social capital. Due to this bottlenecks, it is a high cost, high risk business susceptible to various shocks.[1]
4. Most local traders do not have their own trading premises or storage facilities and act primarily as broker dealers which passes on higher costs to the consumers.[1]

Trade

6. Limited storage and value addition by processors, especially at a large scale. 1
7. Transaction costs remain high especially due to transportation costs in urban dense cities like Addis.[1]
8. Furthermore, inconsistencies in supply of maize due to various shocks can cause market prices to vary widely which hurts consumer purchasing power.[1]

1. IFPRI (2023)

Onions Value chain | Brokers and multiple middlemen have the most power in the chain and play a valuable role but also limit the long-term growth of the sector



Production

1. There are various input suppliers in the onion value chain, such as private stores, unions/co-operatives and seed companies. However, timely and adequate supply remains the largest issue, followed by poor quality and unaffordable prices for most smallholder farmers.[1]
2. Smallholder farmers make up the majority of producers. The majority of them take up all the tasks on-farm and bear the highest risk in the value chain. Poor crop management techniques and limited input use result in suboptimal yields.[1]

Logistics

3. Brokers have tremendous bargaining power often controlling the local market prices and are the most crucial link between producers and the rest of the chain.[1]
4. Co-operatives are present but they play a very limited role in the chain.
5. Wholesalers add much of the value to the crop as they transport, store, package and market the onions more efficiently than the brokers. Furthermore, onion processing industries are quite few and far between.[1]

Consumption

6. Retailers and traders are the contact point with consumers with informal channels taking majority of the market share.
7. Onion is a key ingredient in many Ethiopian dishes with high constant demand all year round.[2]

1. Yeshiwas, Alemayehu and Adgo (2024), 2. Company interviews

5.2

Underlying data & information

Learning questions

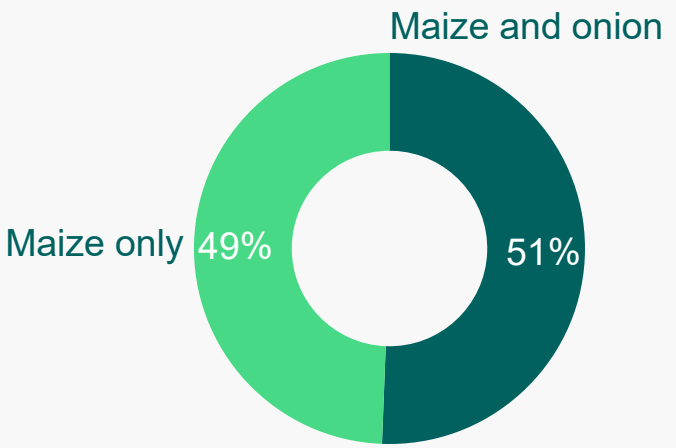
With this IBA, we aim to answer the following questions:

- What are barriers and enablers for Luna to establish cluster farms with SHFs?
- What improved services could be provided to SHFs to improve productivity and income/profitability?

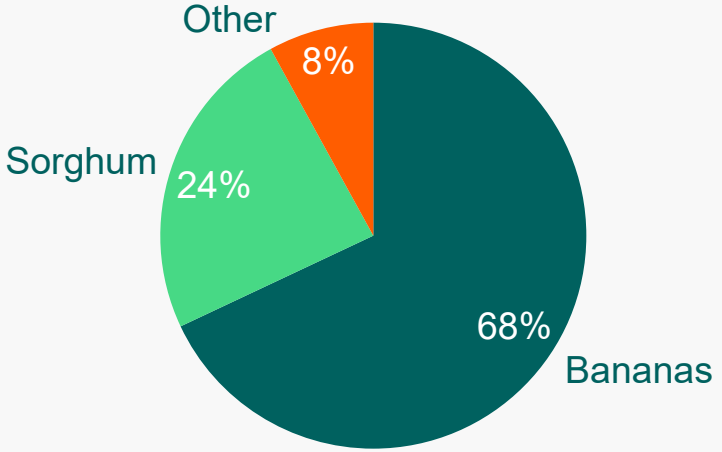
Learning questions and scope of analysis	
Business model	**Assess what inefficiencies exist across the key supply chain processes of Luna (production TO market)** • What can Luna do in the way of services to improve their offering that will have the largest and quickest positive financial and social impact? • What incentive structures can be adopted to increase the effectiveness of the model? • What is Luna's investment need, and how ready is it to attract and manage external investment?
Business case	**Analysis optimal scale of smallholder operations to make it financially viable and sustainable** • Which sourcing and servicing channel—cooperatives or clusters—offers greater efficiency in terms of cost, reliability, and quality of supply? • Assess the potential of SHF as a viable sourcing option • What is the expected financial impact from provision and scaling of such service provision?
Impact case	**Analysis of the advantages and conditions for SHF (especially comparing baseline vs. Luna farmers)** • What is the current income of SHFs in maize (silage and grain) and onion production and what income improvements can be gained from optimizing production?

Farmer survey data | Farmers cultivate multiple crops and have a basic understanding of the impact of climate change on their agricultural activities

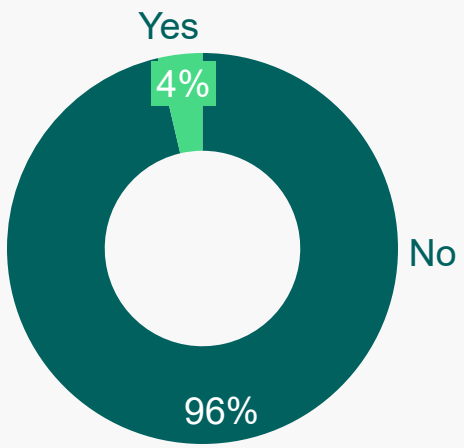
Focus Crop



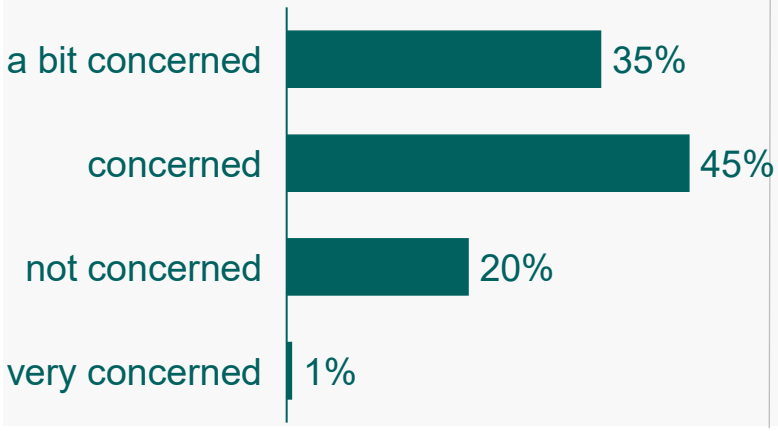
Other Main Crops



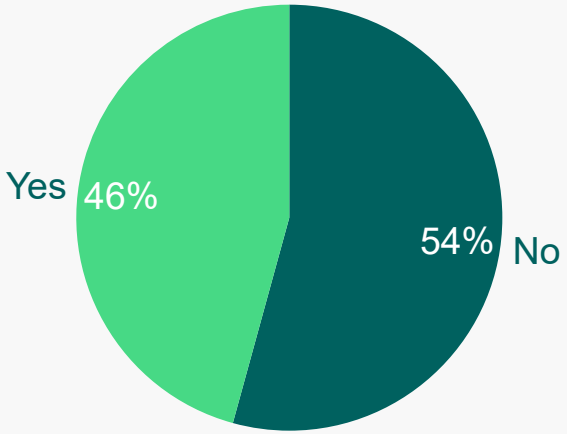
Practice Intercropping



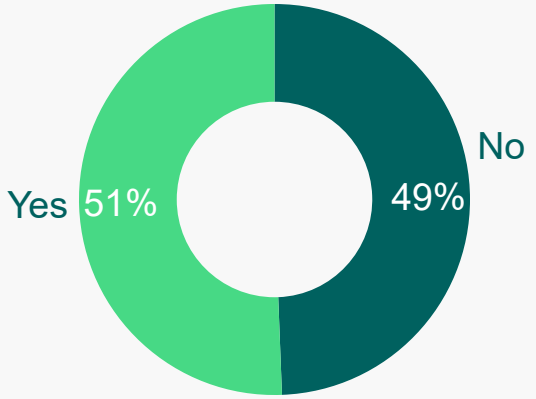
Extreme Weather Concern



Crop Losses in the past 3 years

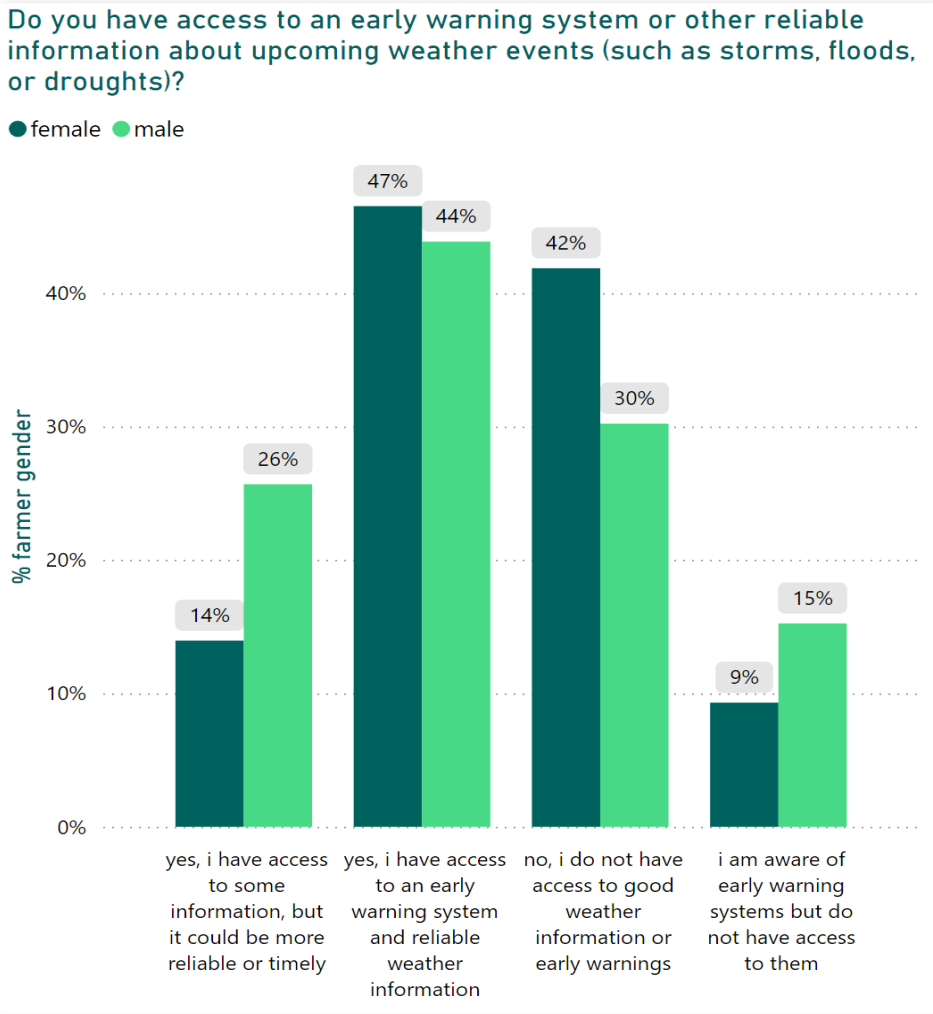


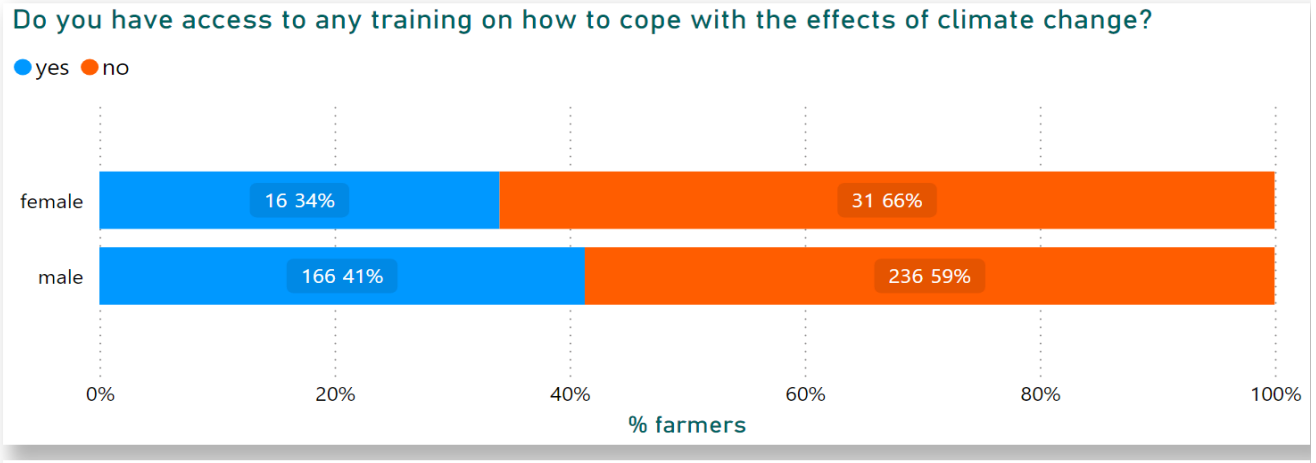
Access to Climate change training

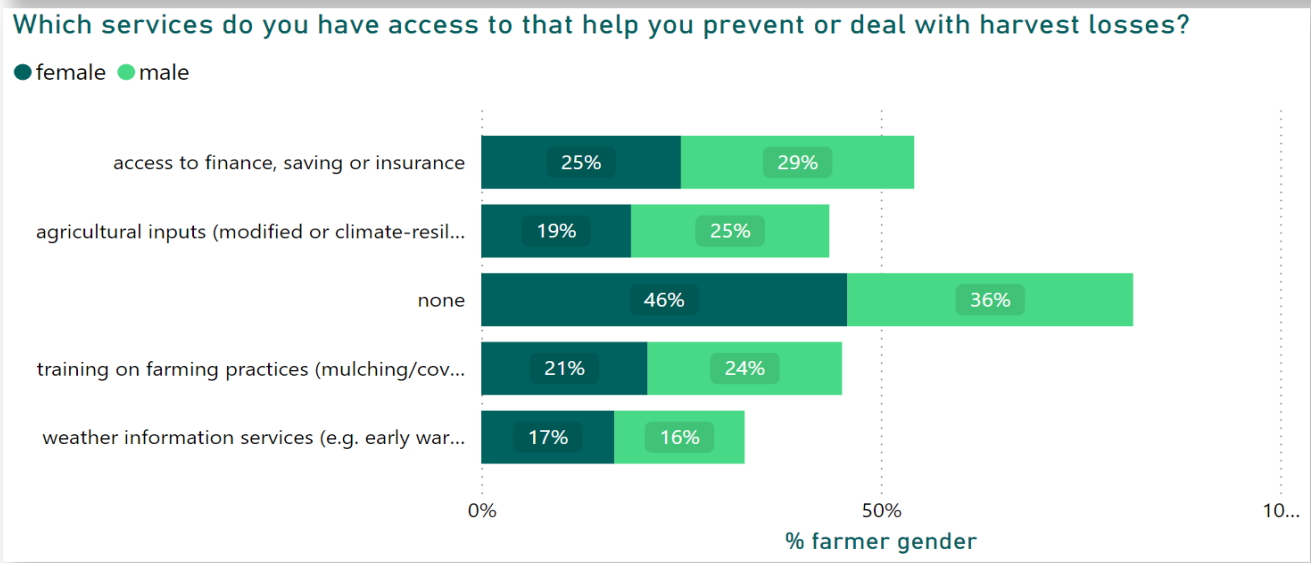


Source: Farmer survey carried out by Akvo. More information on the methodology can be found in the annex

Farmer survey data | The expansion of training programs focused on climate change adaptation strategies will be instrumental in building farmers' climate resilience



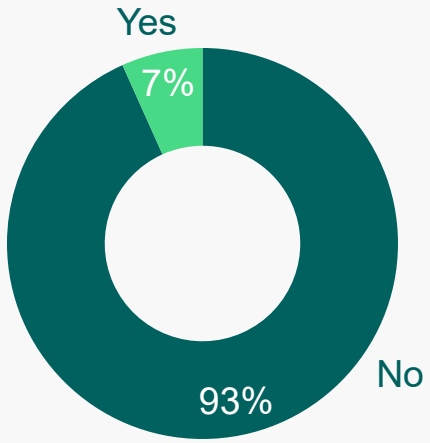




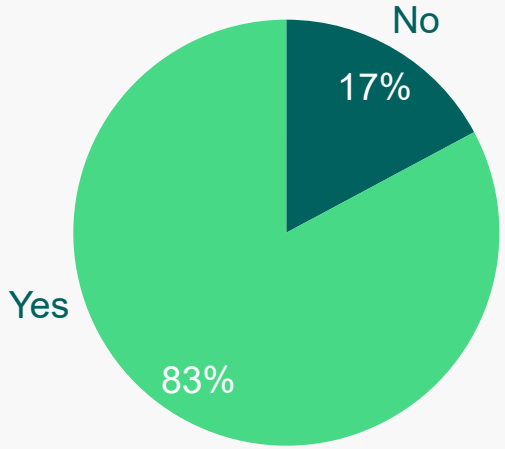
Source: Farmer survey carried out by Akvo. More information on the methodology can be found in the annex

Farmer survey data | Despite widespread ownership of bank and mobile money accounts, farmers face limited credit access mainly due to insufficient credit history

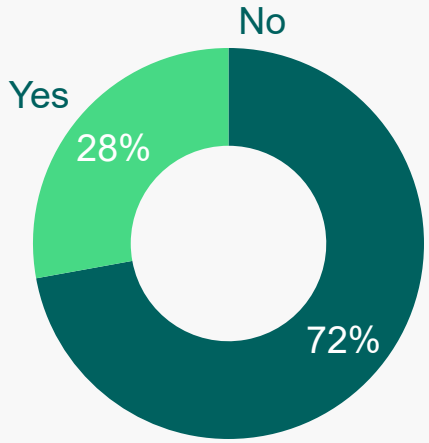
Internet use



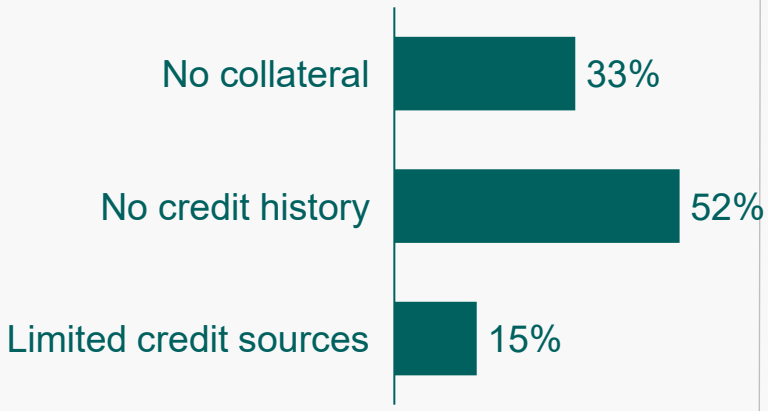
Microfinance/Bank Account



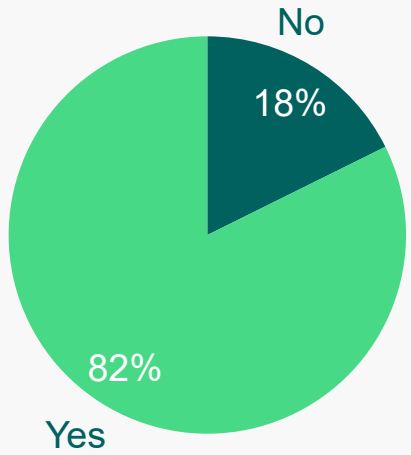
Credit Access in the past 12 months



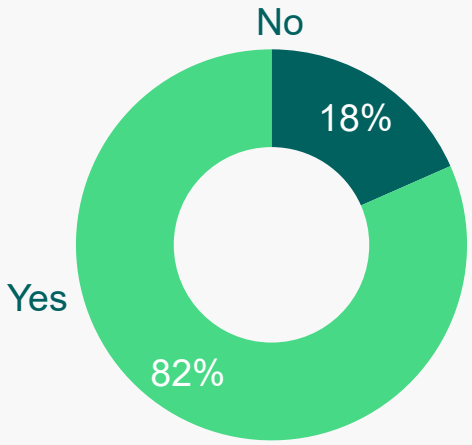
Reasons for no credit access



Mobile Money Account

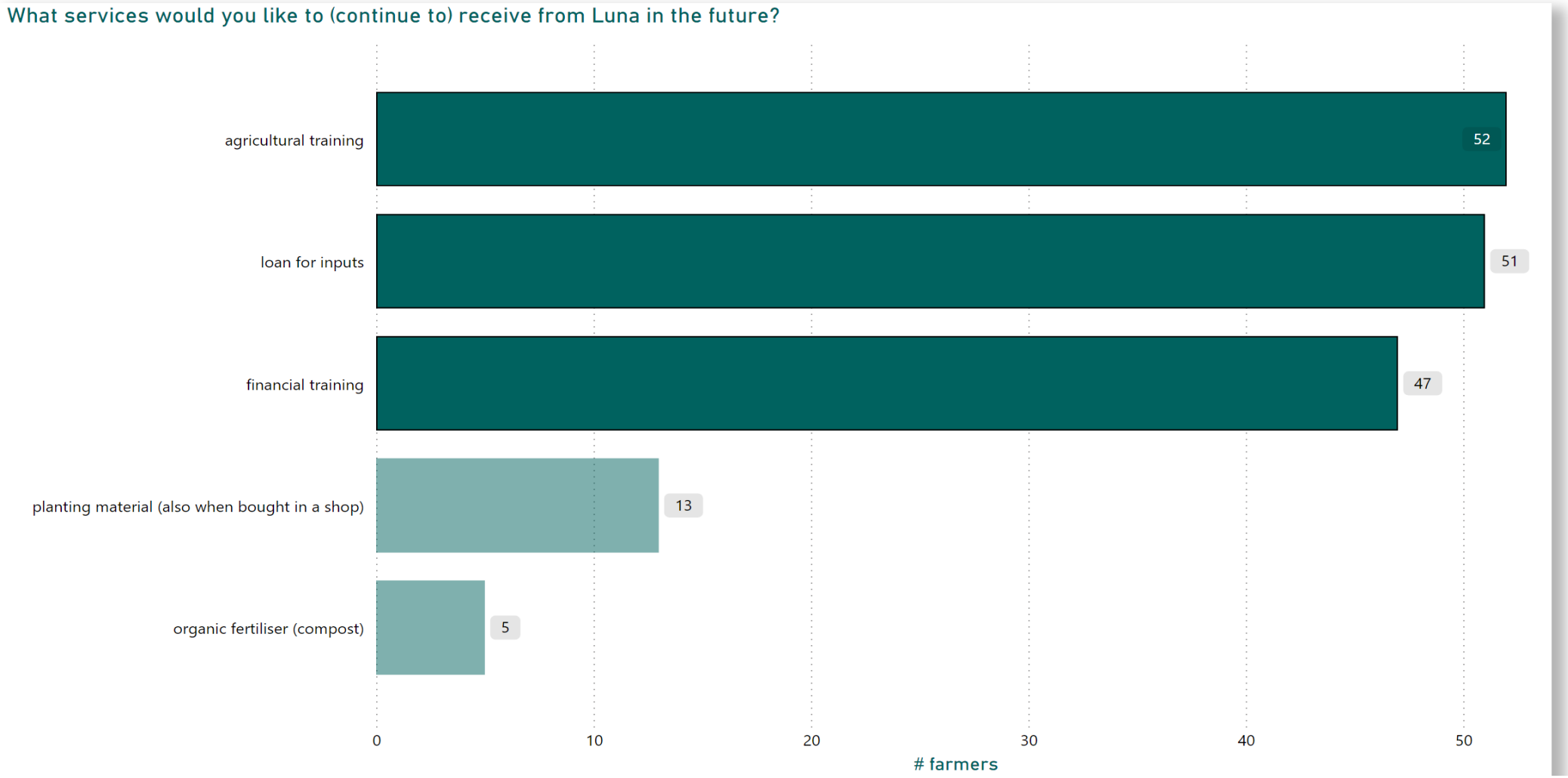


Mobile Phone Ownership



Source: Farmer survey carried out by Akvo. More information on the methodology can be found in the annex

Farmer survey data | Future service delivery should prioritise agricultural training, credit-based input systems, and financial education to meet the farmers' expressed needs



Source: Farmer survey carried out by Akvo. More information on the methodology can be found in the annex

Farmer assumptions

		Maize Silage	Onions		Maize Grain	
Variable	Unit	Segment 1	Baseline 1	Segment 1	Baseline 1	Segment 1
Farm size main crop	Hectares	0.5	0.25	0.25	1	0.5
Number of seasons	#	1	1	1	1	1
Yield	Kg/Ha	28,000	15,000	15,000	1,500	3,000
Post-harvest losses	%	0%	15%	15%	10%	10%
Home consumption	Kg	0	50	50	385	385
Volume sold to Luna	%	95%	0%	95%	0%	0%
Farm-gate price	ETB/Kg	4.5	40	40	32	32
Cost of input package	ETB/farm	18,975	0	87,700	0	21,200
Improved Seeds	Yes/No	Yes	No	Yes	Yes	Yes
NPK	Yes/No	Yes	Yes	Yes	Yes	Yes
Urea	Yes/No	Yes	Yes	Yes	Yes	Yes
Agrochemicals	Yes/No	Yes	Yes	Yes	Yes	Yes
Irrigation	Yes/No	Yes	Yes	Yes	Yes	Yes
Mechanised Ploughing	Yes/No	Yes	No	Yes	Yes	Yes
Insurance	Yes/No	No	No	No	No	No

5.3 Methodology

Household survey methodology

- **Description:** IDH uses the household survey to understand the farmers involved in the business model and support with the farmer modelling. It is also meant to capture data related to gender, regenerative agriculture and climate resilience. It can also serve as a baseline to measure the future impact of Technical Assistance.

- **Sample size:** 189
- **Sample location:** Jinka province, Ethiopia
- **Sample period:** July 1st 2025 – July 7th 2025

- **Sampling methodology:** Luna provided a list of outgrower farms from their database, from which Akvo randomly selected a sample. Several people were interviewed on these selected outgrower farms.

- **Data cleaning:** Farmers are removed only if they refuse to participate in the survey or their farm size is outside certain parameters. To determine outliers for numerical questions of the survey, a cutoff of three standard deviations from the corresponding mean is set.