Service Delivery Model Analysis

Lory B, Nigeria

Public Case Report

July 2022

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Relevance of SDM Analysis

Smallholder Livelihoods

Agriculture, including forestry, 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.

Service Delivery Models

Service Delivery Models (SDMs) are supply chain structures which provide farmers with services such as training, access to inputs, finance and information. SDMs can sustainably increase the performance of farms while providing a business opportunity for the service provider. Using IDH's data-driven SDM methodology, IDH analyzes these models to create a solid understanding of the relation between impact on the farmer and impact on the service provider's business.

Insights and 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 catalyze innovations and investment in service delivery that positively impact people, planet, and profit.

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Executive Summary

Strategy and business model

- LoryB's mission is to become a leading agri-processing and commodity trading company and future reference point in the agricultural raw material servicing industry in Nigeria. They sell to animal feed producers, breweries and food companies.
- As of 2021, they work with inputs providers, lead farmers (400) and collateral officers (6) for service provision and recollection to farmers (600). Procurement is coordinated with sub-aggregators (100) and various third-party transporters. 800 women are sorting the grains.
- LoryB has a straightforward organisational structure aimed at both farm services and sourcing. Technoserve is building capacity of key staff to ensure effective provision of services to farmers. Farm to Field Coordinator ratio goes from 125 in 2021 to 438 by 2025 farmers per FC.
- They have a built decent foundation for maintaining good farmer relationships. Further granular insights into farmers' performance and behavior is needed to improve service tailoring and farmer loyalty.
- Farmers are only segmented based on the main crop they produce, providing a similar set of services. There is no segmentation strategy in place taking into account performance, behaviour, motivation or farmer needs.
- LoryB is gender intentional but could transition into being gender transformative by taking a data driven approach to understand the unique needs of men and women and tailoring services accordingly.
- While having a solid vision and strategy, there are clear opportunities to improve the effectiveness and efficiency of service delivery to smallholder farmers.

Business case

- LoryB aims to double it's farmer supply base to 2,500 by the end of next year and up to 3,500 by 2025, increasing farmers per village as well as expanding to an additional 50 villages.
- For 2022, LoryB expects sourcing volumes to return to pre-COVID19, building capacity in the coming two years before further scaling up production by 2025.
- Sorghum and soybean are LoryB's most profitable crops, earning a gross margin of 17% and 18% respectively, compared to 7% for maize.
- LoryB projects a steady growth in business performance as the company recovers from the impact of Covid-19. EBIT margins are projected to remain stable in the same period at 13%.
- As LoryB sees service provision as a business, services (inputs, finance) are profitable in itself. Costs of training are absorbed by increased commercial margins.

Impact case

- LoryB's services package is expected to significantly increase yields and reduce post-harvest losses, as the pre-financing of quality inputs allows farmers to invest in their farms. In turn, with each season farmers are expected to reinvest their proceeds and expand their farms from 1 to 2.5 hectares.
- Cost of production for maize, sorghum and soybean will increase by 220-233%, up to 1,287, 2,414 and 2,539 USD per hectare respectively. This is driven by more expensive inputs, equipment, corresponding interests and additional hired labor.
- In sum, increased performance (yields, farm size, post-harvest losses) outweigh the higher cost of production, resulting in significant increases in farmer income for maize (+1,000 USD), sorghum (+500 USD) and soybean (+900 USD).
- With LoryB's service package, maize, sorghum and soybean farmers earn up to 41%, 24% and 25% of the Living Income Benchmark (4,418 USD per year for a 8-person household).

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Executive Summary

Business case

- **Invest in data and traceability systems:** it is recommended to invest in better farm management and traceability systems. Currently, farmers are not properly recorded., leading to unclarity in what drives farmer adoption or services, their performance and ultimately LoryB's service effectiveness. The current in-house developed Excel-based traceability tool is more prone to errors and less scalable than software solutions available.
- **Define segmentation strategy:** while farmer needs for different crops is generally well understood and service packages adapted accordingly, LoryB could benefit from a more strategic approach to segmenting and graduating farmers. By basing service packages on farmer characteristics, motivation, ability to invest, etc., service effectiveness could be improved and default risks mitigated.
- **Define business model for weather services:** the climate is changing, rains are becoming less predictable. Farmers needs timely weather information. Currently there is no clarity on how the aspired weather services from Ignitia are offered to farmers. No revenue or cost sharing mechanism is in place between service providers and farmers and the value is not yet communicated to nor proven with farmers.
- **Secure working capital to increase operational efficiency:** LoryB should be supported in finding affordable and suitable loans to cover their input prefinance and maize sourcing working capital needs. A tripartite agreement between Nestlé, LoryB and the bank needs to be explored to unlock such financing. These loans are essential to increase sourcing volumes and in turn improving the processing facility's operating efficiency.

Impact case

- **Reduce service package costs:** by working with LoryB, farmer's cost of production increases drastically. While these costs are offset by the increased performance, LoryB could further innovate to reduce costs of chemicals (see below), interests and equipment to improve efficiency of production and ultimately increase farmer incomes.
- **Reduce chemical fertilizer use:** expanding land under maize cultivation, increasing chemical fertilizer application rates and rising fertilizer prices pose a risk to the commercial and ecological sustainability of the business. LoryB could explore alternatives, such as precision fertilizer application methods, soil testing for accurate fertilize needs, local and/or organic fertilizers, and crop rotation schemes to reduce the amount of chemical fertilizers needs, its expenses and the resulting pollution.
- **See gender inclusion as a business opportunity:** LoryB could become more intentional in supporting female farmers. By collected sex-disaggregated data, and conducting focus groups with women, they could identify additional barriers in access to land, labor, inputs and decision-making power for female farmers. In turn, services tailored to women can be designed to help them overcome those barriers and unlock women productivity and earning-potential.
- **Develop distinct support package for sub-aggregators:** the difference between farmers and sub-aggregators is not very clearly defined, while the latter would arguably have a different service need. LoryB could define a distinct service package and (exit) strategy for working with sub-aggregators. How can LoryB support them in more efficient input provision, on-lending and aggregation, ultimately offloading some of LoryB's own activities and costs onto these sub-aggregators?

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LoryB | Business Case

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LoryB business case | Strategy

LoryB's mission is to become the leading agri-processing and commodity trading company and future reference point in the agricultural raw material servicing industry in Nigeria.

Goals & aspirations

Commercial

- Grow annual sales volumes and revenues
- Deliver fully traceable produce (up to village level)

Social & Environmental

- Adhere to economic, social and environmental conditions
- Integrate a total of 2,500 smallholders into grains supply chain by 2023
- Increase farmer incomes by 50%
- Include at least 50% women farmers in the value chain

Where to play

- **Geography:** operate in North Central Nigeria
- **Products:** sourcing a diversified crop portfolio (cocoa, nuts and grains)
- **Markets:** differential pricing strategy towards animal feed, food and beverage markets
- **Sourcing channels:** Direct and indirect smallholder sourcing model

How to win

Points of parity

- Competitively priced high-quality products
- Professional sourcing and procurement services with constant delivery
- Fully compliant operations
- Build and deliver on brand recognition and trust

Points of differentiation

- Zero tolerance to waste
- Excellent customer service
- In-depth understanding of smallholder needs
- Integral approach to sourcing and service delivery

Capabilities & Systems

Staff

- Procurement, warehousing, processing
- Marketing, sales and customer services
- Extension staff with agronomic and human behavioural background

Systems

- Supply chain management systems to facilitate traceability, quality assurance, logistics, ERP
- ESG strategy and policies

https://fs.blog/playing-to-win-how-strategy-really-works/

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LoryB business case | Business Model Canvas

LoryB employs a low-price / branded reliable commodity business model towards buyers and value added reseller business model towards smallholder farmers.

Key partners

- Small holder farmers
- Sub-aggregators/Lead farmers
- Transporters
- Donors
- Local government
- Input providers
- Banks & insurers

Key activities

- Procurement
- Warehousing
- Processing
- Logistics
- Service procurement and delivery

Key resources

- Infrastructure
- Sourcing staff
- Working capital
- Systems
- Extension staff
- ERP
- Women sorters

Value proposition

- Timely delivery of safe, high-quality pre-processed grains that meet buyers' needs
- Provision of fit-for-purpose service package allowing farmers to invest and supply quality produce

Customer relationships

- Long term and close customer relationships with high quality local and international grain buyers

Key channels

- **Buyers:**
- Direct sales
- **Farmers:**
- Extension Officers
- Lead farmers/sub-aggregators

Customer segments

- **Farm services**
- Smallholder farmers

- **Processed grain**
- Animal Feed processors (30%)
- Food and Beverage companies (70%)

Cost structure

- Infrastructure Capex
- Staff costs
- Grain & inputs working capital finance
- General & Administration costs

Revenue streams

- Margin on crop sales
- Margin on sale of inputs
- Margin on farmer credit

Eco Social costs

- Air pollution from factory processing
- Waste products
- Chemical inputs
- Land expansion

Eco Social benefits

- Food security
- Household income increase
- Sustainable agricultural practices
- Inclusion of women and youth

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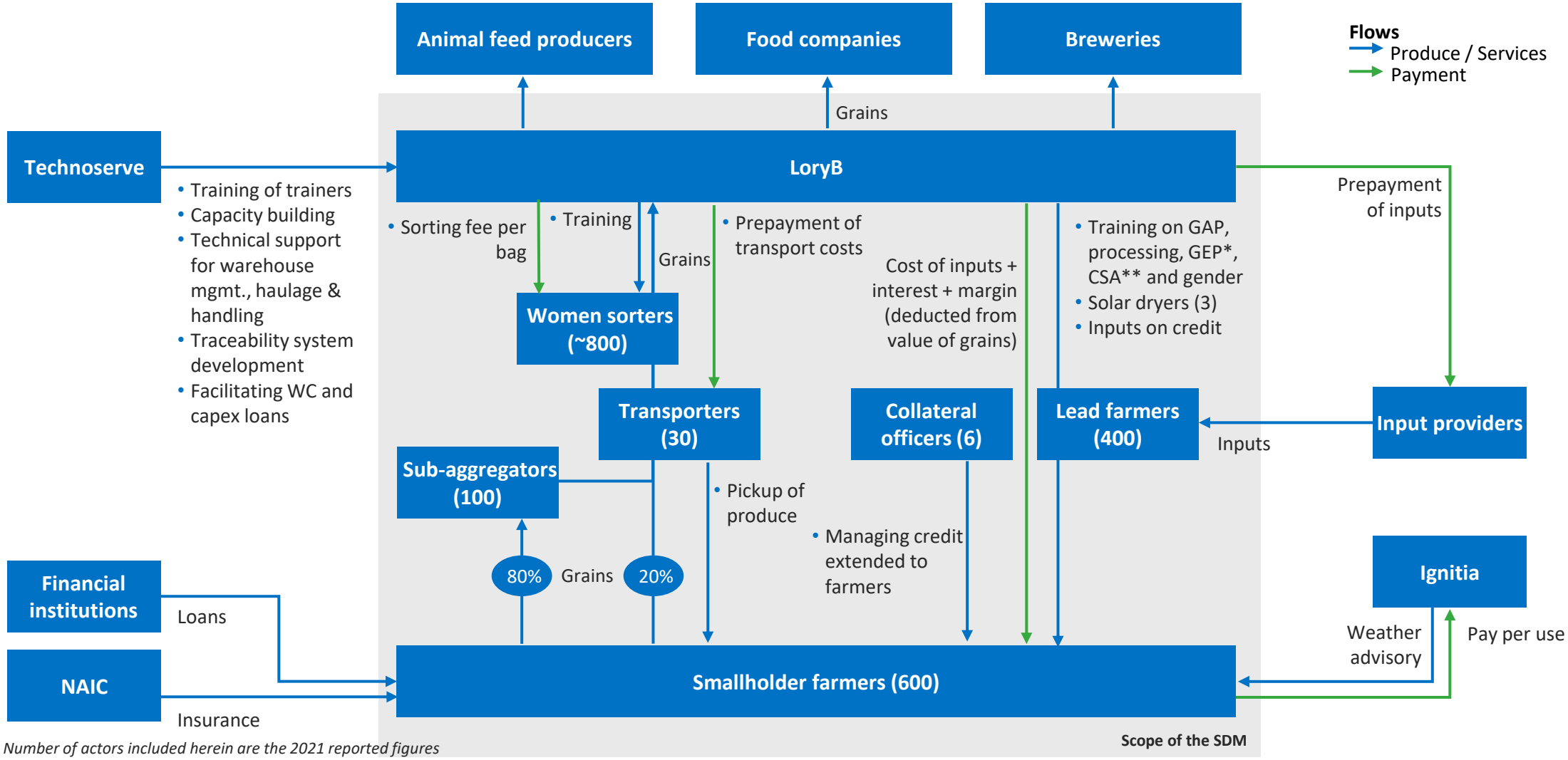
LoryB business case | SDM structure

LoryB works with lead farmers, inputs providers and collateral officers for service provision and recollection. Procurement is coordinated with sub-aggregators and transporters.



Number of actors included herein are the 2021 reported figures

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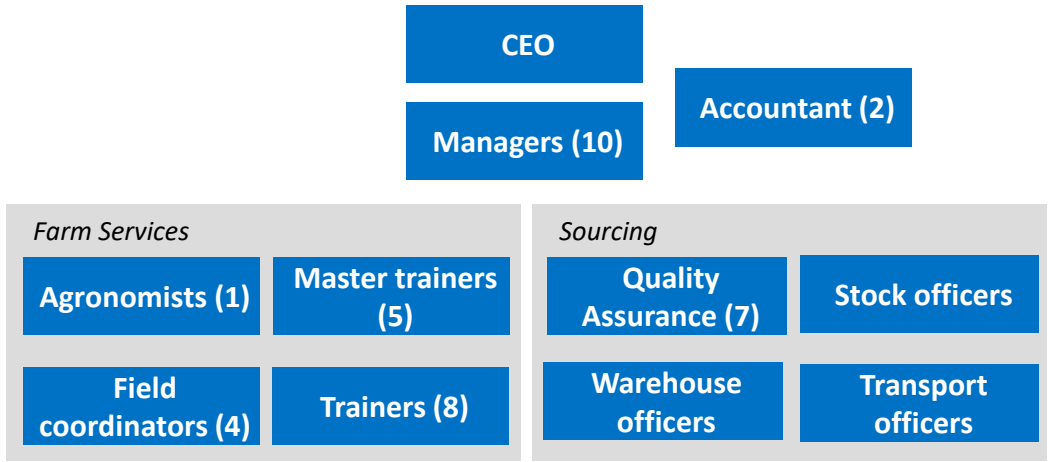
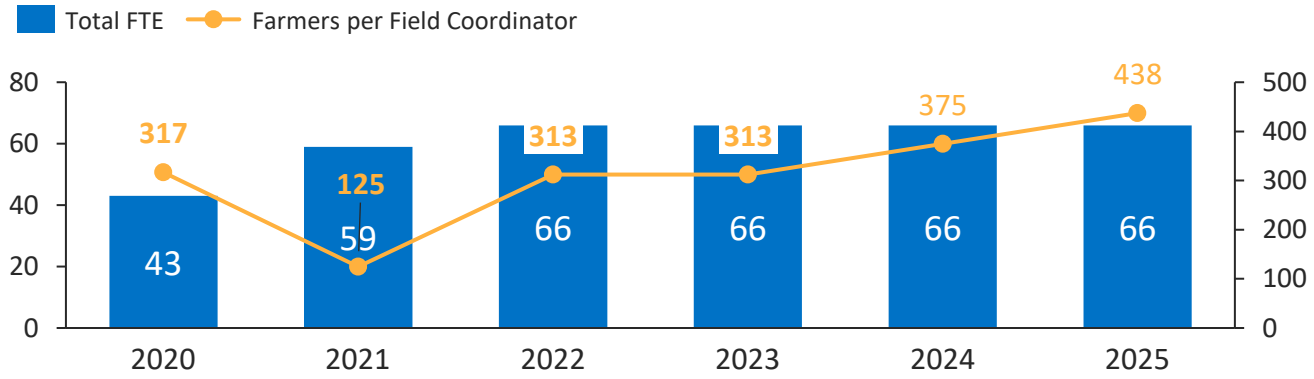
LoryB business case | Organisational structure

LoryB has a straightforward organisational structure with a focus both on farm services and sourcing. Technoserve is building capacity of key staff to ensure effective provision of services to farmers.

LoryB and DB Ventures organogram



Total FTE and farmers per Field Coordinator over time



- LoryB and DP Ventures is the largest of four entities under the LoryB group, with 59 permanent and around 750 temporary staff.
- The permanent staff is organized roughly into a farm services and sourcing department.
- As part of the project, Technoserve is building capacity of key staff to ensure effective provision of services to farmers.
- LoryB was founded by a woman. At this moment, only 5% of senior management is female. Most of the temporary staff (80%) are women sorters.
- The team is set to expand from to 66 FTE by 2025 to accommodate for increased farmer numbers and sourcing volumes
- By 2022 LoryB intends to have an average Field Coordinator to farmer ratio of 1 to 313.

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LoryB business case | Farmer relationships

LoryB has laid a decent foundation for building and maintaining good farmer relationships. More granular insights into farmers' performance and behavior is need to improve service tailoring and farmer loyalty.

Recruitment

- LoryB either recruits more farmers from the same village or enters a new village. The former is preferred.
- In case of the latter, an event is organized, during which farmers can sign up. During signup farmer register personal and farm information.
- Those signed up follow a fixed training schedule.

Adoption

- Training of lead farmers is conducted four times each year while SHFs are trained twice. SHF are trained in groups of 100 farmers per extension agent.
- Training attendance is monitored; inputs purchased are registered. There is no inspection of field-level application of practices.
- Achieved quality and yields are a proxy of farmer performance, however only measured village level.

Selection

- There are no criteria to select farmers as long as they farm one of the crops of interest.
- Service needs are estimated based on the farm size indicated by the farmer during registration.
- Farmers with low repayment rates are filtered out after 1 year of being in the SDM.

Loyalty

- Farmers are traceable up to village level, limiting LoryB from potentially paying out price premiums.
- There are no loyalty bonuses for farmers working with LoryB for a longer time.
- Farm-gate prices paid are 5 Naira per kg above market.
- Dedicated extension and collateral agents support is key to have farmers sell crop and repay services to LoryB.

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LoryB business case | Farmer segments

Farmers are segmented based on the main crop they produce, providing a similar set of services. There is no segmentation strategy in place taking into account performance, behaviour, motivation or farmer needs

	Maize	Sorghum	Soybean
Characteristics	• Growing maize on 1.60 hectares • Yields 3,500 kg/year • Consumes 60 kg/year • Earns USD 1,338/year on average	• Grows sorghum on 1.25 hectares • Yields 2,000 kg/year • Consumes 30 kg/year • Earns USD 624/year on average	• Grows soybean on 1.50 hectares • Yields 1,500 kg/year • Consumes 20 kg/year • Earns USD 683/year on average
Services and sourcing	• Has access to loans and insurance • LoryB provides training and inputs on credit • Currently supplying 30% of grain volumes of LoryB (increase to 50% in 1 year)	• Has access to loans and insurance • LoryB provides training and inputs on credit • Currently supplying 30% of grain volumes of LoryB (increase to 50% in 1 year)	• Has access to loans and insurance • LoryB provides training and inputs on credit • Currently supplying 30% of grain volumes of LoryB (increase to 50% in 1 year)

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LoryB business case | Service package

LoryB provides a comprehensive training package and a range of high-quality inputs on credit. One-off solar dryers have been provided.

Service		Delivery mode	Impact	Revenue model	Status
Training & information	Farmer engagement	• LoryB holds community workshops	• Increased farmer base • Improved and farmer loyalty	Included in COGS[3] of SME grains	**Operational since 2016**
	GAP and processing training	• LoryB trainers train farmers, women sorters, sub-aggregators and transporters in workshops and demo plot	• Increased grain yields and quality • Reduced post-harvest losses	Included in COGS of SME grains	**Operational since 2016**
	GEP[1] and CSA[2] training	• LoryB includes GEP and CSA modules in training curriculum	• Reduced crop damage from adverse weather events • Reduced environmental damage	Included in COGS of SME grains	**Operational since 2016**
	Weather advisory	• Ignitia provides regular location- specific weather updates to farmers via SMS	• Reduced crop damage from adverse weather events • Reduced input costs from timely application	Farmers pay directly phone credits to Ignitia on a pay per use basis	**Not operational. Planned for 2022**
Inputs	Provision of high-quality farm inputs	• Input providers deliver chemical fertilizers, herbicides, seeds and natural Alfasafe to warehouse. Transporters are paid to deliver to villages in coordination with lead farmers • LoryB prefinances inputs	• Increased grain yields and quality • Reduced aflatoxins	At harvest, input and pre-financing costs are deducted from grain sales	**Operational since 2015**
Equipment	Solar dryers	• LoryB provides villages (3) with solar dryers for use in drying grains.	• Reduced incidences of fumonisin contamination • Reduced grain post-harvest losses	Nestlé and SMEs pay for capex Farmers pay maintenance of solar dryers	**Operational since 2021**

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LoryB business case | Gender assessment

LoryB has been assessed to be Gender Intentional: taking good steps to understand the different needs and constraints of women and men and addressees these in internal process, strategy, or service design

Category	Answer	Explanation
Gender Strategy Is gender equality a strategic goal for Nestlé which is communicated in documents?	**Partly**	• While gender is a priority, LoryB has no strategic documentation in place. • Women and men are paid the same for doing the same work and are also given the same treatment.
Data Collection Do you collect data on staff or customers / farmers disaggregated by gender?	**Partly**	• Gender disaggregated data is collected • No data is collected on people with disability
Inclusive workplace Does LoryB have policies or practices to make the workplace inclusive for both women and men	**Partly**	• LoryB's founder is a woman. Only 5% of LoryB's group is female. 80% of temporary workers are women (mostly sorters) • Invest time in the women sorters by making gender inequality visible and increase awareness.
Inclusive consultation Does LoryB speak to or consult both male and female customers (farmers) to learn about their different needs and preferences when designing a product	**Yes**	• LoryB through identification of ability-based exclusion and situational challenges, help to promote participation of women in product design.
Inclusive tailoring If services are tailored based on customers' needs and preferences, does LoryB tailor these based on how needs may be different for men and women?	**No**	• LoryB does not adopt services purely based on gender needs
Independence and control over resources Does LoryB provide services that allow women to have more independence and control over resources or move into roles in which they can gain more value?	**Yes**	• Improvement of women's access to extensions and advisory services, while promoting agricultural productivity at the micro, small, and medium levels.

Read more about the business case for inclusion here: Optimizing Farm Systems Through Gender Inclusion

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LoryB business case | Gender assessment

LoryB is gender intentional but could transition into being gender transformative by taking a data driven approach to understand the unique needs of men and women and tailoring services accordingly

LoryB is gender intentional: *The Company has taken steps to at least understand the different needs and constraints of women and men both internally and within the value chain with the goal of ensuring women and men have access to resources.*

Best practices to implement in becoming transformative

- **Document the gender strategy** for clarity on goals and agenda. Establish KPIs (e.g., targets on the number of male and female farmers you are aiming to reach), develop a roadmap to get there and allocate resources to monitor and measure gender goals.
- Promote an **inclusive workplace** for staff by developing **comprehensive internal gender policies**, approved by the management, and ensuring that these are periodically disseminated to all staff.
- Use **sex disaggregated data collected to inform service delivery to farmers** e.g., track sex disaggregated farm level metrics such as yield and income to understand gaps and need for services and skills.
- **Inclusive tailoring of services** by identifying women's needs and preferences in view of training times and location to ensure their participation.

Potential KPIs to monitor on the gender journey

- Number of women benefitting from improved working conditions
- Number of women with reduced living wage gap
- Number of women with access to and control over income
- Increase in income for women
- Increase in the number of women accessing services

Read more about the business case for inclusion here: Optimizing Farm Systems Through Gender Inclusion

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LoryB business case | Organizational capacity assessment

While having a solid vision and strategy, there are clear opportunities to improve the effectiveness and efficiency of service delivery to smallholder farmers.

Activity	Status	Strengths	Weaknesses
Strategy & Structure		• Dedicated business entity to smallholder sourcing, integrating service delivery and sourcing	• Does not formulate clear objectives on social targets (income increase, % female workforce)
Farmer Relationships		• Well-structured recruitment and on-going training approach • Decent farmer to field agent ratio (1 to 400) • Inputs on credit can improve farmer loyalty	• No clarity on what drives farmer adoption of practices • No reward system for loyal or well-performing farmers
Segments		• Distinguishes between smallholders and sub-aggregators • Segments based on main crop	• No segmentation strategy to tailor services to farmer needs • No graduation strategy in place to incentive farmers to improve performance
Services		• Provides recurring trainings in groups of 25 farmers focused on GAP, GEP, CSA and processing • Prefinances inputs with high recovery rates (95%)	• Risk of no adoption of weather services as it is still unclear to farmers • Large working capital needs due to input prefinancing • Two out of three solar dryers already abandoned
Systems		• Uses Excel based traceability tool developed by TechnoServe	• Traceability system not integrated, nor widely used • Unable to trace quality and quantity to individual farmers • No data and insights on farmer needs
Inclusion		• Has gender strategy and policies in place • Collects gender-disaggregated data • Women sorters are provided transport and recurring training	• Female farmers are treated equally. No proactive approach to improve female farmers decision-making power and access to resources

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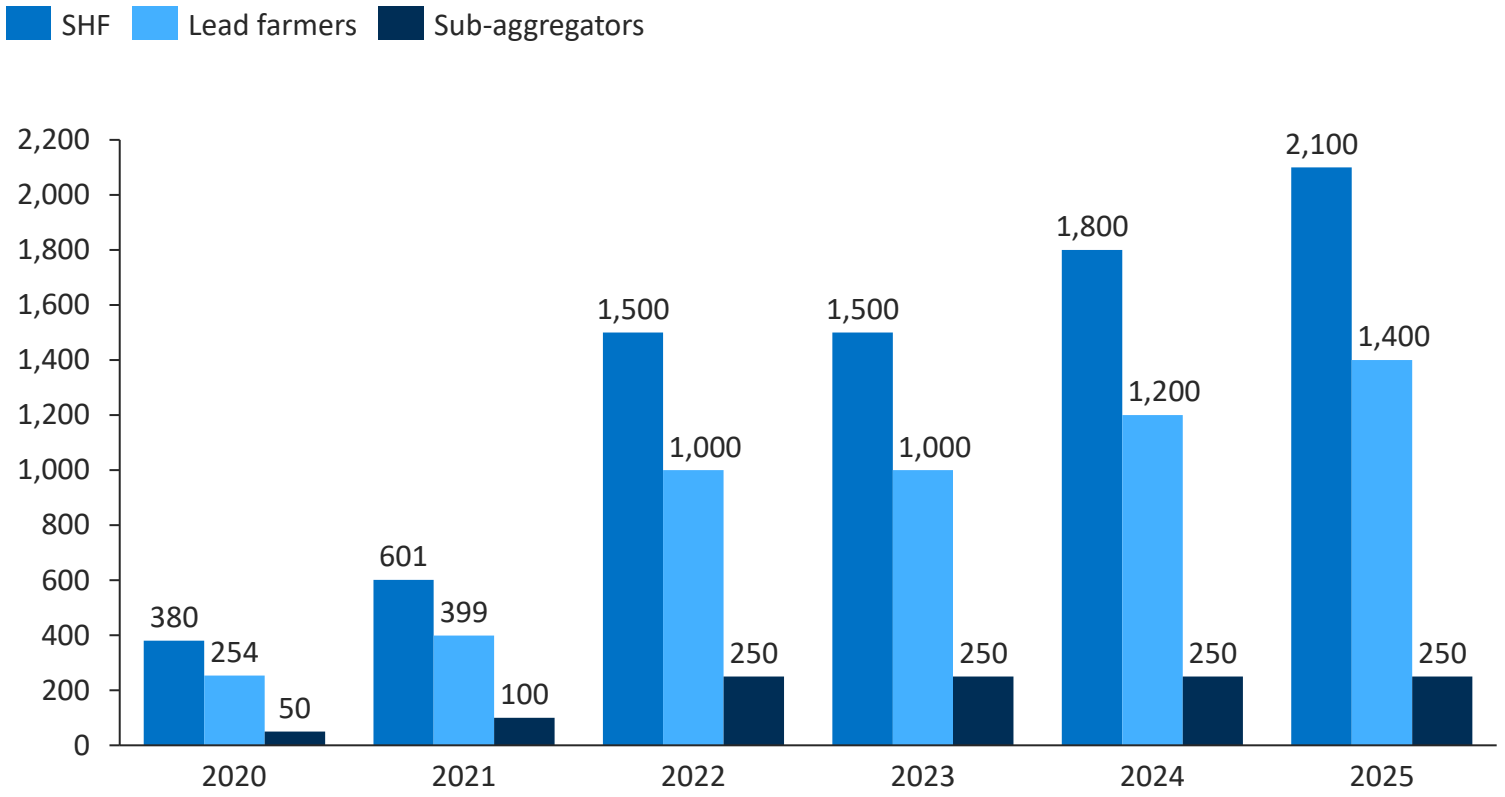
LoryB business case | Number of farmers

LoryB aims to more than double its farmer supply base to 2,500 by the end of next year, increasing the number of farmers per village as well as expanding to an additional 50 villages.

Number of farmers, lead farmers and sub-aggregators part of SDM



- LoryB's extension agents work with multiple informal farmers groups per village.
- Lead farmers serve as main points of contact for coordinating trainings and communication between farmers and LoryB extension agents.
- Sub-aggregators have 1-on-1 relationships with LoryB. They aggregate produce from smaller farmers not in LoryB's value chain
- Most farmers are also part of cooperatives. LoryB has no role in shaping or strengthening those cooperatives.

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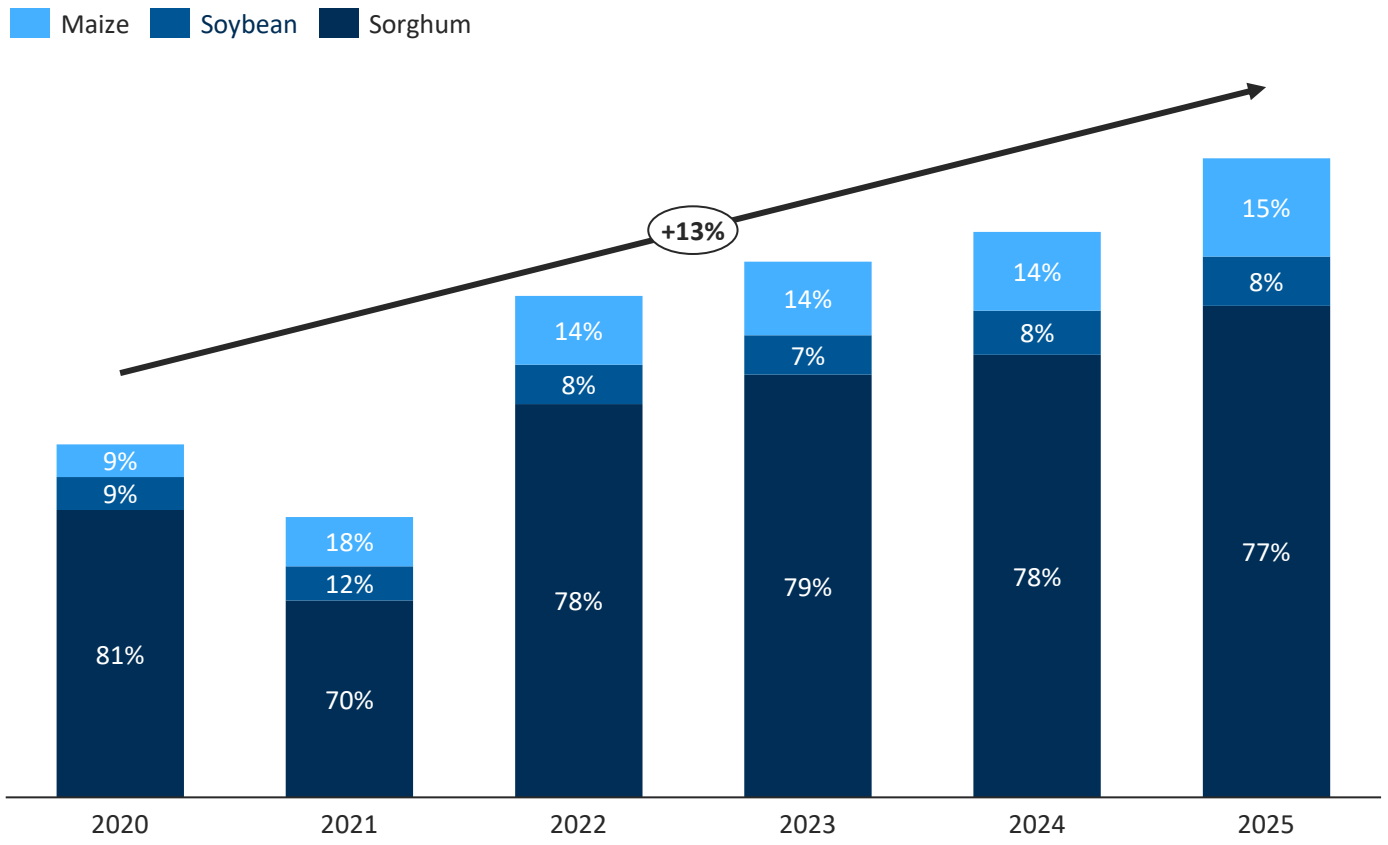
LoryB business case | Sourcing volumes

For 2022, LoryB expects sourcing volumes to return to pre-COVID19 levels as experienced in 2020. In the coming two years they will build capacity before further scaling up production after 2023.

Annual projected sourcing volumes* per year by crop



- The dip in 2021 volumes is due to limited demand from most buyers (Cadbury, Nestlé, Guinness, Nigerian breweries).
- This decline in demand was due to COVID-19 impacting global markets, as well as some internal challenges of one of the buyers.
- Before further scaling up, LoryB focuses on increasing warehousing capacity, machine capacity, and manpower thus ensuring there are no internal constraints.
- The main crop sourced is sorghum as it is requested by most clients. Nestlé is the only client purchasing maize from LoryB.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB

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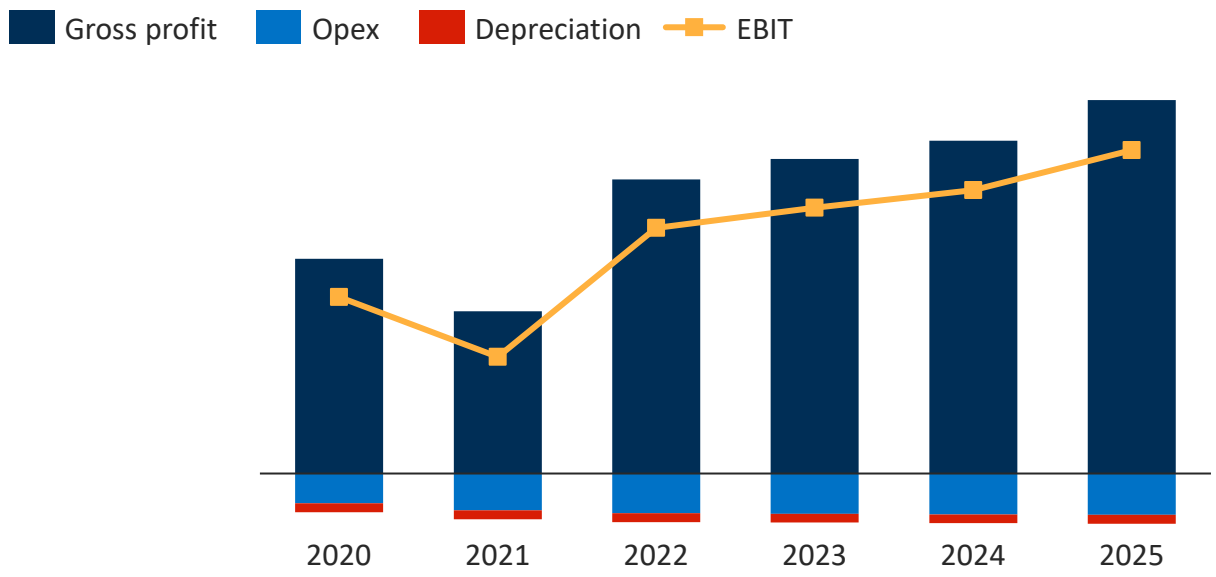
LoryB business case | Annual profit and loss

LoryB projects a steady growth in business performance as the company recovers from the impact of Covid-19.

Profit and loss (2020 – 2025)



Gross margin %	17%	15%	16%	16%	15%	15%
EBIT margin %	14%	11%	13%	13%	13%	13%

- Sale of grains average 96% of the total revenue earned between 2020 and 2025. Service revenue make up for the balance.
- EBIT is projected to grow at c.39% annually between 2021 and 2025. As business performance stabilizes from 2022, EBIT growth is projected to average 10% between 2023 and 2025.
- Gross and EBIT margins dip in 2021 and recover slightly from 2022 onwards. These remain below 2020 levels as sales of services (lower margins) are growing fast relative to sales of grains.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB

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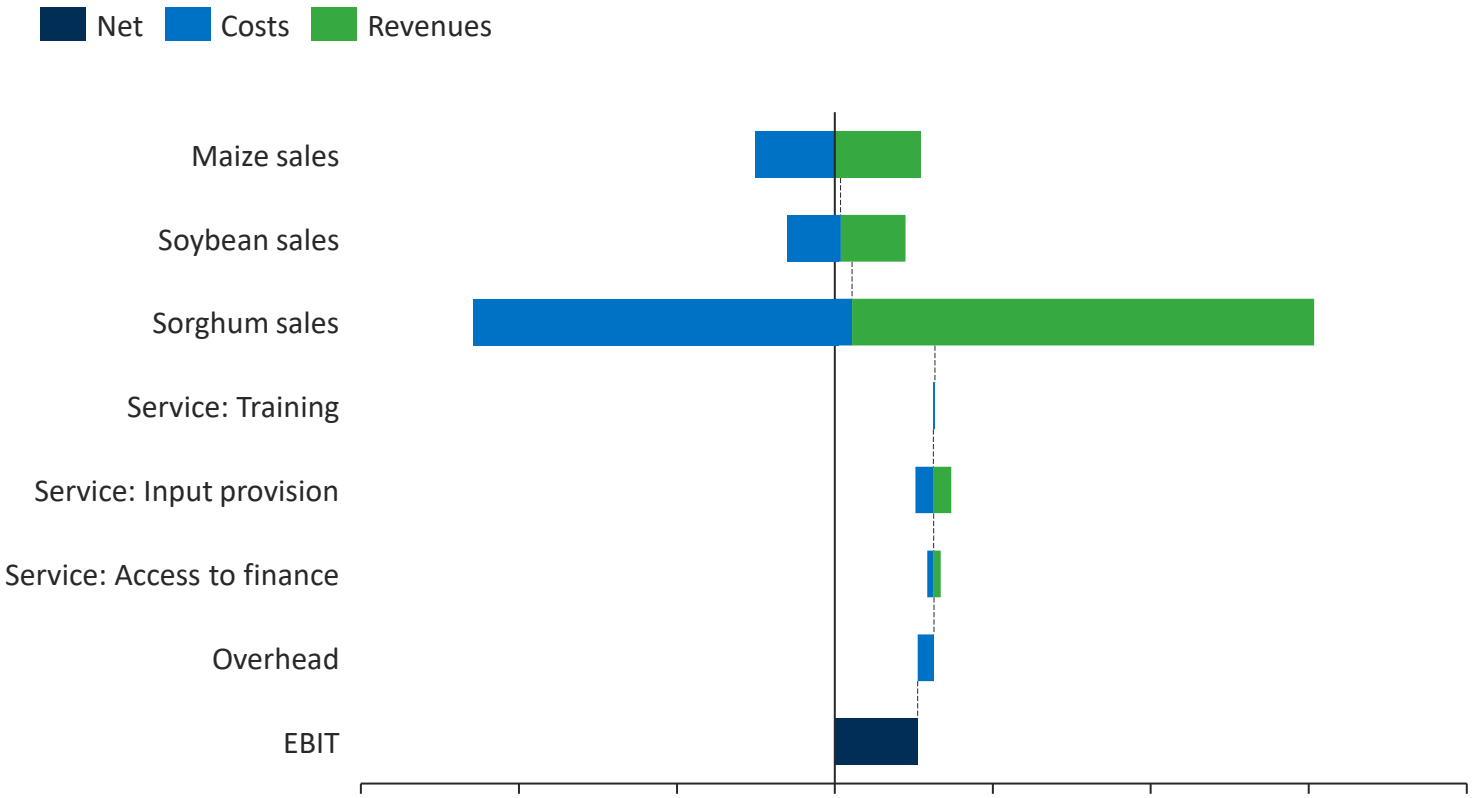
LoryB business case | Costs and revenues by activity

All services offered remain profitable except for training as farmers are not required to pay for this service. Training costs are absorbed by the sale of grains margins.

Profit and loss, annual average 2020 – 2025[1]



- From 2022, 100% of farmers working with LoryB must take up the services provided. This will allow LoryB to maintain production of high-quality grains.
- To ensure farmers can afford the farm inputs required, LoryB charges a minimal margin.
- Returns from financing of farm activities and inputs are eroded by the default losses.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB

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LoryB impact case | Service impact and profitability assumptions per farm

SDM farmers are projected to almost double their farm sizes by the fifth year. However, this is only attainable if farmer incomes are sufficient to cover land rent fees.

Key agronomic assumptions and farmer financials, in year 5

Income driver	Maize		Sorghum		Soybean	
	Baseline	SDM farmer	Baseline	SDM farmer	Baseline	SDM farmer
Farm size (crop) (Ha)	1.50	2.50	1.10	2.50	1.20	2.50
Yield (Kg)	3,500	4,100	2,000	2,500	1,000	2,000
Post-harvest loss (%)	9%	5%	2%	0%	6%	3%
Own consumption (Kg)	49	60	24	30	17	20
Marketable surplus (Kg)	4,729	9,678	4,366	12,470	2,314	9,680
Farm-gate price ($/Kg)	0.29	0.30	0.25	0.27	0.35	0.36
Cost of production ($)	536	1,287	724	2,415	809	2,539
Other income ($)	227	236	200	209	237	245

- LoryB pays a premium price which is $0.012 (₦5)/Kg more to their farmers.
- Pre-financing of farm activities and inputs attracts an annual interest and insurance charge.
- LoryB farmers typically practice mixed cropping and thus earn an income from other crops as well as income from off farm activities.

Sources: SDM analysis tool developed by IDH based on discussions with LoryB

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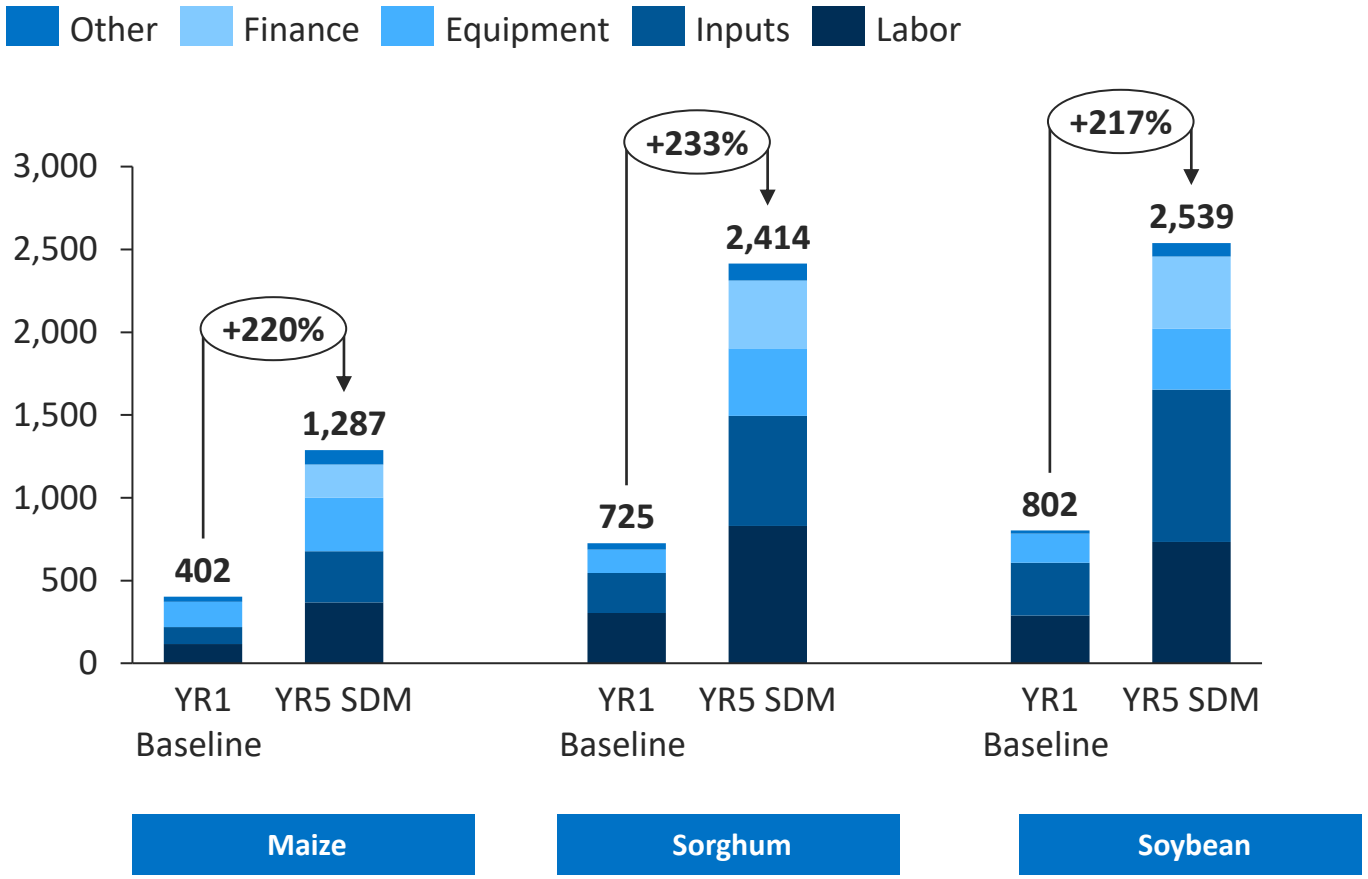
LoryB impact case | Farmer cost of production

Cost of production for maize, sorghum and soybean will increase by 220-233%, up to 1,287, 2,414 and 2,539 USD per hectare respectively. This is driven by more expensive inputs, interests and additional hired labor.

Cost of production per crop in USD per hectare



Sources: SDM analysis tool developed by IDH based on discussions with LoryB

- Annual cost of production increases substantially for all grains in comparison to the baseline farmer. Maize costs increase by $884 (220%), sorghum by $1,691 (233%) and soybean by $1,730 (217%).
- SDM farmers rely more on hired labour as they have more disposal income and view their farms as a commercial entity. Further, they incur higher input costs as they apply the required quantities of inputs.
- Maize crop has the least input requirement resulting in the lower aggregate input cost for maize farmers.
- LoryB farmers incur finance costs of between $80/ha (maize) and $174/ha (soybean). Reducing interest costs could be explored as a route to reducing the farmer service package.
- Other costs include land rent and transport to aggregation center costs. These costs are negligible, and farmers can cover these based on the projected performance.

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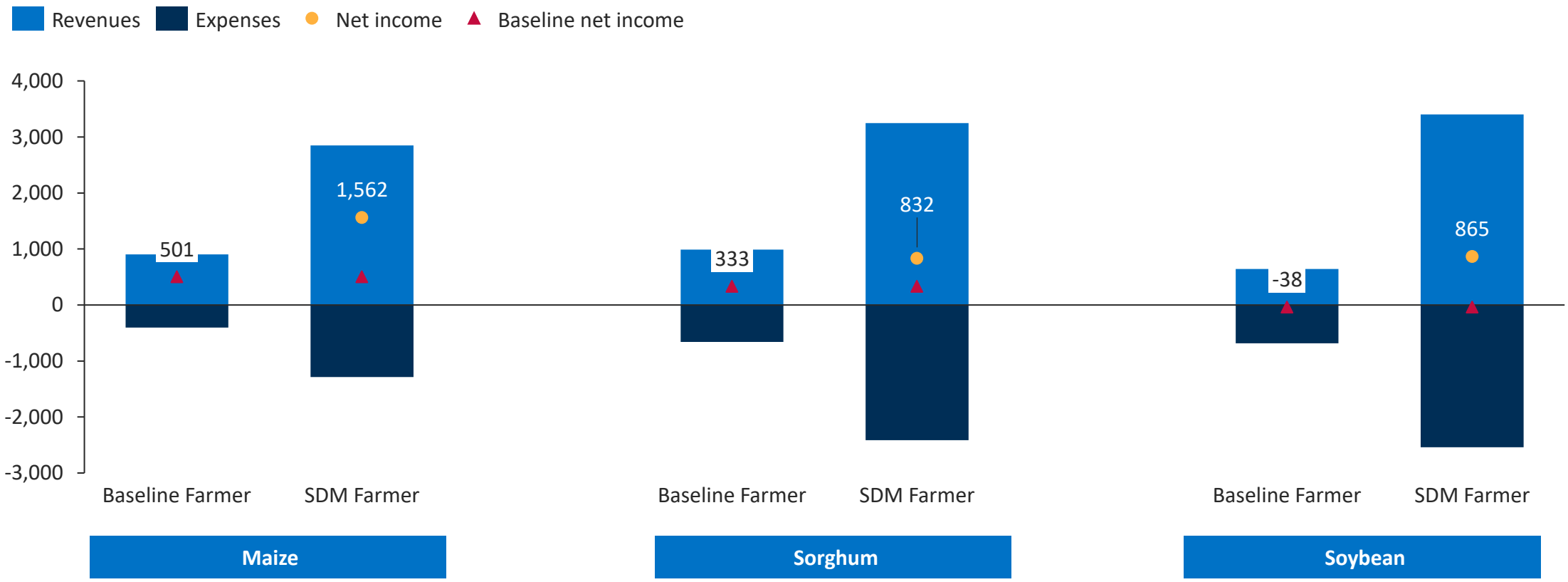
LoryB impact case | Service impact and profitability per hectare

Increased performance (yields, farm size, post-harvest losses) outweigh the higher cost of production, resulting in significant increases in income for maize (1,000 USD), sorghum (500 USD) and soybean (900 USD)

Revenues, expense and income of main crop only; in USD ($) per Ha in year 5*



**Farmer is assumed to have been involved in the SDM for the last 5 year period.*
SDM Farmers – Farmers receiving services from LoryB with a view to increase their farm productivity.
Baseline Farmer – Typical farmer operating in the locality of the SDM farmer but one that does not receive any service from LoryB
Sources: SDM analysis tool developed by IDH based on discussions with LoryB

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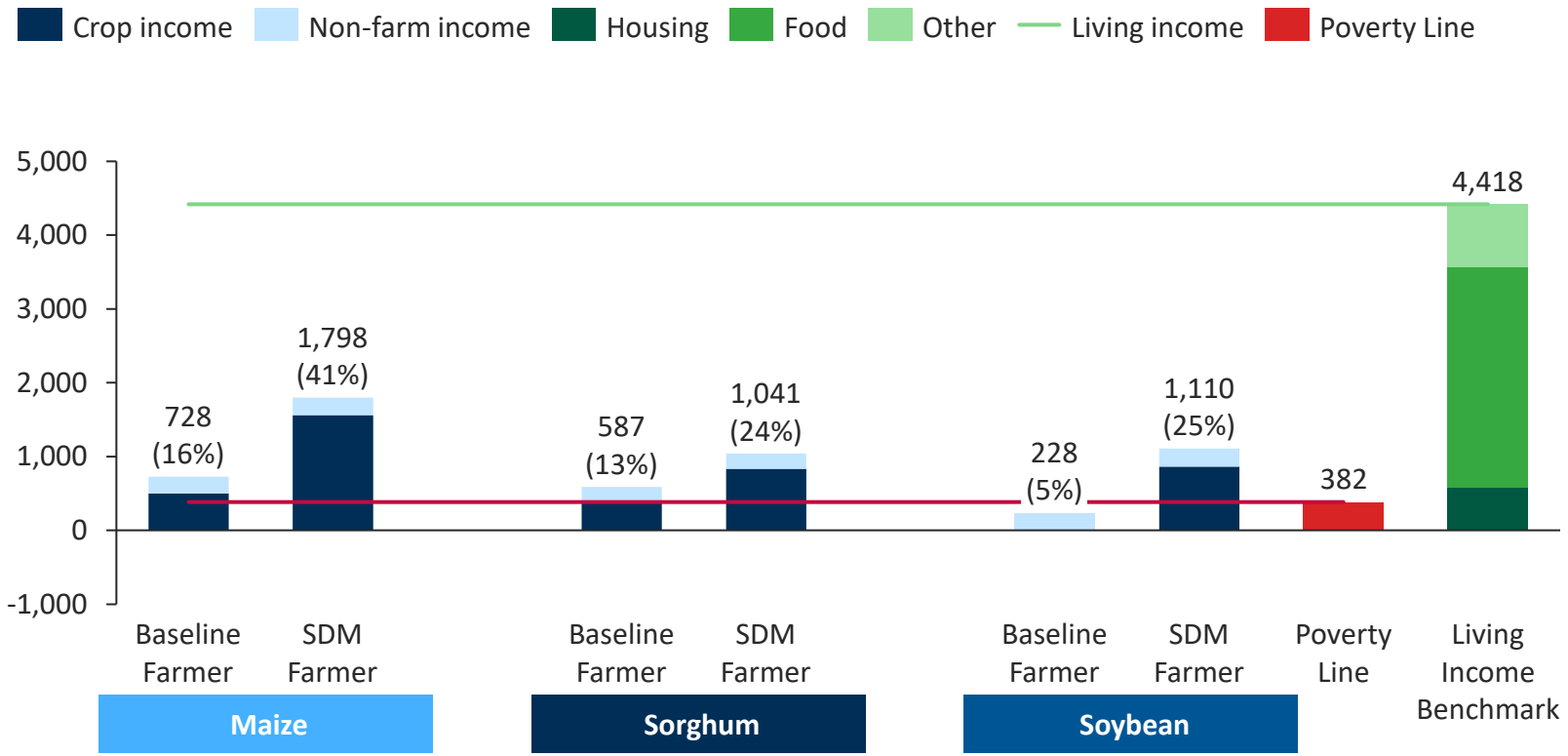
LoryB impact case | Household income

Based on LoryB's assumptions on farmer impact (yields, farm size, post-harvest losses), farmers would not be able to attain a living income in 5 years of being part of the SDM

Annual income and gap to living income benchmark, in USD ($) in year 5[1]



- From their first year, only SDM maize farmers can earn in excess of the international poverty line of $382/year[1]. SDM sorghum and soybean farmers earn above the poverty line from the third year onwards.
- None of the farmers attain a LI. Closing the LI gap is highly dependent on the farmer's ability to increase their farm sizes and yields.

The Living Income (LI) is an approximate income needed to meet a family's basic needs including food, housing, transport, health, education, tax deductions and other necessities. The difference between the LI benchmark and actual income is referred to as the living income gap Wage Indicator (Sept 2019). The living income benchmark depicts a typical family of eight members (2 parents and 6 children)

[1] *World Bank*

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB

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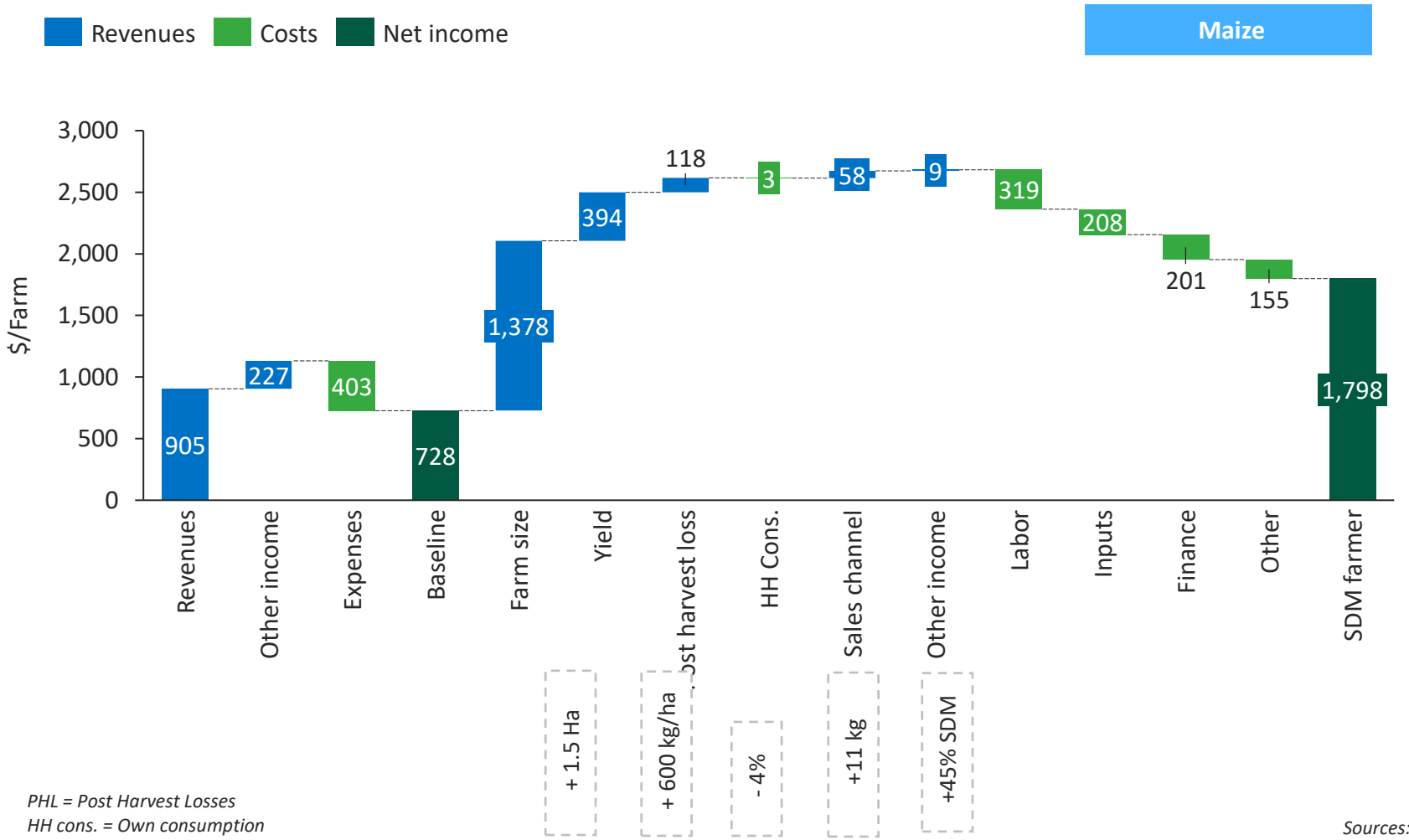
Cost and revenue drivers | Maize farmer income

Increased farm size and yield are key drivers of the 147% increase in SDM maize farmer income. Land rent costs are relatively low and average 2% of the SDM farmer expenses.

Revenues, expense and income of main crop only; in USD ($) per farm in year 5



- Based on incomes earned, farmers can cover the land rent costs and therefore expansion should not be a limiting factor where such land is available.
- SDM farmers are projected to reduce PHL by 2% to 5% in year five. This is mainly due to adoption of GAP and use of high-quality inputs.

PHL = Post Harvest Losses
HH cons. = Own consumption

Sources: SDM analysis tool developed by IDH based on discussions with LoryB

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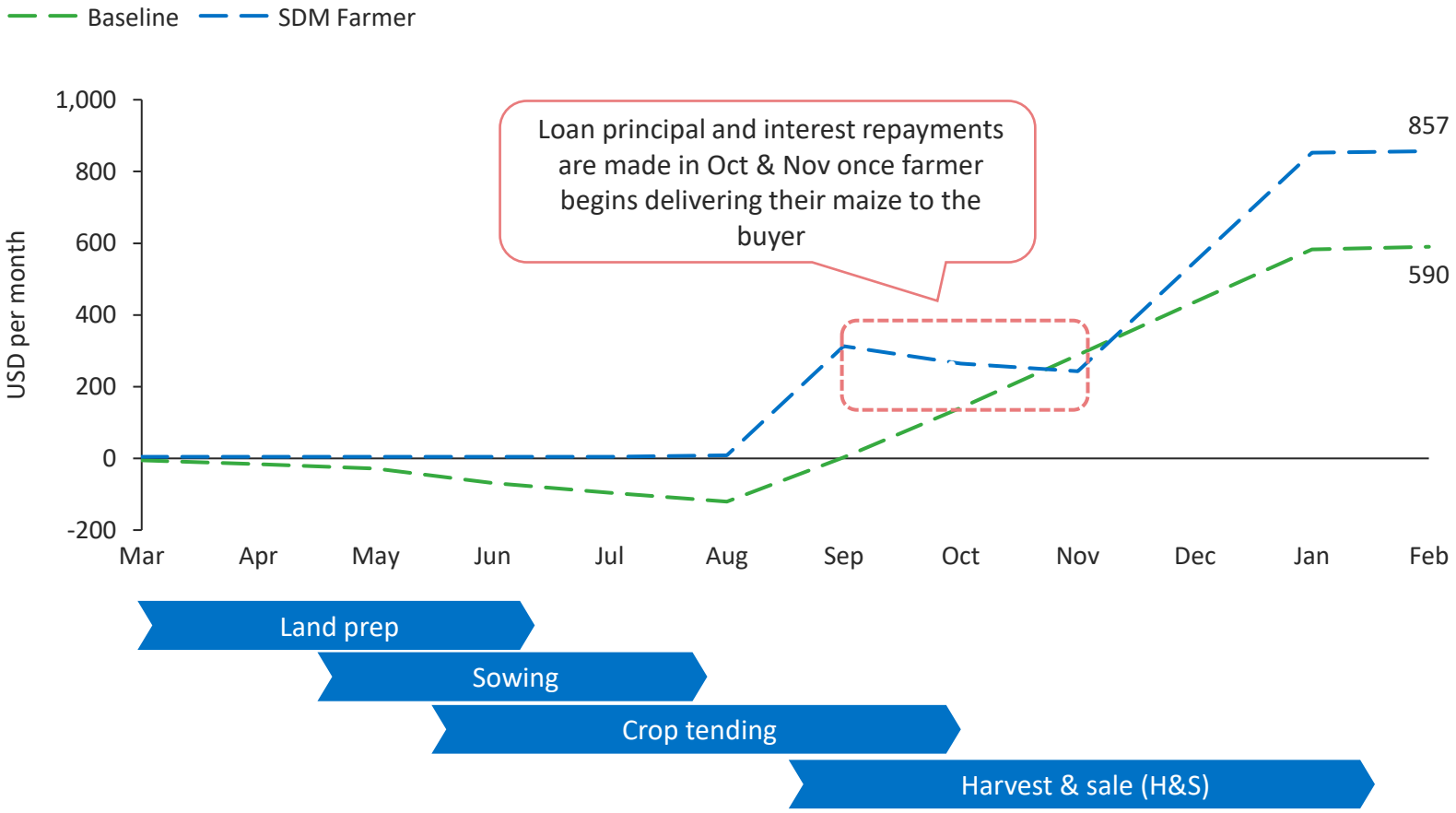
LoryB impact case | Maize farmer cashflow

Maize farmers have relatively stable and positive incomes prior to the harvest season as farm activities are pre-financed by the suppliers

Cumulative cash for maize farmers in USD per farm per month – Year 1[1]



- While baseline farmers are cash strapped for six months in the year, SDM farmer situation is alleviated due to pre-financing.
- Without prefinancing, SDM farmers would be cash constrained over 7 months (Mar to Sept) and the income of $857 would likely not be attained.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB
**It is important to note that the projected farmer cashflows do not factor in household expenses such as school fees, medical expenses etc. These expenses could lead to a different result if considered.*

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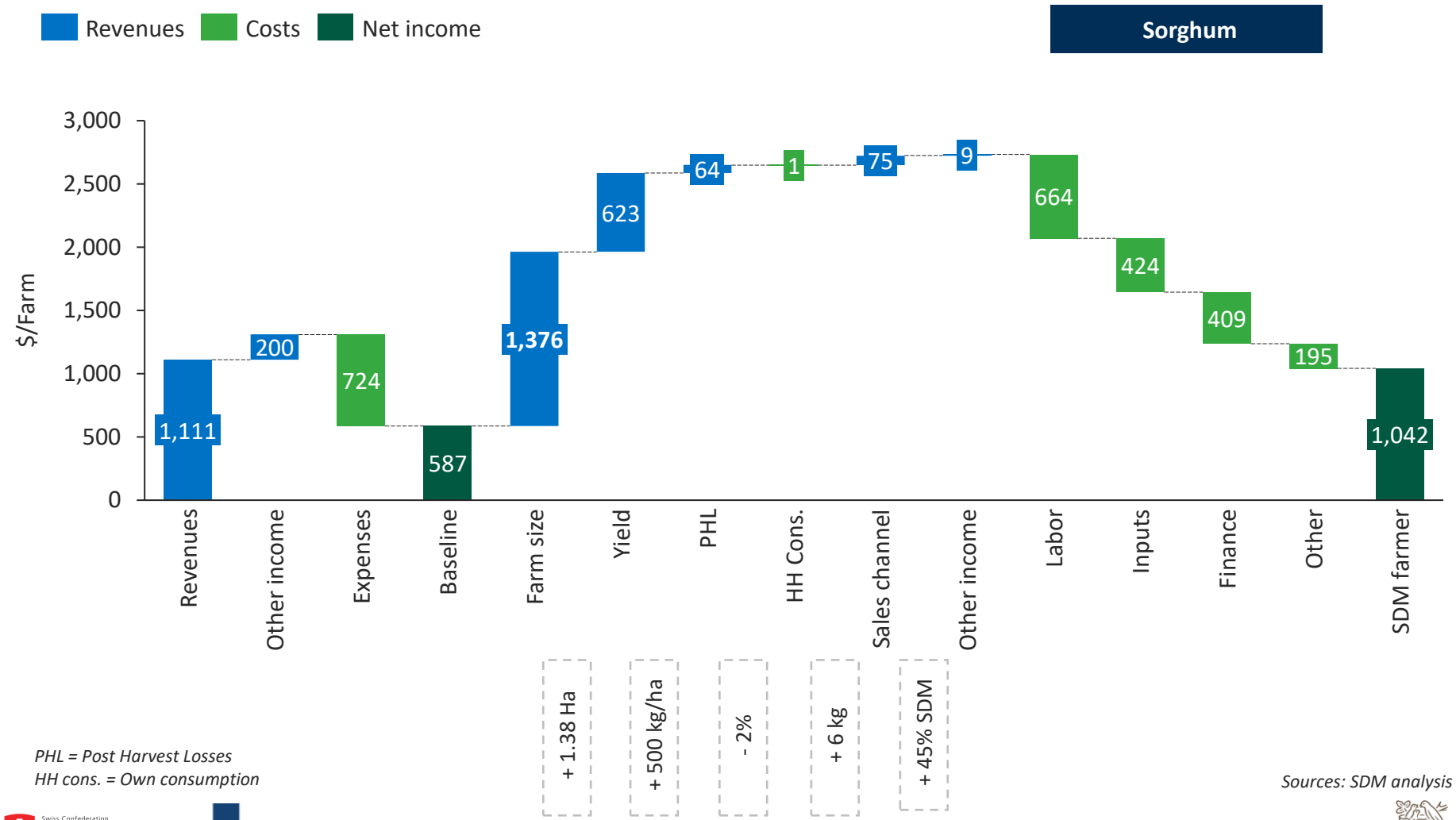
Cost and revenue drivers | Sorghum farmer income

Baseline farmers do not receive proper GAP training. As a result, they attain lower yields due to use of lesser quantities and lower quality inputs compared to the SDM farmers.

Revenues, expense and income of main crop only; in USD ($) per farm in year 5



- Due to training received at post harvest, Sorghum SDM farmers can reduce the losses to 0%. This training is not offered to the baseline farmer.
- SDM farmers spend $664 more in labour as they hire more labour for crop protection and fertilizer application and use mechanization for land preparation.

PHL = Post Harvest Losses
HH cons. = Own consumption

Sources: SDM analysis tool developed by IDH based on discussions with LoryB

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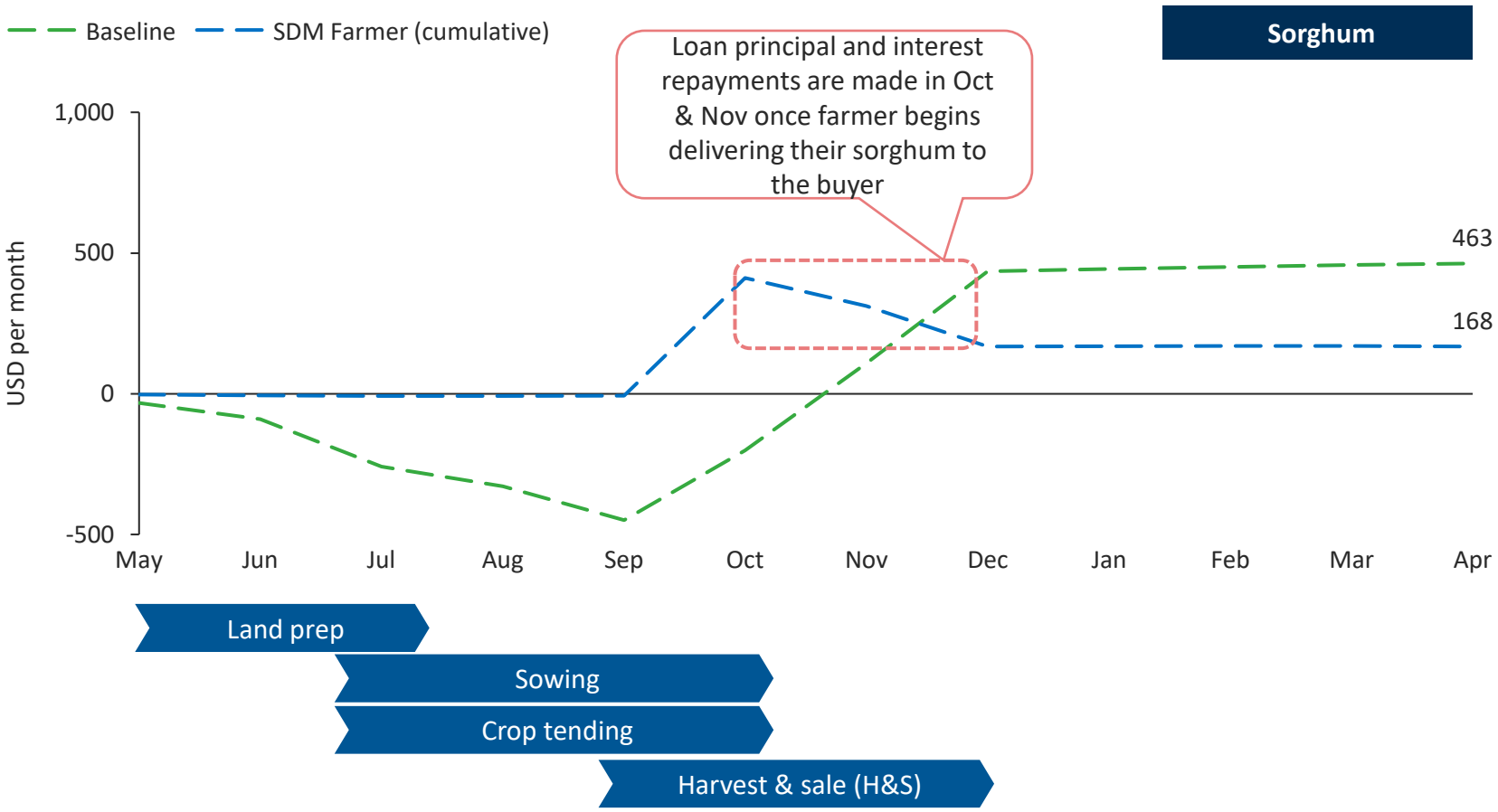
LoryB impact case | Sorghum farmer cashflow

Like the maize farmers, sorghum farmers have relatively stable incomes throughout the crop cycle with variations experienced during sale and repayment of credit

Cumulative cash for sorghum farmers in USD per farm per month – Year 1[1]



- Baseline farmers perform better than the SDM farmers as the service package is not effective (investment does not make sufficient returns to outperform the baseline farmer).
- Theoretically, SDM farmers are cash constrained for 5 months in the year (May – Sept) as they pay for land rent. However, the cash negative position is minimal.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB
**It is important to note that the projected farmer cashflows do not factor in household expenses such as school fees, medical expenses etc. These expenses could lead to a different result if considered.*

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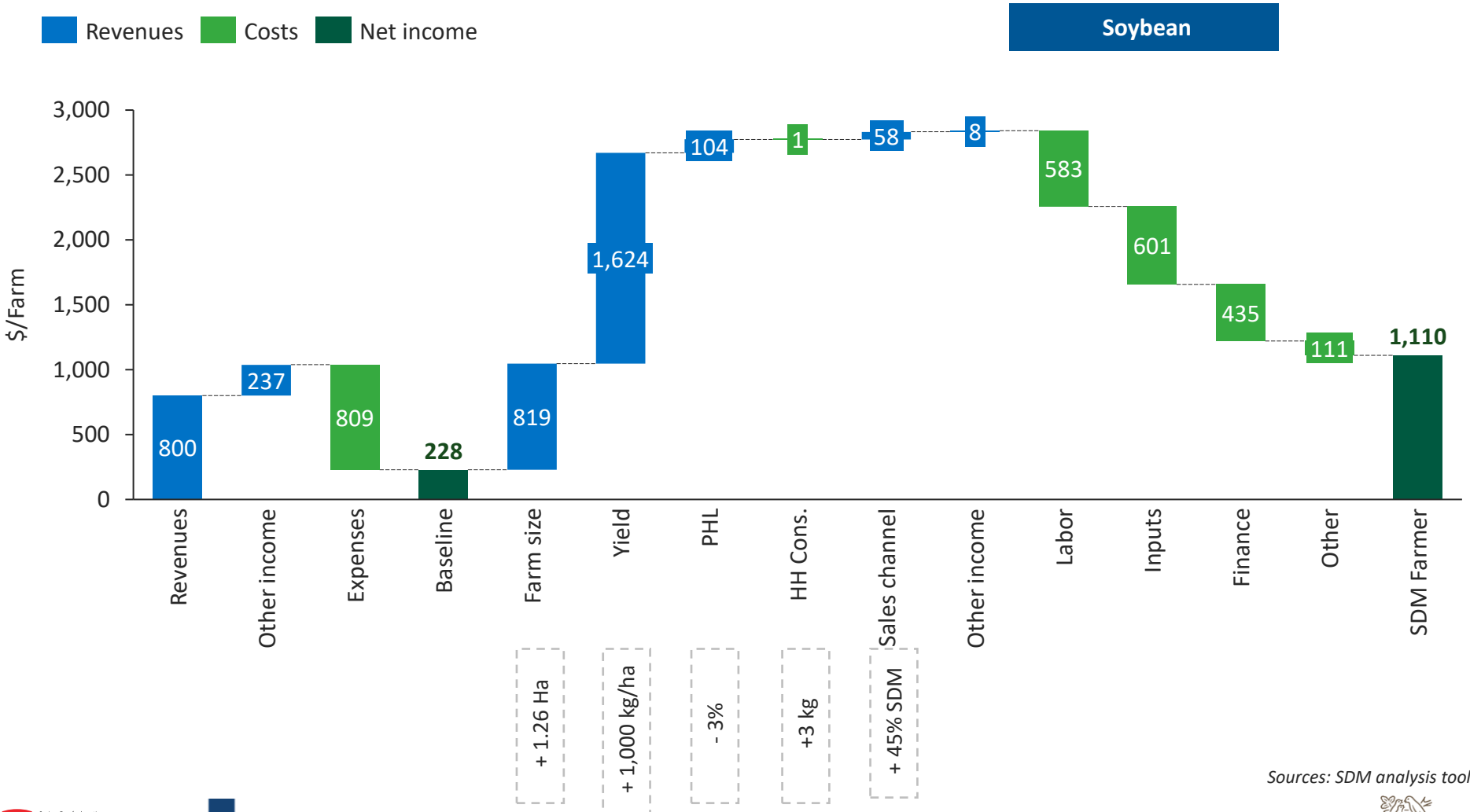
Cost and revenue drivers | Soybean farmer income

Doubling of yields is the main driver of the increased farmer income. LoryB should therefore focus their efforts on providing a service package that enables a farmer attain this yield.

Revenues, expense and income of main crop only; in USD ($) per farm in year 5



- Soybean SDM farmers make better use of their training thus have higher realizable yield. Baseline farmer training is not as robust.
- SDM farmers use more quantities of farm inputs in line with GAP thus spending $601 more in input costs.

Sources: SDM analysis tool developed by IDH based on discussions with LoryB

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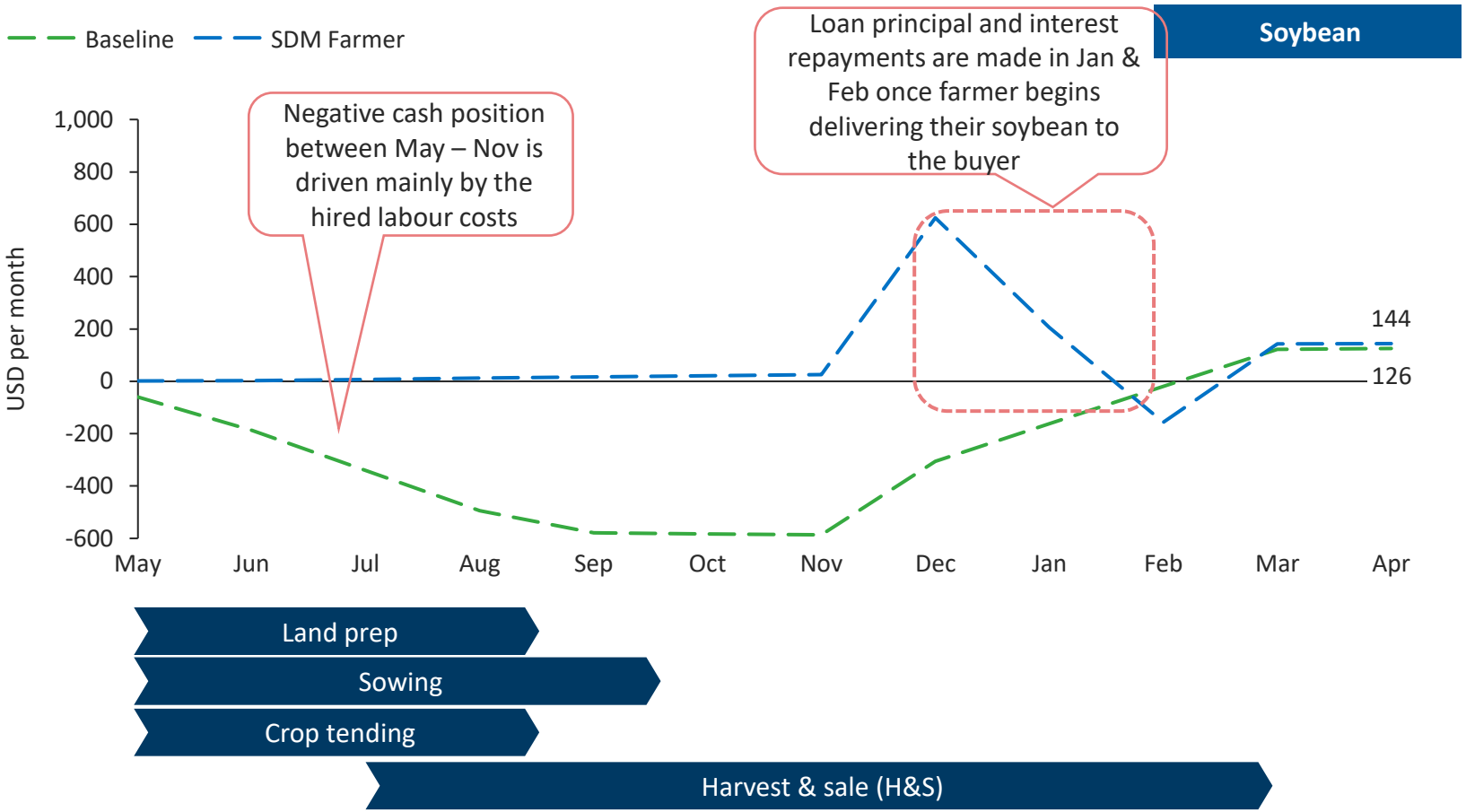
LoryB impact case | Soybean farmer cashflow

Although returns are similar, attaining the projected income is more realistic for SDM farmers as they receive support for investing on their farms

Cumulative cash for soybean farmers in USD per farm per month – Year 1[1]



- At aggregate level, there's minimal differences between the income earned by the baseline and SDM farmer. However, the baseline farmer is cash constrained over 10 months of the year.
- Without external support, baseline farmers might not be able to invest in their farms thus unable to earn the $126.

Sources: [1]SDM analysis tool developed by IDH based on discussions with LoryB
**It is important to note that the projected farmer cashflows do not factor in household expenses such as school fees, medical expenses etc. These expenses could lead to a different result if considered.*

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LoryB | Annex

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LoryB scale and sourcing projections

Farmer numbers	Unit	2020	2021	2022	2023	2024	2025
Smallholder Farmers		**380**	**601**	**1,500**	**1,500**	**1,800**	**2,100**
Of which growing maize	# of farmers	131	229	499	499	590	710
Of which growing soybean	# of farmers	160	248	512	512	671	731
Of which growing sorghum	# of farmers	89	124	489	489	539	659
Lead Farmers		**254**	**399**	**1,000**	**1,000**	**1,200**	**1,400**
Of which growing maize	# of farmers	88	152	332	332	393	473
Of which growing soybean	# of farmers	106	165	342	342	448	488
Of which growing sorghum	# of farmers	60	82	326	326	359	439

Source: LoryB assumptions

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