

# SDM Case Report: Syngenta

Service Delivery Model assessment: short version

October, 2019

Location: Kenya

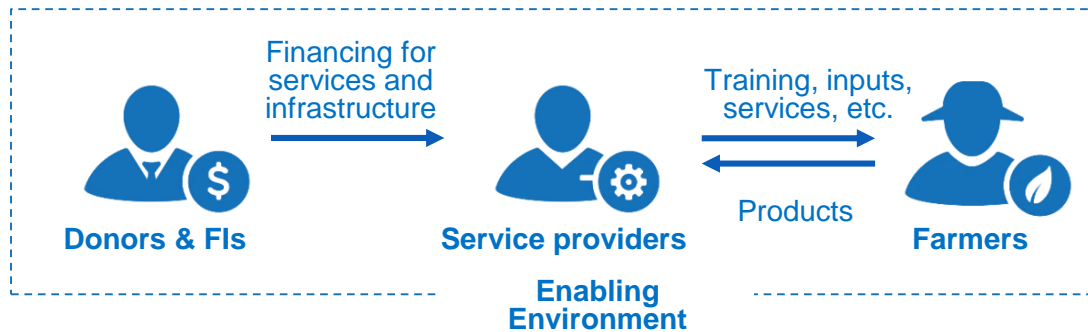
Commodity: Potato, Tomato, Other crops

Services: Training, planting material provision, farm input provision, finance, insurance, market linkage, farmer organization.



# What are SDMs and why are we interested in analyzing them?

**Service Delivery Models (SDMs)** are supply chain structures, which provide services such as training, access to inputs and finance to farmers, to improve their performance, and ultimately their profitability and livelihoods.



By analyzing SDMs, we aim to support **efficient, cost-effective and economically sustainable SDMs at scale** through:

Key drivers for success of SDMs benchmarking



Innovation opportunities to support



Cross-sector learning, learning community



Convening at sector and national level



## Analyzing SDMs brings a range of benefits



### Farmers and farmer organizations

- **Better services** improve productivity, product quality, quality of life and social and environmental outcomes
- **Better outcomes:** improved productivity, income and resilience



### SDM operator

- **Understand** your model's business case
- Gain insights to **improve** service delivery
- Develop **cost-effective** SDMs based on insights
- Identify opportunities for **innovation** and **access to finance**
- **Learn** from other public and private SDM operators operating across sectors/geographies
- **Communicate** stories of impact and success at farmer level



### Investors/FIs

- **Common language** to make better informed investment decisions
- Insights to achieve optimal **impact, efficiency and sustainability** with investments and partnerships in SDMs

# The Syngenta SDM and objectives

## General SDM information:

Location:	Kenya
Timing in analysis scope:	2017-2026
Scale (start of analysis):	26,000 farmers
Scale (end of analysis):	160,000 farmers
Funding:	SDM operator (Syngenta)
SDM Archetype*:	National



- Syngenta is a leading global agribusiness that produces seeds and crop protection products. It was formed in 2000 by the merger of Novartis, Agribusiness and Zeneca Agrochemicals. In 2017, Syngenta was acquired by ChemChina, a Chinese state-owned enterprise. Overall, Syngenta employs over 27,000 people across more than 90 countries.
- Syngenta products include herbicides, fungicides, insecticides, seed treatments, biologicals, crop enhancement, seeds and traits. Revenues in 2018 were 10.4 billion USD and 3 billions USD from crop protection and seed sales respectively.
- Besides products, Syngenta offers services such as agronomic advise, digital agriculture, grower programs and stewardship. Through these services, Syngenta is focused on strengthening its position as responsible and trusted innovator in the global agricultural sector.
- Syngenta has worked with over 20 million smallholder farmers across the world. Through its activities, Syngenta contributed to increase their productivity by providing access to high-quality agrochemicals and by training them on good agricultural practices and labor safety.

For more info on SDM archetypes, see the [IDH Smallholder Engagement Report](#)

Sources: Syngenta (2018). *Sustainable Business Report 2018*; Syngenta (2018). *Mavuno Zaidi (MZ): Targeting emerging farmers via integrated 5A approach*

## SDM objectives:

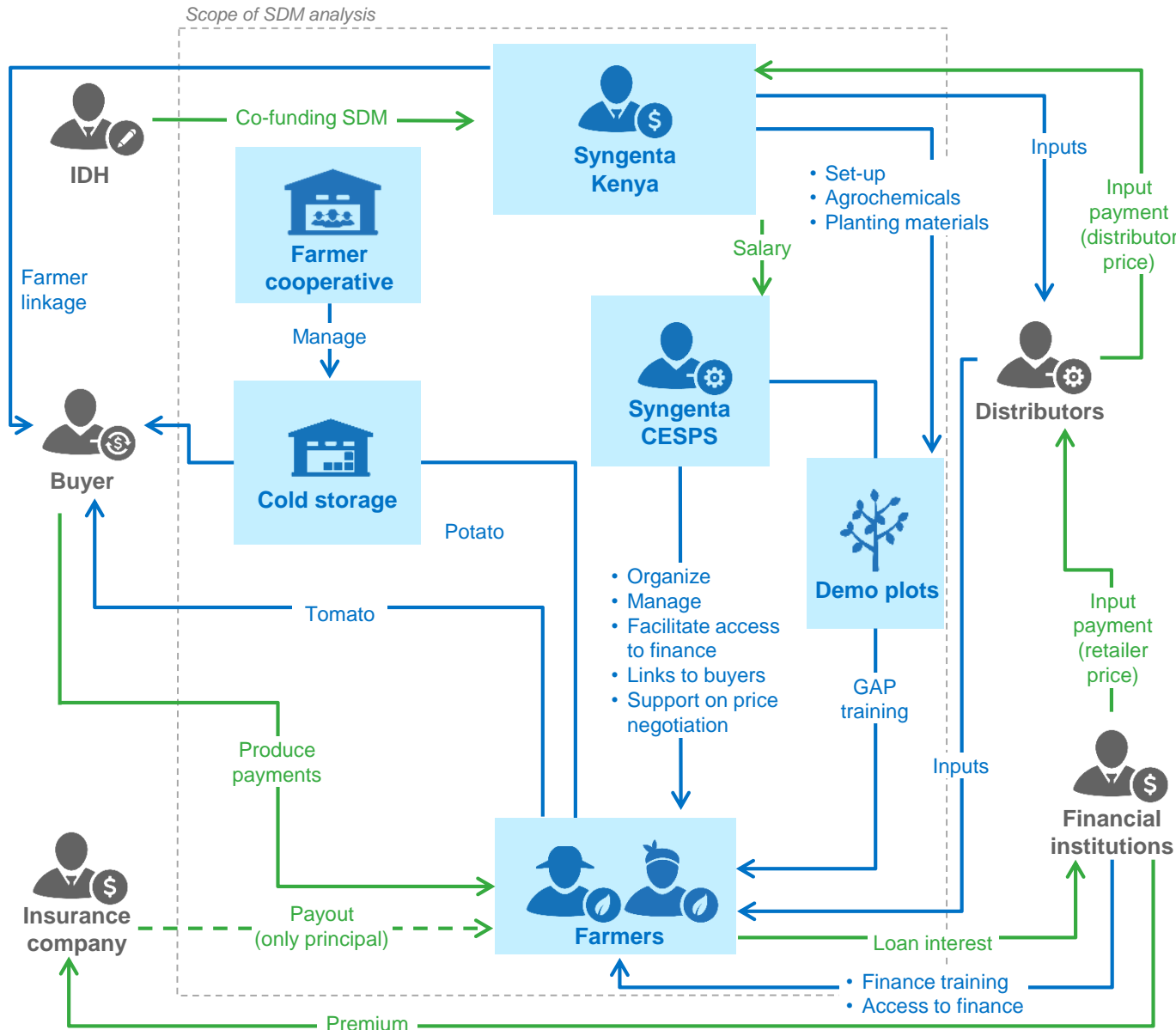
- 1 Increase sales through improved affordability and use of high-quality seeds and agrochemicals
- 2 Improve farmer livelihoods by increasing productivity
- 3 Improve market linkages to connect buyers to producers

## SDM rationale:



# SDM and structure and enabling environment

**Legend:**  
 Money → (green arrow)  
 Goods / services → (blue arrow)



## Enabling environment

Farmers are impacted by several factors within their enabling environment. Most important are:

### 1. Infrastructure

Transport infrastructure in tomato and potato growing regions is poor, especially in the rainy seasons. Post-harvest losses are high due to produce spoiling during transport.

### 2. Trading system

Tomatoes and potatoes reach markets through brokers and buyers. Since produce is mostly consumed domestically, these tend to be semi-organized channels with limited transparency.

### 3. Social context

While Kenya was classified as a middle-income by the World Bank, most smallholder farmers are well below the median HH income. Their access to schools and healthcare is limited.

### 4. Environmental risks

Erratic rainfall has impacted productivity. Pests and diseases are also a major concern. Improper use of agrochemicals has also caused health and environmental issues.

# Services delivered and farmer segmentation (1/2)

## Training

- Syngenta (SYT) provides training to farmers on good agricultural practices (GAP) and on the effective use of agrochemical products.
- SYTs Community Extension Service Providers (CESPS) deliver GAP trainings to farmer groups through demo plots.
- Additional training on business and financial skills is provided to farmers by financial institutions (Commercial Bank of Kenya (KCB) and Tulaa).
- CESPS receive training of trainers (ToT) on GAP from SYTs agronomists and on Finance from financial institutions at the beginning of every season.

## Planting material

- Currently, seeds are provided for tomatoes only (SYT products). By 2021, SYT is planning to introduce certified potato seeds (non SYT products) in the bundle through partnering with seed multipliers.
- Tomato seeds are high yield, disease resistant variety. Seeds are provided on credit to farmers that are approved for a bank loan.
- Tomato seeds are of a variety that is sold only on the local market.
- Syngenta works with major distributors who either supply inputs directly to farmers or sell them to local stockists. In the latter case, farmers can buy products directly from the stockist.

## Farm input provision

- Farmers are provided with high quality crop protection and fertilizer products for tomato and potato. Agrochemicals are provided on credit to farmers that are approved for a bank loan.
- In the Tulaa model, farmers can decide what type of agrochemicals to purchase. In the KCB model, the input bundle is fixed.
- The crop protection bundle (SYT products) for potato farmers includes 1 type of insecticide and 2 types of herbicides. For tomato farmers, the crop protection input bundle consists of 4 types of insecticides and 3 types of herbicides.
- The fertilizer bundle (non-SYT products) consists of high-quality fertilizers commonly used in Kenya.
- Syngenta works with major distributors who either supply inputs directly to farmers or sell them to local stockists. In the latter case, farmers can buy products directly from the stockist.

## Farmer organization

- To increase the scale of the SDM, SYT organizes sensitization events to show to new farmer communities the benefits of joining the SDM.
- Farmer sensitization happens at a village level. If farmers are not organized in groups yet, SYT organizes farmers that want to join the SDM into informal groups of 20-30 farmers each.
- Many activities (e.g. trainings, loan application process etc) are done in groups rather than with individual farmers.

## Farmers are segmented in this SDM:

There are four types of farmers in the SDM:

### Segment 1

**KCB potato farmers:** Farmers producing potatoes and receiving a fixed input bundle from KCB.

### Segment 2

**KCB tomato farmers:** Farmers producing tomatoes and receiving a fixed input bundle from Tulaa.

### Segment 3

**Tulaa potato farmers:** Farmers producing potatoes and receiving a flexible input bundle from Tulaa.

### Segment 4

**Tulaa tomato farmers:** Farmers producing tomatoes and receiving a flexible input bundle from Tulaa.

# Services delivered and farmer segmentation (2/2)



## Finance

- SYT facilitates the provision of inputs (fertilizers, crop protection and seeds) and crop insurance on credit to the farmers through partnerships with financial institutions (KCB and Tulaa). The process to access loans is different depending on the financial institution (see page 21 and 22 for more detailed descriptions).
- CESPS and loan agents from financial institutions help farmers apply for the loan. The request includes the gathering of agronomic information of previous years (e.g. yield, input use etc). Loan applications are processed by financial providers, which communicate their decisions back to SYT and the farmers.
- Loans are disbursed directly (fully or partially depending on the model) to distributors who supply inputs to farmers directly or through a local stockist.
- In both models, farmers pay a deposit at the moment of approval. Repayment is directly from farmer to KCB / Tulaa after the harvesting period.



## Market linkage

- SYT facilitates access to market by supporting aggregation, storage, and by linking farmers with local buyers. Based on the number of approved loans, SYT estimates the expected volumes from the different areas. At the beginning of the season, SYT organizes buyer forums to share agronomic information with the buyers about the producing regions. By the end of the season, SYT provides a detailed route showing expected volumes and exact locations. Based on the route, agreements (either informal or contracts) are made with the buyers. CESPS communicate to farmer groups and connect them to the interested buyers. Aggregation could happen in two different ways:

### *Virtual aggregation (tomato & potato)*

- Farmers gather their product together in pre-defined locations. There could also be multiple aggregation places for one farmer group, depending on proximity.
- Farmers agree on a common selling price. SYT supports farmers in setting the price and negotiates with the buyer.

### *Physical aggregation (potato)*

- SYT supports local farmer associations in setting up cold storages for potatoes. By storing during high season, farmers can sell their produce when supply volumes are lower (therefore receiving a higher price).



## Insurance

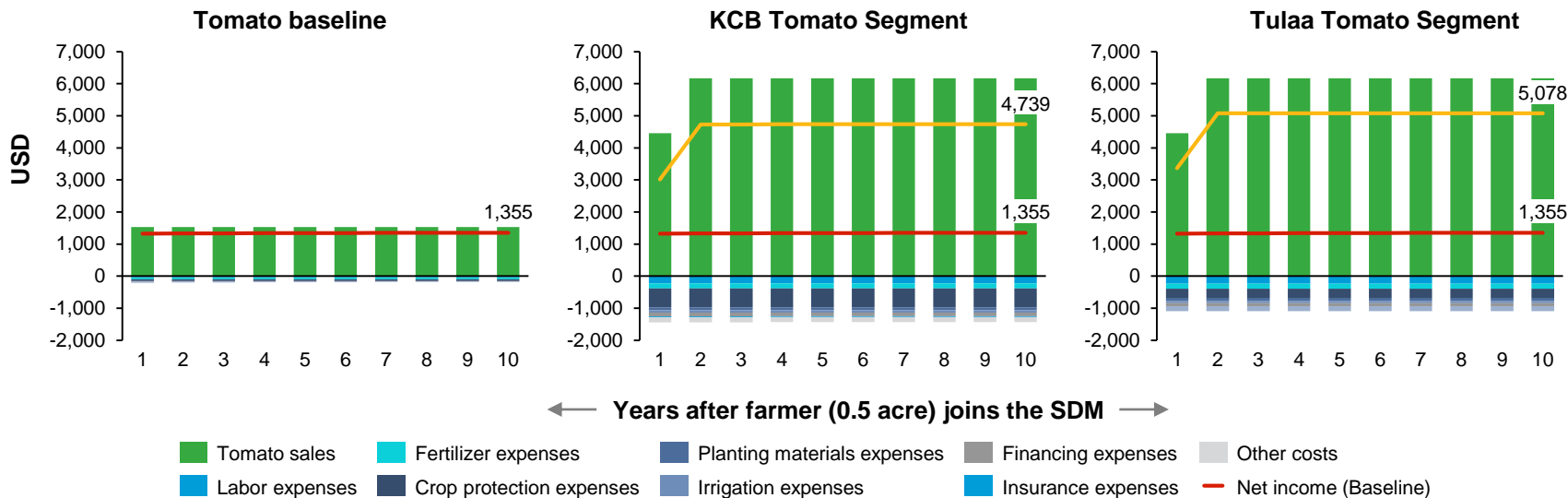
### *Current insurance product:*

- Insurance is currently facilitated by Syngenta and cover is offered by APA.
- The current insurance is a hybrid product, consisting of 20% multi-peril and 80% weather. In case of crop failure due to a calamity, the insurance company pays back to KCB the full cost of the bundle. Insurance only covers the loan amount and not loss of yield for the farmer. Premium for insurance is paid directly by the bank and taken out of the loan amount for each farmers.
- To receive the compensation, farmers need to fill a claim form based on data collected at farm-level. In case of multi-peril accidents, SYT supports farmers to fill the form. This is a manual, time consuming process. In case of weather-related issues, the data collection is centralized and the insurance company directly pays back the full cost of the bundle to all the farmers included in the affected areas.

### *Insurance derivative product (Re-insurer):*

- SYT is collaborating with an insurance company to develop a digital product to cater for weather for SDM farmers. The model uses weather data gathered from third-party companies to decide when farmers need to receive insurance coverage.
- SYT is developing an app to share agronomic information of SDM farmers with the insurance company for crop cover for SDM farmers. Based on these information, the insurance company will determine the amount of financial coverage to give to farmers in case of a calamity.

# Tomato Farm P&Ls: overall impact



## Economic sustainability at farm level

The above graphs show the P&L for baseline and SDM tomato farmers. The data used for the construction of the P&L was provided by Syngenta agronomists. The baseline tomato farmer has a net income of USD 1,328 from a 0.5 acre farm. The average baseline farm has 0.5 acres of tomato cultivation and has been taken as the farm size to compare across segments. SDM farmers (both Tulaa and KCB segments) realize similar yields. During the first year of participation, their yields are lower than subsequent years and as a result they also receive lower revenues from tomato sales. Moreover, they also have higher labor expenses for land preparation in the first year compared to later years thereby reducing their net income. Once they are 1 year in to the program, their annual net income reaches USD 4,828 for KCB and USD 5,146 for Tulaa from a 0.5 acre farm. The net income stays stable (with slight yearly increases) for the next 10 years. Tulaa and KCB farmers get similar yields and revenues from tomato sales. Due to lack of knowledge about the decision making of Tulaa farmers we have assumed that they are also using SYT products. However, it is important to mention that the selection of other inputs not included in the bundle might negatively affects yields. This can lead to Tulaa farmers earning a lower income than KCB farmers but still higher than the baseline due to the adoption of other services provided by SYT.

## Main cost drivers

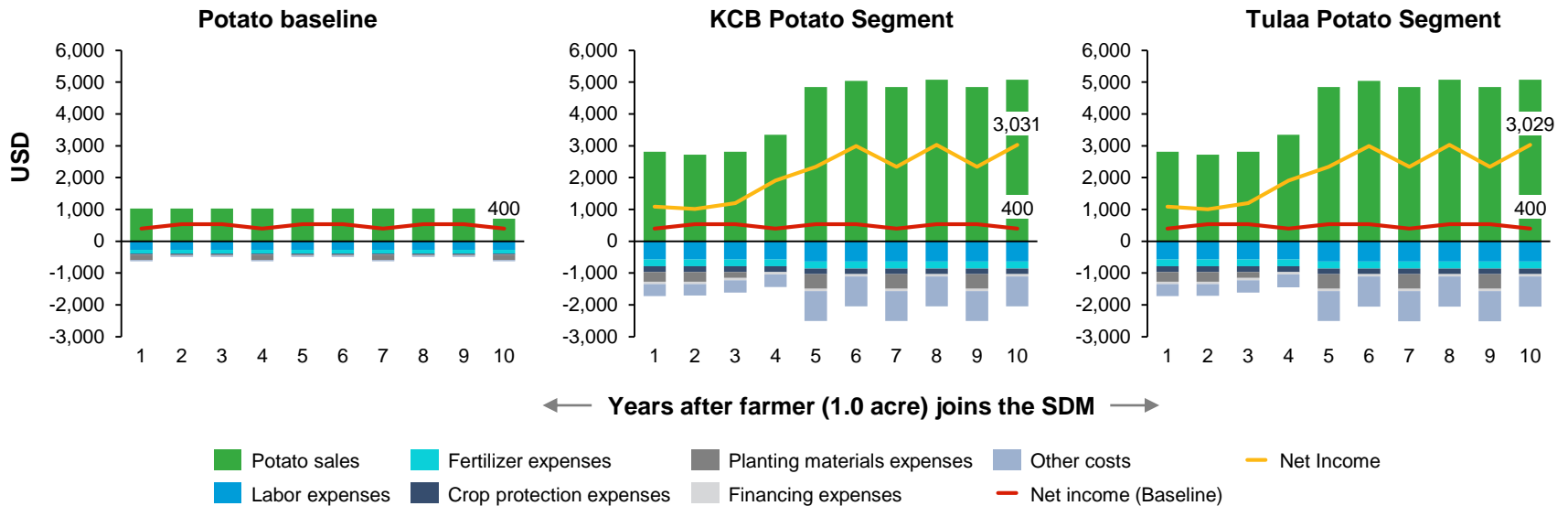
- **Inputs:** Crop protection purchase is the largest expense for the SDM farmers. This is followed by labor expenses and expenses for the purchase of fertilizers and seeds. In total, purchase of inputs accounts for over 58% of all costs and is about 13 – 14% of their revenues. Unlike KCB farmers, Tulaa farmers can decide to buy non-SYT products. Moreover, some of the inputs may be bought with cash rather than using loans.
- **Labor:** Hired labor is the next biggest cost category and accounts for 18% of total costs and 4% of revenues.

## Main revenue drivers

- **Production:** SDM farmers (22.5MT / acre) have significantly higher yields than baseline farmers (7.5MT / acre) which is a key driver of higher revenues.
- **Farm-gate price:** SDM farmers also receive an average farm-gate price of KES 30/kg of tomato versus KES 25/kg for baseline farmers. This is due to the fact they SDM farmers time their harvest to avoid selling immediately after the rainy season when prices are low.



# Potato Farm P&Ls: overall impact



## Economic sustainability at farm level

The above graphs show the P&L for baseline and SDM potato farmers. The data used for the construction of the P&L was provided by Syngenta agronomists. The baseline potato farmer has an annual net income ranging between USD 400 and USD 537. While revenues remain fairly constant, they have recurring potato seed costs that come up every two years. This results in lower net income during those years. The average potato baseline farm has 1.0 acres of potato cultivation and has been taken as the farm size for comparison across segments.

Both KCB and Tulaa segments of SDM farmers have very similar economics. From 2021 (year 5), the SDM potato farmers are expected to start using certified seeds which will significantly increase their yields and revenues. Certified seeds are a significant expense but are cyclical in nature, since farmers can use small potatoes from the previous harvest as seeds for the next three seasons after the year of the purchase. Hence, SDM potato farmers will only need to purchase seeds every two years, which results in their net income being lower in these years. During a seed purchase year, their income can drop as low as USD 2,338 per acre. In a year when they do not need to purchase seeds their income can be as high as USD 3,031 per acre.

## Main cost drivers

- **Labor:** Potato is a labor-intensive crop and hired labor forms the biggest cost category for farmers. In steady state, it accounts for up to 31% of total costs and up to 13% of revenues
- **Inputs:** In years where certified potato seeds are purchased, this forms the second biggest cost category. It can account for up to 18% of total costs and 9% of revenues

## Main revenue drivers

- **Production:** SDM farmers (10 MT / acre) have significantly higher yields than baseline farmers (3.7MT / acre) which is a key driver of higher revenues
- **Farm-gate price:** SDM farmers have access to cold storage facilities which allows them to store potatoes for up to 4 months and sell them when prices are high. They can receive up to 30 KES/kg as compared to about 18 KES/kg for baseline farmers



# Tomato farmers resilience

**Tomato farmers (KCB segment) annual net income ('000 USD/year) for varying product prices, yields and land size, year 7 of SDM**

Farm-gate price* (USD/MT)	Yield (MT/acre/season) →					Farm-gate price* (USD/MT)	Land size (acre) →				
	7,5	15	22.5	30	37.5		0.5	1.5	3	5	7
192	1	9	17	26	34	192	3	9	17	29	41
289	5	17	29	42	54	289	5	15	29	50	69
366	8	24	40	55	71	366	6	20	40	66	92
433	11	30	48	67	85	433	8	24	48	80	113
529	15	38	61	83	106	529	10	30	61	101	141
616	19	45	72	98	124	616	12	36	72	119	167

Current projection

Below poverty line\*\*

**Tomato farmers (Tulaa segment) annual net income ('000 USD/year) for varying product prices, yields and land size, year 7 of SDM**

Farm-gate price* (USD/MT)	Yield (MT/acre/season) →					Farm-gate price* (USD/MT)	Land size (acre) →				
	7,5	15	22.5	30	37.5		0.5	1.5	3	5	7
192	3	11	19	27	36	192	3	10	19	32	45
289	7	19	31	44	56	289	5	16	31	53	74
366	10	26	41	57	73	366	7	21	41	69	97
433	13	32	50	69	87	433	8	25	50	84	117
529	17	40	62	85	108	529	10	31	62	104	146
616	21	47	74	100	126	616	12	37	74	123	172

## Discussion

As farmers face uncontrollable threats (e.g. extreme weather events, market price fluctuations, pests etc.), it is important to understand how changes in key agronomic variables would impact farmer's income. The tables show sensitivity analyses of SDM tomato farmers net income in year 7 (2023) at varying product prices, yields and land size. The red boxes present the estimated net income from this study. Year 7 was chosen for this analysis because both land size and yields are assumed to become stable after that year. Values used for determining the price range are based on the lowest and highest tomato prices registered in Kenya in 2017.<sup>1)</sup>

The sensitivity analysis shows similar results for KCB and Tulaa farmers. In both cases, farm size has a larger impact on farmer's net income as compared to yield. This underlines the need for SYT to support farmers in expanding their farming business, which can generate benefits both for farmers who can increase their net income as well as for SYT because of the consequent increased sales volumes.

Tomato farmers are far above the poverty line. Only in the case of a yield of 7.5 MT/acre/season and with a low price of 192 USD/MT KCB tomato farmers would be below the poverty line of 1,472 USD/year (for a 4.4-members household).<sup>1)</sup> In all other cases, tomato farmers earn an income that would enable a household composed by 7 members to be above the poverty line.

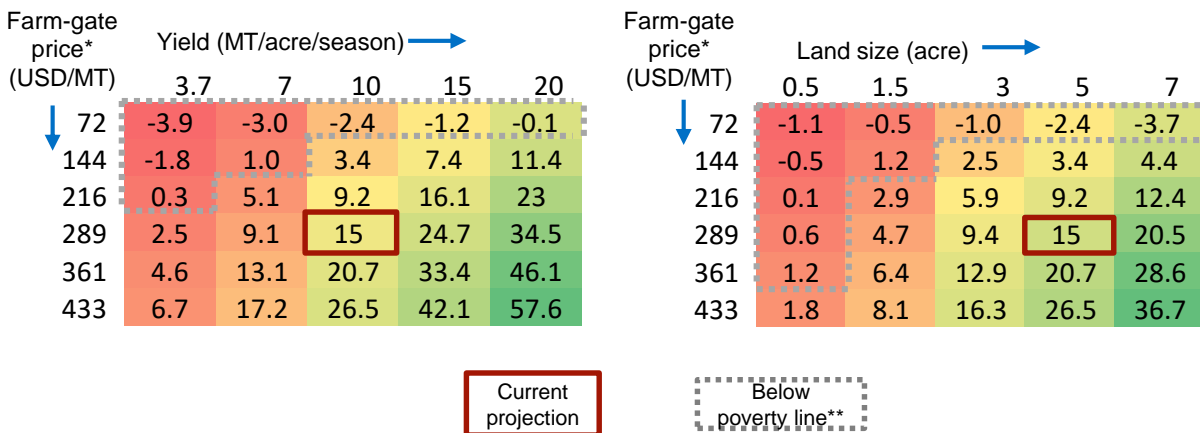
Sources: **1)** Syngenta (2018), MavunoZaidi (MZ): Targeting emerging farmers via integrated 5A approach; **2)** World Bank (2018), Online PPP database, private consumption **3)** Kenya Demographic and Health Survey 2014

\* This farm-gate price is a projection assuming that the rest of the value chain will keep the same margins under fluctuating tomato market prices.

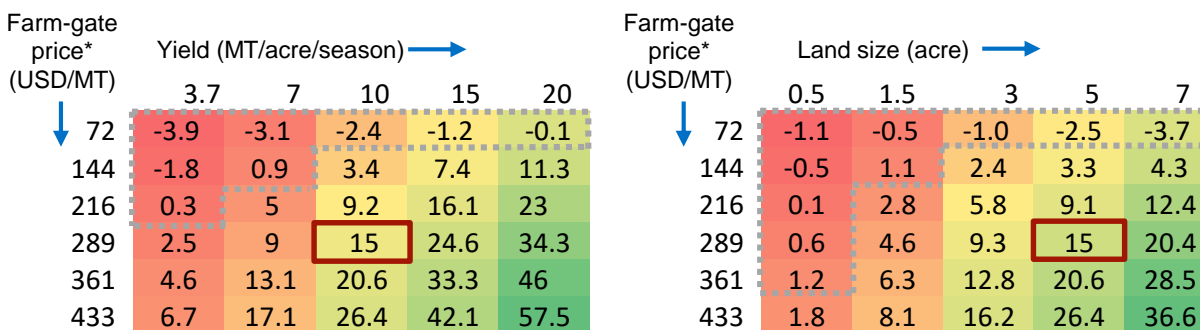
\*\* Based on the international poverty line of 1.9 USD/capita adjusted using PPP conversion factor for Kenya<sup>2)</sup> and assuming 4.4 household members<sup>3)</sup>. This assumes tomato is the only income source of the entire household

# Potato farmers resilience

**Potato farmers (KCB segment) annual net income ('000 USD/year) for varying product prices, yields and land size, year 6 of SDM**



**Potato farmers (Tulaa segment) annual net income ('000 USD/year) for varying product prices, yields and land size, year 6 of SDM**



\* This farm-gate price is a projection assuming that the rest of the value chain will keep the same margins under fluctuating potato market prices.

\*\* Based on the international poverty line of 1.9 USD/capita adjusted using PPP conversion factor for Kenya<sup>2</sup> and assuming 4.4 household members<sup>3</sup>. This assumes potato is the only income source of the entire household

## Discussion

The tables show sensitivity analyses of SDM potato farmers net income in year 6 (2022) at varying product prices, yields and land size. The red boxes present the estimated net income from this study. Year 6 was chosen for this analysis because both land size and yields are assumed to become stable after that year. Values used for determining the price range are based on the lowest and highest potato prices registered in Kenya in 2017.<sup>1)</sup>

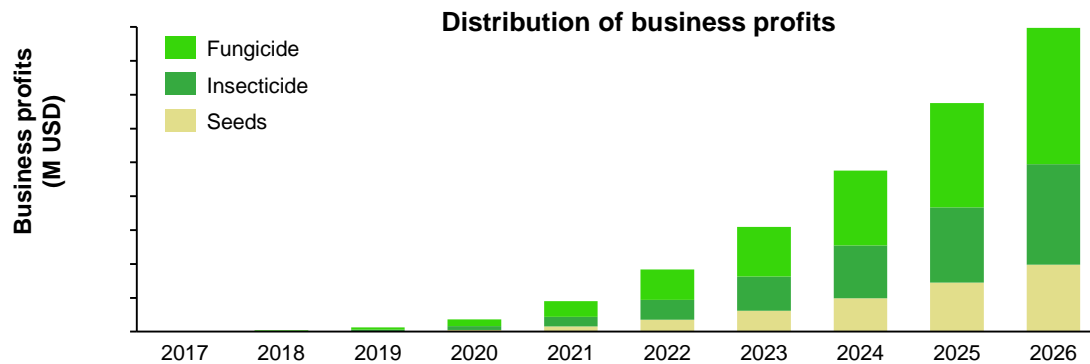
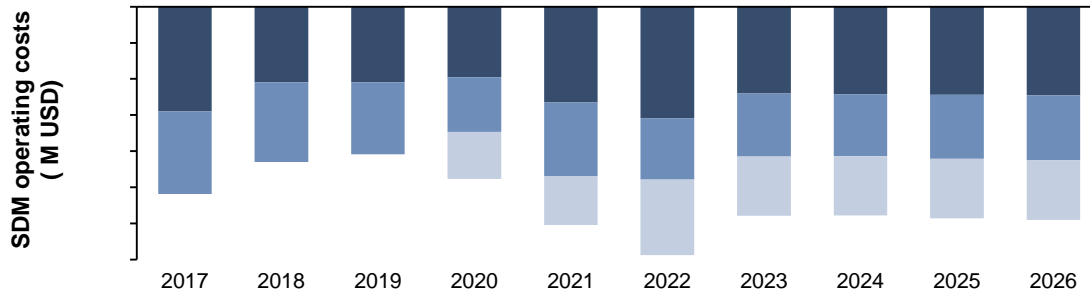
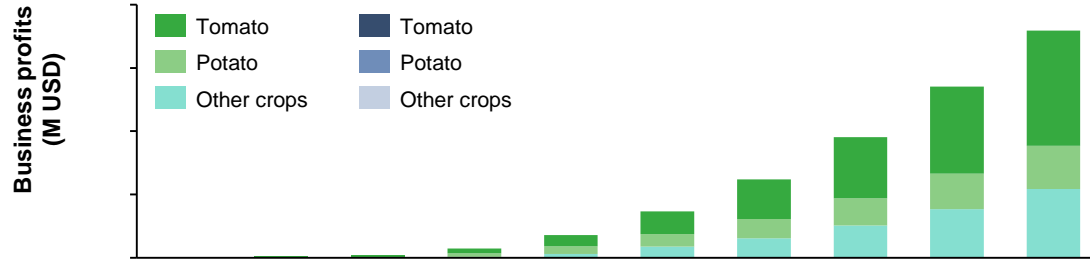
The variation in net income is much smaller as compared to tomato farmers. This is mainly due to the higher profitability of tomato farming as compared to potato farming (see pages 30 and 31). Moreover, in this case, yields have a larger impact on farmer's net income as compared to farm size. Hence, it is crucial for SYT to focus on making sure that farmers are adopting GAP to increase their chances of higher yields.

With current assumptions, potato farmers are far above the poverty line. However, they are more vulnerable to changes in prices and land size than tomato farmers. For instance, farmers cultivating on a 0.5 acre would be able to earn a net income above the poverty line of 1,472 USD/year (for a 4.4-member household).<sup>3)</sup> only in case of very high farm-gate prices. This underlines the need for farmers to expand their farm size to increase their resilience against price fluctuations. However, if price drops by 4 times as compared to current assumptions, farmers won't be able to generate any income, regardless of land size or yield levels.

Sources: 1) Syngenta (2018), MavunoZaidi (MZ): Targeting emerging farmers via integrated 5A approach; 2) World Bank (2018), Online PPP database, private consumption 3) Kenya Demographic and Health Survey 2014

# Annual SDM operating costs and business profits

Annual SDM operating costs (000s USD) and business profits (M USD)



## Discussion

The SDM operates as a cost center since it incurs costs for delivering services but does not receive any direct service revenues. The annual SDM costs vary for each crop. This is a result of specific needs of the crop and the number of existing and new farmers per crop in each year.

From 2020 onwards, **the biggest costs incurred are towards tomato farmers.** SDM costs for potato farmers comes next in most years except in 2022 when many new other crop farmers are added resulting in higher SDM costs for this segment.

The business profits (calculated as margins on products sold to farmers in the SDM), **are highest for product sales to tomato farmers** followed by other crop farmers (from 2023 onwards). This is primarily due to product bundles from tomatoes and other crops containing Syngenta agrochemicals as well as seeds. **Product sales to potato farmers provide the lowest net business profits** since Syngenta does not make a profit on the certified potato seeds.

Looking at the overall SDM, the costs of running the SDM relative to the business profits are very high in first few years but goes down significantly by 2026 as the number of total farmers in the SDM increase. However, it is important to mention that these figures are estimated assuming a 100% retention of farmers, 60% loan approval rate and under the assumption that farmers will increase their farmland size, which are optimistic assumptions. The impact on the business profits if some of these variables change is tested in a sensitivity analysis discussion, later in this report.

# SDM outcomes and main learning questions

## (1/2)

*These are not an official assessment of SDM success or failure by IDH or NewForesight, but an indication based only on the analysis done in this forward-looking study, and on assumptions provided by the case owner(s). Actual assessment of success of the SDM should be conducted during and after the SDM is conducted using measured results*

### SDM objectives

### Projected outcomes

<p><b>1</b> Increase sales through improved affordability and use of high-quality seeds and agrochemicals</p>	<ul style="list-style-type: none"> <li>• Increased long term security and stability of sales of farm inputs.</li> <li>• Increased yield and farm resilience through higher use of high-quality inputs by farmers</li> </ul>
<p><b>2</b> Improve farmer livelihoods by increasing productivity</p>	<ul style="list-style-type: none"> <li>• Increased farmer income from higher volume and quality</li> <li>• Improved farmer loyalty</li> </ul>
<p><b>3</b> Improve market linkages to connect buyers to producers</p>	<ul style="list-style-type: none"> <li>• Increased bargaining power to negotiate farm-gate price and agri-input prices</li> <li>• Increased long-term security of sales through farmer retention</li> </ul>

### Learning question

### SDM insights

**What is the impact of the SDM on farmers' income?**

Considering revenues from sold SYT products, the model appears viable in the long-run under current assumptions. In the first three years of the SDM, revenues generated through the SDM were lower than the costs to deliver the services. However, the SDM is estimated to generate a positive return on investment from 2019 onwards (see page 40). Business revenues consist of margins made on agri-input sales through the SDM. Agrochemicals represent the major revenue stream over the ten-year period, namely 84% of total revenues. It is important to stress that the analysis is based on optimistic assumptions, namely 100% retention rates of old farmers, an average 60% of loan approval rate from 2022 onwards (4% in 2018), increase in number of farmers and an average increase in land size 1 acre (in 2018) to 3 and 5 acres from 2023 onwards (tomato and potato). A deep-dive on the impact of different farmer retention rates and average land size was performed to understand the impact of these key variables on the profitability of the SDM (see page 47). The cumulative business revenues would go down by 20%, 45% and 71% for an average retention rate of 75%, 50% and 25% respectively. The impact of stagnating farm land size on the SDM profitability is even larger. Total business revenues in 2026 are estimated to go down by 34% and 88% for a partial increase in land size (50% of current assumptions) and for no land expansion (stable at 2017 levels) respectively. In both cases, business revenues would be larger than costs, however, in the worst-case scenario (no farm land expansion), the cost to delivery services in 2026 will be around 27% of profits (instead of 3% estimated with current assumptions). Hence, it is essential for SYT to closely monitor loan approval rates, retention rates, default rates and farm land size levels to asses whether they are evolving within a satisfactory range, especially due to the higher cost that SYT has to bear for new farmers. Another important caveat of the analysis is that it does not take into account whether SDM farmers were already SYT customers before the start of the SDM. Hence, the estimated figures are based on the assumption that new farmers were not buying SYT products before joining the SDM.

# SDM outcomes and main learning questions

## (2/2)

*These are not an official assessment of SDM success or failure by IDH or NewForesight, but an indication based only on the analysis done in this forward-looking study, and on assumptions provided by the case owner(s). Actual assessment of success of the SDM should be conducted during and after the SDM is conducted using measured results*

Learning question	SDM insights
<p><b>Can the number of farmers who benefit from the services be scaled up? What are the key bottlenecks to doing so?</b></p>	<p>The analysis takes into account scaling up operations from 26,000 to 160,000 farmers by 2026 (farmers who are sensitized). However, the final number of farmers benefitting from the services will depend on the loan approval rate. By assuming a loan approval rate of 60%, SYT will be able to reach 96,000 farmers by 2026 with current scaling assumptions. However, four major bottlenecks were identified that need to be overcome in order to successfully scale up operations:</p> <ul style="list-style-type: none"> <li><b>a. CESPS staffing:</b> One of the major cost driver for SYT is staff salaries. As the SDM scales up, the number of CESPS needed increases. The number of CESPS needed is influenced by several factors including the ratio of existing and new farmers, the crop under consideration as well as whether loans are provided by Tulaa or KCB (see page 45 for forecasted CESPS need under different scaling scenarios).</li> <li><b>b. Availability and affordability of loans:</b> All SDM services are directly dependent on the availability of loans to farmer. In 2017 (and 2018) only 4% (and 6%) of all SDM farmers were approved for a loan. The approval rate of loans will also be significantly influenced by the default rate of farmers as low or delayed repayment impacts farmer's ability to receive a loan for the subsequent season.</li> <li><b>c. Transaction costs of loans:</b> Long lead times associated with loans from KCB sometimes result in loans being approved too late for the farmer to effectively acquire inputs for the season. Tulaa's platform makes the end-to-end loan process very efficient and it is assumed that from 2020 KCB's Mobigrow platform can also bring in similar efficiencies. A closer support to KCB can be beneficial to ensure the success of the implementation of Mobigrow.</li> <li><b>d. Limited geographical scope of FIs:</b> The scope of the financial service provider (Tulaa) can be a barrier for SYT to scale up operations. Scaling SDM operations through Tulaa has certain limitations due to Tulaa's limited geographical coverage across Kenya.</li> </ul>
<p><b>How much do the services contribute to an increase in farmer income?</b></p>	<p>The major economic benefit for SDM farmers is the additional income from adoption of <b>good agricultural practices</b>, <b>appropriate use of high-quality agri-inputs</b> (crop protection, fertilizers and improved seed varieties), <b>use of irrigation</b> (for tomato farmers only) and <b>facilitated access to market</b>, which enable farmers to increase their yields and at the same time to receive a higher farm-gate price. Tomato farmers are able to increase their income from USD 1,355 to USD 4,739 and USD 5,078 per 0.5-acre for KCB and Tulaa segments respectively. Concerning potato farmers, their income increases from USD 400 to 3,031 and USD 3,029 per acre for KCB and Tulaa segments respectively. These results show the significant positive impact of the SDM on farmer's income. An important thing to note is that the cost of production for Tulaa farmers can be higher than what estimated in this analysis. As Tulaa farmers are not restricted to the fixed bundle, they could buy more expensive agri-inputs. Moreover, the selection of other inputs not included in the bundle might negatively affects yields. This can lead to Tulaa farmers earning a lower income than KCB farmers but still higher than the baseline due to the adoption of other services provided by SYT.</p>

# Key insights



## Key drivers of success

- Sensitization and mobilization activities are key drivers to increase the chances for loan approvals and reduce the likelihood of re-payment default.
- Ensuring that farmers get access to market is essential for the long-term sustainability of the SDM. Facilitating access to market to farmers builds trust and loyalty.
- The relationship with FIs and buyers is a key driver to ensure the success of the scaling the SDM:
  - To ensure the adoption of the digital tool (Mobigrow)
  - To increase trust of Tulaa farmers
  - To continue to strive for strategic off-take agreements.



## Key factors in replication

- **Digital financial tool (Mobigrow).** In case of replication of the model, SYT must consider the use of a digital financial tool to increase efficiency of service delivery.
- The **market linkage service** ensures that farmers get organized and helps them to achieve higher incomes through the establishment of strategic off-take agreements. SYT can promote the establishment of such agreements when they replicate the SDM to other crops.
- The use the automated **digital insurance products** based on weather data ensures scalability and replicability of the SDM, as it drastically reduces labor cost.



## Key risks

**The SDM model strictly depends on the number of farmers accessing loans and on the total acreage covered. Hence, four major risks for SYT are:**

- Low approval rates
- Low retention rates
- High default rates
- Stagnating farm land size

**The high dependency on partners to scale up operations represents a major risk for SYT:**

- **Delays or failure from KCB to implement the digital tool Mobigrow represents a major risk that can lead to higher costs.** To avoid drastic increases in overhead costs, SYT must closely monitor the development of the digital tool and prepare mitigation strategies in case of failure.
- **Tulaa segment farmers do not have a fixed bundle. This can reduce business opportunities for SYT.** Moreover, the limited geographical coverage of Tulaa operations can pose restrictions on the scaling strategy of SYT or on the replication of the SDM to other crops.



## Opportunities for improvement

- **Provide training only to farmers that have been approved for a loan.** In this way, SYT can significantly reduce SDM cost and at the same time have more financial resources to be used to expand their farmer outreach (sensitization).
- **Strengthen the relationship with FIs by adopting a collaborative approach.** Regarding KCB, SYT can consider to contribute to the creation of Mobigrow by providing more support during the design phase to KCB to ensure the success of the tool. For Tulaa, SYT should further explore the opportunities for guiding farmers towards SYT products
- **Create an M&E system tailored for the SDM to monitor the impact generated on an annual basis and to closely check the progress of other variables (e.g. approval rates, retention rates and farm land size).** By gathering agronomic and service-level information, SYT will be able to understand the impact of the service delivery on farmer's income and to identify factors that can influence approval and default rates.
- **Diversify partnerships with FIs.** As SYT wants to scale up the SDM, it is crucial to establish partnerships with other financial institutions, especially if SYT plans to replicate the SDM in other countries.

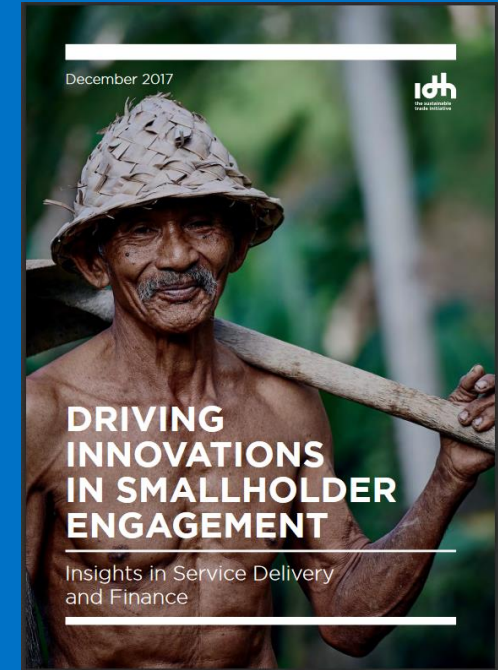
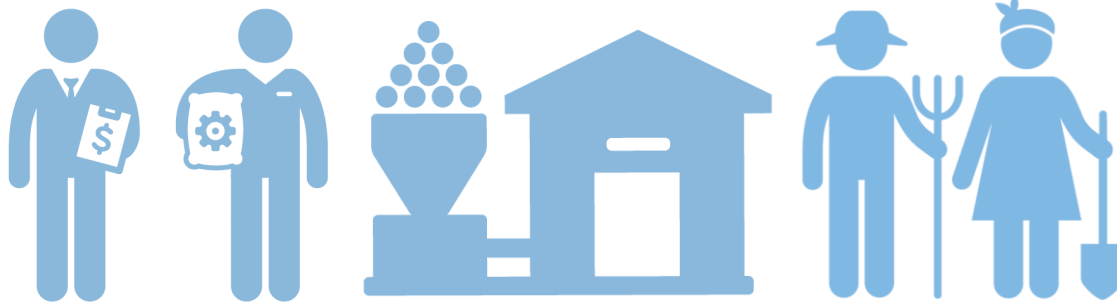


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For more information and insights on SDM's, see the [IDH Smallholder Engagement Report](#)