
Markets are Changing in Potato and Rice in Uganda



Resilient Efficient Agribusiness
Chains (REACH)-Uganda
2019 Annual Report



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(REACH)-Uganda 2019 Annual Report

International Fertilizer
Development Center

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Abbreviations and Acronyms

ACE	Area Cooperative Enterprise
BEAM	Building Effective and Accessible Markets
CKB	Charles K. Byarugaba Clean and Quality Seed Production Enterprise
COMESA	Common Market for Eastern and Southern Africa
CSA	Climate-Smart Agriculture
DCA	Detailed Collaboration Agreement
DCED	Donor Committee for Enterprise Development
DGL	Diner's Group Limited
DIFACOS	Doho Irrigation Scheme Farmers Cooperative Society
DLG	District Local Government
DLS	Diffused Light Stores
EKN	Embassy of the Kingdom of the Netherlands
FAAB	Farming as a Business
FBG	Farmer Business Groups
KGCF	Kapchesombe Green Change Farmers Cooperative
KFRC	Kigezi Farmers' Resource Centre Limited
IFDC	International Fertilizer Development Center
ISB	Integrated Seed Business
KaZARDI	Kachwekano Zonal Agricultural Research and Development Institute
KIT	Royal Tropical Institute
KL	Kibimba Limited
LH	Lwoba Holdings
LSB	Local Seed Business
MAAIF	Ministry of Agriculture, Animal Industries, and Fisheries
MEL	Monitoring, Evaluation and Learning
MIFA	Mengya Integrated Farmers Association
MSD	Market Systems Development
MTR	Mid-Term Review
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organization
NGO	Non-Governmental Organizations
PFIL	Psalms Food Industries Ltd
REACH	Resilient Efficient Agribusiness Chains
QDS	Quality Declared Seed
RGC	St. Richards Group of Companies
SACCO	Savings and Credit Cooperative Society
SWT	SWT Tanners Ltd.
UNSPPA	Uganda National Seed Potato Producers Association
VSLA	Village Savings and Loan Association



Foreword

The events of the COVID-19 pandemic should not be allowed to overshadow the progress and success achieved by the REACH - Uganda project during 2019. This report documents successes registered in increasing farm productivity, profitability and improved dietary diversity. Further, the report demonstrates the progress that participating households have made towards increasing their resilience to shocks; critical given that during 2019, farming households experienced two climatic shocks. As we move into 2020, the COVID-19 pandemic has brought a series of new challenges for farming households.

It should be remembered, however, that the REACH-Uganda project is not just about farmers. Using a systems approach the project has in 2019 supported investments with private sector actors in both the potato and rice value chains. Through private sector partners, these have targeted improving farmer access to productive assets, delivery of technical assistance by businesses and boosting farmer access to vibrant profitable markets.

The phrase patient capital is often used to describe long term investments made in businesses, which are often not expected to show immediate returns. In this sense the project's market systems development approach is a form a patient capital. Readers of this report will see from the project's Theory of Change some of our greatest impacts will be felt outside of the current lifecycle of the project given the level of resource and time investment that is required from private sector partners - they are and must be the owners of this change process. However, readers will also realize that during 2019 the project has achieved many immediate tangible benefits for the farmers and firms who have actively participated in the project.

Without partners the ability of a project to effect change at any scale is limited. Therefore, we would like to acknowledge the support that we have received from our partners. This represents a wide range of actors from micro and small medium sized enterprises to large multinational companies. Further, it includes institutional stakeholders including the Ministry of Agriculture Animal Industries and Fisheries and the National Agricultural Research Organization especially the staff of Kachwekano Zonal Agricultural Research and Development Institute. Included in our thanks are also the staff and leaders of the ISSD Plus, AVSI SKY and SNV-TIDE projects as well as the team at our implementation partner Cardno - EMG. Acknowledgement must also be given to the team at the Embassy of the Kingdom of Netherlands Kampala, for their continued support and enthusiasm for our work.

The staff of the REACH-Uganda project, who rose to the challenges presented to them in 2019 must also be recognized. Through their commitment and dedication, the project delivered a highly diversified portfolio of partnerships and interventions, capable of influencing change at a systems' level.

After human life, the next victims of the COVID-19 pandemic have been certainty and predictability. Some certainties remain, the REACH-Uganda project will continue to strive to change lives for the better in a sustainable manner. Enabling households to better withstand shocks, both economic and climatic, whilst at the same time driving change within our target value chains at a systemic level.

To the readers of this report, we hope that it gives you pause for thought and highlights that, whilst change is difficult and takes time it is achievable.

01

Changes and Achievements in 2019

- 1.1 A Year of Change
- 1.2 Key Achievements in 2019
- 1.3 How to Read this Annual Report



1.1 A Year of Change

The International Fertilizer Development Center (IFDC) Resilient Efficient Agribusiness Chains (REACH) - Uganda project began 2019 with a mandate to implement

the recommendations of the Mid-Term Review (MTR) completed in October 2018. These recommendations are summarized as follows:

<p>1</p>  <p>Align all market development, pre-market development, and infrastructure investment activities around clear market-based strategies for potato and rice. This will ensure better coordination between the different components and make training and investments in roads and irrigation work in support of sustainable, inclusive business models.</p> <p>A market-based strategy works in support of commercially sustainable, inclusive business models but acknowledges that the short-term pre-market development activities can be useful to help business models get off the ground and value chains develop a degree of efficiency and resilience.</p>	<p>2</p>  <p>Revisit the business portfolio to better formulate the intended investments (in the partnership agreements), make them actionable, and speed up implementation.</p>
<p>4</p>  <p>Strengthen Monitoring, Evaluation, and Learning (MEL) by adopting the MEL practices advocated by the Donor Committee for Enterprise Development (DCED) Standard in support of adaptive portfolio management.</p>	<p>3</p>  <p>Reorganize the business facilitators to form one stronger, dynamic, creative team that can brainstorm the necessary business innovations, design and manage partnerships, and apply adaptive management to its portfolio. Partnerships always entail the adoption of innovative practices. The process of determining what may work, how to best implement this, and how to best monitor this is, therefore, never a 'standard' process and benefits from multiple views and team discussions.</p>

REACH-Uganda took action on all these fronts. In addition, 2019 saw the following main changes in the program:

<p>5</p>  <p>Phased out pre-market activities after accomplishing direct training project targets. Training and extension has transitioned to the embedded extension and agent networks of the business partners.</p>	<p>6</p>  <p>Negotiated and activated 18 new Detailed Collaboration Agreements, with a broad range of stakeholders related to the project's target value chains.</p>
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1.2 Key Achievements in 2019



Organization

- 1 REACH-Uganda adopted comprehensive market-based strategies for potato and rice.** These prioritize market-based solutions - the REACH-Uganda business partnerships portfolio define how these actions can build off project investments in pre-market development, notably training/facilitation on Farming as a Business (FaaB), Climate-Smart Agriculture (CSA), managing Farmer Groups (FGs) and Village Savings and Loans Associations (VSLAs) as well investments in infrastructure (roads and irrigation).

In both potato and rice, agribusiness can be a long-term driver of positive change in productivity, food security, and system resilience (farmers have access to more and better input and service options for managing their farms and selling their crops). In the short term, however, farmers' basic awareness of good agricultural practices, limited commercial exposure, and investment power can limit this potential. Selling to farmers and sourcing from them may require investments and efforts that are not immediately commercially feasible. Similarly, limited investment in infrastructure (resulting in poor roads, high transportation costs, high post-harvest losses, and poor control over water) may drive up transaction costs and risk beyond what a commercial venture can withstand.

Details of both strategies will be discussed in Chapter 2, 'Business Portfolio Performance in 2019'.

- 2 The entire portfolio of partnerships was reworked; all partnerships are now active.** In the process, the project reduced interactions with partners who were less active, while adding others with more energy to the portfolio. In total, nine partners were dropped and two were not developed further into Detailed Collaboration Agreements (DCAs). Upon further analysis of the rice and potato sectors, eight partners were added and one partnership was reworked. By the end of 2019, REACH - Uganda managed a portfolio of 17 active partnerships (i.e., all moving forward), surpassing its (log frame) target of 16 active partnerships. A further nine partnerships were developed in 2019 and formally signed in 2020 for a total of 26 partnerships with DCAs.

The entire REACH-Uganda portfolio is now active (no more 'sleeping,' partnerships on the books). The progress of the entire portfolio is discussed in Chapter 2

- 3 The project brought all of its business advisors together in Kampala to form the Business Innovation Team; this team was expanded with two business advisors, and two MEL specialists were recruited to form a single unit.** The Business Innovation Team and MEL specialists share one technical room. All actions combined have resulted in a much more dynamic office in which partners and results are actively and continuously discussed.

Better plans and a proactive team have sped up implementation.

- 4 A MEL system was set up in line with the DCED Standard to specifically capture the development value of the business portfolio.** This system relies less on repeat surveys and instead identifies a multitude of measurement points along the partnership results chain/theory of change to feed information into the (adaptive) management process. It also works out the development value of the commercial business model as it matures over time (and continues to deliver results).

The data in this report is derived from this MEL system.





Pre-Market Development and Infrastructure Development

- 5 REACH-Uganda completed 4,816 training sessions on Farming as a Business (FaaB), reaching 8,941 farmers (6,125 rice, 2,816 potato) from 504 farmer groups in Eastern and Southwestern Uganda.¹**

Cumulatively, 36,398 farmers have been trained on FaaB, exceeding the project target of 36,000. As a result, over 32% of potato and 79% of rice farmer groups that have been introduced to micro, small and medium enterprises (MSMEs) are now selling their produce to them. They have been able to appreciate the higher profitability with such engagements, and the agribusinesses can interact with better informed farmers. Rice farmers are now been able to link with the major rice processors in Eastern Uganda, particularly Diner's Group Limited (DGL) and St. Richards Group of Companies (RGC).

- 6 The project completed 4,816 facilitation sessions on CSA, reaching 8,941 farmers (6,125 rice, 2,816 potato) from 504 farmer groups in Eastern and Southwestern Uganda. Cumulatively, 35,536 farmers have been trained on CSA.**

As a result of the training, 99% of farmers are now using at least one of nine CSA practices, with 43% using five, including the production of ancillary crops to complement the primary cash crop. Research conducted by Wageningen University found that households that have engaged in the production of an ancillary crop are more resilient in the face of climatic and economic shocks than their counterparts who rely on only the primary cash crop of rice or potato.

- 7 REACH-Uganda completed 2,398 facilitation sessions on financial literacy/Village Savings and Loans Association (VSLA) management, established an additional 449 VSLA groups, and reached 7,268 farmers in Eastern and Southwestern Uganda.** As a result, 2,694 farmers from 119 VSLAs generated an additional U.S.

\$62,430 in savings, which was used for immediate needs and purchase of essential agro-inputs. Furthermore, farmers are now more knowledgeable about the importance of savings and how or where to access credit. Access to finance at household level has increased from 27% at baseline to 33% at the end of 2019. This incremental progress points toward a steady uptake of formal financing options (particularly Savings and Credit Cooperative Societies [SACCO]s) for investment, with reliance on VSLAs for short-term needs.

- 8 Over 67 kilometers (km) of road were completed or substantially completed, including an additional 23 km through new partnerships in Bulambuli and Rubanda districts.**

The roads provide access to input and output markets and other essential services for 156,848 community members. The five roads established also provide a more conducive operational environment for strategic partnerships in the business portfolio. For example, in rice the 5 km road in Bulambuli has been the catalyst for the development of a 5,000-acre irrigation scheme by SWT Tanners Ltd (SWT), shifting the balance toward a self-sustaining rice sector. In potato, the 26 km road in Kween helped unlock the main seed potato-producing area of Eastern Uganda, allowing Mengya Integrated Farmers Association (MIFA) and several other Integrated Seed Businesses to access a market for their quality seed.

- 9 Two irrigation schemes were completed in Elgon sub-region and will provide 204 acres of irrigation in Kapchorwa and Kween districts.** The gravitational flow systems will provide access to water for an additional 154 farmers, the majority of whom are seed producers in MIFA and Kapchesombe Green Change Farmers Cooperative (KGCFC), to enable a scale up of off-season seed potato production.



Market Development

- 10 REACH-Uganda signed agreements with KL, SWT, LWOBA and RGC to increase sourcing from multistage mills for 11,068 farmers by 2021.** This represents an additional 5.5% of all rice farmers in Eastern Uganda.

- 11 679 rice farmers from 45 farmer groups enjoyed better access to markets** as a result of collective sales, storage, value addition, and/or linkages with lead firms in both target value chains.

¹ In 2018, there was a change in methodology (content and modules) of training which resulted to re-training of some farmers already trained in 2017. However, when it comes to cumulative figures, only a unique count of all farmers trained by REACH is considered.

12 Seven new innovative business practices were introduced to the potato and rice sectors including the first commercial lowland rice seed production, commercial production of Dutch potato varieties, and new flavors of crisps introduced to the Uganda market.

13 Lead firms and service providers increased their sales turnover by USD 502,979 a further 48% from 2018. In addition, **44 full time jobs were created** through the business partnerships or continued employment post-internships.



Communications and Stakeholder Engagement

14 Four key learning products on resilience were developed in collaboration with the Royal Tropical Institute (KIT). The four papers, discussing CSA, gender dynamics, access to finance, and market development, were developed to improve the current knowledge and understanding on how these determinants contribute to improvement in household resilience. This was taken a step further though research conducted in collaboration with Wageningen University on whether this adaptive capacity enabled households to resist, respond, and transform in the face of shocks or setbacks. This is discussed further in Chapter 3.

16 Four partnership briefs were developed to better communicate how the project had operationalized Market Systems Development (MSD) in Uganda and demonstrate the potential of the approach. The briefs were developed on the first four partnerships benefiting from the portfolio revamp, namely Psalms Food Industries Ltd (PFIL), Kibimba Ltd, MIFA and DGL. The briefs were developed to communicate the rationale of MSD in potato and rice, illustrate what MSD looks like in potato and rice (how the partnerships are structured), and the show results they can achieve. These are available at <https://ifdc.org/projects/resilient-efficient-agribusiness-chains-in-uganda-reach/>

15 Other key research efforts and publications. The REACH-Uganda project team is aware of the need to be able to achieve triangulation of information on project impact and results. In this respect, project staff carried out two research activities in 2019. The first of these activities was to conduct a scientifically based crop yield assessment to establish farmers' productivity performance independent of farmer recall. This was performed on a small sample size, which is statistically valid but too small to be representative of the project's total farmer participation. However, the findings from this research do indicate that farmers underestimate their yields, especially as result of overestimating their field size.

17 A two-day seminar on Measuring the Market Systems Development Approach's Impact on Food Security was organized. The purpose of the seminar was to enable agribusiness and MSD practitioners, donors, and other stakeholders to share practical experiences of the MSD approach and discuss the results in relation to food and nutrition security in Uganda. There was strong interest in sustaining continued dialogue about applying the MSD approach in Uganda, which could provide the foundation of a working group in MSD through the Building Effective and Accessible Markets (BEAM) exchange.

The second study performed by the project was a socio-economic impact study of the road constructed within the Doho Rice Scheme in Butaleja. The baseline assessment was conducted before the road work commenced. A follow-up assessment was conducted approximately six months after the completion of the work. The research revealed that transport charges for farmers dropped by approximately 58% while overall farmer productivity rose.



1.3 How to Read this Annual Report



Chapter 2

Illustrates the market strategies for potato and rice that REACH-Uganda adopted in 2019 and the Theory of Change (including high-level results).



Chapter 3

Contains a detailed discussion on progress in 2019 for the market development business portfolio, infrastructure work, pre-market capacity development activities and household resilience. This chapter covers both objective 1 (market development) and objective 2 (pre-market development) of the REACH-Uganda project.



Chapter 4

Presents the synergies, lessons learned, and next steps including an analysis of the challenges created by the COVID-19 pandemic and the solutions required to protect the investments made by the project partnerships to date.

02

Business Portfolio Performance in 2019

- 2.1 Progress Implementing the Market-Based Strategy for Potato
- 2.2 Progress Implementing the Market Based Strategy for Rice
- 2.3 Portfolio Theory of Change and High-Level Results





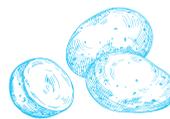
2.1 Progress Implementing the Market-Based Strategy for Potato



Market-Based Strategy for Potato in Brief

Potato is a fast-growing, high-value cash crop and very nutritious and thus relevant for poverty reduction and food security in Uganda. However, its potential is far from being realized and its production and resilience is at risk due to poor cultivation practices and changing weather patterns. The near absence of an organized seed potato supply chain suppresses yields and increases the prevalence of diseases in the crop. Also, the near absence of potato varieties suitable for processing (French fries) hampers the development of a local potato processing industry. Poor seed, relatively high costs for agrochemicals, low yields, and low returns result in less savings and another low investment cycle the following season. Better seeds, balanced application of inputs, controlled access to water, and more affordable financial options will help break this cycle. Figure 1 illustrates the REACH-Uganda potato strategy.

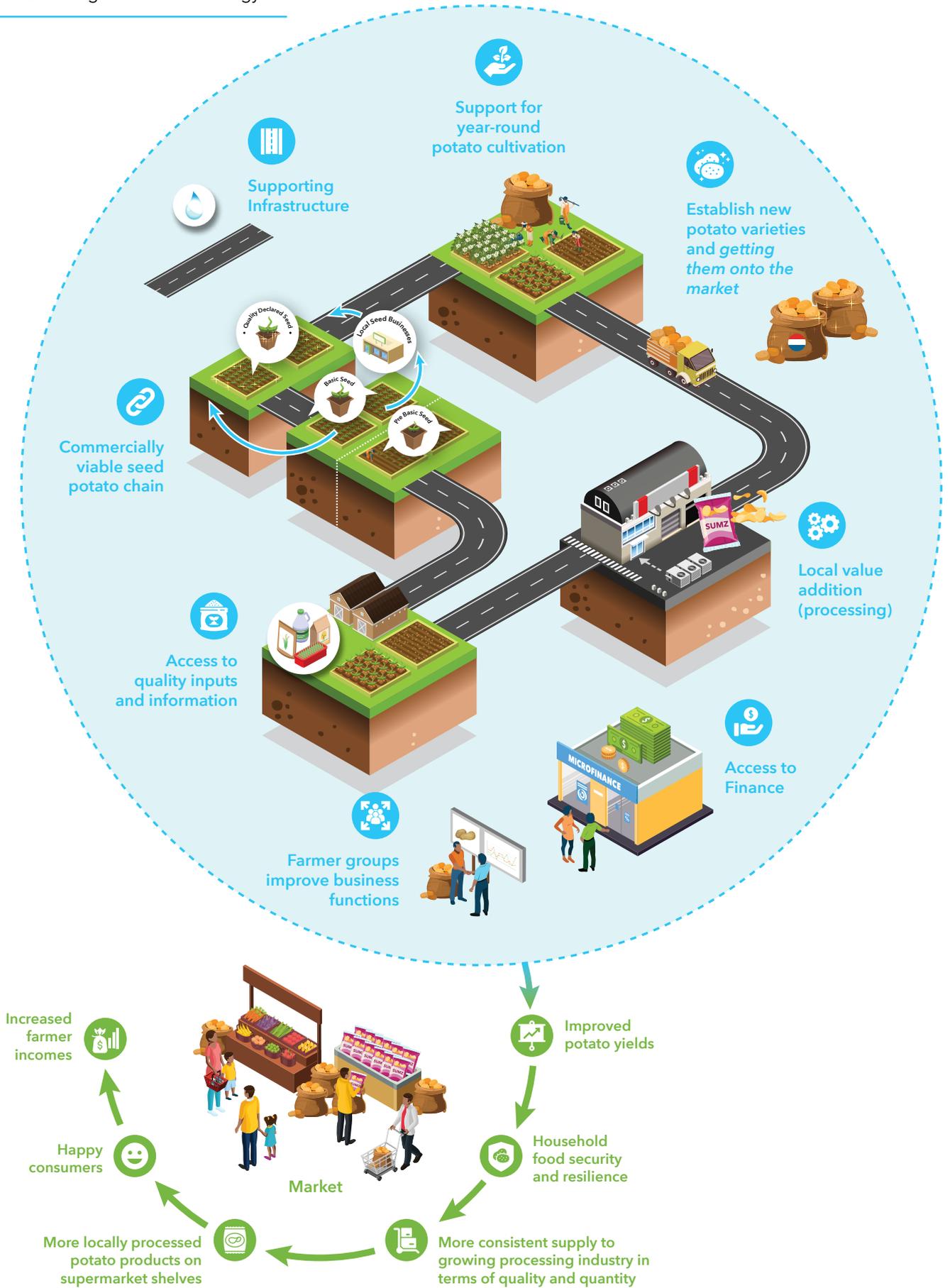
In 2019, REACH-Uganda worked on all of these key issues, but the focus was on the first two constraints mentioned: establishment of a commercial seed industry and introduction of commercial (Dutch) potato varieties to Uganda.



Potato is a fast-growing, high-value cash crop and very nutritious and thus relevant for poverty reduction and food security in Uganda.

Figure 1

REACH-Uganda Potato Strategy





1 A first-of-its-kind, fully commercial seed potato (multiplication) supply chain has been established, from the in-vitro plantlet laboratory (which uses germplasm to produce plantlets) to Integrated Seed Businesses (ISBs) which can multiply plantlets in screenhouses into mini-tubers, then pre-basic seed and basic seed and Local Seed Businesses (LSBs) which can multiply pre-basic seed into Quality Declared Seed (QDS) suitable for retailing to farmers. Parts of this supply chain were active before, albeit in a fragmented manner. Farmers traditionally bought plantlets from the National Agricultural Research Organization (NARO), but since their mandate is research and not multiplication, supply was insufficient and erratic. Government and development actors occasionally sourced plantlets from privately owned and managed in-vitro laboratories and established screenhouses for farmer groups, but this did not result in sustained economic activity.

In 2019, REACH-Uganda built up a complete chain of actors doing business with each other - the project facilitates the commercial process, cost-shares the necessary investment in infrastructure (screenhouses, diffused light stores [DLSs]), and creates the environment for these commercial actors to do business.

In 2019, four ISBs and two LSBs committed to investing USD 50,364 to build six screenhouses and eight DLSs. Through the various multiplication stages explained above this infrastructure will produce 2,428 metric tons (mt) of QDS per year,

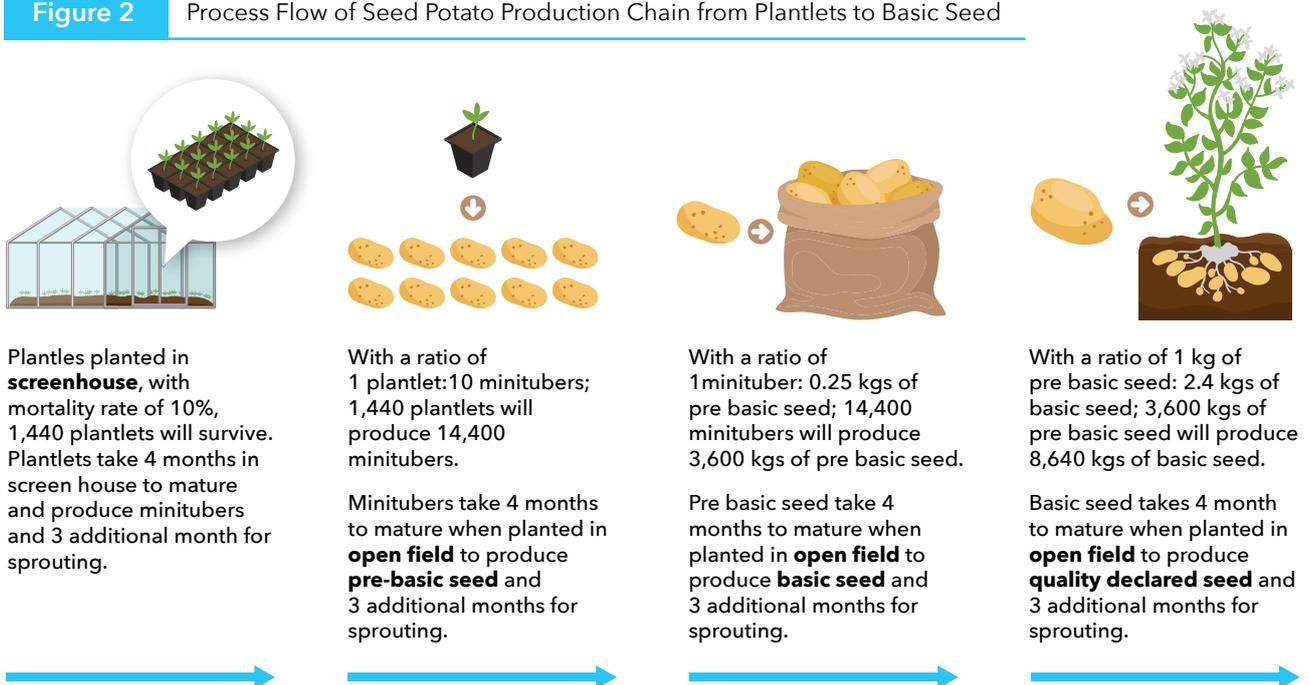
sufficient to supply 5,994 farmers (based on farmers renewing seed every three seasons, 800 kilograms [kg] of seed potato used per acre, and an average plot/field size of 0.5 acres), increasing yields on average from 3.9 mt/acre to 6.63 mt/acre. This represents 20% of the total estimated potato seed demand per annum in the country. With the four additional agreements signed with ISBs in 2020, demand coverage will increase to an estimated 36%.

This is a breakthrough in a country that has thus far lacked such an infrastructure to produce quality seed, which is the main impediment for sustainable development of potato in Uganda.

In the East, MIFA’s three screenhouses and the two LSBs (KGCFC and Sukutu Multipurpose Women Group [SMWG]) can serve up to 5% of farmers needing seed potato per year nationwide, and specifically 48% of farmers in the Elgon sub-region, where seed is currently sourced from Southwestern Uganda at significant cost.

In the Southwest, the three screenhouses operated by Charles K. Byarugaba Clean and Quality Seed Production Enterprise (CKB), Kigezi Farmers’ Resource Centre Limited (KFRC), and Muyambi can serve up to 15% of farmers in the Southwest needing seed potato per year. Thus, comparable investments with other ISBs in the Southwest can potentially meet the demand for seed by another 15% per annum.

Figure 2 Process Flow of Seed Potato Production Chain from Plantlets to Basic Seed





2 A first-of-its kind, fully commercial seed potato (multiplication) supply chain for commercial Dutch potato varieties has been established. Registration of several Dutch varieties (Markies, Sagitta, Voyager, El Mundo, Connect, Sarpo Mira, and Arizona) was completed in 2017. In 2018 Taurus and Panamera, Common Market for Eastern and Southern Africa (COMESA)-listed varieties, were also approved as potential imports.

However, the real breakthrough in 2019 has been to make local multiplication of Dutch varieties feasible by developing a business model for it. Local seed potato (often old, fake, and diseased; sometimes younger and fresher) is much cheaper than genuinely clean planting material. Because distinctions between varieties are NOT made (traders mix them all up) in the local market, the challenge was to establish a separate channel for seed multiplication and ware potato production serving specific clients in search of potatoes with specific characteristics (size, dry matter content, skin color) who are willing to pay a premium for this.

REACH-Uganda assisted Namakwaland Farm/Highgrow Agri in securing a license from HZPC (a Dutch seed breeder) for importing certified seed to grow ware potato and elite seed for local multiplication. Highgrow Agri was able to establish relationships with and ensure provisional orders from high-end buyers, including Café Javas, Chicken Express, and PFIL, for approximately 40 mt of processing varieties per month that were not previously available on the Ugandan market, particularly Taurus, Panamera, and Markies. These high-end buyers are willing to pay a premium for these varieties, given that they have less

wastage and higher dry matter content compared to local varieties, resulting in a higher quality finished product.

In addition, partnerships were under development with three additional seed producer businesses in the Rwenzori region, which are similarly capable of establishing seed businesses of Dutch varieties, to provide quality seed and to serve the emerging processing industry in Uganda with suitable ware potato. These three seed producer businesses will generate an additional annual seed production of 900 mt per annum of Dutch seed varieties.

In support of these main developments, the following progress in other areas of constraint was made.

3 Irrigation works were completed, and more initiated, to provide controlled, year-round access to water in support of seed potato production. KGCF has set up a water user committee to manage and regulate water along the newly established irrigation pipeline. By the end of 2019, 4.5 acres of additional KGCF land was used for cultivation due to access to irrigation. Using the same irrigation line, it is expected that 10 KGCF members with 37 acres of land and 23 surrounding farmers with 46 acres of land will have year-round access to water. CKB has also established a pressure compressing drip irrigation system on 3.2 acres for its seed potato production. By the end of 2019, MIFA's seed production was boosted by a 2.8-km irrigation pipeline that provides access to water for 30 MIFA members, and an additional 91 surrounding farmers in future seasons.

4 11,312 potato farmers (from 885 Farmer Groups) have been trained in FaaB and CSA. In 2019, 2,816 potato farmers from 254 farmer groups were trained in FaaB and CSA. By the end of 2019, REACH - Uganda had trained 11,312 farmers (4,062 men and 7,250 women) from 885 FGs in FaaB and CSA. Potato farmers were trained on pre-planting (land preparation, seed selection, and site selection), planting (pest and disease management, planting seed, and weeding), and harvesting (crop harvesting and post-harvest handling) techniques. These farmers were also trained on crop marketing and recordkeeping for better management of finance and increasing the commercial value of their respective farmer groups.

5 Over 52 kilometers of road was rehabilitated to link potato production to markets. In 2019, in the Southwest, a 7.85-km road was established, running from Rutenga to Kirimbe in Kanungu District, and an 18.1-km road connecting Ihanga, Kyamabare, Butobore, and Nyaruhanga was rehabilitated in Rubanda District. This road network is expected to connect KFRC's seed business with local market centers. According to baseline studies conducted by REACH-Uganda, the chain of roads in the Southwest is expected to reach a population of 85,673. In the East, a 26.13-km road was substantially completed in Kween District, which will benefit MIFA and SMWG seed businesses and a population outreach of 30,515.



2.2 Progress Implementing the Market Based Strategy for Rice



Market-Based Strategy for Rice in Brief

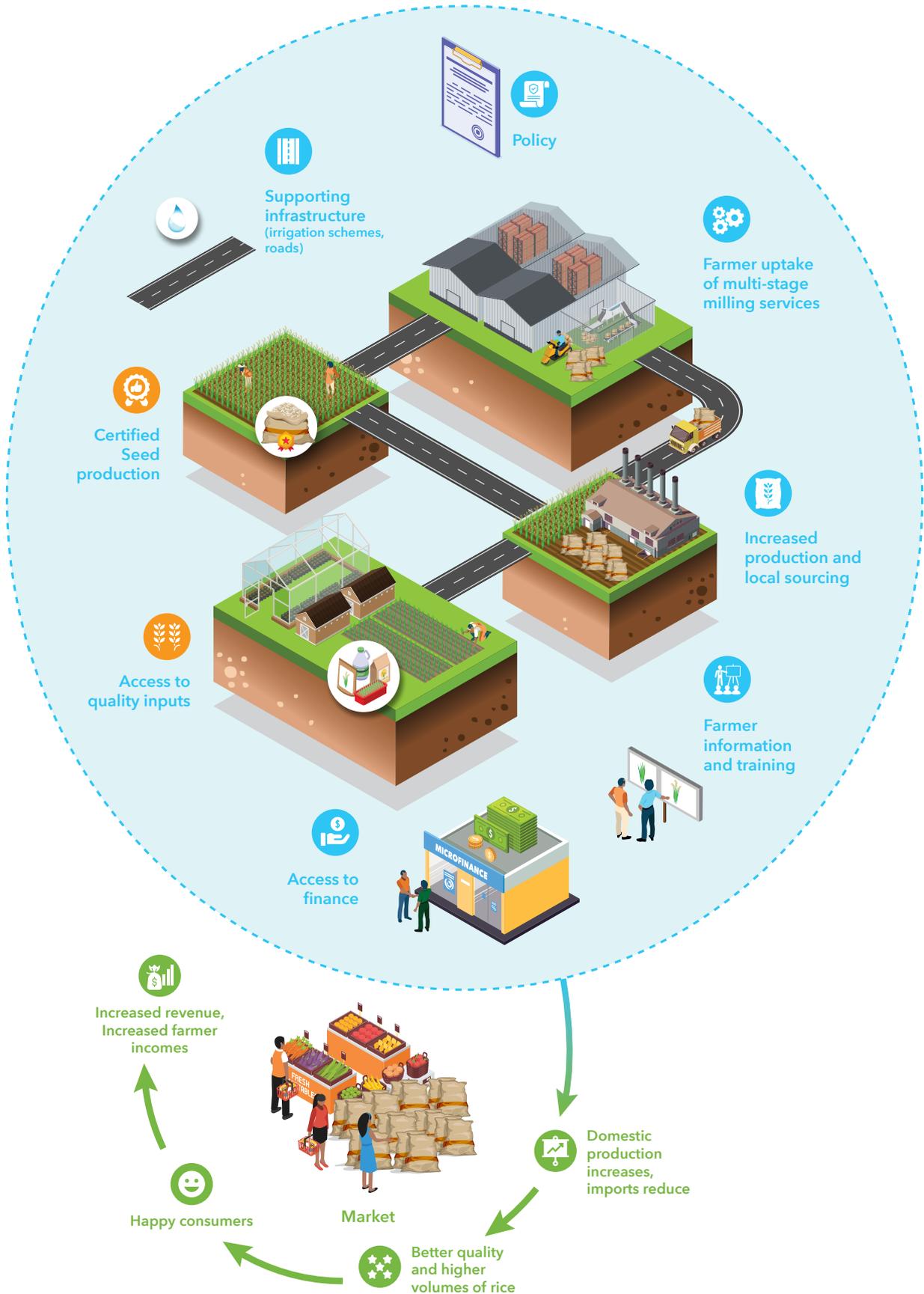
Rice is another important and fast-growing cash crop in Uganda that has not met its full potential. The constraints are comparable to those for potato. The near absence of a commercial seed industry hampers productivity. Cultivation practices are far from optimal due to gaps in awareness/knowledge and limited resources. Further value is lost during the harvesting and milling process: over drying and the use of single stage mills results in an inefficient milling process with a high percentage of broken kernels (which equates to a financial loss for the farmer). With more investment in quality inputs (including seed) and modest improvements in skills, rice can give farmers much better returns. Access to finance

can be used to kickstart a more intensive cultivation process. Water management will become more important to handle changing rainfall patterns and flash rains (flooding lowlands). Figure 2 illustrates the REACH-Uganda rice strategy.

In 2019, REACH-Uganda worked on all these key issues, but the focus was on the establishment of a commercial seed industry to increase yields and improve milling and market linkages to create a higher value product. This should create the incentive and ability to invest more in intensified cultivation.

Figure 3

REACH-Uganda Rice Strategy





1 REACH-Uganda partnered with Kibimba Limited (KL) to establish a first-of-its-kind large-scale commercial lowland rice seed production business in Uganda. KL produces seed for use on its own estate. This makes it the only organized, truly large-scale lowland rice seed producer in the country. That same expertise can be used to produce seed for thousands of farmers in the region, provided the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) certifies the production process. The value of investing in quality seed also should be carefully demonstrated to farmers, since they are accustomed to recycling seed.

In 2019, as part its first effort to open up the seed market, KL produced 130 mt of seed, enough to supply 13,000 farmers. This constitutes 8.5% seed demand of all lowland rice farmers in Eastern Uganda. KL can easily upscale production in response to demand.

2 In 2019, REACH-Uganda negotiated and signed agreements with five multi-stage mills to start engaging more directly with farmers and farmer groups. DGL, SWT, KL, RGC, and Lwoba Holdings (LH) all operate multi-stage mills, generally at low capacity.

- DGL was the first multi-stage mill to start investing in stronger upstream linkages with farmers. They invested in a truck, with the aim to source directly from 1,267 farmers in the Tororo, Butaleja, Mbale, Bulambuli, Budaka, and Sironko districts. In 2019, direct sourcing commenced; 594 mt paddy was sourced from 679 farmers.
- REACH - Uganda supported SWT to establish a nucleus farm and out-grower scheme to supply its multi-stage mill in Kampala. Through the out-grower scheme, SWT will source from 5,970 farmers in Bulambuli and surrounding districts.
- KL intends to buy back paddy from farmers growing their seed variety. The aim is to source from 3,600 farmers in the Bugiri, Tororo, Butaleja, and Bugweri districts.
- RGC invested in the purchase of a new multi-stage mill to source from 2,000 farmers in the Tororo, Mbale, Bulambuli, Sironko, Manafwa, and Butaleja districts.
- Finally, LH will source paddy from 498 farmers in the Butaleja and Budaka districts.

Altogether, these five multi-stage mills have the potential to cover an additional 5.5% of all rice

farmers in Eastern Uganda (the baseline figure was at 20% coverage). The strategic aim is that all farmers have the option to supply a multi-stage mill in terms of travel distance and having a connection. Not all farmers will make use of this, as established (credit) relations with single stage mills are costly but valued. However, in time, a well-dispersed network of multi-stage mills with strong farmer connections, able to source directly, offering advice on drying, perhaps supplying inputs, and offering superior returns will take over the market. In the short term, too much competition among multi-stage mills over farmers will be prevented while business models are being put in place - mill utilization should improve first. In time, this emerging network of multi-stage mills and their regional coverage should expand.

3 Irrigation works began for providing controlled, year-round access to water for 518 acres of land in support of paddy production. In 2019, a rice scheme was developed by SWT to cultivate paddy on 6,722 acres of land, accessed through a 5-km road constructed in partnership with the project. To date, 500 acres have been opened for planting rice. The design for water infrastructure was created, and water channels are under development to enable efficient and effective water management. In addition, the 10.15-km road network developed at Doho irrigation scheme provided improved accessibility to previously uncultivated land in the scheme. As a result, 18 acres of land has been opened for 72 farmers, with a further 12 acres planned for subsequent seasons.



4 24,601 rice farmers (from 1,045 FGs) were trained in FaaB and CSA. In 2019, 6,125 rice farmers from 286 farmer groups were trained in FaaB and CSA. Cumulatively, REACH-Uganda had trained 24,601 rice farmers (9,645 men and 14,956 women) from 885 FGs in FaaB and CSA. Rice farmers were trained on pre-planting (land preparation, seed selection, and site selection), planting (pest and disease management, planting seed, and weeding), and harvesting (crop harvesting and post-harvest handling) techniques. These farmers were also trained on crop marketing and recordkeeping for better management of finance and increasing the commercial value of their respective farmer groups. DGL was linked to these farmer groups and, by the end of 2019, had sourced paddy from 45 REACH-Uganda-trained farmer groups.

5 Over 15 kilometers of road was rehabilitated to link rice production to markets. By the end of 2019, a 10.15-km road was completed in Butaleja District in the East. This will facilitate continued expansion of the Doho 1 rice scheme and, according to REACH-Uganda's road assessment, reach a population of 32,895. Also, in the East in Bulambuli District, a 5.2-km road was substantially completed in 2019. This road links the Nolando and Buriano areas and will particularly link SWT's rice scheme with an estimated population of 7,765 people.



2.3 Portfolio Theory of Change and High-Level Results

The progress implementing the market-based strategies for potato and rice informs the following project Theory of Change, including high-level results.

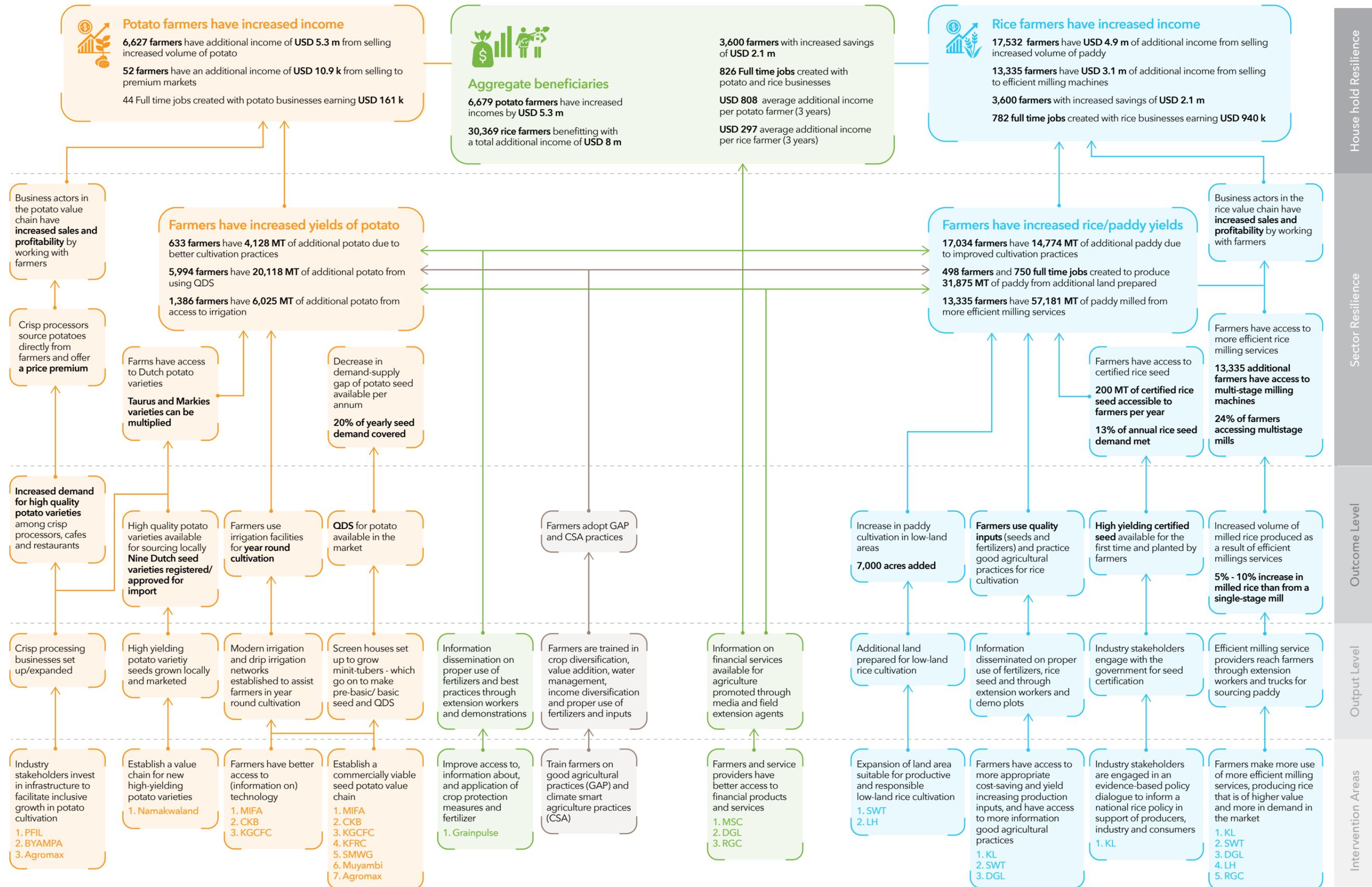
In potato, 6,679 farmers will increase returns from potato cultivation as they experience yield increases of 70% and receive better prices from direct sales into premium market segments. This will create an increase in income of U.S. \$5,397,107.

In rice, 30,369 farmers will increase returns from rice farming by cultivating newly irrigated lands and using certified seed, boosting yields by 50%, and by accessing better milling technology. This will create an increase in income of U.S. \$8,044,143.

An additional 3,600 farmers will access finance through formal channels, with interest rates as low as 13% per annum. This will save these farmers an additional U.S. \$2,054,400.

A total of 826 full-time jobs will be created in both the potato and rice value chains, managing on-farm production and operations and providing extension services for businesses. This will create an increase in income of U.S. \$1,102,112 through jobs.

Figure 4 Portfolio Theory of Change



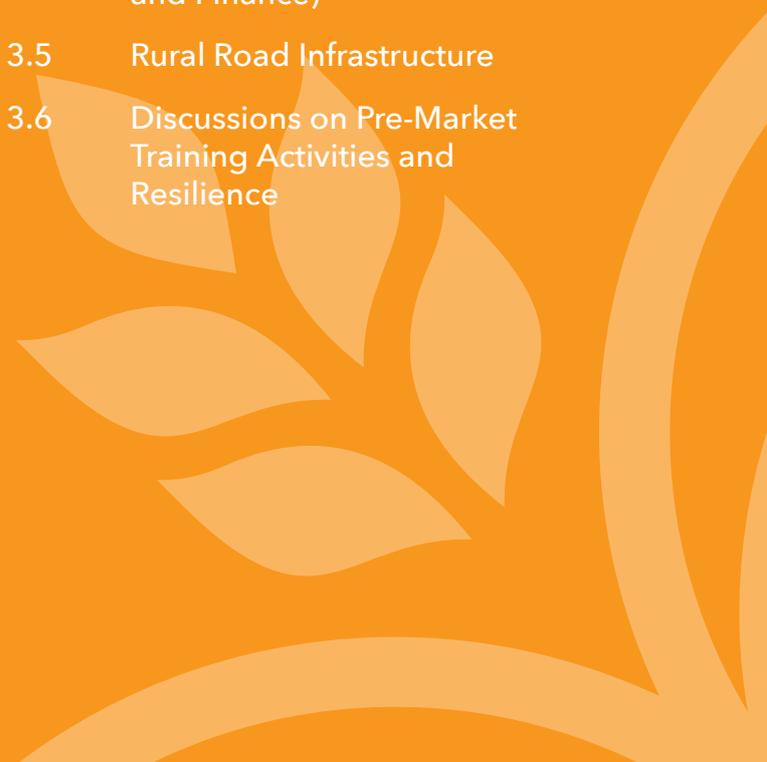


With more investment in quality inputs (including seed) and modest improvements in skills, rice can give farmers much better returns.



03

Progress in Market and Pre-market Development in 2019

- 3.1 Results in 2019 at a Glance
 - 3.2 Progress per Partnership in Potato
 - 3.3 Progress per Partnership in Rice
 - 3.4 Progress per Cross-Cutting Partnership (Access to Inputs and Finance)
 - 3.5 Rural Road Infrastructure
 - 3.6 Discussions on Pre-Market Training Activities and Resilience
- 



This chapter contains a detailed discussion on progress in 2019 for the market development business portfolio, infrastructure work, pre-market capacity development activities and household resilience. This covers several outputs as per the 2019 workplan including 1.1 and 1.2 on the selection, development and implementation of partnerships with lead firms/agribusiness and 1.3 on the private investment leveraged for new business practices. Under the potato partnerships section it also covers outputs 1.6 'promotion of Dutch potato varieties' and 1.7 'support to greenhouse owners to make clean seed available on the Ugandan market'. All these outputs are being achieved under the seventeen active partnerships in place and the further nine under negotiation in 2019 and signed in 2020.

As part of the enabling environment the impact of the infrastructure component output 1.8 'joint investment in public infrastructure' is discussed after the business portfolio. The chapter concludes with a discussion of the projects resilience component and the pre-market training package provided under outputs 2.1, 2.2 and 2.3, 'training on financial literacy and business skills' 'training on FaaB, GAP and CSA' and 'training on resilience strategies including gender'.

3.1 Results in 2019 at a Glance

The table below summarizes the key achievements under objective 1 and objective 2 of the REACH -Uganda projects in 2019 at impact, outcome, and output level. The full indicator table can be found in Annex I Annual Report Statistics for 2019.

Table 1: REACH-Uganda Results.

Impact - Household Resilience	
Income	<p>In 2019, additional income of U.S. \$70,053 was generated for 697 farmers.</p> <p>Total additional income for farmers from partnerships signed through 2019 is projected to be U.S. \$15,484,723.</p> <p>Net income of farmers from one acre of rice was at U.S \$ 672 per acre, in potato net income was at U.S. \$720 per acre</p>
Jobs	<p>In 2019, 27 full-time jobs were created: 21 in factory operation management and 6 in on-farm production.</p> <p>In 2019, 41 interns were created by REACH-Uganda for 6 months, after which 9 were hired by partner companies while 8 secured full-time jobs elsewhere.</p> <p>Total full-time jobs, from partnerships signed through 2019, is expected to be 826.</p>
Food security	<p>In 2019, 47% farming households were food secure.</p>

Impact - Improved Sector Resilience in 2019

Lead firm and service provider performance

In 2019, lead firm and service providers increased their sales turnover by U.S. \$502,979.

In 2019, lead firms and service providers improved their efficiency: cost effective and practical screenhouses for farmers, farm ponds to collect and reserve water for seed potato multiplication, automated crisp processing equipment and machinery, and gravity flow drip irrigation systems.

In 2019, lead firms and service providers improved their product quality: commercial production of new Dutch potato varieties, commercial seed potato production in Eastern Uganda, new flavors of potato crisps, production of low land rice seed, and the use of moisture meters before milling paddy.

Farm productivity

In 2019, the rice productivity increase of 2% due to application of CSA and GAP approaches by farmers, particularly the use of climate forecasting, adoption of field preparation, and water management.

In 2019, the potato productivity decrease of 36% was due to continuous heavy rains and potato blight disease.

Farmers adopt resilience strategies

In 2019, 2,694 farmers from 119 VSLAs generated an additional U.S. \$62,430 in savings, which was shared and used primarily for short term needs and group investments, such as livestock rearing.

In 2019, 99% of farmers practiced 1 of 9 elements of CSA, 63% practiced 4 of 9, and 41% practiced 5 of 9.

In 2019, 99% of farmers practiced elements of income diversification strategies, 38% of whom are engaged in off-farm small-scale business, reducing their reliance on agriculture as an income source.

In 2019, 87% of farming households practiced joint decision-making for the family farm.

Outcomes - Systemic change pathways

Improved access to markets

In 2019, 679 rice farmers from 45 farmer groups enjoyed better access to markets as a result of collective sales, storage, value addition, and/or linkages with lead firms (multi-stage mills).

In 2019, REACH-Uganda signed agreements with KL, SWT, LH, and RGC to increase multi-stage mill sourcing from 11,068 farmers by 2021.

In 2019, 156,848 people enjoyed better road connections to markets and other social amenities, with a 50% reduction in transport costs.

Improved access to inputs and equipment

Partnerships signed in 2019 with KL, RGC, and DGL will enable 15,050 rice farmers to access to better quality inputs by 2021.

Partnerships signed in 2019 with MIFA, SMWG, KGCF, KFRC, Muyambi, and CKB will enable 5,994 farmers to access to better quality inputs (QDS seed potato).

Partnership signed in 2019 with GPL will enable 892 rice farmers to access better quality inputs (crop-specific fertilizer) by 2021.

In 2019, 113 (82%) of the trained Spray Service Providers are selling their services to farmers and 80 SSPs are active in their associations.

Improved access to finance

In 2019, 209 VSLAs were established with 4,751 members who were active in collective savings.

In 2019, MSC, Post Bank, DFCU, and Centenary Bank were linked to 94 groups with 12 loans disbursed

In 2019, REACH-Uganda and MSC signed an agreement to expand MSC capacity to onboard 120 farmer groups by 2021.

Improved access to water for irrigation

In 2019, REACH-Uganda signed agreements with CKB, MIFA, and KGCFC to enable a consistent water supply for irrigation for 419 farmers by 2021.

In 2019, REACH-Uganda signed an agreement to support SWT's investment to develop 5,000 acres of irrigated land incrementally; this will employ 750 full-time workers (neighboring farmers).

In 2019, a 10 km road connecting to the Doho rice scheme facilitated access to an additional 18 acres of irrigated land in the scheme and will enable 72 farmers to access irrigated land.



Outputs		2019	Cumulative
1.1	Agribusinesses screened and selected	23 agribusiness screened; 17 partnerships selected	58 agribusiness screened, 26 partnerships selected
1.2	Develop, formalize, and implement partnership agreements	9 additional partnerships with DCAs formalized	17 active partnerships with DCAs formalized and under implementation, and a further 9 under negotiation.
1.3	Private sector investment leveraged	U.S. \$2,892,053 7 innovations adopted	U.S. \$4,852,053 7 innovations adopted
1.4	FBGs, FGs and farmers are able to access financial products for productive investments	94 FGs sensitized on financial packages by financial institutions 449 VSLAs established	148 FGs sensitized on financial packages by financial institutions 2,058 VSLAs established
1.5	Work placements created	42	73
1.6	Youth entrepreneurs supported to be Spray Service Providers (SSPs)	<ul style="list-style-type: none"> • 80 SSPs trained on effective association operation and management as well as financial literacy. • 8 SSP associations formed and 6 registered 	137 SSPs trained in crop protection and safe use of agrochemicals.
1.7	Dutch potato varieties registered and or promoted	16 varieties are under national trials with 2 seasons now completed.	3 varieties under production in Uganda -Markies, Taurus, and Panamera.
1.8	Local businesses and screen house owners make bacteria and virus free seed potato planting material on the market	5 new screenhouses established and operational	5 screenhouses established and operational and 6 in pipeline
1.9	Infrastructure works completed	33.45 km of road completed in Rubanda, Kanungu, and Butaleja districts. 711 acres of land established for irrigation.	67 km of road completed/ substantially completed. 711 acres of land established for irrigation.
2.1	Farmers trained in financial literacy and business skills	7,268	23,816
2.2	Farmers trained in FaaB and GAP	8,941	36,398
2.3	Farmers trained on CSA	8,941	35,536

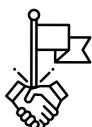
The REACH-Uganda project has also contributed to the EKN Sustainable Development, Food Security, Water and Climate indicators. Please see ANNEX 2 for further information.

3.2 Progress per Partnership in Potato

The following section describes REACH - Uganda's accomplishments under its business partnership portfolio in the potato value chain. Each partnership objective and progress to date is highlighted and the next steps for these partnerships in 2020. The summary of these partnerships is also provided in table form in Annex 3 'summary of business portfolio partnerships'

This section covers several outputs in relation to the 2019 workplan including 1.1 and 1.2 on the selection, development and implementation of partnerships with lead firms/agribusiness. Under the potato partnerships section, it also covers outputs 1.6 'promotion of Dutch potato varieties' and 1.7 'support to screenhouse owners to make clean seed available on the Ugandan market'.

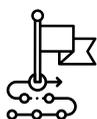
Psalms Food Industries Limited (PFIL)



Partnership objective

To support value addition and job creation in potato processing industries, creating markets for farmers.

The partnership between REACH-Uganda and PFIL was formalized in early 2018 but has continued to evolve in response to the owner's dynamic expansion plans. In 2019, REACH-Uganda and PFIL agreed to support PFIL's expansion by cost-sharing the expansion of the factory's production capacity, improvements in management and quality control, increasing of the number of flavors, marketing, and sourcing potatoes suitable for processing.



Progress in 2019

The factory upgrade was completed; an upgraded fryer, washer, peeler, slicer, and shaker flavoring machine were installed. PFIL also launched new potato flavors and a new, more sophisticated packaging design. A blancher and a foil packaging machine were also purchased; however, the crisps processed through the blancher lost color and did not receive a positive reaction from consumers. The company has suspended use of the blancher. PFIL reported an increase in the volume of crisps sales for each month of 2019, with an annual increase of 33% compared to the previous year. This was primarily due to the increase in PFIL's marketing efforts, increasing the number of retail points from 1,046 to around 1,800 in a

year (the outcome of investments in more marketing staff). As a result, PFIL was able to generate an additional sales revenue of U.S. \$205,000 in 2019. Since the start of the partnership in 2018, total business revenue has increased by 75%.

Although these business returns are quite encouraging, PFIL's crisp processing line is still not operating optimally. Sourcing good quality potato suitable for crisp making remains a challenge. To meet the processing demand, PFIL sourced most of its potatoes from traders, with mixed success (volumes are sufficient, but the quality varies) and the rest from six farmer groups (around 20 farmers) in Southwestern Uganda with mixed success, as it required farmers to be



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more stringent on their quality. The crisp processing line can only be completely automated if the quality of potatoes is consistent; otherwise, each batch of potatoes requires the process to be adjusted and restarted. As it stands, the processing line has many manual processes, in which labor is used for sorting, transferring to the packaging line, and even flavoring crisps. Fifteen additional jobs have been created at the PFIL factory for this purpose.

With the help of REACH-Uganda, PFIL has established itself as a popular crisp brand. The return on investment from the PFIL business model shows the potential for others to invest in this space. Another crisp manufacturer (Gaga) has also crowded in since PFIL crisps gained traction, with similar products in similar packaging at competitive prices in Kampala. This has had no effect on PFIL sales. For PFIL to move to the next level, it will be important to invest in the supply chain, since business at the marketing and sales end is already doing well. REACH - Uganda's work in increasing the availability and accessibility of quality declared seed potato will likely improve the availability of quality potatoes for processors, such as PFIL.



Next steps

During the COVID-19 pandemic, PFIL sales decreased by about 50%, as lockdowns prevented public transport for distribution and the main retail points (schools and supermarkets) were shut down. This resulted in a temporary decrease in sourcing requirements of ware potato, falling from 55 mt to 25 mt per month. Looking forward, PFIL is expected to bounce back as lockdown restrictions are lifted.

PFIL realizes the need to build its supply chain. A more stable supply of potato for PFIL will come from a combination of measures. In 2019, PFIL reached an agreement with Namakwaland to supply quality Dutch ware potato; however, this will not fulfill PFIL's sourcing demand. Once QDS produced from REACH-Uganda-supported ISBs and LSBs is utilized by farmers to produce quality ware potato, PFIL will be interested in sourcing directly from them. Also, direct purchases from well-managed farmer groups, such as MIFA, who can act as local aggregators and have the capacity to grow and store the right variety, will be important to sustaining PFIL's expansion. For this, PFIL is planning to purchase a truck, organize farmers, and set up collection routes. Moreover, PFIL is looking to invest in a potato-testing laboratory to strengthen internal quality systems. This is still a mid-term objective and is dependent on PFIL having enough capital.

Byampa Enterprises Limited (Byampa)



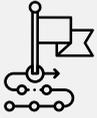
Partnership objective

To support local value addition and job creation in potato processing.

Byampa Enterprises is a woman-led private limited company, which was founded with the objective of promoting value addition in potatoes and providing superior quality crisps to its customers. Byampa, through the entrepreneurship skills of the proprietor, grew from producing 25 kg of crisps per month when it was started in 2014 to producing 100 kg of crisps per month and intends to grow to 500 kg of crisps per month by 2021. To achieve this goal, Byampa needed financial support in upgrading its crisp processing equipment to semi-automatic machines (washing and peeling machine and slicing, fryer, and packing machines). Byampa buys potato from farmer groups in Kaharo and Bukinda sub-counties in Kabale and at times in the Kisoro District.

In 2019, REACH-Uganda formed an agreement with Byampa to develop new crisp packaging that is attractive and appealing to customers for promotion of Byampa products and increasing its sales in the local market, including supermarkets. To support this, investments in equipment and storage will be made.

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Progress in 2019

REACH-Uganda assisted Byampa to develop a realistic sourcing plan for 2 mt of potatoes per month based on the cropping calendar. Furthermore, Byampa was able to establish an improved production facility with better equipment for processing crisps, and a branding manual for developing new crisp packaging was developed. The crisp processing equipment was also procured by the end of the year.

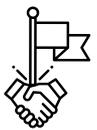


Next steps

By December 2021, Byampa's (small) expansion is expected to create jobs for two more individuals and increase market access for 20 farmers, as they supply 40 mt of potatoes for crisp production.



Namakwaland/Highgrow Agri



Partnership objective

To establish a professional seed multiplier and outgrower that can supply large-scale potato wholesalers and processors in Uganda (particularly Kampala) with suitable Dutch potato varieties.

Expensive, high-value Dutch potato varieties can compete in the Uganda market when a grower can achieve high yields and then sell them into premium market segments, in which specific quality traits (color, size, skin, suitability for frying) are more important than simply the price. In the open market where varieties are mixed, Dutch varieties are less competitive. For regular ware, the mixed supply works best, with laboratories such as Agromax supplying regional LSBs, who in turn supply LSBs. For Dutch varieties, a more sophisticated channel works better. Namakwaland can grow Dutch varieties in a scientific manner on irrigated land at a scale that makes them attractive for larger institutional buyers.

In 2019, REACH-Uganda and Namakwaland collaborated on a business model to produce Dutch potato varieties and find readily available markets in Uganda.

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Progress in 2019

The development of a business model involved determining which varieties could be imported, multiplied, and sold in a commercially sustainable manner and to whom. The Dutch varieties identified included Taurus, Sagitta, Markies, and Panamera. REACH - Uganda's analysis suggested that the growing market for fast food in Uganda demands potato varieties with better yields per unit area for production of value-added food products. Markies and Taurus varieties were identified to have superior properties, such as high yields and less waste/high recovery from automated peeling by PFIL and Café Javas (a high-end restaurant chain).

Seed varieties must be registered with MAAIF for local multiplication. Therefore, in 2019, REACH - Uganda secured an import permit from MAAIF to import seed directly from the Netherlands, so that Namakwaland could produce ware potato for 2020. This also made it possible for potential clients, such as PFIL, to assess the feasibility of switching to Taurus. Later in the year, REACH-Uganda also helped Namakwaland secure a license from Dutch potato breeder HZPC, which has a presence in the COMESA region, to multiply four of their varieties that are registered in Uganda or are on the COMESA list (seed varieties registered in two COMESA states can be imported without the need for registration in Uganda).



Next steps

Moving forward, using the same permit, 9 mt of certified Markies seed for growing ware potato and 52 mt of elite seed will be imported for local seed multiplication in 2020 (26 mt of Taurus and 26 mt of Markies). Additional investments in the farm are needed to better control costs, such as connecting the farm to the national electricity grid and setting up a cold chain storage unit. This will help Namakwaland farm to efficiently produce quality Dutch seed potato by 2021.

In early 2020, continuing the effort of establishing farms to commercially produce seed potato of Dutch varieties in Uganda, REACH-Uganda signed three additional partnerships agreements with Clarke Farm, Kakie Farm, and FICA Seeds Ltd. REACH-Uganda will help these partners to acquire a license from HZPC for seed multiplication. These partners in 2020 are expected to import 76 mt of certified seed for producing Dutch ware potatoes and 26 mt of elite seed for Dutch seed multiplication. These partners will also be supported with exposure visits to Namakwaland and will be equipped with cold chain storage units for setting up efficient commercial ventures.

Agromax

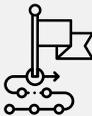


Partnership objective

To develop a market for commercial plantlet and apical cuttings by helping Agromax establish a network of commercially operated ISBs; Agromax will help identify suitable future ISB operators and supply them with planting material, equipment, and technical advice as necessary.

Most of the existing screenhouse businesses in Uganda are supplied with tissue culture plantlets by the NARO, Kachwekano Zonal Agricultural Research and Development Institute (KaZARDI). However, their production is insufficient to meet the growing demand for seed potato. Also, a strong commercial production focus is not easily reconciled with KaZARDI's research mandate. As a result, screenhouse operators are not assured a timely supply of sufficient planting material. Some screenhouse operators have missed out on an entire season due to a lack of supply. This spurred REACH-Uganda to search for partners to open up a commercial channel to plantlets and apical cuttings. While Agromax can provide comprehensive technical services to screenhouse operators, it needs support getting them up and running, often from scratch.

In 2019, REACH-Uganda and Agromax signed a partnership agreement to identify potential new ISBs and supply them with equipment and advice to turn them into commercially viable ISBs.



Progress in 2019

By the end of 2019, four potential ISBs with capacity to source plantlets (or equivalent) from Agromax and multiply these into clean planting material were identified. These are Chemonges and Welishe in the East and Bitamba and Maziba in the Southwest.

In follow up, REACH-Uganda formed agreements in 2020 with the operators to co-invest in screenhouses and DLSs. Also, in 2019, REACH introduced Agromax to existing ISBs supported by the project (MIFA, CKB, and KFRC) for supply of planting materials.



Next steps

As a result of this effort, four screenhouses and a DLS will be installed by end of July 2020. In addition, Agromax and NARO are expected to supply a total of 60,800 plantlets to 14 screenhouses, i.e., two operated by MIFA, two operated by CKB, two operated by KFRC, one operated by Muyambi, one operated by Wanale Seed and Ware Potato Producers Association WASWAPA, one operated by Kapchorwa Seed Potato Producers Association (KASPPA), one operated by Chemonges, one operated by Welishe, one operated by Bitamba, and one operated by Maziba, by November 2020. This infrastructure for multiplication can produce clean planting material for 6,353 acres per annum, sufficient to supply 12,707 farmers (assuming they refresh their seed every three seasons).

Agromax provides support to set up screenhouses and supports its clients with regular technical assistance. Agromax charges UGX 1,300 per plantlet, compared with NARO at UGX 1,000 per plantlet; however, according to screenhouse owners, the availability of plantlets when needed outweighs the extra cost of procuring plantlets from Agromax. REACH-Uganda partners, such as MIFA, CKB, and KFRC, source plantlets from both NARO and Agromax.

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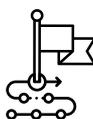
Kigezi Farmers' Resource Centre Limited (KFRC)



Partnership objective

To expand an ISB, source plantlets (or equivalent) from commercial agricultural laboratories, and multiply these into clean planting material for retailing to farmers in the regional and for wholesale to LSBs.

In 2019, REACH-Uganda formed an agreement with KFRC to expand their fully integrated seed business by facilitating investment in a second screenhouse and a DLS. KFRC had been producing basic seed but on a limited scale. REACH-Uganda aims to leverage the experience of experienced screenhouse operators to push quality seed production at scale.



Progress in 2019

The construction of the screenhouse was completed by the end of 2019, while the DLS construction commenced. KFRC purchased 1,000 rooted apical cuttings from Agromax at UGX 700 per cutting and placed an order for 1,600 plantlets and 500 rooted apical cuttings from KaZARDI to be used in the existing screenhouse. KFRC will place an additional order for the second season of 2020 for its new screenhouse. By October 2019, they had harvested 18,600 mini-tubers (Kinigi, Kachpot-1, Naropot 3, and Naropot 4). Farmers in Eastern Uganda use Rwangume (Naropot 4), while those in the Southwest use Kinigi. Naropot varieties are usually purchased by the Ugandan Government. In 2019, from both screenhouses, KFRC produced 3 MT of pre-basic seed and 93 MT of clean basic seed with technical guidance from REACH-Uganda.

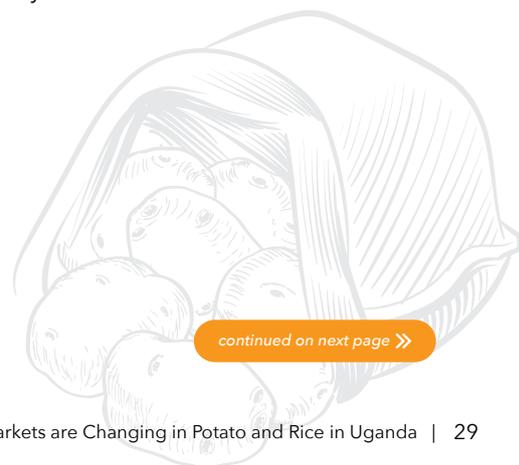
KFRC is a family business. Fidelis and John produce pre-basic seed, which they sell to their sons to produce basic seed. The basic seed is then sold to LSBs, as well as the Government and non-governmental organizations (NGOs), to produce QDS, which is then sold to farmers for ware potato production. To ensure quality at all levels, KFRC makes follow-up visits to the LSBs' gardens to guide farmers on clean seed production. KFRC prefers multiplying seed using rooted apical cuttings to plantlets because it is easier to produce seed using apical cuttings. KFRC's partnership with REACH - Uganda has broadened their market share due to promotion through radio talk shows and agricultural shows. KFRC has met new local seed business groups from different regions, even as far as Kapchorwa.



Progress in 2019

During the pandemic, KFRC had limited sales due to transportation restrictions in the Southwest. KFRC lost out on some of their orders, especially from Kapchorwa, because farmers could not travel to Kabale. They resorted to selling QDS at a lower price of UGX 130,000 per bag (120 kg).

KFRC believes that REACH-Uganda can provide further support to their business to scale up operations. KFRC finds it challenging to manage transportation costs for seed and is anticipating a need for marketing activities for their seed to be promoted in regions outside their locality.



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Mengya Integrated Farmers Association (MIFA)



Partnership objective

To establish an ISB, source plantlets (or equivalent) from commercial agricultural laboratories, and multiply these into clean planting material for retailing to farmers in the regional and for wholesale to LSBs.

In 2018, MIFA sourced basic seed in Southwestern Uganda from Kachwekano to meet seed demand in Eastern Uganda. However, due to strong regional demand in the Southwest, MIFA felt that the seed supply was not guaranteed. Transportation costs also were high. In 2019, REACH - Uganda made an agreement with MIFA to establish the first ISB in the East by facilitating investment in screenhouses, a DLS, irrigation, and marketing.



Progress in 2019

In 2019, MIFA commenced the construction of two screenhouses to be managed by two MIFA members. MIFA already has one screenhouse from their collaboration with GIZ's Promotion of Nutrition-Sensitive Potato Value Chain (PNSP) project. Each screenhouse at MIFA can grow up to 1,800 plantlets per season, and the collective three screenhouses are expected to raise 10,800 plantlets with two seasons in a year. According to MIFA, one plantlet can produce 5-10 mini-tubers, depending on the variety.

Also, in 2019, construction began on a DLS unit, which will enable MIFA to store their seed without contamination.

In 2019, 15 MIFA farmers were trained on seed production (three on plantlets to pre-basic seed, 12 on pre-basic seed to QDS). An additional 80 farmers were trained on clean seed production (among others, from future MIFA clients, KGCF, and SMWG).

Furthermore, an irrigation system was completed that can support year-round seed production. The 2.8-km irrigation line has benefited more than 100 surrounding farmers with gardens along the distribution line. The irrigation line has also had an impact at the household level. Four schools in the locality are able to access and store water through MIFA's irrigation line for sanitation and consumption purposes. Initially, MIFA had planned three irrigation lines; however, only one has been laid out so far. MIFA plans to raise enough capital to complete the installation of the other lines to benefit all of its members as well as households in the locality.



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This means that MIFA now has an operational infrastructure to produce clean seed at 300 mt QDS per year, sufficient to supply 374 farmers. In 2019, MIFA purchased 500 plantlets (at UGX 1,000 per plantlet) from NARO, followed by 400 plantlets (at UGX 1,300 per plantlet) from Agromax, in April 2020. It also placed orders for 1,500 Rwangume plantlets from Agromax and 1,000 Kinigi plantlets from the NARO, KaZARDI. The survival rate of the plantlets was initially 50%, then improved to 60%, caused by transportation to MIFA. Due to the relatively closer proximity of Agromax compared to NARO, plantlets sourced from Agromax are likely to have a better survival rate. Because of delays from MAAIF, MIFA has not yet been able to achieve QDS certification, which limits their access to markets outside the Sebei region. The REACH-Uganda project has been collaborating with the Integrated Seed Sector Development project, which pioneered QDS in Uganda, to formalize the registration of MIFA as a producer of QDS; this will be completed in 2020.

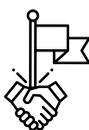
Despite the COVID-19 pandemic, MIFA members have been able to produce QDS from the basic seed they sourced from KaZARDI in the Southwest. A total of 775 bags of QDS was produced and 400 bags were sold to 40 surrounding farmers in the Sebei region, while 375 bags were retained and planted by MIFA members for ware potato. Each bag of QDS was sold at UGX 150,000. However, transportation of seed to clients proved challenging - slow journeys affected the quality.



Next steps

Moving forward, MIFA wants to invest in transport and storage units in market centers outside the Sebei region. This is because of the poor terrain in Kapchorwa and Kween, which affects transportation of their seed to outside markets. REACH-Uganda may consider supporting MIFA to become a potato wholesaler, with graded seeds, potatoes, and specific varieties. MIFA also plans to establish additional screenhouses, since more members are becoming aware of the benefits of getting into this business. MIFA could become one of the main seed hubs for the East.

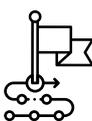
Kapchesombe Green Change Farmer Cooperative (KGCFC)



Partnership objective

To establish a LSB producing QDS by sourcing clean basic seed from commercial suppliers, such as MIFA.

In 2019, REACH-Uganda formed an agreement with KGCFC to support the construction of a DLS, an irrigation system for members of the farmer cooperative, and marketing of QDS.



Progress in 2019

In 2019, KGCFC procured its 4.5 mt of basic seed from Kalenjere Research Station in the Southwest. They had to sell the harvest as ware potato due a bacterial wilt infestation. In 2019, six KGCFC members made an exposure visit to MIFA to acquire skills on clean seed production and DLS management. Furthermore, the construction of a DLS commenced, and the construction of an irrigation system was completed by the end of the year. The irrigation line has the potential to provide year-round access to water for 30 KGCFC farmers for QDS production on 50 acres of land. Each farmer utilizing the irrigation system purchased three to four sprinklers per acre (investing UGX 240,000-320,000) and agreed to pay a user fee of UGX 60,000 per season to a newly formed water management committee.

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Next steps

KGFCFC reported that REACH - Uganda's partnership based on cost-sharing has been an eye opener for them. They were accustomed to receiving handouts but now prefer this business-oriented approach. They also reported that, in 2020, they expect to procure 1 mt of basic seed from MIFA and use it for production of QDS. The exposure visit to MIFA built their trust to source basic seed from a credible, locally based supplier for producing QDS.

During the COVID-19 pandemic, KGFCFC was not affected, as it conducts its business in the vicinity. KGFCFC intends to expand its business to Mbale to create awareness of their clean QDS.

Charles K. Byarugaba Clean and Quality Seed Production Enterprise (CKB)



Partnership objective

To expand an ISB, source plantlets (or equivalent) from commercial agricultural laboratories, and multiply these into clean planting material for retailing to farmers in the region and for wholesale to LSBs.

In 2019, REACH-Uganda formed an agreement with CKB to expand his ISB by supporting investment in a second screenhouse, a DLS, and irrigation. CKB has a proven track record in terms of seed production. Given the importance of establishing a reliable commercial supply chain for seed potato, REACH-Uganda partnered with CKB to expand his production to supply a larger number of LSBs and individual farmers.



Progress in 2019

The screenhouse was completed, and utilizing the extra capacity, CKB ordered 4,000 of Rwangume and Kinigi plantlets from the NARO, KaZARDI. CKB plans to use 200 of these plantlets to produce 2,000 rooted apical cuttings that will then be planted in the new screenhouse. The remaining 3,800 plantlets will be utilized in his existing screenhouse. However, only 1,500 plantlets were delivered due to COVID-19, as the number of staff at the NARO laboratory had been reduced. These plantlets were used to produce apical cuttings for production of mini-tubers, which will be further multiplied into pre-basic, then basic, seed. CKB produced 6 mt of pre-basic seed and 122 mt of basic seed in 2019. CKB plans to sell most basic seed to the National Agricultural Advisory Services (NAADS). In 2019, CKB also sold 1.6 mt of basic seed to SMWG.

CKB prefers sourcing its plantlets from NARO as opposed to Agromax, because the former is closer to the farm and the price for plantlets is relatively cheaper. However, apical cuttings are cheaper to source from Agromax.

CKB appreciates the partnership with REACH-Uganda, not only for the financial contribution but because of their assistance in streamlining the business. REACH-Uganda linked CKB with other markets through promotional activities, such as the 'Harvest Money,' show at Namboole and the Jinja agricultural show, increasing CKB's customer base and sales and raising awareness of the availability and importance of clean seed. Through REACH-Uganda, CKB participated in Uganda's 'Best Farmer,' contest and emerged joint second out of 200 candidates.

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Next steps

CKB's seed business was affected by COVID-19. In addition to the reduced availability of plantlets, it was difficult to access casual labor, even when wages were increased from UGX 7,000 to UGX 11,000 per day. The partnership activities for constructing a DLS and an irrigation line for 3.2 acres were also delayed due to the lockdown. Mass marketing of QDS to farmers will need to happen when markets open up again. When all is ready, CKB will have the operational infrastructure to produce clean seed to produce 1,418 mt QDS per year, sufficient to supply 1,772 farmers.



Muyambi Williams (Muyambi)

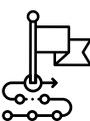


Partnership objective

To establish an ISB, source plantlets (or equivalent) from commercial agricultural laboratories, and multiply these into clean planting material for retailing to farmers in the region and for wholesale to LSBs.

Muyambi Williams is a progressive farmer who joined Nyabyumba Farmer Field School in 2000 and was trained by the NARO in seed potato production from 2003 to 2006. In 2007, Muyambi joined the Uganda National Seed Potato Producers Association (UNSPPA), multiplying basic seed from NARO. In 2012, Muyambi participated in the Nyabyumba Farmer Field School and in IFDC's CATALIST project training programs. Since then, Muyambi has been producing seed potato on 25 acres of his own land and rents more land when necessary. He also has a storage capacity of approximately 800 80-kg bags, where he stores QDS.

After being identified by Agromax as a potential ISB, Muyambi signed a partnership agreement with the REACH-Uganda project in 2019 to establish a screenhouse with a capacity of 3,400 plantlets and a DLS.



Progress in 2019

Construction of the screenhouse was initiated in 2019, and both the screenhouse and DLS are expected to be operational by 2020.



Next steps

Muyambi is expected to produce 14.5 mt of pre-basic seed by November 2021 and 31 mt of basic seed by March 2022.

Sukutu Multipurpose Women Group (SMWG)



Partnership objective

To establish an LSB producing QDS by sourcing clean basic seed from commercial suppliers, such as MIFA.

In 2019, REACH-Uganda formed an agreement with SMWG to support the construction of a DLS for cooperative farmer members and marketing of QDS. SMWG started in 2015 and presently has 20 female and five male members. The group feels that it cannot make a significant profit on ware potato, especially in the principal season, due a combination of low prices and significant disease problems. Thus, SMWG decided to enter QDS production for its own members and for retailing.



Progress in 2019

Three SMWG members made exposure visits to MIFA and CKB and sourced 1.6 mt basic seed from the latter, which was planted in the first 2020 season. Further, in 2019, 20 group members were trained on clean seed production.



Next steps

With its current planting capacity, 34 mt of QDS is expected to be produced from the first planting cycle by 2021. SMWG was not affected by the COVID-19 crisis.

In early 2020, continuing its work in creating a sufficient and reliable seed potato market in Uganda, REACH-Uganda signed partnership agreements with **Chemonges Stephen** and **Welishe Stephen** in the East and **Bitamba** and **Maziba** in the Southwest to have screenhouses and a DLS established by the end of 2020. Each of these screenhouses will likely support 3,400 plantlets per season, which will produce 660 mt of QDS per year by 2023 for 822 farmers on 411 acres of land.



3.3 Progress per Partnership in Rice

The following section describes the REACH - Uganda's accomplishments under its business partnership portfolio in the rice value chain. Each partnership objective and progress to date is highlighted and the next steps for these partnerships in 2020. This

covers two outputs in relation to the 2019 workplan including 1.1 and 1.2 on the selection, development and implementation of partnerships with lead firms/agribusiness.

Kibimba Limited (KL)



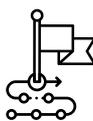
Partnership objective

To establish a large-scale, commercial seed producer for lowland paddy and to support a multi-stage mill source from surrounding farmers and provide technical advice, inputs, and services.

Similar to the seed potato multiplication and Dutch potato multiplication, Uganda lacks an organized industry to produce rice seed for lowland rice. A few farmer groups may be able to obtain some foundation seed from NARO, but the volumes offered by NARO and the multiplication that follows are insufficient to give most farmers a choice in terms of the quality (freshness) of seed they will use.

KL is the largest rice estate in the country, largely self-reliant in terms of technology, and thus has the capacity to become a large-scale seed business producing good quality seed. In addition, KL can benefit from bigger volumes of better-quality paddy being available in the region, which it can buy back.

In 2019, REACH-Uganda and KL developed an agreement to undertake the following steps to establish a seed business: apply for certification with MAAIF, invest in equipment for the business, produce seed, organize demonstrations, market the product, and offer farmers the ability to sell back their harvest if interested.



Progress in 2019

In 2019, KL purchased 1.3 mt of foundation seed, the high-yielding WITA-9 variety from NARO, and used this to produce 150 mt of pure clean crop seed, available for the first planting season of 2020.

During 2019, in support of seed marketing, KL hired four field agents, equipping them with motorcycles, to visit neighboring farmer groups and manage 20 demonstration plots of the WITA-9 rice variety. KL field agents advised lead farmers on best agricultural practices, including proper use of fertilizers and pesticides, for paddy cultivation. These demonstrations showed that, with good seed and application of basic good agricultural practices, farmers can obtain yields of 2,500 kg of paddy per acre, instead of the 1,000 kg they normally obtain from recycled seed.

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Seed sales for KL have been limited due to the delay in certification by MAAIF. Initially, KL had planned to push their seed to market in small branded packages highlighting their certification for farmers. This had to be put on hold due to the delay by MAAIF. Currently, KL is selling seed in 40-kg bags, which is less attractive for smallholder farmers to purchase. Furthermore, KL increased the price of seed from UGX 4,000/kg to UGX 5,000/kg to recover part of their investment in a seed cleaning and processing unit. In 2019, KL sold 1.9 mt of seed to SWT, Faith Agro, and farmers from their existing stock, which also allows them to secure future clients for their clean/certified seed. KL has held off sales of the 150 mt of clean seed produced, as they await QDS certification. KL plans to sell this seed as “quality clean seed” if they do not receive certification for QDS on time. KL is confident they will sell all their clean seed produced in 2020.

In 2019, KL started to source paddy from farmers for processing at their multi-stage mill. This year paddy production for farmers has generally been low, mainly due to heavy rains. The price offered by KL to farmers for their paddy is based on how well the paddy is dried and on the volume of rice that can be milled. KL’s multi-stage mill has a milling out turn ratio of 62%, but the quality of paddy sourced must be of good quality as well. If good drying practices are applied, the paddy loses part of its volume as moisture. This leaves farmers with a price offer from KL comparable to an average single stage mill with no quality requirements. KL is expecting to source from 1,833 farmers in the coming season when its extension services and clean seed sales have started.



Next steps

In early 2020, demand for KL rice slightly increased due to COVID-19 import restrictions. KL’s extension services were limited to farmers close to their estate, and most rice farmers could not access transport facilities; hence, the supply of paddy from farmers was low. KL believes that in 2020, in collaboration with REACH-Uganda, it can further promote its seed and buyback arrangements, and as farmers become more familiar with these, volumes will increase.

KL is in touch with other REACH-Uganda partners, such as SWT, DGL, RGC, and LH (see below).



SWT Tanners Limited (SWT)



Partnership objective

To support a multi-stage mill sourcing from surrounding farmers, providing technical advice, inputs, and services, and invest in irrigation.

The more farmers can access a suite of services that includes some technical guidance, inputs, access to proper drying facilities, and a predictable buying arrangement, the more likely it is that farmers can increase yields and benefit from better returns on their work. SWT developed an ambitious plan to develop a rice estate, consisting of a nucleus farm and an outgrower scheme.

In 2019, REACH-Uganda and SWT reached an agreement to work together to implement this plan. This involved investments in road building, preparing the land, sheds and machinery, farmer mobilization and extension, land preparation and drying services, and inputs.



Progress in 2019

REACH-Uganda and SWT did some initial work in 2018 in support of SWT sourcing paddy from farmers. As of 2019, SWT had sourced 1,500 mt of paddy from North and Eastern Uganda, mostly through agents. In 2019, SWT purchased 6,000 acres of land and constructed a 5.2-km road to make the land accessible. Also, in 2019, SWT invested in 13 tractors, nine plows, two excavators, harvesters, and other farm implements. By the end of 2019, 500 acres of SWT's land was prepared for planting during the first season of 2020.

Additionally, SWT signed outgrower agreements with two Area Cooperative Enterprises (ACEs). Bunambutye ACE has 500-600 farmers growing rice on 200 acres, while TABU ACE has 400 farmers growing rice on 450 acres. SWT anticipates that, on average, 80% of farmers will supply paddy of WITA-9 variety to them.

SWT connected several farmer groups with the MSC to access loans and crop insurance. SWT is also looking to intensify their extension services to push farmers toward better quality rice production.

By the end of 2019, SWT employed 23 staff on the estate and over 100 casual laborers. SWT's multi-stage machine offers a milling out turn ratio between 60% and 70%, depending on the quality of paddy delivered, which is primarily related to the drying technique.



Next steps

COVID-19 caused construction on the estate to be delayed. In terms of sales, the first week of lockdown resulted in bumper sales for SWT due to people stocking up on rice. However, later sales dropped drastically, which forced SWT to reduce their prices. SWT is currently running out of storage space, which will also have an impact on their sourcing of paddy in the coming season. Although SWT had planned to engage other groups outside Bulambuli, for now they will stick to the original two ACEs.

SWT believes that REACH-Uganda support can trigger changes in farmer behavior by assisting with setting up moisture meters in local communities. Farmers can determine paddy quality (moisture level) using these meters and get an estimate of the price SWT may offer. SWT can also benefit from setting up purchase stalls in the community to organize their sourcing through farmers.



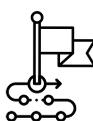
Diner's Group Limited (DGL)



Partnership objective

To support a multi-stage mill source from surrounding farmers and provide services.

REACH-Uganda partnered with DGL to strengthen linkages between DGL and surrounding farmer groups that can benefit from DGL's efficient multi-stage mill and secure finance from the MSC at DGL's recommendation. To strengthen linkages, REACH-Uganda and DGL agreed to invest in field extension workers, a truck, and tarpaulins for drying. In addition, REACH-Uganda supported DGL to invest in its brand to increase sales.



Progress in 2019

In 2019, a larger number of farmers were connected to the multi-stage mill through two full-time field extension workers, in combination with investment in a truck. Field extension workers were equipped with motorcycles to create awareness of DGL's sourcing rate, coordinate truck shipments, transfer knowledge on best post-harvest handling practices (particularly drying), and introduce farmer groups to the MSC. Farmer groups received 215 tarpaulin sheets to promote better drying practices. The use of the DGL truck meant that the transportation costs incurred by farmers were reduced by 40%, from UGX 5,000 to UGX 3,000 per bag.

In 2019, REACH-Uganda connected DGL with 679 farmers from 45 farmer groups, supplying 594 mt of paddy. This resulted in an additional income of UGX 376,250 (U.S. \$100) per farmer (from receiving a better price, a 10% better milling ratio, and reduced transport cost). Furthermore, DGL was able to increase its rice sales, earning an additional U.S. \$28,500, supported by better branding. Eight additional jobs were created because of the partnership (in extension services and multi-stage mill operations).

To facilitate farmer investment in better yields, REACH-Uganda and DGL linked a supplying farmer group to the MSC. This tri-party promotion is still in its nascent stage, but initial signs have shown that farmers are able to secure credit from the MSC based on a recommendation from DGL. A total of 19 farmer groups were linked to the MSC and are awaiting loan disbursement. These are the farmer groups that supplied paddy to DGL but were previously getting credit from local traders and millers at higher interest rates.



Next steps

During the COVID-19 lockdown, the volume of paddy sourced by DGL decreased, as farmers still prefer to deliver their paddy for milling in person. Most farmers ended up selling their paddy to nearby single stage mills. To overcome this problem in the future, DGL has been investing in digital supply chain management solutions, which enable farmers to receive payment directly from DGL. At the same time, the system allows DGL to have more control over the volumes of rice it receives. DGL sales decreased during this period, as rice became a luxury food item. DGL is confident that this is a temporary setback and expects to source from 5,000 farmers by 2020.

Moving forward, DGL sees an opportunity to link up with other REACH-Uganda partners, such as Grainpulse (fertilizer) and Kibimba (seeds), to improve the productivity of farmers who supply them. DGL is also considering investing in a mobile dryer to ease the process of drying of paddy for the farmers in the field. DGL foresees establishing a warehouse and setting up additional sales outlets to expand their business.

St. Richards Group of Companies (RGC)



Partnership objective

To support the establishment of a multi-stage mill, source from surrounding farmers, and provide services.

RGC has been providing milling services to nearby farmers through its medium-scale mill (a series of single stage mills, each adding to the overall milling process) and has built a concrete drying yard. In 2019, REACH-Uganda partnered with RGC to upgrade to a more efficient multi-stage mill, an expanded drying yard, and moisture meters and to train RGC staff and farmers on good drying practices. REACH-Uganda decided to partner with RGC because it already had a strong reputation for its milling services with surrounding farmers.



Progress in 2019

In 2019, RGC expanded their existing drying yard. The multi-stage mill was imported from China, but its installation was delayed due to COVID-19, as the person responsible for installation and setup could not enter the country. RGC decided to use local contractors to install the machine by 2020. RGC also purchased a moisture meter, which helps farmers dry their paddy appropriately.

A total of 57 village agents were trained by REACH-Uganda on post-harvest handling and, in turn, were used to train farmers. Of these agents, 14 were women and 43 were men. According to RGC, this has resulted in an improvement in the quality of paddy sourced from farmers.



Next steps

RGC intends to continue sensitizing the farmers and community members on post-harvest handling. Village Agents' source from farmer groups instead of individual farmers. Therefore, community members who have not been part of any group before want to align themselves with farmer groups and benefit from supplying paddy to RGC, as their transportation cost is covered and they receive a price premium for their paddy.

Transportation was a challenge during the COVID-19 lockdown, and sourcing from farmers was limited. RGC offers credit to farmers, but during this time, there were delays in loan repayments by farmers. RGC anticipates these limitations to be resolved when the lockdown is lifted. The multi-stage mill is expected to improve the quality of rice produced, therefore receiving a better price in the market.

RGC appreciates REACH-Uganda helping the business grow and realizes that they still have a long way to go. Farmers supplying paddy to RGC can benefit from using quality seed (such as that from KL) and information on better cultivation practices. RGC's long-term plan is to invest in a truck to manage sourcing from distant regions.

Lwoba Holdings (LH)

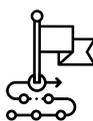


Partnership objective

To support the establishment of a multi-stage mill, source from surrounding farmers, and provide services.

LH started rice milling in 2010 using a single stage milling machine; in 2019, LH invested in a more efficient multi-stage mill. LH rents its land to farmers, usually for one year. Farmers pay upon harvesting. For cultivation, LH offers services like irrigation, mechanization (hydro-tillers), agro-inputs, transportation, and drying on its LH premises. The mill, like many other mills, ran at low capacity due to the limited volumes offered for milling. Other challenges included inadequate drying space and poor post-harvest handling (drying) skills, farmers planting a mix of paddy varieties making collective water management difficult, and limited access to finance for buying paddy on credit.

In 2019, REACH-Uganda and LH agreed to collaborate to increase sourcing of paddy, improve access to finance through a formal finance institution, increase access to quality seeds, and improve post-harvest practices through education of farmers on post-harvest handling. Further, LH would invest in a concrete drying yard at the factory premises to encourage more farmers to bring their paddy to the factory.



Progress in 2019

LH recruited two field agents to sensitize farmers on the benefits of multi-stage milling, mobilize paddy, and advise on post-harvest handling. REACH-Uganda also facilitated meetings between LH and the MSC to provide access to reliable financial services for both LH and Manafwa River Basin farmers, who have a contract with LH to supply paddy on a seasonal basis. REACH-Uganda connected LH to another partner, KL, to access good quality rice seed and sell it to farmers for improving their crop yields and, in turn, supply quality paddy to LH. KL will be able to supply LH with certified/clean seed by the first season of 2020, which will likely increase farmer yields by 70%. LH was also introduced to Grainpulse Limited (GPL) for accessing rice-specific fertilizers at a convenient price to be sold to farmers by next year. LH plans to operate as a distributor of inputs, such as fertilizers, pesticides, and certified rice seed from GPL and KL.

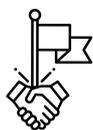


Next steps

In 2019, LH milled 20 mt/day in the first season and 12 mt/day in the second season, with a 65% efficiency rate. This is still below the overall milling capacity of 30 mt/day, but with its REACH-Uganda partnership activities just kicking off, LH expects to increase its sourcing. LH is confident it will meet its sourcing requirements in the coming years and is estimated to reach around 850 farmers by December 2021.

3.4 Progress per Cross-Cutting Partnership (Access to Inputs and Finance)

Microfinance Support Center (MSC)

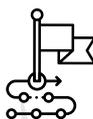


Partnership objective

To engage with farmer groups and offer suitable financial products that can support investment in agriculture.

To break a cycle of low investment-low yield-low returns, farmers are helped by access to finance. Being member of a VSLA does make farmers more commercial, but VSLAs also face limitations in relation to agriculture financing. For instance, a VSLA cannot offer loans to all members at the same time; when all of its members grow the same crops (as most often is the case), they need money to buy inputs at around the same time. Also, the loan amounts a VSLA can offer may not be adequate to fully fund expensive cash crops, such as potato. When organized farmer groups and VSLAs can interact with a financial institution like the MSC, they can leverage more finance. In order for the MSC to accept these farmer groups or VSLAs as their clients, it must be able to carefully gauge the risk profile of the group (well-organized or not) and their key sources of business. This requires that the MSC can sufficiently engage a prospective client to get to know them, which is currently not possible due to a lack of manpower.

Because of REACH - Uganda's engagement with lead firms and input suppliers and the training it has provided, REACH-Uganda can introduce the MSC to a large pool of farmer groups and VSLAs with a lower risk profile. To speed up engagement, in 2019 REACH-Uganda and the MSC reached an agreement to expand its staff for the sole purpose of farmer group engagement. The MSC is a government-run parastatal, which started in 2001 and focuses on providing affordable credit to active Ugandans, especially those from rural areas. MSC's mandate includes a special emphasis on training farmer groups on financial literacy.



Progress in 2019

With REACH - Uganda's support, the MSC is in the process of recruiting three additional credit assistants, two in Mbale and one in Kabale, for January 2020. In 2019, six loans, amounting to UGX 108 million, were distributed among farmer groups, while 10 loans for an estimated UGX 242 million are under review and will be distributed in 2020. The loan processing period takes around two months from initial documentation review to loan disbursement. In 2019, 28 farmer groups were contacted through the MSC's existing staff of credit assistants. By 2020, with the new recruits active in the field, the MSC plans to process loans for 60 farmer groups.

MSC assistant credit officers met farmer groups associated with DGL to identify potential loan applicants. Moving forward, the MSC will be connecting with farmer groups from other REACH-Uganda partnerships (KL, LH, RGC, and SWT) for lending.





I was able to expand my rice field from just a plot to one acre with a loan that I got from Microfinance Support Center through my group called Geshaho Farmer Group in Butaleja district.

I used to get just one or two bags of rice but in the last season, I harvested 20 bags of rice from the one acre that I hired. I got the high yield which I sold and got money to plaster my house, bought a cow, supported my family with basic needs and managed to pay school fees for my children.

—
Jamila Nabirye proudly shows off her rice field which she acquired through a loan of UGX 3,000,000 from Microfinance Support Centre.



Next steps

During COVID-19, MSC operations and loans disbursements were suppressed, and MSC credit assistants could only meet the group leaders, as opposed to the normal situation in which they meet all members in the group. This will likely prohibit MSC from meeting its internal lending target to farmer groups for the year, which amounts to UGX 300 million per quarter.

Following Uganda's presidential directive to financial institutions not to recover loans due to the COVID-19 pandemic, the MSC has not been able to make any substantial recoveries on loans disbursed. As a result, they are short on funds to lend to borrowers who should have received disbursements during this period. This is partly what caused delays in disbursing loans to groups with loans that had already been approved. As these restrictions are lifted, the MSC plans an aggressive lending drive to help Ugandan farmers, setting an ambitious target of disbursing UGX 3.5 billion per quarter (for their entire credit portfolio) in the coming year.

The MSC believes that there is still a big gap in financial literacy among farmers and that REACH-Uganda can use its platform to prepare farmers and small businesses for lending from formal financial channels. Another key outcome from the partnership is that MSC field agents are not just responsible for processing or disbursing loans; their most successful feature has been to prepare farmers for formal lending, help the MSC understand the financial literacy gaps among farmer groups, and raise awareness of MSC products in rural areas. Moving forward, the MSC can build on its network of field operators who are primarily responsible for preparing farmer groups for formal lending.

Grainpulse Limited (GPL)



Partnership objective

To support the expansion of a distribution network for crop-specific fertilizers to bring these in reach of more farmers.

In addition to the near total lack of access to seeds, other inputs are mostly still mostly unknown and out of reach for most farmers. GPL is a dynamic company in the process of expanding its distribution network. In 2019, REACH-Uganda and GPL reached an agreement to invest in the expansion of this network in REACH- Uganda target areas for potato and rice.



Progress in 2019

Although the partnership is still in its early stages, in 2019, GPL brought on board 42 district- and sub-county-level stockists. These stockists were trained on how to gauge fertilizer demand and manage sales for GPL. The stockists engaged sub-stockists who were responsible for assessing their respective area's farmer demand and reporting to their stockist. The stockist would then place an order with GPL and distribute through the same network of sub-stockists. The stockist can manage their sub-stockists by giving them sales targets quarterly.

GPL's crop-specific fertilizers were also promoted through radio talk shows and banners, and the partner believes this has created interest among farmers. A total of 42 demonstration plots for potato and 30 demonstration plots for rice were established in 2019 to showcase the benefits of using a crop-specific fertilizer. GPL anticipates setting up around 30 additional demonstration plots for rice in Eastern Uganda. Setting up plots in the East has been difficult for GPL due to heavy rains in 2019. REACH-Uganda is monitoring the situation closely and will be receiving data from GPL on crop yields from all demonstration plots.

The main challenge in the partnership so far has been for GPL stockists to find reliable sub-stockists. However, the model has been praised by GPL, as it is a convenient and efficient way of getting their product to farmers. So far, the team has onboarded 15 of the 36 anticipated sub-stockists.



Next steps

GPL plans to put more effort into mobilizing reliable sub-stockists to ease access of fertilizers to farmers. Field days, which are another avenue for promoting the benefits of using the crop-specific fertilizers, could not be held due to COVID-19 restrictions and social distancing policies for gatherings.

Furthermore, due to COVID-19 travel restrictions, GPL was unable to reach stockists and supervise the progress of demonstration plots. There has also been a challenge in transportation of fertilizers to markets, with increased costs that have temporarily reduced GPL's profit margin. Some stockists that requested fertilizers on credit were unable to pay for them because of the drop in the demand for fertilizers from farmers.

Moving forward, GPL plans to conduct more radio talk shows and run advertisements with catchy jingles, since the one previously aired has greatly influenced an increase in GPL's market share. The talk shows will present an opportunity to share results and yields of demonstration plots established from the partnership. GPL is also considering setting up regional sale outlets to curb transportation challenges, although this will increase storage costs. The primary mechanism of getting its products to clients will be through the existing model, and GPL plans to amplify engagement of stockists and sub-stockists.

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REACH - Uganda's partnership with GPL is only starting to take off and is showing encouraging signs of impact from early monitoring. REACH-Uganda can link GPL to all farmers reached from its partnership's portfolio. REACH-Uganda can also consider improving GPL's logistics through dedicated delivery trucks.



3.5 Rural Road Infrastructure

Under **Output 1.8**, to support better access to input and output markets and essential services for business and farmers, over 67 km of rural feeder roads was either completed or substantially completed in 2019. This includes the 44 km opened in 2018, plus two additional feeder roads of 23 km, an 18 km feeder road in Rubanda District linking farmers to markets in Ihanganga and Nyaruhanga, and a 5 km farm access road in Bulambuli District, which was constructed in partnership with SWT, one of the leading rice producers in Uganda.

All of these investments were based on strategic choices made in consultation with public and private sector actors. In Bulambuli, the 5 km road constructed in partnership with SWT and the district local government

(DLG) represented a key opportunity to support the Government of Uganda's policy of developing a self-sustaining rice industry. The road is the catalyst for a number of ground-breaking changes. While the farmland was previously inaccessible, the road now provides access to a 5,000-acre irrigation scheme currently under development. This will lead to the creation of 585 full-time equivalent jobs by 2023 when the scheme is completed and an additional 12,240 mt of rice production on farm. It will also form the basis for an outgrower scheme, in which SWT will provide inputs and a ready market for over 5,900 farmers once this partnership reaches maturity.

Table 2: Roads constructed or rehabilitated by district.

District	Road	Kilometers	Population Reached	Status by End 2019	IFDC Cost-Actual (UGX)	Public/Private Sector Cost-Actual (UGX)	Total Cost-Actual (UGX)
Butaleja	Doho 1 rice scheme	10.15	32,895	Completed and handed over to DLG	354,641,200	609,500,000	964,141,200
Kanungu	Rutenga-Kirimbe TC	7.85	13,578	Completed and handed over to DLG	843,532,705	351,700,000	1,195,232,705
Kween	Cheminy-Atar	26.13	30,515	Substantial completion	889,830,441	841,939,750	1,731,770,191
Rubanda	Ihanganga-Kyamabare-Butobore-Nyaruhanga	18.1	72,095	Completed and handed over to DLG	1,132,513,867	401,448,000	1,533,961,867
Bulambuli	Nalondo-Buriano (partnership with SWT to access irrigation scheme)	5.2	7,765	Substantial completion	437,296,570	803,470,812	1,240,767,382
Total		67.43	156,848		3,657,814,783	3,008,058,562	6,665,873,345

In Rubanda, the 18-km road, handed over to the DLG by the Embassy of the Kingdom of the Netherlands (EKN) in October 2019, was of strategic importance, given the significant number of community members (over 72,000) it serves and the high number of project farmer groups (99) that can now access regular markets in Nyaruhanga Trading Center, Hamurwa Town Council, Kagunga Market, and Rubanda Town Council. In addition, PFIL, as the leading crisp processor in Uganda,

has been strengthening its supply chain with organized farmer groups, some of which are located on the Ihanganga-Nyaruhanga road. With access to navigable roads, farmers can now access inputs for higher productivity and sell in an organized manner to PFIL and other buyers without worrying about the crop perishing or being damaged during transportation.



Before the road was constructed, farmers faced difficulty in transporting goods to the market, accessing health and education facilities. The transport costs were very high, and it took a full day to get their produce to the markets which reduced the potato shelf life and they would be forced to sell at a lower price.

But now, farmers deliver produce to market very quickly and are able to sell at higher prices and get higher profits. They also have increased access to the trading centers where they can get health services.

Twesigomwe Denis
Acting District Engineer, Rubanda District

Overall, the 67 km of road will provide access to markets and other essential services to almost 157,000 community members. The total investment was U.S \$1,810,650, of which U.S \$817,077 was leveraged from public and private sector partners. This confirms that the model of a 50/50 contribution of resources used by the project was effective in generating the co-investment required to execute these strategic interventions. The total length of roads established substantially exceeds the project target of 25 km, with about the same anticipated level of resources and has reached 138,000 more farmers than the 19,000 project target.

In Butaleja, where the 10-km road was handed over to local authorities and Doho Irrigation Scheme Farmers' Cooperative Society (DIFACOS) by EKN in May 2019, the impact assessment found that access to market and other essential services had improved considerably

in a six-month period post work completion. The cost of transport to the nearest market (where agricultural produce is sold) decreased by 58%, from 9,500 UGX at baseline to 4,000 UGX. Moreover, as a result of better access to agricultural inputs, both production and productivity improved in the rice scheme, with the latter increasing from 1.4 mt per acre to 1.9 mt post-intervention. Other services, such as education, also benefited from shorter walking distances to schools for children. The results show a clear link between infrastructure improvement, increase in utilization of land, and improved productive and economic opportunities for farmers, as per the project's Theory of Change. Similar assessments will be conducted on the other roads in 2020 to determine the overall impact of this co-investment in road infrastructure.

3.6 Discussions on Pre-Market Training Activities and Resilience



Pre-Market Training Activities

Under its Pre-Market Objective 2, to enhance resilience and productivity of market-oriented farmers in the target commodity value chains the REACH-Uganda project has been built around the ambition to improve the resilience of participating households to climatic and financial shocks. To achieve this objective, the project has initiated and conducted trainings with members of farmer groups since 2017. These trainings have focused on topics identified by the project that are determinants of resilience and which it could have a resilience-

enhancing impact on. These have been narrowed down to four specific training areas: good agronomic practices aligned with CSA, gender dynamics, income diversification, and VSLA/access to finance. These activities fall under the project's Output 2.1 - Farmers are Trained in Financial Literacy and Business Skills and Output 2.2 - Farmers are Trained in Farming as a Business (FaaB) and Good Agricultural Practices (GAPs). The impact on household resilience (Output 2.3) is discussed further in the next section.

Table 3: Project progress in numbers of farmers trained since the baseline.

Output 2.1 - Farmers are trained in Financial Literacy and Business Skills							
Output 2.2 - Farmers are trained in Farming as a Business (FaaB) and Good Agricultural Practices (GAPs)							
	Baseline	Target	2017	2018	2019	Cumulative	
# of farmer group members (disaggregated by gender and age)	17,372	40,000	18,117	11,179	9,825	39,121	F: 24,081 M: 15,040 <35: 14,477 ≥35: 24,644
# of farmers trained in FaaB (disaggregated by gender and age)	0	36,000	18,478	23,122 ²	8,941	36,398	F: 22,502 M: 13,896 <35: 13,438 ≥35: 22,960 34,058 of these farmers have been trained in FaaB and GAPs for ancillary crops.
# of farmers trained in GAPs (disaggregated by gender and age)	0	36,000	15,167	23,122	8,941	35,913	F: 22,206 M: 13,707 <35: 13,303 ≥35: 22,610 5,521 of these farmers have been trained on dietary diversity M: 1,699 F: 3,822 <35: 1,719

² In 2018, there was a change in methodology (content and modules) of training which resulted to re-training of some farmers already trained in 2017. However, when it comes to cumulative figures, only a unique count of all farmers trained by REACH is considered.

Output 2.1 - Farmers are trained in Financial Literacy and Business Skills

Output 2.2 - Farmers are trained in Farming as a Business (FaaB) and Good Agricultural Practices (GAPs)

	Baseline	Target	2017	2018	2019	Cumulative	
# of farmers trained in income diversification	0	36,000	8,910	23,122	8,941	33,935	F: 20,090 M: 13,845 <35: 12,461 ≥35: 21,474
# of farmers trained access to finance	0	36,000	0	16,548	7,268	23,816	F: 12,218 M: 11,598 <35: 9,870 ≥35: 13,946
# farmers trained in joint decision-making	0	36,000	4,766	20,253	10,958	31,478	F: 19,258 M: 12,220 < 35: 14,326 ≥ 35: 17,152
# farmers trained in relevant CSA practices/ techniques (disaggregated by gender and age)	0	36,000	9,566	23,122	8,941	35,536	F: 21,963 M: 13,573 <35: 13,158 ≥35: 22,378

Overall, by the end of 2019, the project had made great progress toward its target accomplishment for trainings, reaching the target number of farmers in almost all areas, with the exception of training on Access to Finance and Joint Decision-Making/Gender. Training on Access to Finance started a year later, as it

was anticipated that farmers would first complete the Agronomy training component before commencing training on Access to Finance. *The remaining farmers were to be trained in 2020, but the onset of the COVID-19 pandemic and resultant lockdown limited the opportunities to meet the shortfall.*

Gender and Joint Decision Making

The training of farmers on joint decision-making was reinforced through the Community Change Agent (CCA) approach, where various community-based sessions were conducted on joint decision-making aimed at improving household gender dynamics. Through this, 3,652 farmers (975 male and 2,677 female) have been trained in both Eastern and Southwestern Uganda by CCAs. This has improved joint decision-making at household level from 60% in 2018 to 87% in 2019. Key areas of changes include household patterns on use of financial resources, household expenditure, productive assets, and investments. Furthermore, this has boosted women and youth's self-confidence and efficacy as demonstrated through the various leadership positions taken up by them.

To reach a wider audience radio campaigns in seven project districts were conducted. Through radio talk shows with six local radio stations, and jingles & dialogues on promoting household decision-making around farming communities, an additional 364 (174 male and 190 female) call ins were recorded around promoting behavioural and transformative change for farmer households and communities.

Synergies have been witnessed between CCAs and REACH-Uganda businesses partners. For instance, 40% of the CCAs have acknowledged having had business interactions with several project business partnerships as consumers of clean seed, suppliers of potato, using rice milling facilities and drying yards, and market information services offered by the businesses.



By the end of 2019, the REACH-Uganda project had trained over 35,000 farmers on a number of its core modules. Despite experiencing several climatic shocks,

participating farmers and households have continued to perform strongly in terms of yield. Results are captured in Table 4.

Table 4: Number of farmers reporting increased yields following training.

Outcome 2.1 - As a result of training, farmers increase their yields (potato and rice) to at least 65% of the optimal level						
Indicator	Baseline	Target	2017	2018	2019	Cumulative
Average yields for rice (mt, disaggregated by gender)	0.6	2.0	0.6	0.97	0.99	0.99
Average yields for potato (mt, disaggregated by gender)	3.07	5,000	3.9	4.75	3.08	3.08

These results demonstrate that even during a period of adverse climatic conditions, participating farmers perform significantly better than non-participating households. In rice, there was a slight improvement in average productivity from 0.97 mt in 2018 to 0.99 mt in 2019 despite the adverse climatic conditions (drought and then excessive rainfall). This figure is more than double the national figure from the Uganda Bureau of Statistics (UBOS) *Annual Agricultural Survey* for 2018 (a year without climatic shocks) of 0.44 mt/acre. For participating potato farmers, there was a drop in productivity from 4.75 mt/acre in 2018 to 3.08 mt/acre in 2019; however, this is still above the baseline level and is reflective of the impact of excessive rainfall creating blight pressure on the crop. Again, this is favorable compared with the national average in the UBOS *Annual Agricultural Survey*, reporting average yields of 1.4 mt/acre.

In addition to the research conducted with farmers as part of the Annual Household Survey, the REACH-Uganda project has also conducted crop cut surveys. These are yield surveys that randomly sample and measure yields from defined plot sizes within farmers' fields. While the project does not report these results for reasons of consistency (and comparatively small sample size), in the primary data source reported by the project, they are noteworthy. Results from the crop survey indicate stronger performance by farmers, compared with the figures reported based upon farmer recall. Potato production in 2018 and 2019 remained static at 11.69 mt/acre, while rice production dropped

from 2.2 mt/acre on average in 2018 to 1.74 mt/acre in 2019. Some of the differences in performance between crop cut surveys and farmer recall are due to farmers' overestimation of their field size and inaccuracies in recall of the measurement at harvest.

The variations in yield at farmer level have also impacted on revenue and net profit. Overall, it is clear that rice and potato are still highly profitable enterprises for farmers. The net income of farmers from one acre of rice was at U.S \$ 672 per acre which is an increase of U.S \$288 from 2018. In potato net income was at U.S. \$720 per acre despite the reduction in yield. These figures indicate the strong market price for the two commodities given that the cost of production also increased in rice and potato.

Table 5 shows that the REACH-Uganda project continues to make strong, demonstrable progress in promoting adoption by farmers of the resilience-enhancing approaches under Outcome 2.2 - Farmers adopt and use resilience strategies. These include access to finance and gender dynamics, two areas in which the project has taken time to generate results. Overall, 89% of farmers are now practicing three out four resilience measures, an increase of 18% from the 2018 figure and exceeding the target of 50%. At the same time, how households actually use these techniques to adapt and transform in the face of shocks and setbacks needs to be understood; this is discussed further in the next section.

Table 5: Farmers adoption and use of resilience strategies.

Outcome 2.2 - Farmers adopt and use resilience strategies						
Indicator	Baseline	Target	2017	2018	2019	Cumulative
% of farmers who have diversified their income (disaggregated by gender and age)	50%	70%	99%	99%	99%	99%
% of farmers who have access to finance (disaggregated by gender and age)	27%	50%	28%	29%	33%	33%
% of female farmers with input into decision-making at the household level	45%	60%	67%	60%	87%	87%
% of farmers using climate-smart approaches in agriculture (disaggregated by gender and age)	0%	70%	99%	99%	99%	99%
% of farmers using at least four GAPs in rice and potato production	0%	70%	84%	79%	77%	77%



Household Resilience

Based on the strong training target accomplishment of by the end of 2019 and the high levels of adoption in all resilience components (apart from access to finance, which has only improved marginally), the project appears to have made progress toward its goal of improving household resilience. The measurement of household resilience as an outcome of project activities, however, can be difficult outside of periods when households are experiencing a shock or setback. In 2019, participating households in both Eastern and Southwestern Uganda experienced two climate-based shocks – droughts followed by extended excessive rainfall. These two weather-related events could potentially present significant setbacks to households. Recognizing this scenario, REACH-Uganda has collaborated with Wageningen University to facilitate Menno Veen, a M.Sc. student, to assess the effectiveness of the resilience strategies promoted by the project.

Data was collected during the Annual Household Survey, which was conducted in early 2020. The survey tool

was adapted to enable further probing of households regarding the impact of the shocks experienced in 2019 on the economic and food security status of the household during 2019 and early 2020. This section offers an abridged synopsis of the research findings, conclusions, and recommendations.

Households' exposure to shocks is a major determinant of their likelihood to fall into or remain in poverty. The results from the Annual Household Survey indicate that most of the households in Eastern and Southwestern Uganda were exposed to negative shock(s) in 2019. While there were spatial differences in the types of shocks experienced, almost two-thirds of all households experienced at least one climate-induced shock. There were some clear differences in the exposure to shocks by potato- and rice-growing households. Rapid onset shocks were most dominant in rice-growing areas, and slow-onset shocks were most dominant in potato-growing areas.





Key Findings

Differences in the way rice- and potato-growing households coped with shocks were noticeable:

- Potato-growing households statistically relied more on crop diversification, while rice-growing households statistically relied more on income diversification. Furthermore, rice-growing households reported having applied a statistically larger share of both GAP and CSA practices compared with potato-growing households.
- Coping responses also differed between potato- and rice-growing households. After the climatic shock, relying on savings (including non-cash) and a VSLA was the most used coping mechanism of rice-growing households, and changing cropping practices was the most used coping mechanism of potato-growing households. The differences in the coping mechanisms used likely stem from the differences in shock experience and geographical conditions of the respective areas.

There were noticeable differences in the effectiveness of coping mechanisms used between rice- and potato-growing households.

- The higher rate of adoption did not necessarily mean higher effectiveness. While rice-growing households responded statistically at a higher level to a shock by relying on savings and credit, potato-growing households used this coping mechanism more effectively. This could potentially be attributed to the statistically higher percentage of potato-growing households with access to a formal savings account. Likewise, rice-growing households were more likely to rely on safety nets, while potato-growing households generally used these more effectively.

Overall, the project's impact on the effectiveness of coping mechanisms used in response to and without shocks appears to have been variable..

- The REACH-Uganda project has provided agricultural extension and advisory services and training on financial literacy. Intuitively, agricultural extension and advisory services are expected to improve the adoption and effectiveness of pre-shock crop diversification, CSA, and GAPs and post-shock changed cropping practices. Generally, the project has improved a household's effectiveness of crop diversification to reduce the likelihood of falling into poverty. This indicates that the training on ancillary crops is beneficial to farmers.

- No significant impact was found on households' effectiveness of the use of CSA. Surprisingly, the results indicate a negative impact on the effectiveness of changed cropping practices in response to climate-induced shock(s). This may be an indication that households are unable to effectively apply the acquired knowledge in the face of climate-induced shocks. The results suggest that, regarding the impact on the effectiveness of access to finance and savings, the REACH-Uganda project is only beneficial to the relatively better informed households. The trainings on financial literacy and FaaB were expected to improve the adoption and effectiveness of income diversification and financial/saving products pre-event and post-shock reliance on savings and credit. No significant project impact was found on households' effectiveness of the use of relying on savings and credit.
- Surprisingly, the project training causes a household's effectiveness of the use of safety nets to improve significantly. While this is not a direct project objective, it could potentially be a positive unintended impact of the training provided by the project.

The impact of the REACH-Uganda project was found to be variable. The findings indicate that the training provided by the REACH-Uganda project did significantly benefit households' effectiveness of the use of changed cropping practices on improving income, particularly in response to (two) climate-induced shocks. In contrast, the results suggest that the training provided by the REACH-Uganda project significantly degraded households' effectiveness of the use of savings and VSLA on improving food consumption in response to a non-climate-induced shock.





Recommendations in Relation to Resilience

Households in Eastern and Southwestern Uganda are regularly exposed to climate-induced shocks. This will likely continue as climate change persists. Given the current rate of poverty and limited effectiveness in coping with shocks, a large share of households will likely remain vulnerable to poverty in the future. Furthermore, there are some noticeable differences between rice- and potato-growing households in terms of exposure, adoption of coping strategies, and effectiveness of coping mechanisms used.

Therefore, to improve households' effectiveness of coping mechanisms used and reduce vulnerability, the following three actions should be considered.



Continue agronomy training on ancillary crops and emphasize cropping responses to climate-induced shocks

Given the effectiveness of crop diversification in reducing the likelihood of falling into poverty, training on ancillary crops should be continued or expanded. The results indicate that the REACH-Uganda project has generally made a positive impact on the effectiveness of this coping mechanism to improve well-being in response to climate-induced shocks. For potato-growing households, the focus should be on increased adoption of CSA and GAPs, since the current adoption rate is lower in comparison to households growing rice and the effectiveness in response to climate-induced shocks is high compared to rice-growing households.



Promote formal bank accounts and supplement with financial literacy training

The results show a clear link between potato-growing households' effectiveness of the use of savings and credit and reduced vulnerability. Enabling and supporting households to gain access to a formal bank account and providing households with supplementary training in financial literacy can improve households' effectiveness of the use of savings and credit. This is particularly the case with rice-growing households, as they lag in both access to formal financial institutions and effectiveness in use of their savings. The project conducted training on this in both regions but, overall, reached a lower number of farmers than in other training subjects.



Strengthen formal safety net programs

The high poverty incidence and vulnerability to future poverty demonstrates the need for the establishment of more formal safety net programs. Findings indicate that there is little support provided by the (local) government or NGOs, in terms of direct cash grants, etc. Though it is clear that there is insufficient budget to meet all needs, the resources available should be targeted to the most vulnerable. Households identified as being female-headed, more dependent, and less endowed (wealth and land) are most likely to have a lower level of well-being. More stratified targeting should be adopted by projects, so that these vulnerable groups receive specific support, rather than the general training package provided. This could be direct relief in the form of cash or establishment of a program aiming to increase these households' economic prospects. Furthermore, policymakers and practitioners should embrace the REACH-Uganda project's positive impact on informal safety nets. Farmer groups could be an extension of the support provided and give early warnings of heightened vulnerability.

04

Synergies, Lessons Learned and Next Steps

- 4.1 Project Synergies
- 4.2 Lessons Learned
- 4.3 Next Steps





This chapter presents and examination of the synergies, lessons learned, and next steps including an analysis of the challenges created by the COVID-19 pandemic and the solutions required to protect the investments made by the project partnerships to date.



4.1 Project Synergies

The section below discusses some of the key synergies and strategic partnerships facilitated by the project in 2019, that enabled further collaboration in key technical areas and deepening of results. This includes several EKN funded partners and Dutch business entities

In collaboration with ISSD, the network of screenhouse owners and LSBs has been further strengthened to create a more dynamic and efficient seed potato system in Eastern and Southwestern Uganda. Meetings were co-facilitated at the beginning of each season to establish demand for pre-basic and basic seed from the LSB. Over the course of the year, a total of 1,512 mt of QDS was produced by 36 LSBs, which were supplied with pre-basic/basic seed by the five active screenhouse owners. This represents an additional 18% of seed produced in the seed potato system in Uganda annually.

The REACH-Uganda project continued to collaborate in areas of **policy** with ISSD, especially on the registration of seed companies for which ISSD has the temporary mandate from MAAIF. For Kibimba's registration as a commercial seed producer, meetings were held with MAAIF, Kibimba, and REACH-Uganda/ISSD to establish the steps to become certified. In the end, it was determined that Kibimba would be registered as a QDS seed producer, although MAAIF has delayed this process, which remained unfinalized at the end of 2019.

In seed potato, the **partnership with Dutch seed companies** under the umbrella body *Nederlandse Aardappel Organisatie* (NAO, the Dutch Potato Organization) facilitated the second round of national varietal performance trials of 16 additional Dutch varieties conducted by NARO at the national level. The third round will be completed in the first season of 2020, with the data report to be presented to the Varietal Release Committee in September 2020. The potential release of further Dutch varieties, in addition to the seven already approved, will provide access for industry actors to more varieties that are optimal for Ugandan climatic conditions.

In addition, HZPC, one of the Dutch companies participating in the trials, granted HighGrow Agri/ Namakwaland an import license for Taurus and Panamera seed into Uganda, which will be signed in early 2020. This opened up the possibility for Highgrow Agri to import and multiply these industry-demanded varieties, and 50 mt of seed was ordered for planting in the first season of 2020.

The continued implementation of the GIZ PNSP project in Eastern Uganda, and the Elgon sub-region particularly, has provided further opportunity for synergies in key areas, including nutrition and Early Generation Seed (EGS). In Eastern Uganda, the PNSP nutrition advisor supported the design and delivery of the training program on Dietary Diversity to 5,521 farmers. This behavior change messaging has had a positive impact on dietary diversity; the Household Dietary Diversity Index (HDDI) improved from 33% in 2018 to 43% in 2019, indicating uptake of a wider range of food groups and foodstuffs as a daily practice.

REACH-Uganda and PNSP were able to combine efforts in strengthening the EGS system in Elgon Sub Region through collaboration with key partners such as Agromax and MIFA. For MIFA, PNSP is supporting the establishment of one additional greenhouse to complement the two under REACH-Uganda, further boosting the capacity of the association to generate EGS. In addition, the PNSP technical staff are supporting the use of the technology of rooted apical cuttings, which is a potentially high-productivity technique for mini-tuber for production, pioneered by the International Potato Center (CIP) in Uganda.

Access to and formal ownership of land are key constraints for rice and potato farmers, particularly women. Under the UN-Habitat and supported by the EKN, the Global Land Tool Network (GLTN) initiative aimed at securing formal land tenure in areas subject to environmental degradation, such as wetland areas. This collaboration with REACH-Uganda extended to both rice- and potato-growing areas, with 2,622 project farmers. It was successful in promoting a more streamlined approach to securing a customary land titles; 2,003 land parcels were mapped, approved, and sent to the Ministry of Lands to process the Customary Certificates of Ownership. The approach was recently endorsed by the Government of Uganda.

The project collaborated with the MetaMeta Roads for Water initiative on the environmental conservation and management of water from the rehabilitated roads. From prior experience, it was acknowledged that techniques such as infiltration trenches would need to be physically demonstrated in selected locations rather than just providing training and sensitization. As such, over 10 activity sites were established on the Kween and Kanungu roads, with landowners maintaining some of the infiltration trenches and the use of some community-inspired approaches, such as live fencing. Both community and DLG were involved in the training

and establishment of these pilots. However, this has not yet had a knock-on effect in terms of replication of the techniques. For this to happen, the full and continued support of an organization specializing in this area will be required, rather than a discrete activity relying only on facilitation from a project such as REACH-Uganda.

Learning and sharing remain key activities for IFDC. In October 2019, the REACH-Uganda project, in collaboration with EKN Uganda, organized a two-day market systems seminar. Day 1 of the event focused on the potential role and impact of market systems development in household food and nutrition security. Day 2 of the event gave participants an overview and quick insight into the Donor Committee for Enterprise Development Results Management Standard. The event drew a broad range of stakeholders, including project leads, donors, and representatives from government and the private sector, alongside other MSD practitioners. Presentations and breakout groups generated lively debate. A proposal for the establishment of an MSD community of practice has been postponed in 2020 due to the COVID-19 pandemic.



4.2 Lessons Learned

General program



Learning as a team: centralization of project staff has improved communication and learning, leading to stronger overall performance.

From its inception, the REACH-Uganda project utilized a highly decentralized structure, with key technical staff posted to field offices and the Kampala office functioning as an administrative center. Post MTR, it was decided that a more centralized staffing approach was required. Thus, all of the agribusiness team relocated from Mbale and Kabale to Kampala. Here, they were joined by the expanded MELS team. To further improve communication, all staff were seated in the same area within the office.

The impact of these changes has been notable. Communication and information-sharing have improved consistently throughout the year. This has improved workflows and created a more cohesive and shared understanding of the project's objectives by the technical staff responsible for executing the project's work plans. Additionally, this more centralized approach has enabled the implementation team to develop highly detailed collaboration agreements with project partners. Had the project persisted with its previously decentralized model, this would not have been readily achievable in terms of time and quality.

Market Development and MSD



Technical assistance alone has limited effectiveness in a shallow market, and requires bolstering through the development of key support services.

2019 has demonstrated that, for an MSD approach to be effective in a shallow market (highly disorganized value chains, with a limited number of actors who lack integration), it cannot simply constitute technical assistance alone. For an MSD approach to succeed, it needs interventions that develop and nurture the missing elements from that value chain ecosystem. Thus, the REACH-Uganda project, to achieve credible change at a systemic level, has had to identify and develop partnerships in finance, agro-inputs (including seed, tissue culture, and fertilizer), and agri-processing that go beyond simply training and mentoring (light touch) and involve support for essential capital equipment purchase, storage infrastructure, etc.

To maintain and safeguard this momentum (and investments), more actors within the target value chains are needed. To date, the REACH-Uganda project has done an excellent job matching the elements of supply and demand. However, as the sector gains further momentum and crowding in occurs, existing support services will experience strain. Therefore, the project should be given the scope to further increase its portfolio of partnerships to help the value chains become more robust and resilient.



Measuring the effectiveness of interventions requires a robust results measurement system by partnership (DCED Standard).

Prior to 2019, the REACH-Uganda project utilized a conventional monitoring and evaluation (M&E) system, which was strongly aligned to the training activities. These training activities contributed to the project's resilience enhancement goal and strategy. After the MTR, the M&E system was found not to be a good fit with the REACH-Uganda project's market systems approach. This necessitated a change in M&E strategy.

The project's adoption of the DCED Standard for Results Measurement has given the management team significant insights into projected impacts beyond the immediate current project cycle from each partnership in the business portfolio while enabling the team to monitor outputs, outcomes, and changes that will occur by June 2021. Achievement of this has required expansion of the Monitoring, Evaluation, Learning, and Sharing (MELS) team by adding two additional staff, the use of an experienced external consultant, and the development of detailed intervention guides for each individual partnership. While time-consuming, this has been vital for the project to effectively utilize an adaptive management system, which has resulted in frequent, but necessary, tweaks to the implementation strategy for each partnership.



Demand within the rice sector remains strong for high-level investments.

Rice continues to increase in importance as a food staple in Uganda, shedding its image as 'luxury' item and being recognized and embraced as an essential food staple. Continued growth in domestic demand and government policies, which are intended to promote greater self-sufficiency, means that rice remains an attractive investment at multiple levels in the value chain. The REACH-Uganda project has witnessed and supported a €5m+ investment by SWT in a central production farm and establishment of an outgrower scheme. In addition, further multi-stage processing capacity has been added by millers, such as RGC in Tororo. The project has been able to support these investments while also encouraging investment in farmer support services. This has involved rice processors invest in employing Field Extension Workers to provide extension services to farmers as well as train their networks of buying agents. Observations of investments by other actors in large-scale rice farming in the Bulumbuli area points to continued enthusiasm and confidence in the rice market. This clearly demonstrates that opportunities still exist for the REACH-Uganda project to increase its scope in the rice sector, further benefiting small-scale farmers.



Investments in the value-addition market segment can yield mixed results for farmers.

Value addition and produce upgrading is an essential function within the market system and value chain. This includes rice millers, such as Responsible Suppliers, and potato processors, such as PFIL. Differences exist in the absorptive capacity of these sectors in terms of the numbers of farmers they can engage with. Rice mills can buy or process metric tons of rice from dozens of farmers on a daily basis during the season. This is a result of the mills mixed business model of purchasing directly from farmers or processing the rice on behalf of farmers at a fixed price. For potato processors, such as PFIL, the dynamic is different; they purchase potatoes from farmers and process and market through their retail partners. PFIL needs approximately 2 mt of potato daily to satisfy their processing demand but will pay a premium for the right quality of potato and consistency in supply. Considering average potato farmer productivity, this means one or two farmers daily can meet this volume, naturally limiting the number of farmers PFIL needs to partner with. However, those farmers do benefit from higher net incomes. Therefore, it should be recognized that potato processors offer an important, but limited, outlet for farmers. As the processing sector for potato continues to grow (as does rice), more opportunities will be available for farmers. The project should, therefore, continue on its twin workstreams of potato for processing alongside ware potato, which provides the mass market.



Potato opportunities are widespread, not just limited to Elgon and Kigezi zones.

Traditionally, potato has been considered a specialized crop, grown almost exclusively in Southwestern Uganda. As time has passed, this perception (and reality) has changed. Large volumes of potato are now grown in the eastern highlands around Mt. Elgon. More evidence of this shift in production patterns can be seen in the Uganda Bureau of Statistics Annual Agricultural Survey 2018, which shows that, while Kigezi is still the largest producer of potato by volume, it is only marginally ahead of Tooro and the combined regions of northern and southern Buganda, see Table 6.

Table 6: Total area and total production of Irish potatoes by sub-region.

Sub-region	First season 2018		Second season 2019				2018	
	Area Planted (Ha)	Production (MT)	Area Planted (Ha)	Area Harvested (Ha)	Production (MT)	Yield**	Area Planted (Ha)	Production (MT)
S. Buganda	7,005	19,886	12,572	6,739	16,557	2.5	19,576	36,443
N. Buganda	2,586	11,968	6,366	5,709	21,863	3.8	8,951	33,831
Busoga	0	0	0	0	0	0	0	0
Bukedi	0	0	0	0	0	0	0	0
Elgon	9,324	28,890	2,773	2,667	13,489	5.1	12,097	42,379
Teso	0	0	0	0	0	0	0	0
Karamoja	0	0	0	0	0	0	0	0
Lango	0	0	0	0	0	0	0	0
Acholi	0	0	0	0	0	0	0	0
West Nile	943	2,549	527	527	3,480	6.6	1,469	6,029
Bunyoro	2,183	5,856	3,005	2,986	11,172	3.7	5,187	17,028
Tooro	11,965	27,316	16,128	15,391	53,061	3.4	28,093	80,377
Ankole	5,706	14,927	5,606	5,222	13,512	2.6	11,311	28,439
Kigezi	8,565	27,942	15,874	14,602	54,864	3.8	24,439	82,806
Uganda	48,275	139,332	62,849	53,842	187,999	3.5	111,124	327,331

(*) The total area harvested is the total area planted calculated on those observations whose production is available (not missing) and higher than zero.

(**) Ratio between production (MT) and area harvested (Ha).

To date, the project has largely focused its work on potato in the Elgon and Kigezi zones. Recently, to try and meet demand in the seed potato sector, the project has started to operate in the Tooro region. However, based on the information above, it appears that there is scope for significantly more investment in potato outside of potato's perceived traditional heartlands. This includes investments supporting ware potato as well as more specialized varieties suitable for processing and commercial entities that have the capacity and climatic advantages to be large-scale seed producers. Partnerships that strengthen potato systems in other geographical areas benefit the sector as a whole and should be pursued by the project.



Utilization of a contractor alongside the District Local Government staff and equipment for road rehabilitation improved efficiency and did not negatively impact value for money.

During the design, inception, and early implementation period of the REACH-Uganda project, the main methodology for road rehabilitation, based on the 50/50 cost share principle, was the DLGs' contribution through provision of equipment and manpower to execute the works, combined with technical support to the DLGs and some material provision the project. Overall, this system worked but was slow at times and frustrating, as DLGs often had numerous, conflicting priorities for the equipment available. Additionally, frequent turnover of DLG staff meant project work output was problematic.

During 2019, the project management team decided that the approach needed to be refined and that dependence on the DLG staff and equipment should be reduced. Therefore, a hybrid approach was adopted, integrating the use of road construction contractors alongside the DLG teams. This sped up the overall output and improved the quality of the roads developed during this time. Contractors were able to bridge equipment gaps, reducing overall downtime and improving efficiency. This helped accelerate the road delivery process, which in turn helped achieve better value for money while maintaining the 50/50 cost share principle. Should the REACH-Uganda project engage in further road rehabilitation, the hybrid approach will be continued.

Pre-Market Development and Household Resilience



In the face of shocks, ancillary crops and access to finance or savings are extremely important to household resilience.

Research conducted in early 2020 by Wageningen University, after the climatic shock experienced by households in 2019, has identified several important trends related to the work of the REACH-Uganda project. Households that had adopted GAPs for ancillary crops (crops of secondary economic importance to households) promoted by the project (climbing beans, groundnuts, soybean, etc.) experienced a less severe setback than the households that did not. This likely resulted from the diversified income and risk reduction strategy, which is offered by a broad portfolio of crops, and emphasizes the need for projects to adopt a broad range of target crops rather than overemphasizing crop specialization to farmers.

With respect to access to finance or savings, results from the research revealed that, overall, households who had savings performed better than those without. Deeper analysis, however, revealed that there were some significant inter- and intra-regional differences in overall performance and utilization of these savings as an insurance against shocks. In Eastern Uganda, households often held non-cash savings, such as livestock, which provides a coping mechanism or buffer. Households from Eastern Uganda who held cash savings did not appear to perform as well in comparison. In Southwestern Uganda, households reported holding more savings in formal financial institutions and overall appeared to do better in the face of a shock than households from Eastern Uganda, regardless of whether the household from Eastern holding non-cash or conventional savings. It would appear savings utilization strategies for households from Southwestern Uganda performed better. Drawing on the analysis of these results, all households, regardless of location, would benefit from training and or guidance on how best to utilize savings in the face of a shock.



Farmers and Agribusiness prefer farmer groups rather than farmer business groups as their point of engagement.

In the original project Theory of Change it was anticipated that farmers would sell their produce to farmer groups that would in turn sell to farmer business groups which were an amalgamation of several farmer groups that would potentially benefit more from aggregation and economies of scale to sell to agribusinesses. In 2019, the impact assessment conducted revealed that farmers do not sell produce to FGs and then onto FBGs, rather they just market their produce as an FG to sell directly to the rice or potato processor. The simplicity of this arrangement seems to suit both parties, as processors prefer dealing with a number of individuals within a group that can meet quality and consistency standards and farmers prefer more face to face contact with the buyer. FGs also tend to be more cohesive than FBGs and have a stronger purpose through joint activities such as VSLA. As a result, in 2019 there has been a change in strategy from working with both FBGs and FGs to working predominantly with FGs and selected larger structures such as cooperatives.



4.3 Next Steps

The REACH - Uganda project has made clear discernable progress within its target crop value chains of potato and rice in several key areas including seed and expanded processing capacity. The question now is how to capitalize on these emerging systemic changes and give them national relevance.

Potato has become a national crop, spreading from the elevated areas in the Southwest to the East and now can be found virtually all over the country. From a food security and nutrition perspective this is good: potato can generate very high yields per acre and is more nutritious than most staples. But it is also a challenging crop to grow. All these farmers need access to clean planting material, other inputs and the knowledge on how to use them.

REACH-Uganda has established the beginnings of a national seed potato system. Seed potato production works better at elevation; thus, the nuclei of this system may need to reside in REACH's current working areas, but the demand is national. The current infrastructure being invested in can meet approximately 20% of this national demand. This system needs further investment to be able to meet national demand - the emerging systemic change pathway needs to be broadened.

Ideally, Integrated Seed Businesses (ISBs) would be able to source from a few more commercial laboratories, in addition to KAZARDI, to ensure sufficient diversity in offer and price at that end. The production capacity and number of ISBs needs to expand. Knowing access to finance for agribusinesses will remain a challenge in the near future, there is a role for donor agencies to kickstart this process. A national market of second-tier Local Seed Business needs to emerge handling the last, bulky stages of multiplication and producing Quality Declared Seed.

It can be researched how this national seed multiplication infrastructure can be utilized for other crops.

Parallel to the spread of local ware potato production is the increase in potato demand from the hospitality sector and from supermarket chains, each specifying which potato varieties they wish to sell/process. This is the market channel, ready to offer a premium for the right variety, which Dutch seed potato multipliers can sell into. The development of a functional system for Dutch potato production in Uganda has started, serving these industries with 40 mt of Dutch processing potato per month. With the organized and legal production of Dutch seed in Uganda on a commercial level this now has the potential to expand further and allow Uganda to source much more of its high value potato locally.

Support services around potato should expand further, to safeguard soil fertility and a reliable harvest. Multi-purpose industries for fertilizer blends and inputs have emerged, but the retailing of products and being able to receive instructions along with the product on use ('embedded services') is still in its infancy. Generic trading of inputs whatever the quality needs to be replaced by a branded distribution network with a desire to be more accountable to the client to secure repeat purchases. REACH-Uganda has commenced work on this, but significantly more scale is needed.

For example, FICA Seeds, a REACH-Uganda project partner in the seed potato sector, has recently invested in a fertilizer blending facility. This would bring welcome competition to Grainpulse, who currently hold a market monopoly in this field.



Finally, investment in irrigation remains important, especially in support of potato seed production. Farmer groups being able to borrow from financial institutions against savings generated also remains important to expand. Farmers in a group often face the same agricultural cycle, need finance at the same time. This means that for farmers to be able to afford all the inputs required, they either need access to value chain financing or access to external loans as provided by the Micro-Finance Support Centre. REACH-Uganda has made inroads here, established a functional model but, again, more scale would be needed - and highly relevant for other crops as well.

Rice is also a growing staple, increasingly important to feed Uganda's cities and towns. As the country expresses the desire to be less dependent on imports in this regard, local supply needs to come from local multi-stage mills able to source local rice varieties from local farmers and turn this into an affordable product of reasonable quality, free of stones and dirt and reasonably uniform in terms of content (bigger brands are likely to serve more sophisticated market demand, but the local mills should serve mass consumption).

REACH- Uganda has established a business model to enable local multi-stage mills to increase the volume and quality of paddy supply through investments in transport, field agents, drying services, and supporting loan applications. These represent real change at a system level which will impact at a national level. Furthermore, through partnerships signed, sourcing from multistage mills will increase by an addition 5.5%, benefitting 11,000 famers. This model can be applied at a much larger scale to further reduce the use of single stage mills and promote better practices in rice.

In terms of seed, REACH-Uganda is making progress towards meeting 13% of national demand. While significant, ideally this emerging system would be expanded both in terms of the number players and the volume produced.

Similar to potato, support services around rice need to develop further. Investment in irrigation will be of strategic importance for food security in Uganda given their reliable high production potential. For access to finance the same logic applies as in potato.

Overall, next steps for REACH-Uganda would be to expand the potato and rice 'value chains' and focus on national market systems (as it started to do since 2019). Within these national systems, subsystems can be identified such as the seed industry, the agro-input industry, the food processing industry and access to finance, that are of national relevance for Uganda. Solutions and successful business models developed here will resonate well beyond potato and rice, serving food security, nutrition and resilience in agricultural production at large.

The COVID-19 pandemic has placed enormous strain upon all sectors of the Ugandan economy, putting at risk gains in poverty reduction, resilience, plus food and nutrition security. These are gains, which have been hard won not just by the REACH - Uganda project, but by multiple development actors. Surveys conducted by IFDC in 2020 found that COVID-19 has had a negative impact on project partners in several areas including supply chain blockages, sales turnover, and retention of staff. At the same time, many businesses have shown their resilience and found innovative solutions to some of the economic and logistical challenges presented by the pandemic.



To secure and scale up these gains for the long-term, sustained action is needed. Data from the 'Annual Agricultural Survey 2018,'³ conducted by UBoS, clearly shows that there are large numbers of potato and rice growers who are active outside the project's current geographic focus. Not just that, frequently these farmers' productivity compares poorly to farmers who benefitted from the REACH-Uganda project. Low productivity is indicative of households struggling to achieve resilience and by extension food and nutrition security. Additionally, these households will be likely unable to optimize their uptake and utilization of climate smart agricultural practices in their farming systems.

Work undertaken by the project has slowly yielded results and when we examine the project's Theory of Change much is anticipated in the years 2021-23, as the present partnerships achieve full maturity. These results are based only on present partnerships.

Evidence of 'crowding in' (when other credible actors or business become active in a sector and can perform the same functions), can be seen in both potato and rice with new entrants in the crisp sector such as 'Gaga Crisps,' and 'Newman Crisps.' In addition, it is anticipated that Veris Investments - a Dutch investment company specializing in food value chains - will enter the market in the coming months either through purchase of an existing actor or through establishment of a new firm.

Similarly, the rice sector has seen new entrants to the local production scene including Maganjo and Mandella Millers, which further consolidates the Government of Uganda's' policy of self-sufficiency and could be opportunistic for similar partnerships models as REACH has facilitated with SWT (irrigation, nucleus farm development plus out grower scheme). All of this points to vibrant market systems which, through the appropriate assistance of the REACH-Uganda project, can have positive long-term impacts on economic development, climate smart agriculture, resilience and food and nutrition security.

³ https://www.ubos.org/wp-content/uploads/publications/AAS_2018_Report_Final_050620.pdf

Annex 1: 2019 Annual report statistics

	Indicator	Performance					Cumulative	Narrative on Performance
		Baseline	Target	2017	2018	2019		
Goal To strengthen the efficiency, and inclusiveness of the agricultural market system while contributing to improved household resilience and productivity in selected value chains in Uganda	Employment created in the chain (total additional FTE)	0	125	0	2	44	46	KL: 4 FTE, PSALMS: 15 FTE DGL :8 FTE 17 interns got employment after the internship program, 9 of these were retained by the companies and 8 got new employment elsewhere.
	% of farmers classified as food secure	55%	65%	47%	52%	47%	47%	39.5% of rice farmers and 55% of potato farmers.
	% increase in net income of farmers attributable to potato (per acre of potato)	1,689,058	2,026,870 (20%)	3,256,152 (92%)	3,498,479 (7%)	2,666,845 (-24%)	25%	Net income for potato farmers reduced by 24% in 2019 due to lower yields compared to 2018. This was especially skewed by the south western regions where irregular rains greatly affected potato yields. However, it is still 58% increment when compared to the baseline net income and an average of 25% across different years.
	% increase in net income of farmers attributable to rice (per acre of rice)	800,926	961,111	1,707,299 (113%)	1,832,519 (7%)	2,486,079 (36%)	52%	Net income for rice farmers had a dramatic increase in 2017 from that of baseline, it has since been steady increase at an average of 52% across years.
At the business level Higher turnover and improved efficiencies	Average % increase in turnover of MSMEs	0	10%		27%	48%	48%	PFIL turnover increased by 42% from UGX 1,259,250,000 in 2018 to UGX 1,791,088,000 in 2019 which is attributed to the introduction of new flavors and increase in the number of retail points. PFIL turnover increased by UGX 1,003,738,000 by 2019. DGL's turnover increased by 54% from Ugx. 726,000,000 in 2018 to Ugx. 1,118,384,486 in 2019. This was due to the increased marketing activities for DGL's rice and increased sourcing of paddy from farmers.

	Indicator	Performance					Cumulative	Narrative on Performance
		Baseline	Target	2017	2018	2019		
At the business level Higher turnover and improved efficiencies	Revenue per acre (Potato) UGX/acre	2,417,849	3,143,203	1,844,393	5,265,769	3,051,434	3,051,434	
	Revenue per acre (Rice) UGX/acre	1,281,018	1,665,323	1,254,188	2,056,496	3,122,359	3,122,359	
At the farm level Increased income	% agricultural production sold (HH level)- Milled rice	73%	95%	89%	89%	90%	90%	Rice farmers sold almost all their produce, in 2019, there was an increase in agricultural production sold (milled rice) at HH level by 1%. This may partly explain why food security is lower for rice households than for potato households.
	% agricultural production sold (HH level)- Potato	63%	80%	63%	62%	66%	66%	There was a 4 % increase in the agricultural production sold at HH compared to 2018
	% agricultural production sold to miller/value added (Rice)	66%	76%			79%	79%	On average, farmers sell 79% of their produce to millers.
Outcome 1.1 Farmers achieve increased profitability and efficiency through access to improved market functions.	% of produce sold by FG & FBGs to Agribusiness/ MSMEs (Rice)	0	50%			79%	79%	
	% of produce sold by FG & FBGs to Agribusiness/ MSMEs (Potato)	0	25%			32%	32%	
	# FBGs supplying a MSME	0	50	7	19	0	19	There was a change in strategy from working with FBGs to FGs, Most FBGs dissolved and farmers preferred to aggregate produce at FG level.
	% FGs supplying a MSME	0	25	N/A	N/A	45 %	45%	A total of 51 FGs supplied to MSMEs in 2019 out of the projected 80 FGs. Potato: 6 FGs supplied to PSALMS, out of the 20FGs that were sensitized about supplying to PSALMS (30%). Rice: 45 FGs supplied to DGL out of the 60 anticipated farmer groups (75%).

	Performance							Narrative on Performance
	Indicator	Baseline	Target	2017	2018	2019	Cumulative	
Outcome 1.1 Farmers achieve increased profitability and efficiency through access to improved market functions.	# FBGs doing value addition	0	30	146	93	0	93	There was a change in strategy from working with FBGs to FGs, most FBGs dissolved and value addition activities are carried out at FG level.
	% farmers selling via FG/FBG (by gender)- Rice	10%	40%	0%	0%	0%	0%	During the impact Assessment, it was observed that the farmers do not sell via FGs. Instead they sell directly to DGL as a group.
	% farmers selling via FG/FBG (by gender)- Potato	0%	35%	0%	0%	5%	5%	
	Rice production cost per unit (KG)	656	558	881	760	823	823	Expenses were highly incurred on hiring land, land preparation, labor for planting, purchase of inputs, weeding, bird scaring, harvesting, and milling.
	Potato production cost per unit (KG)	343	292	450	376	392	392	
	% farmers using at least 2 identified support services (disaggregated by gender and age category)	0	30%	8%	14%	39%	39%	Support services accessed include extension services, financial services, spray services, and agro-input services.
Outcome 1.2 Agribusinesses and service providers are able to achieve higher sales and expand clientele by offering better input services and transactions.	% increase in volumes purchased from FGs/FBGs	0	20%	N/A	N/A	14.5%	14.5%	For PSALMs, there was 5% increase in volumes sourced from FGs. There was a 24% increase in the volume of paddy sourced from farmer groups by DGL from 479 MT in 2018 to 594 MT in 2019.
	% increase in volumes sold	0	15%			25%	25%	PSALMS volumes sold increased by 33% from 84 MT in 2018 to 112MT in 2019. The volume of rice sold by DGL increased from 309 MT in 2018 to 404 MT in 2019 indicating a 16% increase.
Output 1.1 Agribusinesses, service providers screened and selected.	# lead firm/MSMEs screened	0	50	13	22	23	58	A cumulative total of 58 MSMEs have been identified and screened for potential engagement by IFDC.

	Performance						Narrative on Performance	
	Indicator	Baseline	Target	2017	2018	2019		Cumulative
Output 1.1 Agribusinesses, service providers screened and selected.	# lead firms/MSMEs selected	0	25	5	14	11	30	<p>Cumulatively, 30 MSMEs have signed MoCs with the REACH project, however due to change in strategy, some of these were later dropped i.e. Divine masters, Pearl rice, Katiba, Kigezi Small Scale Agro Processors Association, SolarNow, Rice Millers Council of Uganda, Upland Rice Millers and UBL.</p> <p>Currently REACH project has 17 active partnerships i.e. 5 in rice, 10 in potato value chains and 2 cutting across.</p> <p>8 more partnerships are in pipeline including Dutch seed multipliers (Clarks, Rwengaju, Batuma, New Bukumbi coffee) and screen house owners (Maziba, Bitamba and two ISBs) .</p>
Output 1.2 Develop, formalize and implement partnership agreements with business plans	# action plans implemented with FBGs	0	50	1	1	24	26	<p>DGL (4), Kibimba (2), RGC (2), PSALMS (2), MIFA (2), KGCFC (5), SUKUT (4), GPL (1) and MSC (2)</p> <p>These are the actions implemented to directly benefit farmers with in each DCA including sourcing, trainings, drying, access to finance, access to inputs etc.</p>
	# business plans implemented with MSMEs	0	25	5	12	17	17	17 signed partnerships are actively implementing plans in line with the Detailed Collaboration Agreements signed.
Output 1.3 Public facilitation leverages private investment and introduction of innovative businesses practices.	Amount (Euros) invested by private sector through partnerships	0	€1.0m	€0.33m	€1.12m	€4.05m	€5.5m	

	Performance							Narrative on Performance
	Indicator	Baseline	Target	2017	2018	2019	Cumulative	
Output 1.3 Public facilitation leverages private investment and introduction of innovative businesses practices.	# innovative business practices introduced	0	50			7	7	These have been introduced within Interventions including; <ul style="list-style-type: none"> ◦ Commercial production of new Dutch varieties. ◦ Cost effective and practical Screen houses for farmers (SW & E). ◦ Farm ponds to collect and reserve water for seed potato multiplication (SW). ◦ Automated crisps processing equipment and machinery (PFIL). ◦ New flavors of crisps to the Ugandan market (PFIL). ◦ Lowland Rice seed production (KBL). ◦ 2 gravity flow Drip irrigation systems (East) Uganda.
Output 1.4 FBGs, FG and Farmers are able to access financial products for productive investments.	# FBGs accessing loans	55	100	23	17	0	20	6 of the 60 anticipated farmer groups accessed loans from MSC through linkages by DGL. In the SW, out of the 31 FGs sensitized about financial access, 6 FGs got loans from MSC and Post bank. Only 16% of farmers got from formal institutions and the other 22% from SACCOs.
	% FBGs accessing loans	17.43%	30%	9%	7%	13%	13%	
	% farmers accessing loans	16%	30%	39%	37%	37%	37%	
Output 1.5 Work placements created at FBGs and MSMEs	# work placements created	0	100	0	31	42	73	28 females and 45 males Nine (9) of these have been retained by the MSMEs with whom they had their internship programs, eight (8) got employment with other companies while one (1) started a Gender and Women focused organization.
Output 1.6 Youth entrepreneurs supported to be Spray Service Providers (SSPs).	# youth spray service providers trained	0	100	27	83	137	137	137 SSPs have been trained on effective Association operations, managements and financial literacy by CropLife in both Eastern (94) and south western (43) regions. 8 SSP associations were formed consisting of a total of 80 SSPs out of those trained, 6 of these groups are fully registered associations. Furthermore, 30 SSPs in the south west were also trained in financial literacy and business skills by REIGN group.

	Performance						Narrative on Performance	
	Indicator	Baseline	Target	2017	2018	2019		Cumulative
Output 1.6 Youth entrepreneurs supported to be Spray Service Providers (SSPs).	# youth sprays service providers operating a functioning business	0	50	0	28	113	113	113 (82%) of the trained SSPs are selling their services to farmers and 80 SSPs are active in their associations.
Output 1.7 Dutch developed potato varieties registered and/or promoted through National Varietal Performance Trials and commercial linkages.	# of new Dutch potato varieties registered	0	15	0	7	16 under trials		8 varieties were approved previously, 16 varieties were evaluated for second season and are yet to be evaluated for the third season in 2020A before their official release.
	# businesses introducing and or using Dutch potato varieties in the Ugandan market	0	2	1	5	5	11	5 businesses including Namakwaland, Clarks farm, Rwengaju farm, Batuma and New Bukumbi coffee processors are yet to start producing Dutch potato varieties for the Ugandan market. Previously, 5 Dutch Seed companies participated in supplying seed potato for evaluation under NVPTs) in 2018. These include HZPC, AGRICO, Den Hartigh B.V, Europlant and Meijer B.V.
	# seed multipliers linked to Dutch businesses	0	10	1	0	4	4	Namakwaland farm has been linked and 3 more seed multipliers in the pipeline (Rwengaju, Clarks Farm and Maikut).
Output 1.8 Additional local businesses and screen house owner (associations) are supported to make bacteria and virus free seed potato planting material on the Ugandan market.	MT of clean seed potato produced and supplied per year	0	1000	163	668	1,999.7	2,830.7	A total of 52,218 mini tubers were produced in 2019B from 3 screen houses (CKB, KFRC and Magara Nkuba). There was no production in 2019A due to lack of plantlets. In 2019A, a total of 1,301.5MT of clean seed was produced (5.7MT of pre-basic,83.4MT of basic and 1,213MT of QDS). 2019 B, 698.2MT of clean seed produced (8.3MT of pre-basic, 134.5 and 555.4MT of QDS).

	Performance						Narrative on Performance	
	Indicator	Baseline	Target	2017	2018	2019		Cumulative
Output 1.8 Additional local businesses and screen house owner (associations) are supported to make bacteria and virus free seed potato planting material on the Ugandan market.	# new screen houses established and operational (related to additional funds)	0	6	-	-	5	5	4 partnerships with screen house installation were signed, including CKB, KFRC, MIFA AND MUYAMBI, 5 screen houses have been installed. 2 more partnerships for screen house establishment are in the pipeline (Maziba and Bitamba) and 2 more Integrated seed business owners have been identified for potential screen house establishment.
Output 1.9 Up to €1.0 million earmarked for joint investment in public infrastructure through match funding with District Local Government.	Amount invested in public infrastructure (roads, irrigation, storage)	0	€1.5 m	€0.34m	€0.34m	€1.28m	€1.62m	
	# km of roads constructed and rehabilitated between farmers and markets	0	25	0	44.13 opened	23.3	67.43	This is a representation of 7.85kms in Kanungu, 26.13km in Kween, 10.15km in Butalejja and 18.1kms in Rubanda Districts, all fully rehabilitated. The 5.2kms in Bulambuli in partnership with SWT was opened in 2019 and it is still progressing.
	# farmers within road catchments.	0	19,000	-	76,988	149,083	149,083	
At the farmer level Improved productivity and resilience	% of farmers are practicing 3 (of 4) resilience measures	0	50%	23%	71%	89%	89%	
	% farmers increase their yields to 2 MT/acre for rice and 5.5 MT/acre for potato (disaggregated by gender and age category)	10%	50%	16%	39%	20%	20%	There was a 2% increase in productivity of rice from 0.97 MT/Acre in 2018 to 0.99 in 2019. On the other hand, productivity of potato declined by 35% from 4.75 MT/Acre in 2018 to 3.08 MT/Acre in 2019.
Outcome 2.1 As a result of training farmers increase their yields (potato and rice) to at least 65% optimal level	Average yields for rice (MT, disaggregated by gender)	0.6	2000	0.6	0.97	0.99	0.99	Season A; 1.03MT/acre Season B; 0.96MT/acre F: 0.85MT/acre M: 1.11MT/acre
	Average yields for potato (MT, disaggregated by gender)	3.07	5000	3.9	4.75	3.08	3.08	Season A; 3.39MT/acre Season B; 3.17MT/acre F: 2.89MT/acre M: 3.47MT/acre

	Performance						Narrative on Performance	
	Indicator	Baseline	Target	2017	2018	2019		Cumulative
Outcome 2.2 Farmers adopt and use resilience strategies	% farmers have diversified their income (disaggregated by gender and age category)	50%	70%	99%	99%	99%	99%	Other main sources of income include; other crop production, livestock and owning small businesses.
	% of farmers have access to finance (disaggregated by gender and age category)	27%	50%	28%	29%	33%	33%	F: 19% M: 14% <35: 11% ≥35: 22%
	% of female farmers with input into decision making at household level	45%	60%	67%	60%	87%	87%	
	% of farmers use climate smart approaches in agriculture (disaggregated by gender and age category)	0%	70%	99%	99%	99%	99%	99 % of the farmers applied at least one CSA approach. 63% of the farmers applied 4 CSA approaches and 41% of the farmers applied 5 CSA approaches.
	% farmers using at least 4 good agricultural practices in rice and potato production	0%	70%	84%	79%	77%	77%	Rice 81% Potato; 73%
Output 2.1 Farmers are trained in Farming as a Business (FaaB) and Good Agricultural Practices (GAPs)	# FGs registered with local authorities	1,220	2,000	339	848	1,310	1,310	67% of all REACH FGs (1,943) are registered with local authorities, however 19% (248 FGs) of these have invalid certificates that have expired.
	# FG members (disaggregated by gender and age)	17,372	40,000	18,117	11,179	9,825	39,121	F: 24,081 M: 15,040 <35: 14,477 ≥35: 24,644
	# farmers trained in FaaB (disaggregated by gender and age category)	0	36,000	18,478	23,122	8,941	36,398	F: 22,502 M: 13,896 <35: 13,438 ≥35: 22,960
								34,058 of these farmers have been trained in FaaB and Gap of Ancillary crops.

	Indicator	Performance					Cumulative	Narrative on Performance
		Baseline	Target	2017	2018	2019		
Output 2.1 Farmers are trained in Farming as a Business (FaaB) and Good Agricultural Practices (GAPs)	# farmers trained in GAP (disaggregated by gender and age category)	0	36,000	15,167	23,122	8,941	35,913	F: 22,206 M: 13,707 <35: 13,303 ≥35: 22,610 5,521 of these farmers have been trained in Dietary Diversity. M: 1699 F: 3822 <35: 1,719 ≥35: 3,802
Output 2.2 Farmers are trained in resilience strategies	# farmers trained in income diversification	0	36000	8,910	23,122	8,941	33,935	F: 20,090 M: 13,845 <35: 12,461 ≥35: 21,474
	# farmers trained access to finance.	0	36000	0	16,548	7,268	23,816	F: 12,218 M: 11,598 <35: 9,870 ≥35: 13,946
	# farmers trained in joint decision making	0	36000	4,766	20,253	10,958	31,478	F: 19,258 M: 12,220 < 35: 14,326 ≥ 35: 17,152
	# farmers trained in relevant climate smart agriculture practices/techniques (all disaggregated by gender and age category)	0	36000	9,566	23,122	8,941	35,536	F: 21,963 M: 13,573 <35: 13,158 ≥35: 22,378
Output 2.3 FGs, FBGs, agro dealers have received financial literacy and business skills training	# FBGs received finance training	0	180	153	9	0	162	
	# FGs received finance training	0	1800	0	1,112	485	1,597	
	# agro dealers received finance training	0	20	0	11	14	25	
	# VSLAs established and trained	0	1500	705	904	449	1,353	

Annex 2: EKN indicators

Outcome	Indicator	Achievement 2019	Comment
Peoples nutrition improved.	# people with improved food intake.	18,387	18,387 Out of the total number 39,121 diversified their food intake.
	# People with improved access to healthy diverse food.	5,521	Through the training on the dietary Diversity, 5,521 were able to understand ways to improve dietary diversity.
Economic performance and resilience of farmer systems increased.	# farmers with increased productivity.	36,398	
	# farmers with increased income (net).	36,398	
	# farmers with improved access to services.	15,257	Through trainings on GAP, CSA and financial literacy, farmers were able to access support services like; extension services, financial services, spray services, and agro-input services.
	# farmers more resilient to shocks.	34,818	Adopted 3 or 4 resilience measures which include: Climate-Smart Agriculture, Access to formal finance, income diversification, joint decision making in the household.
	# hectares of farmland that become more resilient.	10,211	41% of farmers practiced 5/9 CSA practices. Average land 0.65 acres, equals 0.25 Has.
Quality of private sector development of FNS increased.	# jobs created in agro food sector.	44	27 acquired Full Time Jobs and 17 interns were recruited and retained with partner companies.
	# value chains/sectors that perform better.	2	Rice and Potato.
	# businesses co-investing in FNS activities.	10	

Annex 3: Summary of Partnerships 2019

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Psalms Food Industries Limited (PFIL)	Potato	Local potato value addition through processing crisps.	<ul style="list-style-type: none"> ◦ Engage consultant to review process flow and plant layout. ◦ Expansion of factory space 179m² to 392m². ◦ Purchase and installation of processing machineries and equipment (fryer, packaging, peeler, slicer). ◦ Developing a brand and new packing materials. ◦ Launching a new brand on market and brand promotion. ◦ Developing new product flavors. ◦ Developing a strategic plan and business plan. ◦ Training staff in sales and marketing, operation of machines and equipment. ◦ Developing a sourcing plan from farmers. 	<ul style="list-style-type: none"> ◦ Process flow and plant layout reviewed. ◦ PFIL increased factory space by an additional 213sqm. ◦ Processing machineries and equipment purchased and installed (fryer, packaging, peeler, slicer). ◦ Crisp production increased for every month in 2019 as compared to 2018, This increase ranges from 8% to 67% per month. By comparing the whole year, crisp production has increased by 33% in 2019. ◦ Brand and new packing materials developed. ◦ A sourcing plan from farmers developed. ◦ Market awareness of the products through the Brand Launch event and increased visibility in supermarkets. ◦ Retail points have increased from 1046 from 2018 to 1800 in 2019. ◦ Increased market share through the creation of the 5 new product flavors. ◦ 15 FTEs were created in sales and production earning a total income of EUR 17,420 in 2019. ◦ Training staff in sales and marketing, operation of machines and equipment. ◦ Total business turnover for PFIL increased by 42% from a total of EUR 304,669 in 2018 to EUR 433,345 in 2019. 	<ul style="list-style-type: none"> ◦ 22 additional FTEs created by December 2021. ◦ Additional income for jobs created EUR 66,196 by December 2021. ◦ Additional turnover for PFIL EUR 399,842 by December 2021. ◦ Additional income for farmers from selling to PFIL EUR 2,427 by December 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Kibimba Limited (KL)	Rice	Certified seed production for small farmers and paddy sourcing from farmers	<ul style="list-style-type: none"> Acquire license and foundation seed to produce certified seed. Seed multiplication, processing, packaging, and branding. Recruit four field extension workers. Procure motorcycles. Setting up demonstration plots and marketing of seed. Develop a sensitization and sourcing plan for paddy. 	<ul style="list-style-type: none"> Meetings held with MAAIF, documents to proceed with seed production issued, certificate not yet issued. 10 demo plots have been established. Over 150 farmers are aware of the benefits of using good quality seed. Farmer field days conducted, and seed meeting conducted with farmers. 190MT of quality declared seed harvested from the 1.3 MT of foundation seed procured. 4 FTEs created earning an additional income of EUR 16,258.71 (field extension agents recruited), and 4 motorcycles purchased to facilitate sourcing of paddy as well as marketing of Quality Declared seed. 	<ul style="list-style-type: none"> 280 MT of certified seed produced by Nov 2021. 15,000 farmers purchase and use certified seed. 2,500 farmers supply paddy (2,600 MT). Additional income from Jobs created EUR 16,259. Additional turnover for KL EUR 3,604,257 by Nov 2021. Additional income for farmers from selling to KL EUR 2,114,162 by Nov 2021.
Diner's Group Limited (DGL)	Rice	Farmers make more use of more efficient milling services, producing rice that is of higher value and more in demand in the market	<ul style="list-style-type: none"> Assessing DGL's working capital requirement. Develop sourcing plan for paddy. Recruitment of field agents and purchase of two motorcycles. Purchase of 12 MT truck to transport paddy from farmer communities. Purchase and distribution of 215 tarpaulins to farmer groups. Develop and design new log and packaging material. Engage financial service provider. Sensitization and seasonal review meetings with farmers and DGL. Expansion of Kampala outlet. 	<ul style="list-style-type: none"> Sourcing plan for paddy was developed and is being followed by the field agents, over 70% of the total paddy sourced by DGL was sourced from REACH farmers. 2 field agents recruited, and two motorcycles purchased, these agents support sourcing and transfer knowledge on post-harvest handling practices to the farmers, this has improved the quality of rice delivered to DGL premises for milling. Procured a truck with capacity to transport up to 12MT of paddy from farmer communities to the DGL community. This has reduced on transportation costs incurred by farmers by 40% from UGX 5,000 to UGX 3,000 to transport a sack of paddy to Mbale. 215 tarpaulins purchased and distributed to farmer groups that have supplied to DGL. 	<ul style="list-style-type: none"> 1,267 farmers supply paddy 2,533 MT by June 2021. 18 additional FTEs created by June 2021. Additional income from Jobs created EUR 35,130. Additional turnover for DGL EUR 1,154,621 by June 2021. Additional income for farmers from selling to DGL EUR 263,584 by June 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Diner's Group Limited (DGL)				<ul style="list-style-type: none"> ◦ New logo developed and packaging material designed. ◦ Engaged Micro finance support center to provide finance to farmer groups, 10 FGs out of those that supplied paddy to DGL were linked to Microfinance support center for loans. ◦ Meetings conducted with farmer groups for sensitization and seasonal review meeting with farmer leaders and DGL. ◦ DGL's turnover increased by 54% from EUR 221,456 in 2018 to EUR 341,148 in 2019. ◦ Milling outturn improved by 10% in 2019 due to the improvement in the quality of paddy. ◦ 8 additional FTEs were created earning a total income of EUR 6,387. ◦ There was a 24% increase in the volume of paddy sourced from 54 farmer groups by DGL from 479 MT in 2018 to 594 MT in 2019. 	
Mengya Integrated Farmers' Association (MIFA)	Potato	Establishing commercially viable seed potato business	<ul style="list-style-type: none"> ◦ Establishing irrigation system with drip irrigation demonstration. ◦ Develop a sourcing for clean in-vitro plantlets. ◦ Establish screen 2 houses. ◦ Train members and workers in screen house operation and management. ◦ Establish diffused light sores. ◦ Branding of MIFA seed potato. 	<ul style="list-style-type: none"> ◦ Established an irrigation system to enable year-round water supply for the Mengya community which will serve up to 30 members and 91 members. ◦ Constructed 2 screen houses which have the capacity hold over 3600 plantlets. ◦ Source for clean plantlets identified to be Agromax, meeting held with the supplier. ◦ Produced 103 MTs of clean seed with technical guidance from REACH. 	<ul style="list-style-type: none"> ◦ 31 MT of basic Seed produced by November 2021. ◦ Additional 188 MT of Quality Declared seed produced by November 2022. ◦ 3 additional FTEs created by November 2021. ◦ Additional income from Jobs created EUR 7,258. ◦ 121 farmers utilize the irrigation scheme. ◦ Additional turnover for MIFA EUR 55,481 by November 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
SWT Tanners Ltd.	Rice	Increase sourcing of Local paddy for milling by facilitating investment in scheme development and relevant agricultural services	<ul style="list-style-type: none"> Land identification, testing and acquisition. Carryout general and topographic surveys to develop the land. Opening of the land. Develop a master plan and a business plan. Develop access roads. Develop water infrastructure. Sourcing paddy from farmers. Provide transport services to farmers while sourcing paddy. Develop an SWT Ugandan brand. Procure equipment and machinery to facilitate farm operations. 	<ul style="list-style-type: none"> 5,000 acres of Suitable land identified and procured by SWT. General and topographic surveys were done. Procured equipment and machinery to facilitate farm operations leading to efficiency and increased yields. Developed a 5.4 km access road which has improved access to market by communities and facilitated movement of equipment and machinery to the farm. This road has benefited a minimum of 8,391 people living in the road catchment area. 500 acres were opened and will be ready for planting in March,2020. Design for water infrastructure is finalized, working on water channels. Sourced 1,413MT of paddy from farmers which is a 16% increase from 1,216 MT sourced in 2018. 	<ul style="list-style-type: none"> 5,970 farmers supply 9,346 MT of paddy by December 2021. 8,250 MT of milled rice sold by SWT by December 2021. 252 additional FTE jobs created by December 2021. Additional income from Jobs created EUR 124,727. Additional turnover for SWT EUR 5,988,141 by December 2021. Additional income for farmers selling paddy to SWT EUR 228,308 by December 2021.
St. Richards Group of Companies (RGC)	Rice	Farmers make use of efficient milling services and produce higher valued rice	<ul style="list-style-type: none"> Expansion of the drying yard. Purchase of moisture meters. Training of village agents in Post-harvest handling. Renovation of the building to install the new multistage milling machine. Purchase the multi-stage milling machine. 	<ul style="list-style-type: none"> Constructed a 2300sqm drying yard with a capacity to dry 4.4MT of paddy. Procured a multistage milling machine with capacity of 30MT per day. Procured 3 moisture meters and trained 3 RGC employees on their operation. Training of 57 village agents in PHH who will in turn transfer the knowledge to farmers. 	<ul style="list-style-type: none"> 1500 farmers supply 5,100 MT of paddy to RGC by June 2021. Additional turnover for RGC EUR 339,328 by June 2021. Additional income for farmers selling paddy to RGC EUR 266,527 by June 2021.
Charles K. Byarugaba (CKB)	Potato	Establishing commercially viable seed potato business	<ul style="list-style-type: none"> Develop sourcing plan for plantlets. Construction of a screen house. Construction of farm ponds & installation of 3.2-acre pressure compensating drip irrigation. Construction of diffused light store. 	<ul style="list-style-type: none"> Installed a screen house with a capacity of 3,900 plantlets per season. Sourcing plan for CKB was developed with Agromax. Orders for plantlets placed for 2020. Produced 6 MT of pre-basic and 122 MT of clean basic seed with technical guidance from REACH. 	<ul style="list-style-type: none"> 11 FTE jobs created by November 2021. Additional 50 MT of pre basic seed and 81M of certified basic seed produced by CKB by November 2021. Additional income for jobs created EUR 9,929. Additional turnover for CKB from selling seed EUR 52,278 by Nov 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Kigezi Farmer's Resource Center (KFRC)	Potato		<ul style="list-style-type: none"> ◦ Develop sourcing plan for plantlets. ◦ Construction of a screen house. ◦ Construction of diffused light store. ◦ Develop a marketing plan for seed. ◦ Conduct radio talk shows. 	<ul style="list-style-type: none"> ◦ Installed a screen house with a capacity of 1,600 plantlets per season. ◦ Sourcing plan for KFRC was developed with Agromax. ◦ Orders for plantlets placed for 2020. ◦ Produced 3 MT of pre-basic seed and 93 MT of clean basic seed with technical guidance from REACH. 	<ul style="list-style-type: none"> ◦ 6 FTE jobs created. ◦ Additional 10 MT of pre basic seed and 22 MT of certified basic seed produced by KFRC by September 2021. ◦ 194 farmers buy and use QDS by September 2021. ◦ Additional Income from Jobs created EUR 3,252. ◦ Additional turnover for KFRC from selling seed EUR 10,724 by September 2021.
Kapchosombe Green Change Farmers' Cooperative (KGCF)	Potato	Establishing commercially viable seed potato business (from basic seed to QDS)	<ul style="list-style-type: none"> ◦ Improvement and expansion of irrigation system. ◦ Establishment of water user committee. ◦ Sourcing clean basic seed for planting. ◦ Training in QDS seed production. ◦ Establish a diffused light store. ◦ Support marketing for QDS produced. 	<ul style="list-style-type: none"> ◦ Established gravity fed irrigation system which will enable production of seed potato all year round. ◦ A water user committee of 5 members was established for managing water usage and maintenance of the irrigation system. ◦ Capacity building and training of 30 (16F & 14M) KGCF farmers on clean seed production and a learning visit for 6 KGCF members to MIFA. ◦ Procured and planted 3.6MT of basic seed to produce QDS. 	<ul style="list-style-type: none"> ◦ 353 MT of QDS produced by December 2021. ◦ Additional turnover for KGCF EUR 97,308 by Dec 2021. ◦ 320 farmers buy and use QDS by December 2021. ◦ Additional income for farmers using QDS EUR 98,829 by December 2021.
Grain Pulse Limited (GPL)	Cross cutting	Farmers have access to crop specific fertilizers and information on how to use them	<ul style="list-style-type: none"> ◦ Selection & assessment of stockists. ◦ Training of selected stockists and lead farmers /agents/CATS. ◦ Establishment of demonstration plots ◦ Increased market activation through pocket guides/booklets, leaflets and banners. ◦ Increased market activation of the crop specific fertilizer blends through radio talk shows. 	<ul style="list-style-type: none"> ◦ 18 District level, 36 Sub-county level stockists and 108 lead farmers selected. ◦ Increased product knowledge about crop specific fertilizers through selection and training of 42 (32 males and 10 females) district and sub county level stockists in the Eastern and Southwestern districts. ◦ 42 potato and 30 rice demonstration plots have been set up in 2020 with the crop specific fertilizers. 	<ul style="list-style-type: none"> ◦ 892 farmers purchase 152 MT of crop specific fertilizers by June 2021. ◦ Additional turnover for GPL EUR 94,833 by June 2021. ◦ Additional income for potato farmers EUR 309,901 by June 2021. ◦ Additional income for rice farmers EUR 14,076 by June 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Microfinance support center (MSC)	Cross cutting	Farmers and service providers have better access to financial products and services.	<ul style="list-style-type: none"> ◦ Recruitment of 4 agriculture loan officers. ◦ Procure 4 motorcycles and 4 desktop computers for the credit assistants. ◦ Conduct sensitization meetings to popularize MSC products to farmers. ◦ Review the current MSC financial products. ◦ Identify and select potential farmer groups eligible for lending. ◦ Training of community extension workers in good agricultural practices. 	<ul style="list-style-type: none"> ◦ Loans disbursed to 6 farmer groups amounting to UGX 40,000,000. ◦ Recruitment process for 4 agriculture loans officer commenced. 	<ul style="list-style-type: none"> ◦ 2,400 farmers access credit at low interest rates. ◦ 4 FTEs created at MSC by December 2021. ◦ Additional income from jobs created EUR 17,188 by December 2021. ◦ Additional turnover for MSC EUR 87,100 by December 2021. ◦ Additional income for farmers EUR 958,103 by December 2021.
Lwoba Holdings (LH)	Rice	Farmers make use of efficient milling services and produce higher valued rice	<ul style="list-style-type: none"> ◦ Recruitment of field agents. ◦ Construction of a one-acre concrete drying yard. ◦ Training on post-harvest handling of paddy. ◦ Linkage to MSC for loans to LH and farmers of Manafa river basin cooperative. ◦ LH to operate as a distributor of inputs like fertilizers, pesticides and certified rice seed from Grain Pulse and Kibimba Ltd. ◦ Training staff on agro-inputs handling. 	<ul style="list-style-type: none"> ◦ Activities started in 2020. ◦ Field agents recruited. ◦ Meetings conducted between Lwoba and MSC. 	<ul style="list-style-type: none"> ◦ 851 farmers supply 5,760 MT of paddy to LH. ◦ Additional turnover for LH EUR 1,722,365 by December 2021. ◦ Additional income for farmers selling milling at LH EUR 454,250 by December 2021.
Agromax	Potato	Supporting the development of seed potato market	<ul style="list-style-type: none"> ◦ Identification of farmers & farmer groups with capacity and skills to operate screen houses. ◦ Purchase and installation of screen houses based on specifications. ◦ Develop a sourcing plan for plantlets. ◦ Execution of technical assistance. ◦ Seed potato quality assurance, certification and promotion. 	<ul style="list-style-type: none"> ◦ Conducted a meeting with ISB's and developed sourcing plans. ◦ Identification of 5 ISBs with capacity and skills to operate screen houses. 	<ul style="list-style-type: none"> ◦ A total of 11,600 plantlets to be supplied to 5 screen houses: 2 MIFA 1 KFRC, and 2 CKB by November 2020.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
SMWG (Sukutu Multipurpose Women Group)	Potato	Establishing commercially viable seed potato business (from basic seed to QDS)	<ul style="list-style-type: none"> ◦ Training in Seed production. ◦ Sourcing of clean basic seed for planting. ◦ Exposure learning visit to MIFA. ◦ Establish a diffused light store. ◦ Support marketing of seed potato. 	<ul style="list-style-type: none"> ◦ Planted 1.6 MT of basic seed sourced from CKB for production of Quality Declared Seed. ◦ Capacity building and training of 20(12F & 8M) SMWG farmers on clean seed production, learning visit to MIFA for the 3 farmer members. ◦ Produced 1.1MT of clean seed with technical guidance from REACH. 	<ul style="list-style-type: none"> ◦ 34 MT of Quality Declared Seed produced by June 2021. ◦ 21 farmers buy and use QDS by June 2021. ◦ Additional turnover for SMWG EUR 9,756 by June 2021.
Byampa Enterprise	Potato	Women benefit from access to information, skills and opportunities	<ul style="list-style-type: none"> ◦ Develop new packs for crisps. ◦ Purchase of digital weighing scale and sealing machine. ◦ Upgrading of production room, installation of electricity, installation of water tank. ◦ Develop a marketing plan. ◦ Procurement of semi-automated processing equipment. ◦ Training in operation of machinery and equipment. ◦ Develop annual sourcing plan for raw materials. ◦ Construction of storage unit . 	<ul style="list-style-type: none"> ◦ Establishment of an Improved production facility for processing crisps. ◦ A branding manual for the new packs developed. 	<ul style="list-style-type: none"> ◦ 20 farmers supply potato (41 MT) by December 2021. ◦ 2 FTEs created by December 2021. ◦ Additional income for jobs created EUR 929. ◦ Additional turnover for Byampa EUR 24,678 by December 2021. ◦ Additional income for farmers from selling to Byampa EUR 14,516 by December 2021.
Highgrow Agri (Namakwaland farm)	Potato	Establish a value chain for new (Dutch) potato varieties.	<ul style="list-style-type: none"> ◦ Secure market for Dutch potato varieties. ◦ Purchase and transportation of seed potato (basic) to Namakwaland Farm. ◦ Produce seed potato of Dutch potato varieties in Uganda. ◦ Popularize Dutch potato varieties among the farmers. ◦ Connect Namakwaland Farm to the National Grid of Electricity. ◦ Construct and install a cold chain storage unit. 	<ul style="list-style-type: none"> ◦ Imported 9MT of certified seed (Markies) for production of ware potato. ◦ Acquired a license to multiply Elite seed of Markies and Taurus as QDS/Certified seed from HZPC. 	<ul style="list-style-type: none"> ◦ 531 MT of ware potato produced by Namakwaland by April 2021. ◦ 327.6 MT of Quality Declared Seed (QDS) produced by April 2021. ◦ Additional turnover for Namakwaland EUR 294,386 by April 2021.

Partner	Value chain	Intervention area	Main activities	Status as at December 2019	Summary of projected achievements by end of partnership (cumulative results by 2021)
Muyambi William	Potato	Establishing commercially viable seed potato value chain from plantlets to basic seed to producing Quality Declared Seed (QDS) at affordable prices.	<ul style="list-style-type: none"> ◦ Purchase and installation of a screen house. ◦ Linkage of Muyambi to Agromax to source plantlets. ◦ Construction of a diffused light store. ◦ Promoting clean quality seed potato. 	<ul style="list-style-type: none"> ◦ A screenhouse with a capacity of 3,400 plantlets was installed. 	<ul style="list-style-type: none"> ◦ 14.5 MT of pre basic seed produced by November 2021.



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