

Adapting to Challenges, building farmers' future



Syngenta Foundation East Africa
2020 Review

Operational strategy

The Foundation works with partners in developing countries and emerging markets. Our aim is to help small farmers become more professional growers. We do this by extending science-based know-how, facilitating access to quality inputs, and linking smallholders to markets in profitable ways. This adds value for rural communities, and sustainably improves food security.

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SFEA Communications Team:
Linda Akinyi, Esther Mirie, Stephen Okeyo
& Michelle Oluoch

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Introduction

01

About Syngenta Foundation East Africa

The Syngenta Foundation for Sustainable Agriculture operates in 13 countries spread across Africa and Asia, seeking a bright future for smallholder farming. The Foundation's mission has been to strengthen smallholder farming and food systems by catalyzing market developments and delivery of innovations while building capacity across the public and private sectors.

The Foundation works with like-minded partners in developing countries and emerging markets to help smallholders become skilled agricultural practitioners. This is achieved through extending science-based know-how, affordable insurance products, facilitating access to quality inputs and linking smallholders to markets in gainful ways.

Following a pipeline approach, Syngenta Foundation East Africa currently operates across the following product streams; Agriservices, Risk Management and Financial Inclusions, and Access to Seeds. Running across these three, and feeding into each of them, is the Foundation's work in Research & Development, and Policymaking.

The SFEA Report exhaustively covers and highpoints of activities carried out in 2020 around the East Africa region. This was a challenging and unique year when the globe was faced with the COVID-19 pandemic. According to George Osure, the Regional Director, "This period has been a reality check. It has made us realize we overcapitalized on certain aspects of agriculture value chains. These challenges, however, presented new learning opportunities regarding the need for innovative systems to continue better supporting our smallholders."



Regional Director's Remarks

02

Regional Director, George Osure

Overview of the food and agricultural system in East Africa, identifying several farmer obstacles and the role of the Foundation.

“One identifiable feature of the East African (EA) agri-system is the neighborhood effect, caused by different crop production seasons in different countries and hence dissimilar harvesting periods which eventually influence the market in different ways. The macro-integration of EA economies has then trickled downwards to have an impact on the gross margins of countries’ smallholder producers. A regulatory framework, which may be useful for the export market, has led to higher production costs in some regions. However, for smallholder farmers involved in low-scale production, this is an added cost.

On the other hand, countries which have a well-established regulatory structure with correspondingly increased transparency benefit from improved export trade. This paves the way for the setting up of agri-support programs for agriservices, insurance and seed providers. Therefore, in East Africa, the more formal large-scale organizations choose to invest in Kenya but investors engaging in crop production prefer neighboring Uganda and Tanzania because of the lower production costs.”



“This macro-infrastructure has given SFSA an operation system for utilizing and scaling up through the Public Partnerships approach. Our Seeds2B program, for example, could collaborate with government research institutions and private seed companies in any region and clear investment plan. With all this we now must integrate our foundation portfolios to be able to compete effectively to assist smallholder farmers more efficiently.”

How have SFEA’s current portfolios – Agriservices, Seeds2B, and Insurance – complemented each other in addressing farmer challenges in East Africa and promoting sustainable agriculture?

“Our portfolios complement each other because Seeds2B would like agriservices to become an off taker from its aggregation of farmers and insurance would design products to support farmers facing climate crisis. To promote sustainable agriculture through our portfolios, we need to build a conversation that brings water management, soil health, environmental risks, and nutrition within SFEA’s work.”

Regional Director's Remarks

Speaking about COVID-19 disruptions to agriculture, what opportunities has it brought to the agricultural system?

"The COVID-19 period has been a reality check. It has made us realize we overcapitalized on certain aspects of agriculture value chains. For example, we used to believe the only way to communicate to farmers was by physical farm visits. However, when the government-imposed restrictions on travels and gathering took effect, we still linked up and our farmers still

planted on time. Going forward, new communication systems have now been created. The biggest opportunity in agriculture now is to capitalize on the change in mindset that is seen at the productive end of the value chains: farmers, input suppliers, and extension service providers. The need to establish more formal market systems has also been a lesson learned in the pandemic: the breakdown made the market realize the need to review contract systems, harvesting and post-harvesting handling, and food safety measures."

"The biggest opportunity in agriculture now is to capitalize on the change in mindset that is seen at the productive end of the value chains: farmers, input suppliers, and extension service providers."

George Osure, Regional Director Syngenta Foundation East Africa



03

Head Seeds2B, Tony Gathungu

**More choice, better access:
Seeds2B**



What is the guiding principle behind the Seeds2B program?

"The Seeds2B program aims to build ways that the public and private sectors can work together in partnership and catalyse further private investment in the seed sector. It aims to support the strengthening of market mechanisms and capabilities to overcome market failures for subsistence and marginal crops, while not distorting markets. It aims to contribute to the CAADP productivity growth goals and SDG2 targets by fostering intensification, improving farm income, and addressing areas of poor technology adoption. In the long term, SFSA seeks to catalyse local public and private sectors to scale up adoption and continuous improvement of varieties by smallholders without the need for its interventions.



Our approach is based on the Product Life Cycle (PLC) of a variety, and guides marketing and management decisions as the products go through the stages of development, i.e., introduction, growth, maturity, and decline. Stage gates and product advancement criteria are defined to only advance market-appropriate varieties through the pipeline, based on specific objectives defined in Target Product Profiles (TPPs). This approach was developed from commercial industry best practice on the product advancement process and adapted to a smallholder farming context in line with public good objectives such as gender and nutrition. We are continuously improving this approach based on new learnings and feedback.

We support public and private breeders in delivering their improved varieties to local seed markets through Public-Private Partnerships (PPPs), and local seed companies to expand their product portfolios. We believe that this process has a lot to offer public and private organizations, to support them in managing their variety portfolios and encouraging varietal turnover, so that farmers have access to the best products for the crops they need".

Seeds2B

What's the purpose behind the approach to crop value chains that Seeds2B works on?

“Seeds2B works on marginalized or ‘orphaned’ crops that have low investment appetite from the private sector but have the potential to significantly improve smallholder farmers’ livelihoods. Our work, therefore, revolves around seeking co-investment opportunities with like-minded partners to enable us to work in areas of market of institutional failure, respond to requests for assistance and encourage the private sector to invest in more marginalized crops.

We are in the process of developing a strategy around how we select crops and cropping systems to invest in. This will involve a deep dive assessment of crops, value chains and the macro-economic environments in all our countries of focus”.

How have our engagements in public-private partnerships helped seed companies and farmers to access new seeds?



“PPPs have the potential to accelerate the delivery of outputs from agricultural research and development to the hands of smallholder farmers. We nurture existing and seek new PPPs along the

entire agricultural value chain that can create unique outcomes unachievable by individual parties alone. These include private sector players, research organizations such as NARS, CGIAR, and academia, NGOs focused on seed systems development and International Donor and Development Organizations among others. We focus on bringing the public and private sectors into partnership that not only benefits smallholder farmers, but also benefits consumers, and ultimately benefits the environment”.



Smallholders are keen to adopt new farming technologies as observed in field days. They are involved in the selection of the best-performing varieties they prefer, from the adaptation and market trials. Many are thirsty to change to commercial farming, an opportunity they see clearly from involving in soybean production especially now that they are linked to lucrative markets with processing company partners.

What future initiatives are in the pipeline for Seeds2B?

"We are currently working on transcribing our variety commercialization process into a Handbook. The Handbook is a guideline for project leads to manage the end-to-end seed delivery process. It can be used by public breeders, local private sector or practitioners coaching others. It covers the end-to-end steps, from problem definition to delivery of the relevant seed to farmers, and ultimately consumers. The Handbook recognizes the need for the process to be adaptable to specific crop or country contexts and is therefore designed to help with the thinking

process required to successfully increase farmer profitability. It will include examples, templates and digital tools that can be modified based on context.

We also have a plan to launch an African-led catalytic intermediary as a mid-term delivery mechanism for scaling up variety commercialization and delivery of new varieties into the marketplace. This intermediary would have a role to play in building capabilities in public and private sectors for product advancement and variety commercialization".

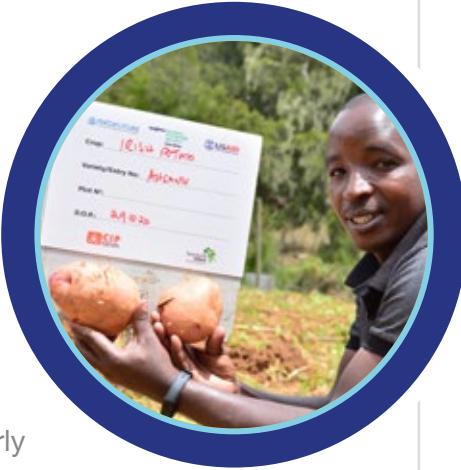


Seeds2B

Highlights

01 | Partnership for Seed Technology Transfer in Africa (PASTTA)

The PASTTA project seeks to add value to Feed the Future (FtF) investments with USAID country missions and FtF Innovation Labs and other public-private platforms. Its remit is to extend an existing, replicable, and scalable seed technology transfer model from largely private breeding to kick-start an equivalent mechanism for public-private technology transfer of a wider range of publicly bred seed technologies. It aims to engage leading seed companies, civil society organizations (CSOs) and other actors involved in input supply and a wider range of downstream partners to better define the demand for seed, develop business plans for early generation seeds (EGS) in the context of private delivery of public and private material and assist regional bodies and member states in the practical and transparent implementation of regionally harmonized seed schemes.



02 | Strengthening the Soybean Value-Chain

Soybean demand is rising in most countries of sub-Saharan Africa, driven by a strong need for both animal feed and industrial processors. However, despite favorable growing conditions in many parts of Africa and agronomic benefits (crop rotation, soil fertilization, breaking disease cycles, etc.), soybean demand is largely met by imports, with marginal local production in most countries.



Although demand in the country for soybeans has reached 150,000 MT, Kenya produces no more than approximately 5,000 MT annually. Apart from the largely missing agronomic know-how, one of the main reasons for such low productivity is the lack of adapted soybean varieties that perform well under tropical conditions. To enhance soybean production and the value chain among farmers in Kenya, the PASTTA program has partnered with Equatorial Nuts Processing (ENP), a food-processing company, and Promasidor, a beverage and food product powerhouse. These partnerships aim to promote soybean production through contracts, improve access to certified seeds, ensure training of farmers in good practices and facilitate access of markets to farmers.

03 | Potatoes, a new opening for Samburu herders owing to stakeholders Collaboration.

Animal keeping has remained a backbone economic hobby for Samburu County residents and their neighbors. Paying a visit to this area will expose huge fertile parcels of idle land, great herds of cattle, goats, camels, and sheep under the watch of men and youths and some instances, women. The annual cold and wet season of March, April, and May could hint to you a suitable climatic condition for crop farming, what about Potato?

SFEA initiated to introduce potato farming in the potential Samburu, not working in isolation, but partnering with the Local administration, Samburu county ministry of Agriculture and Fisheries, and the International Potato Center-CIP to combine efforts to supporting and strengthening to support local farmers in adapting the new lucrative activity that will improve food security and boost commercial situations.

This initiative aims to strengthen local economic activity and food security by diversifying farming. The venture began with setting adaptation tests of high-yielding potato varieties, Kenya Shereke, Unica, Sagitta, Dutch Robjin, Voyager, and Challenger. Such trials are necessary for raising pastoralists' awareness of arable alternatives and training on good agricultural practices along with mechanization.

The commitment of the PASTTA team has also helped farmers change their mindset as many pastoralists have shown great interest in potato farming. Most residents have shown an inclination to replace or reduce time in looking after cattle to begin potato farming to benefit from the food giving and business opportunity brought by the crop.

The Samburu potato idea demonstrates that if local communities gain access to the correct tools, training, and support they can achieve great results. "By producing major food crops such as potatoes pastoralists can greatly increase their food security and realize bigger business gateways alongside animal rearing. The Seeds2B team is assured that when Samburu Livelihoods will improve through access to better agricultural tools, that should also be good for local sustainable peace and stability.

The partnership has trained about 400 farmers comprising of both genders and has attracted a significant number of youths since its inception to this date on better agricultural practices at field day events in Seketet, Siambu, Poro, and Angata Nanyukie. Seed technologies are the main issues raised at the Field Days. The PASTTA team is continuing to identify suitable local land for seed multiplication and introducing training on soil health to enabling scale-up of production in pastoral areas.



Agriservices

04

Project Manager, Agriservice and Digital Delivery, Stella Kimani

“The incorporation of agriservices into the industry began in 2009 with a smallholder development project in East Africa, with a main entry into the industry as a smallholder development project in East Africa.

The aim has been to introduce a scalable last-mile delivery model borrowed from Asia. Again in Kenya, we developed test hubs of women, youth, and agro-dealers. 2020 was a year of development and scalability as we tested how possible it was to scale out efficiently. Based on the lessons of 2020, we are developing more structures and partners to assist the scaling out of the hub concept to our rural agriculture zones.

We complement other streams effectively. The farmer hub (FH) is best placed to communicate to farmers in terms of technology access and transfer. We provide a platform for all the streams that wish to promote services aimed at smallholder farmers.



In normal times, there is an expectation among smallholders of mobility and access to field visits for advisory services. From the onset of COVID-19 and the initial steps by the government towards movement restrictions to curb its spread, farmers became wary of hosting field days for fear of contracting the disease. Farmer planting and access to inputs was negatively impacted, and more effort had to be put into food production even though there were fewer advisory services to meet the constant and continuing need for farming inputs. Agriservices Kenya responded to this by sensitization on COVID-19 and best hygiene practices, the aggregation of farmer input orders to limit farmer movements and through targeted extension demonstration sites involving a reduced number of participants.

“We need to understand the why of a Farmer Hub model. We want to provide a solution of convenience to manage the farmer network to organizations. After a scalability proof of the hub concept, we were then able to partner our expertise with such organizations to provide sustainable agriculture services and the farmer aggregation model to a well-organized network of farmers. We are making efforts and interventions to support smallholder farmers which are scalable, sustainable and long-lasting.”

Agriservices

Farmers' Hubs and Efficient Input Access

"The farmers' hub model is a last-mile delivery concept. It provides an answer for how to reach farmers. It is centered on entrepreneurship in the sense that it involves identifying an existing rural entrepreneur who is already familiar to farmers and who is then empowered to make a greater impact with them." We then set up him/her to be the go-to person supporting a set of 150-200 farmers to access:

- Agri-inputs: seeds, crop protection, soil analysis, fertilizer, financing, insurance, etc.
- Mechanization: land preparations, sprayer services, harvesting equipment.
- Market linkages.
- Advisory services: provided through field-day training and demonstration farms.



2020 Highlights and Performance Outcomes

In respect of input supply and market accessibility, 2020 was a fulfilling year despite the pandemic. Although the pandemic heightened awareness of risk-taking and required more effort from the team, we were able to experience the potential of the scalability of the model. During this time, the number of active farmers' hubs rose from 15 to over 100, supporting 12,541 farmers and facilitating total sales of KES 71,451,000 for the whole year.

Number of active farmers' hubs rose from **15** to over **100**, supporting **12,541 farmers** and facilitating total sales of **KES 71,451,000** for the whole year.

One observable motivation is that the entrepreneurs have realized the great potential and opportunity of this business model. "They only need more support in terms of training and mentorships. We have realized that the best performing hubs are those that have received close mentorship compared to those that have received distant mentorship. We are aiming to mentor all to achieve the full potential of the farmers' hub."



Success Stories

Success Stories

01 | Rural Women & Youth Succeeding in Agriculture Business



We have seen businesses transform in terms of improved sales since recruitment. The model has illustrated the potential of employment opportunities for young people. Young intern entrepreneurs have exited formal employment to set up their own businesses. Many entrepreneurs have now employed one or more additional people because of the turnaround and work involved. We have seen families that have engaged their entire households to maximize the potential of the FH.

02 | Partnerships & collaborations

SFEA-AS has partnered with fertilizer companies, seed, and crop protection companies in setting up demonstration sites purposed for farmer training. This has seen farmers accessing and adopting better farming practices. In return, these partners are now willing to open supplier accounts for some entrepreneurs to enjoy discounted rates

which eventually transfer to farmers. It is good to see that the FH model not only benefits farmers but also offers enormous supply opportunities to input suppliers. The great synergy between young, agriculturally trained network managers who quickly understand farmer dynamics with rural based, somewhat older local entrepreneurs has boosted the performance of FH business.

03 | Incubation & Functioning of Network Managers

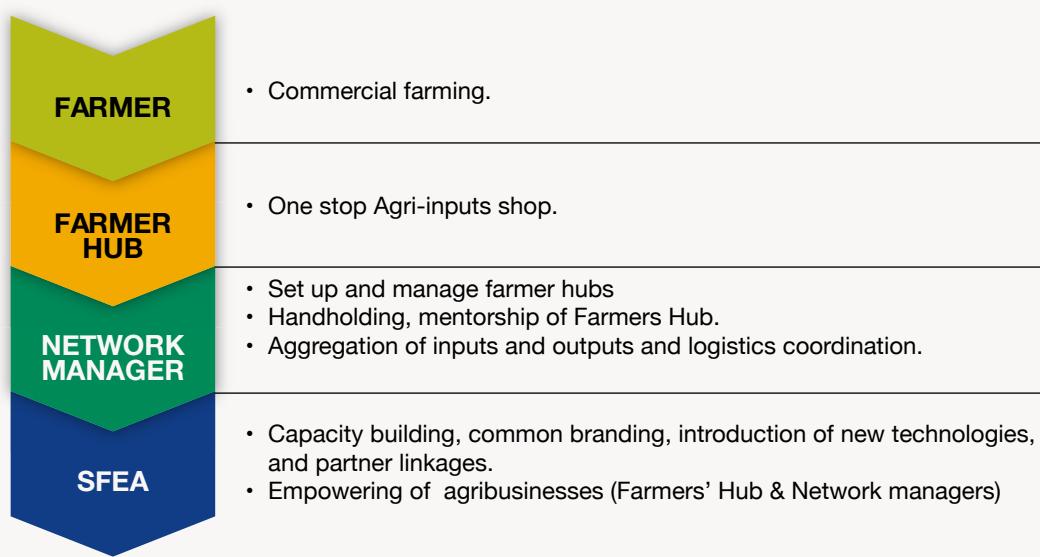
One identifiable unique feature of the Farmers' Hub model is the direct link between the FH and the network managers who play handholding and mentorship roles in the FH. FHs that have a good relationship with their network manager are performing exceptionally well. A network manager keeps a list of the entire FH in his/her area in order to have an understanding and dedicated discussion of business targets with each, providing logistical and financial support. Kenya Agriservices is currently reshaping and reinvesting its energy to support the network manager as this proxy support will trickle down to the FH.



Success Stories

“The farmers’ hub model is a last-mile delivery concept. It provides an answer for how to reach farmers. It is centered on entrepreneurship in the sense that it involves identifying an existing rural entrepreneur who is already familiar to farmers and who is then empowered to make a greater impact with them.”

Stella Kimani, Project Manager, Agriservice & Digital Delivery



Agricultural Insurance Solutions

05

Head of Actuarial & Program Coordinator, David Muigai



Agricultural insurance is a pivotal area for the Syngenta Foundation for Sustainable Agriculture (SFSA). Since 2009, SFSA has been working on agricultural insurance, termed Kilimo Salama. We started by developing innovative and affordable insurance tailored to smallholders in East Africa.

In 2014, Kilimo Salama transitioned into a for-profit, independent social enterprise, now called Agriculture & Climate Risk Enterprise (ACRE Africa). ACRE Africa currently has operations in more than three African countries, and over 1.3 million farmers have been insured under a range of innovative micro-insurance products.

SFSA's Agricultural Insurance Solutions (AIS) Team is relying on its vast experience to come up with smart risk-mitigation strategies for farmers in Asia and recently, parts of Africa, operating as an insurance intermediary.

We work with local insurers and other stakeholders to monitor and assess risk, then develop insurance products specifically for smallholders. These products typically cover a variety of crops against weather risks like drought, storms, floods, and erratic rains. Other examples include yield cover.

"Smallholder agriculture is without a doubt a driving factor and an important fundamental for Kenya as an emerging economy. The aspect of digitization integrated into agriculture is expected to further drive innovation for the benefit of smallholder farmers in Kenya.

Insurance has a significant impact on smallholder farmers as it protects them against shocks exacerbated by the effects of climate change thereby encouraging further investment in crops. Syngenta Foundation East Africa's AIS currently has a Weather Index Insurance pilot project in Sudan which envisions digitizing an end-to-end agricultural insurance solution by administering weather index products integrated with added-value services.

The integration of the Sudan weather index project into our cloud platform, will address some of the gaps currently being experienced within the agri-insurance space. The transition from traditional micro-insurance to this

Agricultural Insurance Solutions

innovative solution, will simplify the product design & sales process among other benefits.

There is a great need to use digital tools to expand access to agricultural insurance which will address the challenges being faced in the agri-insurance space and, most importantly, boost the effectiveness of insurance,” says David Muigai, Head of Actuarial and Program Coordinator.

The AIS East Africa team also specializes in resource mobilization/fundraising initiatives in partnership with donor organizations such as the Swiss Capacity Building Facility (SCBF), the Arab Gulf Program for Development, the InsuResilience Investment Fund and the Swiss Agency for Development and Cooperation for the projects that we currently have running.

All the ongoing projects in Sudan – Product Upscale Window (PUW), Financial Education Window (FEW) & Livestock feasibility study (FSW) received CHF147,030 , CHF211,000 & CHF233,426 respectively from the Swiss Capacity Building Society (SCBF) and the Arab Gulf Fund for Development (AGFUND).

Product Upscale

The Product Upscale program began in October 2019 and is expected to run through April 2022. Its main aim is to run commercial programs for Sharia-compliant innovative index insurance solutions that will aid in increasing climate resilience and outreach of the insurance solutions while identifying and establishing a partnership framework.

“The project began with field visits where we conducted focus group discussions focusing on three crops; sorghum, groundnut and sesame. The aim was to understand farmer activities and create a risk profile identifying the dominant perils that contribute to major economic losses in order to separate uncontrollable risks from underlying risks which could be managed through other forms of risk mitigation. A product co-creation workshop was also held during the field visit and this formed the basis of our product prototypes which were then refined,” says Jackline Chemtai – Actuarial Analyst.



Agricultural Insurance Solutions

Achievements

The Product upscale project has seen tremendous achievements in the wake of the COVID-19 pandemic

- Successful product research with development of three commercial products (sorghum, sesame, and groundnut) were validated by industry experts through a workshop and approved by regulatory authority.
- Capacity building of more than ten staff from partner institutions through training sessions with direct implementation support from two insurers; Shiekan and United Insurance Company and Ebdaa Bank.
- The first pilot completed in three states: North Kordofan, West Kordofan and South Kordofan with 1930 insured farmers of whom 58 percent are male, 27 percent female, and 15 percent uncategorised farmers.
- Good seasons with enough rainfall and therefore no losses resulting from deficit and/or excessive rainfall were recorded.



Ebdaa bank team together with loan officers

“The first pilot completed in three states: **North Kordofan, West Kordofan and South Kordofan with **1,930 insured farmers** of whom **58%** are male, **27%** female, and **15%** uncategorised farmers.**



Financial Education

“The financial education window running in parallel to product-upscaling activities commenced in April 2020 and aims to build better knowledge of credit, savings and insurance among smallholders and numerous other stakeholders.

The project’s end goal, which is to increase uptake of financial products by 20 percent, aims to reach a total of 50,000 farmers by 2022.” Michelle Oluoch – Inclusive Insurance Market Development Officer

Agricultural Insurance Solutions

Successes of Financial Education Window:

Since the project kickoff in 2020, some of the successes achieved so far include;

- a) Conducting a baseline survey which intended to:
 - understand the level of financial literacy among the targeted group (smallholder farmers)
 - identify the main knowledge skills and practices as required interventions, and
 - suggest a strategy to implement the required intervention with respect to the demographic characteristics of the sample group interviewed.

- b) Creation of financial education modules to train smallholder farmers in Sudan. The modules are based on the results from the baseline survey.
- c) Publication of baseline survey with an aim to make it accessible to inclusive finance practitioners interested in understanding Sudan's financial inclusion outlook.

Despite the challenges arising from the COVID-19 pandemic, all the experts are working hard to ensure that the expected milestones are met.

The project's end goal, which is to increase uptake of financial products by **20%**, aims to reach a total of **50,000 farmers** by the end of **2021**.



Agricultural Insurance Solutions

Livestock Insurance

Feasibility study work – Introduction of Livestock Index Insurance in Sudan

“The substantive aim of the project is to quantify the climate risks faced by vulnerable pastoralists in Sudan and develop and test innovative insurance solutions based on satellite observation of forage scarcity and conditions to prevent livestock mortality.

A major success was the securing of funding in late October 2020. In addition; the project was officially launched in partnership with ILRI and a local partner, Ebdaa Bank for Microfinance, on 15th November 2020.

The project's next steps include the completion of a desk research landscape study report, conducting an onsite feasibility study and designing product prototypes based on feasibility study report recommendations with validated price points and, finally, on boarding at least one insurer and two alternative distribution channels.” comments Enock Sing’oei, Inclusive Insurance Market Development Advisor

Student Sponsorship Program

SFEA is very committed towards building capacity, market development and knowledge transfer in agriculture and agricultural insurance. To achieve this, the insurance stream began a student sponsorship program in 2020. Through this, SFEA aims to sponsor four students at a go. This means the four selected students are sponsored until completion of their final academic year; thereafter, a second group of four students will be selected. The University of Nairobi, through the Dean

of the School of Mathematics, helps with the identification and selection process of students, following criteria created by the Syngenta Foundation East Africa.

The sponsorship fully covers tuition fees, accommodation, and a stipend throughout the sponsorship period. In addition to this, SFEA further builds capacity of the sponsored students by covering the cost of the students' actuarial professional papers. During the holidays, the students are attached to the Agricultural insurance stream for a paid internship program where they are assigned activities and tasks to work on.

“We started this program in January 2020 with the first cohort of four students and in August, they joined us for a five-month internship program. Apart from training and working on tasks, the students were also taken through a mentorship program in which they were mentored by both AIS staff and external industry experts and professionals,” comments Wycliffe Kiplagat, Actuarial Analyst



First cohort of sponsored students

Agricultural Insurance Solutions

The sponsored trained actuarial students will increase the number of actuaries with knowledge and technical skills in agricultural insurance, currently one of the limitations in the agricultural space.

Insurtech platform- Resilience Engine (RE)



Resilience Engine, developed by the Syngenta Foundation in partnership with EnvEve, a Swiss software company specializing in the Internet of Things, is a digital marketplace for innovative agricultural and climate risk insurance solutions for smallholder farmers globally.

The platform was launched in July 2019 in Bangladesh and is now at pre-commercial roll-out stage with eight insurance contracts running in the RE marketplace and four managed distribution channels which use the platform to sell the products. The total on boarded farmers in Bangladesh for the 2020 season was 30,000

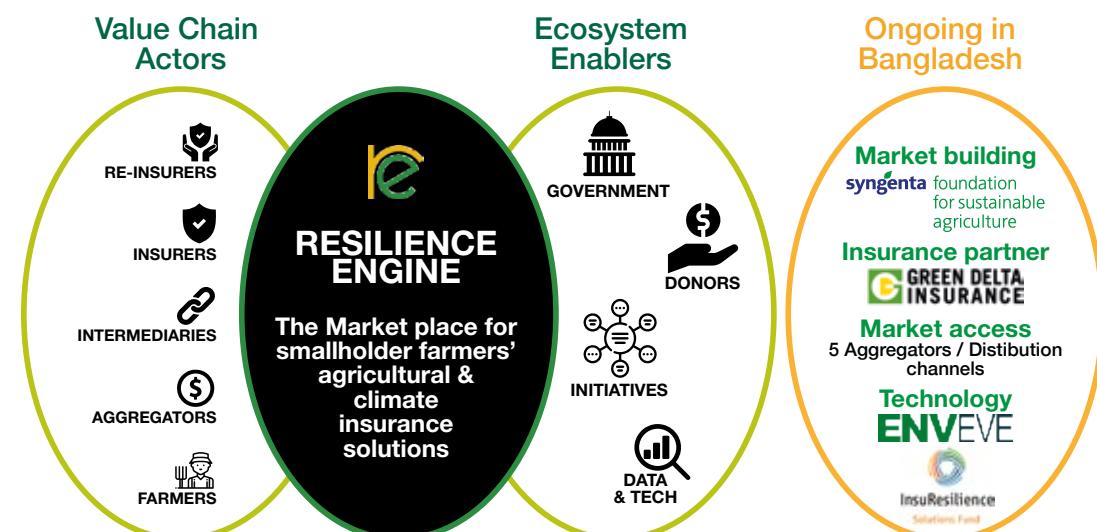
The platform comprises of six core modules:

1. Weather Data Library
2. Product Configuration Module (Actuarial Garage)
3. Marketplace Ecosystem Module
4. Customer Onboarding Tools Module
5. Claim Calculation Services
6. Agronomic Advisory Services.

"The Resilience engine aims to bring together the agri – insurance ecosystem players together, the Value chain actors i.e Reinsurers, Insurers Intermediaries, Aggregators & farmers as well as eco system enablers i.e the government, donors, data and tech among others."

- Enock Sing'oei.

Bringing Together the Agri-Insurance Ecosystem



Research & Development

07

Research & Development

The overall mission of the R&D Function at SFSA is to identify, develop and demonstrate innovations that can add value to smallholder farming, as well as the innovators whether public or private.

We primarily aim to encourage private sector participation in crops, technologies, and practices that are affordable and remunerative to smallholder farmers in SFSA's targeted regions.

The R&D Function feeds innovations into the existing SFSA Streams and researches potential new Streams. In the context of the Seeds program, a primary focus is put on innovation that helps establishing sustainable, value-creating seed delivery channels for non-hybrid crops.

Cassava Project in Uganda

Introduction

According to Food and Agriculture Organization, Cassava is one of Africa's staple crops, both in terms of production, volume, and calorific value (faostat.org). The crop has several advantages compared to other staples; it is sturdy, adaptable to different environments, tolerant of poor soil quality, and resilient to adverse climatic

conditions. Moreover, the ability of cassava roots to be "stored" below ground, enables farmers to time their harvests and later sell them at higher prices.

Apart from possessing a low multiplication rate, the crop has very low intrinsic seed value and farmers often pay little or nothing for seed stakes. Purchasing seeds has also proven to be a challenge due to the absence of formal seed markets for cassava planting material or any quality criteria that assures certain genetic and phytosanitary attributes. Therefore, viruses and other seed-borne plant diseases (bacteria, root rots, phytoplasmas) contaminate large amounts of planting material, which lead to yield losses of up to 80%.

Developing a superior cassava seed piece

Syngenta Foundation and the Brazilian Agricultural Research Corporation (Embrapa) developed a seed stake processing and treatment system that enables farmers to use significantly shorter planting pieces. The treatment aims to improve shelf-life, plant vigor, and yield potential & the smaller and more uniform seed stakes that allow for mechanized planting. This technology, MandiPlus, is based on a Syngenta system designed for Brazilian sugarcane.

Research & Development

At the project's inception in 2016, Syngenta Foundation, Bill and Melinda Gates Foundation & the National Crops Resources Research Institute (NaCRRI) in Uganda intended to replicate the technology for the cassava crop under African conditions with a long-term goal of testing the economic viability, stakeholder acceptance and developing a scale-up strategy.

Successful adaptation

Throughout the project's life cycle, (2016- 2018), the technology was replicated in three seasons and the results showed that shorter, treated seed pieces perform as well as untreated, longer seed stakes; treated plots were undamaged by pests such as termites & major vectors for viral diseases and the combination of shorter seed pieces and optimum field plot management to maximize propagule production tripled the multiplication rate.

Therefore, the technology was successfully adapted and validated under Ugandan conditions and the good results led to accelerated seed production.

Adaptation outcome & project completion

To further assess MandiPlus' benefits, registration & on-farm participatory trials with seed multipliers, cassava seed entrepreneurs & farmers were conducted. The intent was to build a map of private sector demand for cassava roots and seed pieces, to better understand seasonal and regional fluctuations as well as refinement of Commercial delivery models, including plans for commercially viable seed production.

Cassava project progress - African Cassava Whitefly Project (ACWP)

The success witnessed in the first project, paved the way for another Gates-sponsored project: the African Cassava Whitefly Project (ACWP) whose aim is to assess the potential of the MandiPlus technology for protection against vectors.

There is an expectation that the project will grow into a program to incorporate the technology into seed delivery channels in Uganda, Tanzania and Malawi countries by 2022 with the hope of attracting investment into production and distribution of new varieties, which in turn would be attractive to the small-holder farmer.



TEF Improvement

08

Syngenta Foundation's TEF Improvement project in Ethiopia

Tef, a staple food in the Horn of Africa is consumed by about 100 million people. In Ethiopia specifically, about 6 Million smallholder farming household grow this commodity.

In partnership with the University of Bern & Ethiopian Institute for Agricultural Research (EIAR), Syngenta Foundation began the Tef Improvement Project (TIP) in 2006 with an aim of advancing scientific research in this neglected crop. The objective is to deliver & improve tef varieties to smallholder farmers in Ethiopia. In addition, the TIP project aims to develop protocols & practices to produce uniform & large planting material that will facilitate the crop's early stage farming management.

Despite its adaptation to very dry & wet conditions, the greatest pain point of the cereal crop is 'lodging' whereby plants weak stalks easily fall over in consequence, leading to reduced grain quality & quantity during harvest.

The Programme which is envisioned to be completed in the year 2025, not only plans to improve productivity & agronomy of this cereal but also create

value & promote its investment, making it attractive to the private sector specifically in the local breeding & distribution sectors as well as building capacity in the Ethiopian public sector to manage the ownership & licensing of the public- bred varieties.

Achievements & progress

1. Tesfa, (high- yielding & lodging tolerant variety) the first variety by university of Bern- EIAR pipeline, increased in local production and Seeds2B partner seed companies have been able to access it since 2019
2. Two new varieties from the University of Bern – EIAR pipeline were registered in 2019: RIL 120B which incorporates early maturity and drought tolerance traits, RIL18 which combines late maturity with a high potential yield.
3. A fully operational seed pelleting facility at EIAR with seed produced for agronomy & mechanized plant trials. The center has hosted various visits from several organizations, such as seed companies, universities and the Alliance for a Green Revolution in Africa (AGRA), resulting to initiatives with the latter, to partner for the dissemination of pelleting technologies and pelleted seeds to seed producers in Ethiopia.

TEF Improvement

Syngenta Foundation intends to leverage on funding with external partners for the purpose of commencing seed treatment trials in collaboration with Syngenta Seed Care. The aim is to improve the crop's germination and early vigor. This is built on our continued work to optimizing pelleting approaches to allow for larger, more uniform tef planting material. As a part of this we have engaged with two UK universities, for whom we have

successfully secured grants to perform this work. In parallel, we also continue collaborating with the University of Bern to breed for new varieties of this orphan crop, adding to the 3 already released varieties from this partnership. We will also work more closely with public and private partners in Ethiopia to develop seed multiplication and delivery systems that ensure that these improved varieties reaching farmers across the country.



Diversity & Inclusion

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Diversity & Inclusion, Jackline Chemtai

“Diversity and inclusion drive growth while bringing a plethora of benefits: diverse thinking styles, inclusive leaders, motivated teams, and stronger performance.

At Syngenta Foundation, diversity, and inclusion (D&I) are key to our business strategy and we strive to create an inclusive environment by recognizing, valuing, and leveraging different perspectives and backgrounds to drive results. To understand smallholder needs and serve them better, we create and maintain a supportive, high-performance, and team-orientated culture. What diversity means to us is being able to recognize that our differences are our greatest strengths and, in turn, gives us the ability to build an inclusive environment where everyone feels welcome, respected, valued, and can be themselves.



In October 2020 we ran a Diversity and inclusion survey to understand where we stand as an Organization and the results were impressive. We realized that we are on the right path, but we still must put more effort towards this noble and sensitive course and to begin with, from March this year, the Foundation piloted a mentorship program that will run till October 2021. Mentorship programs have the best track records at making diversity a reality and studies show that it dramatically improves promotion and retention rates for minority groups and women, and it helps engage managers to develop diverse talent.

People are the organization's greatest asset and with this, in mind, we strive to create awareness on Diversity and inclusion within the staff and running training, for example, most of our team members took up the unconscious bias training in the last quarter of 2020 and this was necessary since our biases influence how we engage with others daily.

Diversity & Inclusion

We are committed to integrating gender equality perspectives at all stages of our programs and this does not only include a focus on women and youth but also other neglected minority groups. Gender mainstreaming is not a one-off event, it is a continuous process. It involves asking the right questions so that you can see where limited resources should best be directed and it is inextricably linked to ensuring sustainable growth and development.

Women are the pillars of our society and we should choose to recognize and celebrate them every day because it is not only the right thing but the best thing to do! During this years' International Women's day, we chose to celebrate one of our women as a way of sharing best practices from within the organization and challenging the fact that women cannot thrive in the field. You can watch the story here https://www.youtube.com/watch?v=9lv_R2f48cs.



“Diversity is a mix, just like the many ingredients needed to make a cake and we should endeavor to make the mix work, the cake is inclusion.”

- Jackline Chemtai.



syngenta foundation for sustainable agriculture

Syngenta Foundation East Africa 2020 Highlights Report



SWISS CAPACITY BUILDING FACILITY
Innovating Financial Inclusion

