

# GLOBAL SUPPORTING SEED SYSTEMS FOR DEVELOPMENT ACTIVITY FY20 ANNUAL REPORT

October 2019 – September 2020



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## Acronyms and Abbreviations

AE	Agri Experience
AWG	Agriculture Working Group
(CG)IAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CRS	Catholic Relief Services
DiNER	Diversity for Nutrition and Enhanced Resilience
EGS	Early Generation Seed
EHAR	Emergency and Humanitarian Assistance and Resilience
FSPs	Financial Service Providers
gFSC	Global Food Security Cluster
IFDC	International Fertilizer Development Center
ISSD	Integrated Seed Sector Development
KALRO	Kenya Agricultural & Livestock Research Organization
KEPHIS	Kenya Plant Health Inspectorate Services
LSB	Local Seed Businesses
MoA	Ministry of Agriculture
NARC	National Agricultural Research Center
NARS	National Agricultural Research System
NML	New Markets Lab
OI	Opportunity International
PABRA	Pan-Africa Bean Research Alliance
PoS	Point of Sales
QA	Quality Assurance
QDS	Quality Declared Seed
RIMI	Ripoti Mbegu Isiyo bora
S34D	Feed the Future Global Supporting Seed Systems for Development activity
SHF	Smallholder Farmer
SMEs	Small and Medium Enterprises
SMS	Short Message Service (text message)
SSSA	Seed System Security Assessment
STAK	Seed Trade Association of Kenya
STAM	Seed Trade Association of Malawi
TARI	Tanzania Agricultural Research Institute
TOSCI	Tanzania Official Seed Certification Institute
USTA	Uganda Seed Trade Association

# 1. Executive Summary

## Activity introduction

The Feed the Future Global Supporting Seed Systems for Development activity (S34D) is a five-year Leader with Associates Cooperative Agreement Award, funded by Feed the Future Initiative through the Bureau for Resilience and Food Security (RFS) and by USAID through the Office of U.S. Foreign Disaster Assistance (OFDA). Catholic Relief Services (CRS) is leading this consortium with support from partners that include: Agri Experience, the Alliance/PABRA, IFDC, Opportunity International (OI) and Purdue University. S34D's Life of Activity (LOA) runs from August 2018 through August 2023. The overarching goal of S34D is to improve the functioning of national seed sectors in focus countries in an *inclusive* manner—this 'inclusive' approach aims to support all farmers, including women farmers and youth. S34D aims to meet the activity goals by increasing the capacity of the formal and informal seed systems and humanitarian and relief programming to sustainably offer quality, affordable seeds of a range of crops (**Objective 1**), and increasing collaboration and coordination among all seed systems actors and actions (**Objective 2**).

This activity is unique in that the overall strategy proposes to generate a broader view and integration of the seed systems, with **Objective 1** working across formal, informal and emergency seed sectors; and, **Objective 2** placing emphasis on the interactions and synergies among the three systems. This integrated approach is further strengthened by cross-cutting IRs that seek to improve policies and practices that support pluralistic seed systems, rather than focusing on individual parts of each system. An important aspect of the activity is to gain a better understanding about how seed systems interact and where there may be positive or negative market interactions. In the case of detrimental actions, S34D intends to develop interventions to address market distortions.

## FY20 achievements

In S34D's second year of implementation, geography expanded from Kenya, Uganda, Tanzania and Malawi into four new countries: Zambia, Niger, Senegal and Ethiopia. Thematically, activity focus was more on the interface between development and emergency seed systems. For example, S34D initiated activities that were investigating forage seed system and feed reserves from cultivated forages to develop sustainable business models that bridge gaps between productive highlands and drought-prone lowlands in Ethiopia. A synthesis of various Diversity for Nutrition and Enhanced Resilience (DiNER) studies undertaken to date explored the potential for DiNER fairs to provide a bridge between emergency and development by creating a platform for establishing longer-term business relationships between farmers and seed suppliers. We conducted a global study on seed sector regulations and policies to establish a framework that looks at regulatory gateways and flexibilities which help bridge formal and informal seed systems under different contexts.

This year S34D developed several key tools and platforms, e.g. COVID-19 guidelines, digital training for seed companies in Uganda, and digital training platform for seed inspectors in Zambia. Due to online digital trainings, more participants could join as explained in this report and learnings under the M&E Sections. Moreover, S34D established global survey tools such as a rapid, remote Seed System Security Assessment (SSSA) toolkit which allows not only for SSSAs to be conducted within a shorter time frame than the standard SSSA, but also allows the assessment to be undertaken during ongoing COVID-19 restrictions. There has been considerable interest from various NGO implementing partners to test the tool through real-time assessments that will be used to plan emergency seed interventions. These examples highlight adaptability during pandemics.

A well-known challenge in seed sector is demand / market forecasting. S34D initiated this activity in Ethiopia to understand how demand forecasting is currently conducted and to fill in that gap by first drafting a process and methodology manual for national stakeholders in Ethiopia.

S34D continued facilitations with USTA in Uganda (training staff of seed companies), TOSCI in Tanzania (through the RIMI activity), KEPHIS in Kenya (through the standard seed protocol development), TARI in Tanzania (yellow bean study) and with SCCI in Zambia (seed inspectors and samplers training and testing).

Additionally, S34D continued collaboration with national and international partners. S34D helped to establish the Agriculture Working Group within the global Food Security Cluster (gFSC), which provides a multi-agency platform for on-going collaboration and dissemination for EHAR activities. S34D facilitated partnerships with the Ethiopia forage seed consortium and established an Ethiopian Advisory Group to consult and guide our ongoing activities in the country. These collaborative efforts have led S34D to incubate a global south-south learning platform for seed system regulations and policies starting in the new fiscal year 2021. We continued to push a franchise last mile model in Kenya with IFDC's 2Scale project, and with KUZA's rural agripreneurs digital platform in Kenya.

Dissemination of S34D's work is key to improving seed systems and deriving informed next steps. S34D facilitated the global seed policy webinars, market-led interventions for seed security response Agrilinks webinar, published five blogs on Agrilinks and listed several reports on the DEC to disseminate our work with the global community. Throughout the year, S34D held multiple consultations with various USAID Missions to keep Mission staff informed about S34D core-funded activities and discuss potential Mission-funded activities; in particular, S34D responded to USAID Ethiopia's interests in supporting national stakeholders in policy work and USAID Uganda's interest in developing a country profile.

Achieved outputs versus the planned outputs by activity can be found in **Annex 1** and the FY19 and FY20 report status in **Annex 2**.

## 2. Accomplishments versus targets

The below table shows the indicators, targets and achievements for FY20.

S34D Indicator	Indicator Name	Target FY20 (from approved FY20 WP)	Achieved	% Target Achieved	Reason for deviation
OUT-1	Number of seed actors trained	58	122	210%	Digital training mechanisms enabled greater participation and training.
OUT-2	Number of individuals participating in S34D [IM-level], (Output) FtF EG.3.2	4,000	3,012	75%	The last mile prototype in Kenya and the second season pilot for the niche model were originally scheduled for FY20, but due to Covid and late rains in Kenya, these were delayed to FY21 (Oct 2020).
OUT-4	Number of models Implement	3	1	33%	Last-mile prototype is continuing, and second season pilot for niche happened in short rainy season in October 2020. We piloted the Kuza model in Kenya.
OUT-5	Number of studies that have fulfilled all criteria	15	2	13%	Many studies are done but not disseminated and hence could not be counted as done. On track to disseminate. Once disseminated we will count them as fulfilling all criteria as set forth in the indicator. Several of them are in the pipeline for dissemination in November and December of 2020.
OUT-6	Number of tool-kits developed	7	4	57%	Developed the guidance on CoVID-19 for Emergency Seed Interventions, tools for rapid SSSAs and maintained seedsystem.org to disseminate valuable tools and information sets related to seed systems.
OUT-7	Number of stakeholders linked	42	0	0%	Only preparatory and planning work is done. Implementation has not happened to link actors yet.
OUT-11	Number of inclusive seed policy specific dialogues facilitated	3	2	67%	Facilitation is ongoing for standard seed protocol; and last mile use of boda boda riders in Kenya. RIMI facilitation cannot be done without rolling out the tool first and receiving feedbacks for government to take actions.

OUT-12	Number of evidence-based seed policy briefings developed.	4	1	25%	Global seed policy briefing was developed and disseminated through a global webinar with 12 organizations; 1 policy brief for the evaluative learning will be completed and disseminated in Q1 FY21, and two briefs are pending on the country profiles completion and dissemination.
OUT-14	Number of tools and technologies generated and/or augmented on seed supply and quality.	3	1	33%	RIMI is being piloted; Demand forecasting is going on but not completed and DNA reference library established under TLIII project.
OUT-15	Number of feedback survey responses received and /or forwarded	100	91	91%	Feedback on Nyota (HIB) variety was collected through a survey in Feb 2020.

### 3. Summary of Accomplishments by Sub IR

#### *Activity 0.1 Develop country profiles and framework for engagement in Kenya and Uganda (core).*

##### *Achievements:*

The seed profile for Uganda was more developed than the seed profile for Kenya. Both are in draft form (CRS, 2020). The Kenya profile still needs to be restructured and synthesized.

##### *Learning:*

It took longer than anticipated to develop the country profile for Uganda, because much of the data are not held in publicly available online databases or documents and therefore required a deeper degree of investigation. This is particularly the case for the informal and emergency seed systems, where data are held by operating individuals within agencies and government departments. The data investigation was also hampered by travel restrictions due to COVID-19. Some of the learning from the Uganda seed profile are:

1. The lack of reliable, up-to-date data for the Ugandan seed system is a barrier for management, decision-making and investment prioritization: **Seed monitoring systems should be strengthened.** Uganda needs a modern seed monitoring system to collect and compile systematic, centralized data, including more accurate records of quantities of certified seed, QDS and emergency seed. Studies / assessments are needed to provide a better understanding for the potential commercial role of QDS and the sustainability of Local Seed Businesses, the circumstances in which emergency seed might be needed, and evidence about which types of emergency seed distribution modalities are most appropriate and effective.
2. Constraints in the supply of Early Generation Seed (EGS) pose a serious challenge to the production of quality seed and in some cases, EGS is compromised by lack of purity at the parent level. **EGS production should be modernized.** The EGS system should be able to provide foundation seed, or parental lines for two years in advance to synchronize with the production of certified seed by the seed companies and local seed businesses. This system needs to be an open process and breeders should have clear production targets. This approach should ideally consolidate seed orders across the industry, through an open, online system and this process should include both commercial and public procurement. The system should have routine audits to test the quality and purity of the early generation seed, using white label methods.
3. The introduction of QDS appears to be successful in allowing for the integration of formal, semi-formal and informal seed systems to promote the production and distribution of improved varieties, but: **An assessment of QDS and LSB is required to determine whether current models are effective and sustainable for different crops. There is a real question about the sustainability of QDS when projects conclude, and Uganda offers an excellent use case to explore this question.**
4. Approximately half the certified seed produced is thought to be sold through agrodealers; a significant proportion is distributed through emergency seed interventions, subsidies and handouts. The 2018 National Seed Strategy does not acknowledge the impacts of free seed distribution on the formal sector: **Emergency seed provisioning should be programmed according to actual needs and designed in ways that are consistent with broader aims and visions relating to seed sector development. Innovative thinking is required to avoid the disruption to formal commercial certified seed markets caused by emergency aid.**
5. The problem of fake seed is at least partly driven by the high demand for emergency seed and the prevalence of direct seed distribution rather than more localized market-based response options: **Addressing the problem of fake seed requires not only more effective seed inspection and labelling but also understanding and addressing the ways in which seed is incorporated into the emergency aid system.**

### 3.1 Formal Seed Sector Activities

#### IR 1.1 Constraints in formal seed systems identified and mitigated

##### *Sub IR 1.1.1 Operational efficiency of seed companies increased.*

###### Activity 1.1.1.1 Document firm level needs assessment in Uganda (core).

###### *Achievements:*

An assessment tool was developed with input from and administered in collaboration with the Uganda Seed Trade Association (USTA) to 31 seed companies. Responses to the assessment tool were received from 26 seed companies (84% response rate). These responses were analyzed, and top priority areas were identified: 1) quality assurance, 2) marketing and distribution, 3) seed production, and 4) seed processing and storage. The assessment tool and analysis were completed by Agri-Experience (AE, 2020). Five seed companies were further interviewed by phone to understand their specific needs, since most of respondents indicated that they had benefitted from different types of training over the last three years, for which the delivery was very good. These previous trainings, on various topics, were provided by BRAC, AgVerify, CIMMYT, Galilee International Inst, University of Nairobi, AGRA and Makerere University. Hence, S34D sought to understand what type of training was found to be most useful to address seed companies' needs, and which were the optimal months to conduct the training, in order to develop additional training modules.

###### *Learning:*

A few training modules had been offered in the last three years which included marketing, communication, agronomy, seed production, breeding, quality assurance, seed inspection, post-harvest and seed processing and storage. However, companies' priority training areas still included: 1) seed quality assurance, 2) seed marketing and distribution, 3) seed production, and 4) seed processing and storage. Reasons stated for continued training were that new staff needed the initial training, and other staff would benefit from updated training. There was a particularly large number of new entrants (companies below 5 years in operation), which represented 50% of total companies, while only 19% of participating seed companies had been in operation for over 15 years. Respondents were very clear that they did not want the usual academic approach to training such as is offered by universities, but rather needed a "how to" approach which would respond to practical challenges. S34D worked closely with USTA and the trainers to tailor-make a course that responded to these specific challenges, and selected trainers with good practical understanding of issues, beyond mere theory. This perspective, which included the feedback from seed companies, was included in the trainers' scope of work.

###### Activity 1.1.1.2 Gather, select and develop seed systems materials for coaching from partner organizations that meet client needs (technical, managerial and territorial marketing strategies) through engagement with internal and external partners in Uganda (core).

###### *Achievements:*

Based on the FY19 outputs of activity 1.1.1.5 Regional Financial Service Provider Inventory Scan and 1.2.1.4 Seed and PHT Financial Bottlenecks Scan, follow-up assessments were performed with Ugandan Financial Institutions to identify the perceived gaps in investment readiness for agrodealers and last mile seed providers. As a result of these consultations, curricula content was gathered and developed aligned with key "Know-Your-Customer" requirements of Ugandan FSPs to assist in coaching firms that desire to access local commercial capital. Eight distinct modules were organized covering Business Plan Development; Market Research and Marketing; Business Record Keeping; Budgeting, Cashflows, and Income Statements; Balance Sheets; Profitability and Key Ratios; Risk Management, and finally, Available Financial Products in Uganda and Internal FSP Credit Processes. The eight modules (OI, 2020) were drafted and are pending USAID's review. This content was deliberately designed as stand-alone modules so that any combination of these modules

could be leveraged to aid in coaching clients based on need and the internal and external S34D Partner Firm-Level Appraisals and Firm self-assessments.

#### *Learning:*

Operationalizing the coaching materials is an ongoing need, however content has been developed as a framework to be customized to unique facilitators approaches. Parallel to the learnings from 1.1.1.1 above, a practical “how to approach” will move clients beyond an information retention to the needed practical application. To date, the coaching materials have not yet been used to directly support any agrodealers, however, one Ugandan financial service provider has agreed to utilize branch staff and field agents to coach current and prospective agrodealer and last mile seed provider clients with these curricula. However, more robust training-of-trainers’ guidelines and practical worksheets will be needed. Furthermore, in the light of very stringent Ugandan COVID-19 limitations, digital and remote training capabilities would increase coaching outreach to clients. Beyond COVID-19, expanding on this S34D investment with non-S34D investments to digitize these modules into video-based content will also expand coaching to traditionally mobility and time constrained clients, namely women and Persons Living with Disabilities (PLWD) business owners. During FY21, this work will be carried forward in other donor-funded projects, including private investor funds, Foreign Commonwealth Development Office (FCDO), Danish International Development Agency (DANIDA), and proposed for Women’s Global Development and Prosperity Initiative (W-GDP), to increase the uptake and adoption of this S34D output.

#### *Activity 1.1.1.3 Develop a fee-based training model for deployment by Seed Trade Associations or similar stakeholder organizations in Uganda (core).*

#### *Achievements:*

20 seed companies sent 34 staff for a one-week training combining the three modules (seed production, seed quality assurance and seed processing and storage). This included paying for a modest cost share (10% of training costs), and catering entirely for transport and accommodation for the week. Due to COVID-19, some participants joined virtually and others joined in-person. In addition, after seeing the course outline, the Ministry of Agriculture sent 13 of their seed inspectors to the training and USTA sent four of their staff. In total, 51 participants (eight women) attended the training.

#### *Learning:*

Companies and the Ministry recognized that value was created by carefully interrogating the specific training needs and tailor-making a training course that addressed these needs in a practical way, using qualified, practical-oriented trainers. It was constructive that the full course outline was shared before the training, which served to create interest among the seed companies and ultimately the Ministry of Agriculture personnel. Due to challenges posed by COVID-19 restrictions to gatherings, the training had to be conducted semi-virtually since Uganda’s borders were closed, with the trainers attending from Kenya and Zimbabwe. The learners had to access the training in a physically distanced format from a central location with good internet and other related facilities. S34D learned that this approach allowed the activity to utilize great expertise from trainers who otherwise may not have attended, but the challenges were that the training lost a personal touch and had to contend with the usual internet access challenges.

#### *Activity 1.1.1.6 Improve certification efficiency of non-maize seed to promote sales volumes of non-maize certified seed, particularly for legumes in Zambia (core).*

#### *Achievements:*

A virtual training for seed inspectors was carried out by the Zambian Seed Control and Certification Institute (SCCI) for 71 participants (19 women and 40 participants under the age of 35). The participants came from various seed companies. These seed companies focus on the following crops: maize (23 participants), non-maize (31 participants), cotton (11 participants), research and government institutions (three participants) and individuals not affiliated with private seed companies (three). Existing materials were adapted for the digital training. A team of experts for SCCI, the Zambia Agricultural Research Institute and the University of

Zambia reviewed the materials, including 26 presentations. A total of 25 videos for practical sessions were recorded to demonstrate seed field inspections and seed sampling and 16 presentations were pre-recorded and provided to participants to listen to at their own time. Lastly, a digital functionality training was held to acquaint 11 presenters with Zoom for them to make live presentations during the digital training. The training report was completed (AE, 2020b). Out of the 68 affiliated with seed companies, 65 participants (18 women and 40 participants under the age of 35) took the seed inspector and sampler exam which authorized private seed companies to carry out seed inspections, showing the seriousness seed companies attached to the training and subsequent certification. 58 participants, of which 15 were women, passed the exam.

#### *Learning:*

Ordinarily, 35-40 people participate in the in-person training due to maximum physical class sizes. The fact that the training was now offered virtually led to nearly twice the number of learners. Two companies sent a combined 26 participants, indicating that companies are willing to train more staff with virtual training.

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#### *Activity 1.1.1.9 Develop an inventory of financial services to expand financing for seed sales from seed companies in Niger (core).*

#### *Achievements:*

Based on the FY19 outputs of both activities *1.1.1.5 Regional Financial Service Provider Inventory Scan* and *1.2.1.4 Seed and PHT Financial Bottlenecks Scan*, Activity 1.1.1.9 combined assessments of both Supply and Demand for Financing into a single activity for Niger. In total, deep-dive interviews were conducted with 15 local financial service providers and 15 non-financial services stakeholders within the Niger seed sector (both S34D and non-S34D IPs). Key recommendations and conclusions were documented for both S34D and Niger Mission Staff with regards to increasing the uptake of financial services within the seed sector. The Niger report (OI, 2020b) was submitted to USAID for review.

#### *Learning:*

Current market demand for private sector investments into the seed sector in Niger is extremely limited, primarily due to the large footprint of local government within both seed purchasing and distribution. Beyond this, experience with and access to regulated financial services by clients across the agricultural sector is comparatively limited. Successful interventions would benefit by pre-investment coaching and technical assistance to prospective clients. Despite the perceived low-demand for private sector financing within seed companies, a more diversified product range of both short-term and long-term finance might be beneficial. Prospective finance clients within the seed sector should be better segmented by commercial activity such as seed production versus trading and sales to better inform the financial service sector.

#### *Activity 1.1.1.11 Map seed companies and other agribusinesses in the seed value chains and provide referrals for potential Impact, capital or equity Investment in Senegal (core).*

#### *Achievements:*

S34D worked with a master's degree student in finance and management accounting at the African Centre for Higher Management Studies (CESAG) and CRS Senegal on this activity. Although 21 enterprises were identified, due to a low response from enterprises, telephone interviews were conducted with nine enterprises. After analysis of the questionnaire responses, two enterprises were selected to continue to work with CRS Senegal in their Private Agricultural Service Provider Model Project (PASP), and with CRS Impact Investment team for potential further enterprise analysis and impact investment. A draft report will be submitted for USAID's review (Adam, 2020).

#### *Learning:*

Many of the enterprises were not able or willing to share business details, strategic growth or investment plans. This made it difficult to identify and refer enterprises to the CRS Impact Investment team for impact investment for enterprises' to meet their growth objectives.

***Sub IR 1.1.4 Sustainable models with private sector players to supply quality EGS and QDS to a range of suppliers piloted and scaled using innovative financing.***

***Activity 1.1.4.1 Prototype one last mile delivery models to reach last mile users with quality seeds in Kenya (core).***

***Achievements:***

A micro franchise based last mile delivery model to reach farmers with multiple crop seed varieties (beyond maize) was designed and is being implemented with a Kenyan seed firm FreshCo in Meru and Taraka Nidhi counties, in the semi-arid eastern province. A preliminary meeting was held among 15 input distributors that supply seeds to the last mile. This was followed (before short-rains cropping season) by training 31 selected, last mile input suppliers from Marimanti in Taraka Nidhi counties on suitable crop-seed varieties available and suitable for the region (beyond maize) along with crop management practices. 15 motorbike (*boda boda*) riders (no women riders) who were serving agrodealers in Gachuiriri region also were trained in safe handling of seeds and agriinputs during transportation, and given minimal technical knowledge on the seeds to manage customer queries during delivery. The above two activities were complemented by a farm level field day near Gachuiriri market, with participation of local agricultural extension officials; seed firms displayed varieties of different crops (besides maize) suitable for the region, and this was attended by 108 farmers (87 women). During the field day, a male lead farmer was selected to conduct field demonstration on crop seed varieties of interest to farmers and suitable for the agro-ecology zone, such as sorghum (Gadam), Greengram (N26), Cowpeas (K80), KAT B1<sup>1</sup> bean and KAT X56 bean varieties. The field demonstration plots will be used for training purposes in the coming months and field days for farmers are planned at different stages of crop. The demonstrations are conducted in collaboration with the seed firms and with Marimati and Taraka Nidhi county extension officers.

***Learning:***

The last mile retailers showed keen interest in developing business opportunities in selling seeds other than maize to cater to local farmer demand. Demonstration of crop varieties of interest to farmers and suitable for the agro-ecologies was welcomed by all the stakeholders involved, including local extension officers, private firms, input suppliers and farmers. Providing minimal technical knowledge to the *boda boda* to ensure safe handling of seeds during transportation was welcomed by the end-users (farmers).

***Activity 1.1.4.4 Scale out last mile delivery through digitally enabled rural seed and enterprise agent systems in Kenya (cost share).***

***Achievements:***

Building off of the prototype design and analysis conducted in FY19 during *the incubation and launch phase*, this year CRS and KUZA further piloted and developed this prototype of a digital rural agent model, during the *operations phase*. This model strengthens the resilience of SHF by creating a new cadre of private sector front line extension agents to improve food security and livelihoods of the rural population. The platform links rural agribpreneurs, also known as Agribusiness Advisors, with farmers, services providers, mentors and off-takers (buyers). This year, prior to the platform being deployed, farmer profiles were developed, agents were linked to input suppliers and to the digital platform for capacity building, transaction support and analysis. Two mentors trained the 15 rural agents (five women and two agents under the age of 30) in using the digital extension toolkit and improving farmer engagement, agricultural practices and leadership skills. After these steps and trainings, the platform was deployed and the two mentors continued to work with 15 rural agents in three counties. Furthermore, 12 agents set up 12 farmers service centers and 15 agents were linked to

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<sup>1</sup> This bean variety was developed by Kenya Agriculture Research Institute (KARI) Katumani Research Centre in Machakos.

mentors, input providers, off-takers and FSP. After these steps and trainings, the platform was deployed and the two mentors continued to work with 15 rural agents in three counties (Meru, Tharaka Nithi and Nakuru). In one growing season, these 15 agents reached 1,685 farmers with their extension, and the digital platform was used for input transactions reaching a total aggregation value of USD \$278,707. A story about this rural agripreneur digital platform was published on the Feed the Future website<sup>2</sup> and can be found in the M&E section of the annual report.

*Learning:*

The development of a digital platform requires initial investment, e.g. for the digital toolkit. Because of the success of the pilot incubation, launch, and operations, KUZA is scaling their digital platform program operations exponentially with other donors and is already rolling out a national level program across 14 counties, targeting 200 agripreneurs with mentorship and support to set up and scale their agribusinesses.

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<sup>2</sup> [https://www.feedthefuture.gov/article/young-entrepreneur-rethinks-future-pursues-rural-agribusiness/?utm\\_source=Newsletter&utm\\_medium=Header&utm\\_campaign=Back\\_to\\_Their\\_Roots](https://www.feedthefuture.gov/article/young-entrepreneur-rethinks-future-pursues-rural-agribusiness/?utm_source=Newsletter&utm_medium=Header&utm_campaign=Back_to_Their_Roots)

## 3.2 Informal Seed Sector Activities

### IR 1.2 Strengthened capacity of informal seed systems to offer a broader range of affordable, improved quality seed

#### *Sub IR 1.2.1. Informal trader capacity and local seed networks assessed.*

##### Activity 1.2.1.1 Complete report writing for yellow bean characterization study in Tanzania (core).

###### *Achievements:*

The report was completed, however due to COVID-19 it was not possible to hold an in-person validation workshop with Tanzania's national stakeholders. A draft study report is currently under review by USAID (CIAT, 2019). The report will be finalized after incorporating USAID and national stakeholders' inputs. This study was presented in an Agrilinks blog<sup>3</sup> published on July 1 and this study was also presented to USAID and the Feed the Future Innovation Lab for Legumes Systems Research during a webinar on August 6.

###### *Learning:*

The yellow bean survey has presented several learning nodes:

1. The yellow bean varieties have a strong market pull which creates market for seed, primarily in the informal sector;
2. Despite commercialization, bean crop remain a 'women's crop' since women dominate the retail trade of yellow beans while the aggregation businesses are led by men;
3. When the traders' businesses are looked at closely, the bean sales, i.e. grain and potential seed, is intertwined. In some cases, traders record up to 70:30 ratios of grain versus seed business volumes;
4. The grain /seed traders have clear practices to manage and anticipate potential seed sales;
5. There is a clear need to have more explicit and direct potential seed and grain trader interactions with the research sector. This will enable a joint understanding of the needs for a better functioning of yellow bean seed and grain supply system;
6. Despite the dominant informal seed systems, more than 60% of the varieties traded were of formally released varieties (due to the self-pollinating nature of beans, bean varieties retain their varietal characteristics over multiple generations);
7. This further highlights the opportunities for research in understanding market demanded varieties, and how to integrate with the informal seed supply system to scale-up ;
8. Grain traders grew yellow bean varieties that they sold as seed during sowing times. This amplifies their potential (and bigger) role in strengthening the informal seed systems;
9. Potential seed traders have several constraints including (a) Information on new varieties and range of varieties available (b) Market information - for both grain and seed (c) storage pest damage, and;
10. There is need to build the capacity of informal actors in various areas including (a) minimum quality seed assessment, (b) agronomic information to accompany varieties, (c) variety information to identify varieties, and (d) injection of quality seed of farmer preferred and market demand yellow bean varieties.

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<sup>3</sup> <https://www.agrilinks.org/post/yellow-bean-corridor-seed-grain-trade-potential>

#### ***Sub IR 1.2.4. Last mile delivery solutions through non-traditional partners and ICT strengthened.***

*Activity 1.2.4.1. Niche Market business model: Explore non-seed distribution and sale niches with seed varieties (linked to PoS ICT application with seed companies) and monitor sales/ adoption in Kenya (core).*

##### *Achievements:*

The final report of the first season activity and a report of stakeholder meeting proceedings were submitted to USAID for review (CIAT, 2019b). An Agrilinks blog<sup>4</sup> published on June 11 highlighted some of the findings of the first season activity, specifically whether the point of sale (PoS) application could shed light on new varietal dissemination and farmers' preferences. Although the second season data collection was planned for March, Bubayi Products Ltd. did not have the Nyota (65 days maturity, water efficient and higher iron variety) seeds available to sell to agrodealers and subsequently to farmers. In addition, Nyota does not perform well in the long March–July rainy season. Therefore, the second season data collection did not take place as planned and the model could not yet be validated. S34D reached out to Drylands Seed Ltd. which distributes Nyota seeds to replace Bubayi Product Ltd. The preparations for the second season data collection started late September and the second season data collection is planned in FY21 (Q2) with the aim of documenting the model's viability for distribution of micronutrient-rich beans.

##### *Learning:*

This model has presented several learning nodes:

1. Through the niche-market model and point-of-sale pilot, S34D learned that there is a need for robust awareness and demand creation for this new variety beyond on-farm trials and contract seed production activities. This should be tied to stable seed availability and an efficient seed distribution from seed companies;
2. The results confirm that farmers would like to have seeds in affordable seed packs and more information on agronomic practices;
3. The results still show that farmers do not always purchase their inputs from the nearest agro-dealer shop. This presents the need of developing infrastructure for ease of last-mile delivery of seed and complementary farm inputs to the farmers;
4. The use of *boda boda* riders, though tied to seasonality, is a suitable option for last mile delivery of seed and complementary inputs subject to a structured relationship with farmers and agrodealers;
5. The *boda boda* riders would want their business of seed and farm inputs officially recognized by the national seed authority; and,
6. The efficiency and impact of *boda boda* services could be enhanced by integrating ICT for orders, making payments and sharing information. Further engagement with the regulator is necessary on the need for ICT to enable last mile delivery of bean seeds and other complementary technologies.

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<sup>4</sup> <https://www.agrilinks.org/post/digitally-tracking-dissemination-targeting-markets-high-iron-bean-seeds-kenya>

### 3.3 Emergency & Humanitarian Aid and Resilience (EHAR) programming activities

#### IR 1.3 Strengthened capacity of emergency and humanitarian aid programs to respond effectively to acute and chronic stresses

*Sub IR 1.3.1 Select emergency and humanitarian past actions assessed: focus on farmer evaluation, new varieties, and markets (local and formal).*

*Activity 1.3.1.1 Disseminate results from FY19 studies on cash and markets using mixed modes of delivery (core).*

##### *Achievements:*

The results of these two studies were disseminated through an Agrilinks webinar and blog<sup>5</sup> and on the DEC, S34D and seedsystem.org websites. The webinar<sup>6</sup> and blog were featured as part of the Agrilinks special focus on seed systems in the month of June 2020.

##### *Learning:*

Markets are pivotal in helping farmers to access seed, both in normal times and in emergency and chronic stress contexts. The two studies conducted by S34D present lessons of market-led emergency seed interventions, looking at supply and demand sides. The review of supply-side interventions (Walsh and Sperling, 2020)<sup>7</sup> found that these interventions focus on formal sector market support to ensure seed availability, particularly for improved or modern varieties; it was not possible to document a single in-depth case of supply-side interventions oriented towards the informal seed sector. From the demand side, the report by Keane et. al. (2019)<sup>8</sup> shows that cash transfers offer an alternative to vouchers as part of market-led interventions to support farmers' access to seed in emergency contexts. Available evidence suggests that cash offers promise for seed security interventions, particularly when combined with complementary programming such as technical or business training.

*Activity 1.3.1.3 Interview private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi (core).*

##### *Achievements:*

A total of 26 private and research sector actors were interviewed across the three countries, and a report is being drafted.

##### *Learning:*

The work of organizations in the research and private sector varies from emergency response, training, technical backstopping, breeding, seed production and sales. This is not only because of their different defined mandates but also because of new frontiers they elect to pursue. The research sector's mandate is often intentional – and could be better if it included collaboration with different actors intervening during emergencies. This will help to avoid duplication and ensure that beneficiaries receive complementary products and knowledge. Utilizing known strengths of each sector e.g. research sector availing required quality, quantity of farmer/market demanded varieties, and private sector providing adapted varieties, is a great start to the partnerships. Evaluation of the implementation of these interventions, i.e. their effectiveness, is a recommended way by both sectors to guarantee best practices.

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<sup>5</sup> <https://www.agrilinks.org/post/market-led-interventions-seed-security-response>

<sup>6</sup> <https://www.agrilinks.org/events/market-led-interventions-seed-security-response>

<sup>7</sup> [https://pdf.usaid.gov/pdf\\_docs/PA00WPBN.pdf](https://pdf.usaid.gov/pdf_docs/PA00WPBN.pdf)

<sup>8</sup> [https://pdf.usaid.gov/pdf\\_docs/PA00WH2D.pdf](https://pdf.usaid.gov/pdf_docs/PA00WH2D.pdf)

In the review of the roles of private and research sectors in emergencies, some key issues arise. Use of cash transfers, vouchers and seed fairs were widely accepted as means that drive efficiency in the system. Though potentially lucrative in terms of donor financing, both private sector seed companies and NGOs believe that taking orders for seed that they cannot meet in terms of i) order not on product portfolio and ii) order not adapted to intended location of beneficiaries remains counter-productive to their objectives. Narrow seed delivery windows continued to pose a significant challenge to the NGOs and private sector seed companies. For the latter, getting enough lead-time from NGOs is critical in guaranteeing the right quality and quantity, but even more importantly supplying the right variety of high quality seeds at the right time denies low-quality seed a chance to thrive.

The way each sector prioritizes interventions on seed will shift based on what works both in the short- and long-term thus avail opportunities to test for resilience post-interventions. It is possible and necessary to improve sector collaboration as capacity-building efforts may work at cross-purpose if not synchronized. When research sector actors take up the role of the private sector (e.g. seed sales as opposed to testing the right varieties for target geographies at risk), the result often remains under-delivery of the right and well-placed varieties. Information-sharing platforms based on the activities and capacities of different actors can usefully promote connections and collaboration across the sector.

*Activity 1.3.1.4 Develop actionable plan based on lessons emerging from the cash transfer and market studies completed to date, and the (on-going) FY19/20. (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar).*

*Achievements:*

An actionable plan consisting of nine actions was drafted, based on preliminary lessons emerging from the Southern Africa DiNER evaluation study report (Raboanarielina, et al, 2020), which advocated for greater attention on the supply-side aspects of seed fair planning and design. These actions were then tested in the context of the agricultural input fairs in Eastern Uganda implemented by CRS-Uganda and Caritas-Tororo in early 2020 (CRS, 2020).

*Learning:*

Fairs tend to target the poorest, most vulnerable farmers, who are not the main client base of private agrodealers. Fairs implemented in emergency contexts have limited opportunity to focus on the supply side; the overriding aim is to support short-term recovery needs of farmers affected by crisis. Fairs implemented in more developmental contexts have greater opportunity for supply-side focus. Operational procedures for vendor selection and contracting may need to be relaxed to be able to include local agrodealers (which tend to be smaller and have less capacity) and farmer seed production groups. Concerns to ensure that vendors profit from fairs may lead to limited overall number of vendors, which may rule out smaller, local suppliers, necessitating a careful balance between the number and types of vendors, as well as the range of seed types that they can provide.

***Sub IR 1.3.2 Emergency and humanitarian responses that promote climate resilience, including food, income, cover and fodder crops are catalyzed.***

*Activity 1.3.2.1 Support upgrades in functionality, socialization and promotion for SeedSystem.org website (core).*

This activity was cancelled.

***Sub IR 1.3.3 Tools and Information Systems to frame Shock Responsive Models developed.***

*Activity 1.3.3.1 Framework and response options for resilient seed systems (core).*

*Achievements:*

Although this activity started in FY20, S34D was not able to complete it due to the unanticipated length of time needed for the Uganda seed sector profile. This activity is still in progress and will be completed in Q2 of FY21.

Activity 1.3.3.2 Inputs to a stakeholder consultation with the broader humanitarian community to determine and address the need for additional guidance for agricultural interventions (core).

*Achievements:*

Working in collaboration with the Global Food Security Cluster (gFSC), an online survey was undertaken among global and national Food Security Cluster members in over 30 emergency countries. Based on the survey results, an Agriculture Working Group (AWG) was established within the gFSC. The AWG is comprised of key actors involved in emergency agricultural interventions, including FAO, WFP, USAID, EU, and approximately 20 international NGOs. The AWG is also linked to the national and sub-national Food Security Clusters in over 30 countries experiencing food security emergencies. As such, the AWG provides a solid support base and dissemination channel for the work of S34D. To date, two S34D-led activities – guidelines on cash transfers for seed security and the testing of rapid, remote SSSA tools - have been incorporated into the workplan of the AWG Seeds & Crops Task Force.

*Learning:*

There is a need for additional guidance on emergency agriculture interventions. Agencies are keen to review and field-test draft tools for Rapid SSSA. The gFSC Agriculture Working Group provides an effective way of working with the humanitarian community.

Activity 1.3.3.3 Collect, compile, and analyze information on emergency and humanitarian seed interventions in relation to formal and informal seed sector development interventions (core).

*Achievements:*

Information was collected and compiled for Kenya and Uganda, and the templates used for compiling the information were revised (Activity 0.1). Information from the emergency, formal and informal sectors was shared and discussed at a workshop held in Nairobi in February 2020, which helped to clarify the purpose of the Seed Sector Profiles.

*Learning:*

Data on emergency seed interventions is very dispersed and difficult to collect. Individuals and agencies are often not willing to share data. The process of drafting the seed sector profile was very challenging, generating a number of lessons in relation to the process of collaboration within S34D, as elaborated in Section 6.

***Sub IR 1.3.4 Last mile delivery solutions especially for chronic stress areas (small packs, boutiques, WhatsApp seller linkages) developed.***

Activity 1.3.4.4 Develop a 1-2 page white paper on possibilities for financing of different farmer segments (core).

*Achievements:*

Due to a number of unique policy and enabling environment considerations, the commercialization of refugee support services in Uganda has led to progressive market opportunities. Consultations were conducted with private and public seed sector actors, NGOs and UNHCR to explore the appetite for seed security and enterprise-level financing for refugees in Uganda. A review of recent case studies was conducted with a focus on Agribusiness interventions and financing options for refugees. An activity gap in current interventions was identified, demarcating an under-allocation of resources dedicated to supporting livelihood development within long term refugee settlements. As sub-sets of livelihood development, agriculture, seed systems, and financing support were even more limited. Granular data on support interventions targeting women and youth within Ugandan Refugee Settlements was not found. A white paper was developed and will be submitted to USAID for review (OI, 2020c).

*Learnings:*

Investing in the seed sector is aligned with the humanitarian response for building market-based approaches to ensuring sustainable livelihoods for refugees. However, uptake is limited by the high pricing of seed and

input packs, small land size, and poor access to markets. Due to these limitations, demand for formal seed types, without an intermediary, is not sufficient for standalone open market interventions. Similarly, agro-dealers are not currently serving refugees unless they can be supported in entering the geographic area. Due to the learnings from this activity, Opportunity International's RISE project is taking into consideration the gap in the current market for refugee AgFinance products and working to identify a framework for potential loan products for farmers, agribusiness and trade segment. Any value chain work conducted within refugee communities needs to be both demand driven and context specific. As such, more needs to be understood at the local level to build out a targeted value chain intervention.

### 3.4 Integration and Collaboration Between Sectors

#### IR 2.1 Strengthened interface and collaboration between formal and informal seed systems

*Sub IR 2.1.1 Local seed network strategies (to interface, collaborate, and leverage) and local capacities are assessed.*

*Activity 2.1.1.2 Conduct a scoping study to assess the fodder/forage crop seed value chain in Ethiopia (core).*

##### *Achievements:*

CRS, in collaboration with the Alliance livestock system and forage teams, have undertaken an economic analysis of the forage seed value chain in Ethiopia. Cultivated forages play a significant role in bridging the gaps in feed supply and feed quality for the increasing livestock population in Ethiopia. S34D has conducted an in-depth desk review, and a partnership landscape survey to gather details on implementors activities to determine the disaggregated geographies where forage seed production and forage crop production can become viable businesses. Currently, S34D is conducting an in-depth value chain survey, results of which will be analyzed and disseminated in FY21 Q1.

##### *Learning:*

Extensive work has been conducted on seeds and feed, but linkages with the output markets in an economically viable fashion is less common. Forage seed value chain, market for cultivated forages as improved feed, and output market for the livestock feed cannot be compartmentalized in an analytical framework when the goal is to arrive at sustainable business solutions.

Farmers are more comfortable with forages that have similar agronomic practices as food crops. This is because extension services related to strengthening technical capacity for forages is very limited in Ethiopia. Perennial forage crops are preferred than annuals. Irrigated forage production is on the rise, especially in the rangelands and along the river basins.

There is steep competition between production of forage crops and food and cash crops in the productive highlands, which means high opportunity cost to produce forages in those geographies. There are not enough forage seeds commercialized. Very few varieties dominate seed production: of the 1198 varieties released, only 10% are commercially produced. About 70% of forage seeds is exchanged through the informal seed system. Majority of the formal seed exchanges is through large institutional buyers such as NGOs and government offices.

Based on stakeholder consultations, Tigray region is witnessing an increase in the proportion of cross bred cattle. Woredas in Amhara and Tigray regions reported a relatively higher demand pull from commercial dairy compared to commercial fattening. The trend is reversed for reported woredas in Oromia and SNNP regions. Bahir Dar district in the Amhara region has seed producers who are currently trying to use the QDS mechanism to produce forage seeds.

## **IR 2.2 Strengthened interface and collaboration between development and relief to resilient and market-based seed systems**

### ***Sub IR 2.2.1 Seed System Security Assessments in Feed the Future Crisis Hotspot areas (focus on formal, semi-formal and informal seed systems) are adapted and scaled.***

#### *Activity 2.2.1.1 Lead or backstop SSSA acute assessments, inputs to locust and/or Coronavirus response planning, according to demand (core).*

##### *Achievements:*

Due to a lack of demand for SSSAs, this activity was revised in response to the COVID-19 pandemic and developed two outputs: (i) Guidance for Emergency Seed Interventions during the COVID-19 pandemic and (ii) draft tools for rapid and remote Seed System Security Assessments (R-SSSAs). The COVID-19 guidance<sup>9</sup> was drafted in collaboration with the Global Food Security Cluster and is also available in French and Spanish. The R-SSSA tools were reviewed by six gFSC partner agencies. The revised tools and guidance are now ready for field testing with gFSC partners.

##### *Learning:*

The gFSC provided an effective collaborative platform that could be quickly mobilized for the development of the COVID-19 guidelines. The lack of demand for SSSA backstopping in FY20 is thought to be due to the large amount of time and resources required to conduct an SSSA. In contrast, there is considerable interest from multiple agencies in the R-SSSA tools. Collaboration with gFSC has enabled us to expand the scope and scale of the R-SSSA pilot.

### ***Sub IR 2.2.2 Emergency and humanitarian responses that link relief to development, especially links to private sector and formal and biodiverse suppliers are developed and promoted.***

#### *Activity 2.2.2.3 Completion of DiNER studies in Southern Africa and Latin America (core).*

##### *Achievements:*

The DiNER Fair evaluation study in three Southern Africa countries—Madagascar, Malawi and Zimbabwe has been completed (Raboanarielina, et al, 2020). The cash versus voucher study in Guatemala report (CRS, 2020b) and the voucher fair assessment in Nicaragua report (CRS, 2020c) have also been completed.

##### *Learning:*

Various learnings have been extracted from the DiNER fairs' review in Southern Africa and Latin America. For Southern Africa DiNERs, agriculture productivity improved but climate shocks affected overall harvests. The crop diversity did improve for some household farms and farmer participants recorded changes in children under five consumption patterns after the fairs. The effect of DiNER fairs on income proved to be complex even though farmer participants reported that the fairs had significant changes in their lives. On the suppliers' side, some businesses did adjust their business models to reach the last mile farmers, particularly women, and said the DiNER fairs had positive impacts on their businesses. In the Guatemala study cash was preferred by participants and project managers; both cash and voucher fairs not only increased business for participating vendors during the period of the fairs, but also appear to have created new longer-term clients for two of three vendors interviewed, thus potentially expanding their markets. In addition, cash fairs were less costly to operate, needing fewer staff than voucher fairs while onsite management of the fairs was simpler.

In the Nicaragua study, smaller vendors believed that they were capturing clients and thus growing their business over the longer-term. This effect on smaller, more localized seed businesses closer to farmers can be one means of developing more sustainable last mile delivery of quality seed. Allowing non beneficiaries to

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<sup>9</sup> [https://fsccluster.org/fsc\\_agriculture\\_wg/document/guidance-emergency-seed-interventions](https://fsccluster.org/fsc_agriculture_wg/document/guidance-emergency-seed-interventions)

purchase seed with cash after the end of the voucher fair, while complicating management, encourages vendors to bring a larger supply of quality seed and enables them to further expand their client base. Efforts could have been made to increase women's influence in the fairs. Potential approaches include: supporting couples in improving communication and joint decisions; including gender messages in the agriculture-related programming that complemented the fairs; offering separate vouchers to women and men in the same household; and including women's preferred crops (often vegetables) in the offerings.

***Sub IR 2.2.3 Emergency and development seed programs to capture market opportunities are leveraged.***

*Activity 2.2.3.1 Review DiNER/seed vouchers and fairs and their sustainable link to private sector (core).*

*Achievements:*

One review paper (CRS, 2020d) has been drafted and will be submitted to USAID for review.

*Learning:*

Fairs appear to have a longer-term impact on more local (last mile) suppliers, enabling them to capture and retain clients. In Southern Africa, fairs have resulted in some expansion on where suppliers sell and who their clients are, but there is a need to collect consistent information on the private sector effects of fairs. Consistent tracking of outcomes is also needed, possibly through a standardized set of indicators and tools. A central repository for information on fairs would enable institutional learning.

*Activity 2.2.3.2 Facilitated consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response (core).*

*Achievements:*

This activity was revised and will develop a two-page think piece on recent developments, challenges and innovations with direct seed distribution, to be drafted by end November 2020.

*Learning:*

Large-scale government free seed schemes are shifting towards market-based e-voucher programs in some countries, e.g. Uganda, Kenya, though not in others, e.g. Malawi. The paper explores what is driving this shift. New approaches to climate resilience involving crop and seed insurance are also described.

### 3.5 Cross-cutting Activities

#### **CCIR-1 Improved effective policy implementation and regulatory formulation for pluralistic seed systems**

##### ***CCIR 1.1 Country specific seed policy road maps developed.***

###### *Activity CCIR 1.1.1 Finalize the global seed policy review (core).*

###### *Achievements:*

CRS and New Markets Lab (NML) completed the global policy review. The study presents a framework that evaluates how regulatory flexibility can be built into seed systems to engage farmers of all sizes. The review focused on two dimensions: (i) extending market frontiers (who can sell what seed, which crop-varieties, where); and, (ii) liberalizing seed quality control mechanisms (ranging from formal seed certification to quality declared seed (QDS) and self-certification). Extending market frontiers directly impacts whether farmers can access seed of the right quality and variety at the right price to increase on-farm productivity, while seed quality control mechanisms affect the quality of seed available in the market. CRS and NML disseminated these results through a webinar on March 31, 2020 and blogged on Agrilinks website in June. The final report received feedback from our donor partner and S34D is currently addressing those comments.

###### *Learning:*

There is not a “one size fits all model” for seed regulation, and, in some cases, variations in regulatory systems highlight important pathways for improving access, availability, and affordability of quality seed. National and local governments can adapt policy and regulatory options to local priorities and agroecologies, thus improving biodiversity and strengthening public-private partnerships in the process. As confirmed by the expert consultations conducted and case studies reviewed, regulatory flexibility can be built into even more formal, structured seed systems, creating space to expand the market frontier of a wider range of crop-variety combinations and bridging gaps between formal and informal seed systems.

Within the market, regulatory “gateways” appear at different stages of the seed value chain that affect farmers’ ability to participate in different activities. A regulatory gateway can take the form of a regulatory requirement to participate in the market (such as registration as a seed producer), link between one regulatory process and another (seed must be registered and certified in order to be sold), or condition on market engagement (for example, the need to have a business address or meet a revenue threshold). While these gateways can present obstacles for informal actors, they are also some of the most useful intervention points for both policymakers and practitioners to bring about change in the regulatory and seed policy space.

Producers of some types of seed are better able to navigate formal seed systems (such as hybrid seed producers), while others may struggle within these systems. Regardless of the regulatory approach a government selects, revealed demand (or market pull) is a necessary condition for improved access and availability of seed, and application of legal and regulatory flexibilities will work best when the market demand for a variety exists.

##### ***CCIR 1.2. Practices to expand and liberalize seed quality possibilities developed and implemented; market outlets and venue expanded; counterfeit seed issues addressed; free seed distribution restricted.***

###### *Activity CCIR 1.2.1 Assess policy implications of the niche market business model in Kenya (core).*

###### *Achievements:*

The first agricultural season pilot was conducted in 2019. The second season was targeted for the long rains in March 2020, but given the niche variety Nyota is not suitable for long rains, the second pilot was cancelled

and instead will be conducted during the short rains in October 2020. Between March to September 2020, ABC-PABRA facilitated several dialogues with KEPHIS and KALRO. The most important one is on the use of *boda boda* riders to serve as last mile agents for agro-inputs – specifically new varieties like Nyota.

#### *Learning:*

Agrodealers and farmers can hire motor bike riders to deliver agro-inputs including seeds and pay them for the service. While KEPHIS allows these one-off services, it does not allow motorbike riders to distribute seeds from farmer to farmer or shop to shop, also referred to as hawking. The law does not allow this. Using the niche model, S34D is facilitating discussions with KEPHIS to regularize use of motorbike riders (*boda boda* riders) for distribution of seeds. This would require that they be a properly branded delivery-on-demand service or attached to agrodealers or seed companies for accountability.

The second season pilot is ongoing in October 2020, and the results will be shared in FY21 Q2.

#### *Activity CCIR 1.2.2 Assess policy implications of the yellow bean field study in Tanzania, Kenya, and Uganda (core).*

#### *Achievements:*

Given that the yellow bean studies were not conducted in additional countries, CRS revised the activity to undertake an evaluative learning question around what incentivizes private seed companies to expand their crop-seed portfolios. S34D surveyed 21 private seed companies in Kenya, Tanzania, and Uganda to collect information on the research topic. These companies were evenly split between national companies and those that are regional and international. S34D analyzed the results and produced first draft of the findings. The report is being finalized for dissemination in November 2021.

#### *Learning:*

Seed companies have cited the need for a stronger partnership with the CG centers and that breeding is participatory with the companies so the latter can help in rolling out new varieties onto the hands of farmers. Climate-smart (e.g., shorter duration), disease resistant, and nutrient-dense varieties have high-demand. Support from CG centers around technical capacity building and knowledge dissemination of the new varieties was stated as an important need by several companies interviewed. Basically, there needs to be a stronger interface between R&D and commercial marketing and development — R&D alone is not enough.

Production areas are often further away from where seed inspectors are located, thus increasing inspection costs. Such high costs are barriers for small companies to expand their businesses to other crop-seeds. A few large companies indicated the difficulties faced due to inconsistent and opaque seed regulatory and policy guidelines. This has policy implications on how we could introduce flexibilities in regulatory compliance so they could be made more “local” and closer to where production takes place. There is a great opportunity to learn from other developing countries (such as Vietnam). Greater advocacy efforts should be in place to reduce the VAT on products and seeds.

Awareness creation is expensive – especially for the local and national companies. But almost every company sampled stresses the need for real-time data and transparent information on markets. Seed demand forecasts are extremely difficult for companies to undertake, and those that have attempted found it quite expensive. Most companies suggested the national government to increase information collection and sharing about market demand for new varieties. Currently there is no system in place whereby national governments collect and share data and information about markets and forecasts on demand for certain varieties. Market intelligence is not systematically gathered nor shared. Public-private partnerships with the CG centers were suggested to conduct joint market surveys and create demand for new varieties. Distribution of free seeds by the national governments poses a challenge to predicting market demand. About 40% of the companies surveyed suggested incentives for farmers to adopt and use certified seeds through training and extension services. These incentives could be provided through partnerships formed by public and private entities or even by development partners during implementation of their programs on the ground. Farmers on their own lack incentives to invest in their own training and building capacity to learn and use certified seeds -- especially of a

new variety. They are more comfortable just following the practices and varieties they are used to. So when we are looking at new varietal adoption and scaling up of initiatives, those efforts should not just be with CG centers, NARs or seed companies -- they need to involve farmers as well and provide them with the tools and knowledge to build capacity. Left on their own, they will not have any incentives to invest in building their own capacities to use certified seeds of new varieties. They will stick to saved seeds of existing varieties.

*Activity CCIR 1.2.3 Facilitate implementation of standard seed in Kenya (core).*

*Achievements:*

S34D facilitated the draft of the standard seed protocol covering ten non-hybrid crops. This draft was validated by stakeholders. Five farmer group seed producers and at least two seed companies expressed interest in producing seed under standard seed protocols during the pilot phase during the short rains of 2020 (starting October 2020). It is important to note that this is a new certified seed class. Two of these entities are women-led. The draft protocol (AE, 2020c) will be shared with USAID.

*Learning:*

In the beginning, KEPHIS moved slowly with the development of standard seed protocols. However, once the KEPHIS Board indicated support and questioned why there are low certified volumes of non-maize crops and hybrids, progress started to move much faster. Because of COVID-19 restrictions, KEPHIS finalized the draft protocols by holding virtual meetings with its regional office staff, at a time when gatherings were not allowed due to COVID-19 restrictions.

***CCIR 1.3 Linkages and coordination of seed development efforts through consolidation of data and evidence are strengthened.***

*Activity CCIR 1.3.1 Conduct a learning study about private sector seed certification processes, approaches and counterfeiting measures in Zambia (Mission).*

This activity was cancelled and removed from the FY20 AWP. It is now listed as a potential activity for Mission funding.

*Activity CCIR 1.3.2 Conduct a learning study on national seed reserve systems with examples from other countries with implications for Ethiopia (core).*

*Achievements:*

Livestock plays a key role in Ethiopia. Ethiopian livestock sector contributes from 35% to 47% of agricultural GDP. Ethiopia has experienced severe droughts in the past few decades. The drought-prone areas also have large livestock populations. Therefore, S34D refined the activity from a national seed reserve to a “feed reserve” where the feed would be based on cultivated forages for high nutrient content. The production of high-quality forages is in turn dependent upon a reliable and well-functioning forage seed system, thus bridging gaps between development and emergency seed systems.

S34D completed a survey with stakeholders from India, Mexico, and Tunisia to assess and evaluate the potential for densified cultivated forage-based products such as pellets. S34D estimated costs and benefits; documented lessons learned; and, scoped out roles for youth and women for such potential businesses in Ethiopia. S34D also collected case studies on feed reserves in Mongolia and India. Cultivated forage-based feed is high in nutrition content, can be densified into pellets for easy transport to drought prone areas during emergencies, and can also cater to output markets such as commercial fattening and quarantine facilities. Currently, S34D is finalizing this activity output and will disseminate the findings including business propositions and model scenarios for Ethiopia in FY21 Q1.

*Learning:*

Manufactured feed cost could increase by almost 20% during drought periods. Market distortion also takes place due to purchase of feed ingredients, particularly of hay, grains, brans and oilseed cakes in high amounts for distribution into the drought affected areas. The free distributions by NGOs and international organizations pose marketing and profitability challenges for the private sector.

The easy handling, transportation and storage of the cultivated forage-based densified feeds such as blocks or pellets, coupled with their good nutritional quality and shelf-life, offer an attractive possibility to overcome feed deficits in Ethiopia and for establishing feed banks in the drought-prone areas. The cultivated forages could also be turned to hay, baled, and transported. The nutritional quality of baled hay from cultivated forages is higher than that of baled hay currently being prepared from native grasses in Ethiopia. Furthermore, the cost of nutrient supply to the animals would be lower using cultivated forages.

The baled hay prepared from native grasses in Ethiopia is low-quality (Crude Protein of approx. 6%), cannot support maintenance of animals, and often leads to reduced productivity and possibly weight loss. In addition, the analysis reported in this study shows that the cost per unit of nutrients is much higher from native grass hay than cultivated forages. As an example, at the site of production the cost per unit of crude protein and metabolizable energy from hay prepared from native grasses in Ethiopia is almost 14 and 8 times respectively higher than those for Panicum.

Based on the case studies from Kenya, India, Mexico, and Tunisia, women and youth could play a key role in the densified forage market products. Currently, women are involved in forage harvesting, collecting, drying, feeding and dissemination of the technology. Feeding of pellets and blocks takes less time, which is attractive to both the youth and women. Innovative nature of the technology is attractive for youth. Both youth and women have role in running of the densified plants. Increased use of the technology would create new employment opportunities. In addition, enhancing skills to produce formulations, operate and maintain the machines and run the densified forage production as a small business would attract youth in this innovative technology.

## **CCIR-2 Established enhanced quality information flows for seed systems**

### ***CCIR 2.1 Institutional and public policy information is better digitized.***

There were neither activities planned nor implemented in FY20 under this Sub IR.

### ***CCIR 2.2 Tools and technologies to capture quality information about seed supply in a geo-referenced manner are developed.***

*Activity CCIR 2.2.1. Assess the nature and genetic quality of seed (different grades) and grain of yellow beans produced and traded using DNA fingerprinting (Linked to activity 1.2.1.1) in Tanzania (core).*

#### ***Achievements:***

The DNA analysis was completed and findings incorporated in the final yellow bean survey report (see activity 1.2.1.1). Although the final draft of the yellow bean study report was not validated by the national stakeholders, it has been submitted to USAID for review.

#### ***Learning:***

The two things that stand out include i) traders deal in mixed yellow beans that include landraces and improved varieties, and ii) the most traded varieties were of released types. It is important to note that the formally released varieties date back to as early as 1998 and up to 2018 and though DNA fingerprint is an accurate means to determine the variety identity, additional and more precise markers are needed to differentiate closely related varieties.

Although the idea to strengthen the reference library that had been developed under Tropical Legume III project (TL3) was planned this FY, it was not implemented. Under TL3 ABC (then CIAT) had identified 44 SNP markers that were used for quality control (QC) purposes. S34D was originally planning to validate this set of markers and source additional markers by genotyping more varieties. The improved and validated set of QC markers was to be used on the yellow beans in Tanzania. S34D also initiated a breeder seed collection of additional materials that were missing during the development of the QC marker set under the TL3 project but proceeded to utilize the existing QC marker set for this activity.

*Activity CCIR 2.2.2 Work with national and regional stakeholders to develop a technical road map (framework) for demand estimation / forecasting in Ethiopia (core).*

*Achievements:*

Currently there are no manuals or guidelines on how demand forecasting for seeds is undertaken in Ethiopia. The objective of this activity is to fill in that gap by documenting how the process works at present. S34D used area under cultivation and production estimates to derive the top priority crops for which demand forecasting is particularly important. Those crops are teff, barley, wheat, maize and sorghum. In coordination with MoA, Regional Bureaus of Agriculture (RBoA) and Central Statistical Agency (CSA) a data dictionary was created. The dictionary shows the types of data (and its disaggregated categories) collected by different branches of governments and institutions which are useful for seed demand forecasting.

Survey instruments were finalized and tailored for specific government branches and national / regional institutions, and finalized the sample of institutions and regions where the survey will be conducted. This survey will provide a systemic analysis and understanding how the various components fit together to forecast market demand for seeds, the methodology used, and the gaps or challenges that need to be addressed. The manual will be disseminated in FY21-Q2.

*Learning:*

Due to the COVID-19 pandemic, this activity has moved a bit slowly. Furthermore, this activity is quite a challenging task, which if tackled could be a game changer in the seed sector. Therefore, due to its unique nature, a lot of thinking is needed to be done prior to any outreach. The turn-around time is also high in these times.

***CCIR 2.3 Last mile markets for new and quality-assured seed varieties are enabled by developing, piloting, adapting, and scaling feed-forward and feedback mechanisms that loop farmers' preferences, as well as provide information on new varieties and quality assured seed***

*Activity CCIR 2.3.1 Continue monitoring feedback for the new biofortified bean varieties disseminated for the niche market business model using ICT in Kenya (core).*

*Achievements:*

In Kenya, a survey instrument for collecting customer feedback of new high-iron bean variety Nyota was designed. CRS conducted the survey over phone in February 2020 after the harvest period and received feedback from 91 farmers. The objective was to learn about varietal performance. The data were analyzed and results were documented in a report. The report was shared with ABC-PABRA for inclusion into the larger niche market business model report. In addition, the findings were disseminated at the stakeholder workshop in Eldoret, Kenya.

*Learning:*

Nyota variety performed very well. Most respondents (92%) said the variety performed very well with respect to quality, and 72% of the respondents remarked about Nyota's trait as having early maturity. 79% of the respondents said they would purchase Nyota again. The majority of the farmers used the harvest either as

food or saved the seeds for next season. Very few farmers said they would sell their harvest at the market as grains.

For male farmers who said they would buy the Nyota variety again (50 respondents), there were additional comments about their experience. A few male farmers mentioned that the bean does well even with less rain. Nearly a quarter of male farmers mentioned heavy rains negatively affecting the harvest. Because the conditions this past rainy season were harsh, many farmers did not see the returns they were hoping for. However, despite the heavy rains, many of these male farmers noted that the bean grew well (flowering) and thus are willing to try it again. A small number of male farmers mentioned they would like some additional assistance from extension workers on agronomic practices. One male farmer noted the Nyota variety did better compared to some other varieties he was harvesting.

Of the 16 female farmers who said they would plant Nyota again, half of these farmers noted difficulties with heavy rains affecting the harvest. One woman noted the good flowering of the plant. This same farmer wanted to know if it would be better to use the harvested seed or buy new seed. Another woman said she would be using some of the saved seed for the next planting season. She also noted that people in her neighborhood were interested in buying some of the seed.

Activity CCIR 2.3.2 Pilot SMS-based farmer feedback loop on seed quality (“Stop Bad Seed”) in Tanzania (core).

Achievements:

Four telephone companies were mapped so as to be able to send bulk SMS, and the SMS system has been set up with questions. The questions were tested with 13 farmers (three women) to ensure the questions would be understood and correctly interpreted. After receiving the feedback, the anomalies were corrected. Draft talking points for the campaign were developed and three posters were designed and can be seen below.



However, the campaign could not be carried out because the period which was allocated for the radio campaign coincided with the Tanzania presidential election campaign period causing anxiety from the regulator, TOSCI, that there could be negative effects (politically) if a campaign to promote speaking up about low quality seed were to be aired during the political campaign season.

*Learning:*

Radio campaigns are strongly influenced by politics, hence messages that reference possible negative experiences by farmers are discouraged during political campaigns.

## 4. Monitoring, Evaluation and Learning

The purpose of this section is to depict key achievements and learnings that are strategically important for S34D, progress against S34D performance indicators (as reflected in the IPTT), and a few anecdotal stories.

### **Coping with COVID-19: Learnings from private seed companies, East Africa**

S34D conducted an evaluative learning around what incentivizes private sector actors to expand their crop-seed portfolios beyond maize. As part of that study, S34D investigated examples of coping mechanisms that companies practice to adapt and survive during the ongoing pandemic. The following three examples bear implications for government and policymakers, and for development partners on how to design better interventions that bring policies, practices, knowledge, and access to improved seed varieties closer to last mile beneficiaries in the agriculture sector.

#### *Example 1. Assuring quality standards for seeds*

Limited quality assurance standards from government during COVID-19 led seed companies to ensure quality standards are enforced on their own. In Uganda there are no licensed private seed inspectors, so companies in Uganda adopted and strengthened their internal quality assurance mechanisms to ensure quality-assured seeds are produced. In Kenya, however, there exists licensed private seed inspectors, so seed companies in Kenya employed those private seed inspectors to maintain high-quality standards.

#### *Example 2. Branding the demonstration plots in local vernacular language*

Two local and two regional seed companies in Tanzania adopted mechanisms to disseminate knowledge about new varieties by branding the demonstration plots in the local languages, as it was not possible to transport staff and resources at the plots themselves. The branding has all the information about the variety and does not need company staff to explain to the public/farmers visiting the demonstration plots. This helps reduce physical contact with the farmers/public during the COVID-19 pandemic. Additionally, such practices have helped seed companies save resources by not having staff at the demo plots.

#### *Example 3. Establishment of rural kiosks to increase access to seeds at last mile*

Although this was not pertaining to a particular S34D FY20 activity, for an evaluative learning question, S34D interviewed 20 seed companies to better understand what incentives they would need to expand their crop-seed portfolio beyond maize. These are the learning from those interviews. A company in Uganda has decided to roll out kiosks in rural parts of the country. These kiosks are semi-permanent structures that are used by the seed companies to distribute seed in rural areas. The input kiosks will sell certified seeds and other inputs like fertilizers and agro-chemicals to provide farmers a full package of inputs. The kiosks will be operated by female youth selected by the farming communities and contracted by the seed company to sell certified seed and other inputs to farmers located within their communities. The kiosks will be located in villages where it is extremely hard for farmers to reach traditional agrodealer shops (typically located in town centers). Ultimately, the kiosk beneficiaries will own the kiosks and operate them, and the seed company will train the beneficiaries in agronomy, business management skills, best practices, and knowledge management of the products so the input agents will be able to support the farmers and grow the business over time.

The Ugandan Ministry of Agriculture Animal Industry and Fisheries allows input shops to sell certified seeds and other inputs but they must be registered with the ministry. Initially, the sellers will be agents of the seed company, but over time, the seed company will support the beneficiaries with the registration process since they will have to be trained to get certificate of operation as input agents especially in chemical safety and handling.

## Diversity for Nutrition and Enhanced Resilience (DiNER) Fair interventions and resilience – lessons from Southern Africa

Data collected from Diversity for Nutrition and Enhanced Resilience (DiNER) Fair interventions in Madagascar, Malawi and Zimbabwe suggest the fairs had positive short-term impacts on agricultural productivity and household income, but limited longer-term impacts on household resilience to climate change. Farmers who purchased seed at DiNER Fairs saw improvements in production levels either due to increased productivity or planting more seed, but the fairs did not assist farmers for adverse weather such as severe drought. Whilst crop diversity increased for some participants, more information is needed to understand if access to the seed altered the crop proportion on the field and if drought or disease-resistant varieties replaced other varieties.

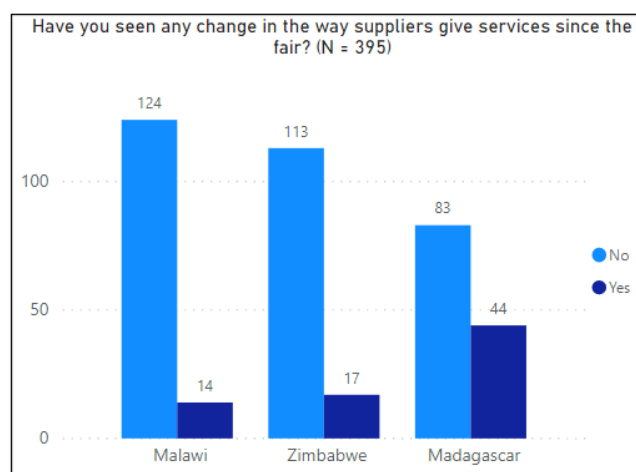
More fair participants reported that they felt immediate income effects than those who reported long-term income opportunities. Climate factors affected the income earned. For most participants, the most significant life changes from participating in a DiNER Fair were the consumption of more food (all three countries) and food being available for more months (Malawi). Paying school fees was another significant life change for Madagascar farmer participants.

In terms of seed system resilience, DiNER Fairs did help shape how some suppliers engage with clients' post-fair, but a more strategic approach is needed to strengthen this expected connection. Some (25-50%) of the supplier participants made changes to better serve farmers after the fair: selling location, expanding client base, packaging of products, communication practices with clients, transportation of products (i.e. being closer to clients), and who is selling the product (i.e. hired female staff). Some suppliers could identify the needs of specific client types, and 59% of suppliers stated that the fairs have changed the relationship between them and the communities with which they work. Businesses sought to understand the different needs of their female clients' post-fair (21/34). Three businesses are working with local agrodealers to supply varieties that women prefer; three hired female salespersons to engage female clients; and nine developed targeted communication strategies for female farmers. However, 22 businesses did not feel it was applicable to have specific ways to reach female clients with products.

Farmers, on the other hand, did not see these changes (Table 1); this is perhaps explained by the short-term nature of the three projects (all less than 20 months), lack of an explicit market development objective and vendor location - many the suppliers came from distant towns and did not serve the local area.

The findings above suggest that the current ways in which DiNER Fairs are programmed may need to be adjusted if they are to help build resilience at the household level. DiNER Fairs should be part of larger project that layers complementary activities, particularly extension services to support products bought at the fair, climate-smart agriculture practices to address climatic factors, nutrition knowledge to guide voucher purchases and post-fair use, gender consideration, and business skills. Although the DiNER model is gender-sensitive, particularly in ensuring women benefit equitably during a fair, further engagement with vendors on offering gender-sensitive services post-fair is needed. To achieve enhanced seed system resilience, greater attention is needed in designing the supply side of the DiNER Fairs such that they can provide an

**Table 1: Farmer participants response to “Have you seen any change in the way suppliers give services since the fair?”**



opportunity for continuing businesses that serve remote or vulnerable clientele. Local suppliers and vendors should be recruited, that is, those who might serve the community on a continuing basis. The programming could involve design of explicit process links i.e. fair event to post fair ongoing business. Complementary programming could be offered to suppliers on making their services more gender sensitive such as specific business strategies targeting women.

### **Coping with COVID-19: Digital training and certification of seed inspectors in Zambia**

The Seed Control and Certification Institute (SCCI) of Zambia is the designated seed certification authority mandated with the responsibility to regulate the seed industry and to ensure high-quality, certified seed is marketed in the country. Zambia's seed industry is decentralized by law, through licensing of seed quality control services to private seed companies. Therefore, Zambia has a long history (over thirty years) of collaboratively working with the private sector to ensure that high-quality seed gets into the market. However, since most of the private companies focus on hybrid maize production, Zambia has become a powerhouse in the region in maize seed production. Seed certification standards of non-maize crops lag behind, and both private seed companies and SCCI admit the country needs a form of specialization in key non-maize crops (such as groundnut, soybean, common bean, cowpea and OPV sorghum). This gap led to the S34D support for the training and certification of non-maize inspectors.

#### ***Changes arising from COVID-19***

Soon after the first confirmed COVID-19 case in early March in Zambia, the government-imposed measures restricting movement and gatherings. The annual inspector training for private inspectors could not take place. To counter this, the training was revised to a hybrid training of both maize and non-maize inspectors, to include virtual aspects for the formal training, and physical training for the field modules where participants could easily be split into smaller groups for different locations/crops, thus ensuring social distancing.

In order to make the virtual training possible, it was necessary to review the curriculum and modify the materials for online use, shoot videos for demonstration, pre-record videos of some of the modules, and train the instructors on use of virtual training platforms. Thirteen instructors from three institutions, namely SCCI, University of Zambia and the Zambia Agricultural Research Institute reviewed and adapted the curriculum. A total of 26 presentations were reviewed in line with the reviewed curriculum and packaged for the online training, 25 videos were recorded to demonstrate seed field inspections and seed sampling, and 16 presentations were pre-recorded and given to participants to listen to at their own time.

#### ***Lessons***

Typically, SCCI trains, tests, and certifies between 30-40 inspectors each year. However, the online training attracted 68 participants, with 65 taking the final test. Seed companies were willing to sponsor more participants, partly because of lower costs due to eliminating the need for accommodation and living expenses for an entire week, and staff could still be on company premises and respond to urgent work as required. Malawi and Mozambique joined to take advantage of this mode of training, also training the public inspectors attached to their respective Ministries of Agriculture. Going forward, government and policymakers could learn from this example on how to leverage digital applications and media of exchange to transfer knowledge and build capacity of seed system actors and achieve a greater outreach.

### **Densification of cultivated forages: Case of pellets and roles of youth and women**

#### ***Importance of cultivated forages***

Cultivated forages are of higher quality and digestibility than roughages such as crop residues. The crude protein (CP) of crop residues is between 3 and 5%, while those of cultivated forages is between 8 and 18% on dry matter (DM) basis. Additionally, contents of soluble sugars and other energy providing components are higher in the cultivated forages. These attributes of cultivated forages result in higher intake of nutrition by animals, leading to higher livestock productivity. Potential of legume forages to enhance feed quality is higher

than non-legume ones because the former have higher CP and lower fibre contents. A good mix of protein and energy makes cultivated forages good candidates for feedlot animals as well as dairy animals.

When the quality of feed resources including rangeland biomass in Ethiopia decreases (CP decreases and fibre increases) during dry season, supplementation of cultivated forages provides critical nutrients to animals, which increases livestock productivity. An increase in feed quality associated with inclusion of cultivated forage is also associated with a decrease in methane emission (a greenhouse gas) per unit of milk or meat production from ruminants.


A business approach to cultivated forages as fodder in Thailand illustrates how when the demand-pull from the dairy market increased, small businesses developed around forage cultivation (in this case for Napier grass) to respond to the increased need of animal feed. This not only resulted in higher income and larger herd sizes, but also, in employment of the youth. The take-away from this example is very relevant for Ethiopia - as the cross-bred dairy cow population is increasing in the country, the need for nutrient-rich feed will also increase. In the highlands, where currently forage crop cultivation is less economical compared to food and cash crops, the scenario might change. However, in order for that to happen there should be high-quality forage seeds available, as well as, the technical know-how to train farmers to fulfill the demand generated.

***Box 1: Thailand's business approach to fodder***

### Case Study: Business approach to fodder cultivation enhanced income, Thailand

**Napier Pakchong I grass cultivation' as a business enterprise**

Source and credit: CFC – OFID - FAO Funded Project FIGMDP 19



- Through a technical cooperation project implemented by Department of Livestock Production of Thailand with the technical support of FAO, an innovative approach was used to promote grass cultivation as a business enterprise.
- The farmers who had some surplus land and the unemployed youth who could lease land at reasonable rental rates were trained in the business of production and sale of high yielding high nutrient grass varieties.
- The annual earnings of the grass business farms were 62,500 Thai baht per hectare per year, approximately twice the earnings from rice from the same area. A total of 20 such grass business farm grew under the project.
- The productivity improvement also stimulated private investment by dairy farmers, resulting in larger herd sizes.

***Importance of densification***

Forages in loose form have low bulk density and hence are difficult to handle, transport and store. Densification technologies provide opportunities to increase the bulk density manifold and decrease the cost of transport and storage. The densification of forages could be achieved by baling, pelleting, block or cube/briquette making, or by simply chopping or grinding to reduce the particle size. Densification of forages to form pellets and blocks for animal feeding is more common in the livestock sector, while the cube or briquette making is widely used for energy generation in the bioenergy sector. The density of pellets is highest, followed by blocks and then bales.

Following safe transport guidelines, in a truck of 10-ton payload capacity, only 5-6 tons of bales can be transported versus 10-tons for pellets and blocks. Transport cost per unit of bales is higher than those of pellets and blocks. Likewise, storage volume and storage cost are higher for the bales. The costs per unit of nutrients (CP and energy) supply to animals are also lower from cultivated forages when compared to widely used feeds, implying lower cost of feeding to animals and higher profitability to farmers.

Cultivated forages are generally soft and easier to densify, while crop residue such as rice straw is very hard, requires more power to cut and hence needs specialized chopping machinery. Formation of a balanced diets from individual components by farmers requires knowledge of nutrient contents of the components, which generally is missing among livestock farmers in developing countries. The densified total mixed ration overcomes this constraint. The animals have tendency to select ingredients of high-quality and leave those of poor quality when fed in loose form. This enhances wastage and decreases efficiency of feed utilization. This constraint can also be mitigated through densification which does not allow animals to select ingredients.

**Table 2: Cost per unit of nutrients from cultivated forages, conventional feed ingredients, hay and concentrate feeds during normal and drought periods in Ethiopia**

Feed resources	Cost US\$/ton dry matter	Cost US\$/kg Crude Protein	Cost US\$/1000 MJ Metabolizable energy
<b>Cultivated forages</b>	10.91 – 61.46	0.097 – 0.340	1.299 – 6.681
<b>Protein sources: Oilseed cakes</b>	182.42 – 446.14	0.470 – 1.030	14.910 – 42.490
<b>Energy sources: wheat bran, maize</b>	195.20, 265.90	1.22, 3.32	17.27, 19.55
<b>Normal time</b>			
<b>Hay at production site</b>	88.0	1.38	12.57
<b>Concentrate feed at production site</b>	279.2	1.99	25.15
<b>Drought time</b>			
<b>Hay at production site</b>	135.0	2.11	19.29
<b>Concentrate feed at production site</b>	349.0	2.49	31.44
<b>Hay in drought areas*</b>	224.0	3.50	32.0
<b>Concentrate feed in drought areas*</b>	374.0	2.67	33.69

\*Drought areas approx. 600 km away from the production site

Furthermore, the intake of densified feeds is higher and so is the nutrient availability from the consumed feeds to the animals. The release of nutrients from the densified feeds is more sustained and synchronized with the nutrient requirements of animals. This decreases methane emission from ruminants and enhances the feed use efficiency (FAO, 2012).

According to an FAO study (Gerber et al., 2013; Makkar, 2018), at a global level, feed production and processing contributes 45%, and rumen fermentation an additional 39% to the total greenhouse gas emission from the livestock sector. Inclusion of green forages enhances the feed quality which decreases methane from the ruminants: the higher quality, more balanced nutrient composition of a feed, the lower methane emissions (Garg et al., 2013; Makkar 2018). The use of densified products as animal feed offers an attractive option to mitigate ongoing climate changes in addition to enhancing livestock productivity and production.

The introduction of densification technology could improve preparedness against natural calamities and save animals from hunger and death during these emergency situations. The blocks or pellets can even be air lifted to the remotest places to avert disasters. Besides the benefits provided by easier transport and storage, feed blocks or pellets make it possible to supply feeds of uniform quality throughout the year, with lesser price

fluctuation, as against the large price fluctuation and irregular supply of feeds and other feed ingredients in different seasons.

Most farmers are aware of using feed in the form of pellets and therefore the adoption of forage-based pellets is expected to be easier and faster compared with that of the forage-based blocks. Storage, for example in the warehouses of World Food Program (WFP), National Disaster Risk Management Commission (NDRMC) and cooperatives, of densified products in the form of pellets or blocks well before the drought hits, and their distribution at the time of emergency could save a large number of livestock. This would help protect livelihoods of many pastoralists.

### *Takeaways from the case studies*

With the aim to understand the viability and practicability of turning grown forages into compacted forms (e.g. pellets/cubes/leaf meals/blocks in Ethiopia), a questionnaire was developed to learn from the experiences from India, Mexico, Tunisia and Kenya.

A wide range of forages are cultivated, both under irrigation and rainfed conditions. Feeds in the densified form, as blocks or pellets, are used in locations as far as 1500 km from their production sites. In India, over 70% of the grown forages are used in the fresh form. In Tunisia, the use as fresh forage is only 30% while it is used as hay to the extent of 50%. The use of forages is largely (90%) as pastures in Mexico. Currently, pellets and blocks are used in the countries (India, Tunisia, Kenya and Mexico) surveyed, but their use is very little. However, all respondents see a high potential of these new products to be used as animal feed. The adoption rate varied from 5% in Mexico to 20-40% in India. Youth and women find the innovative nature of the technology attractive. Increased use of the technology would create new job opportunities for youth and women.

**Table 3: Benefits of densified feed and roles of youth and women from the stakeholders' perspectives**

	India	Mexico	Tunisia	Kenya
<b>Benefits of densified feeds</b>	Less wastage, higher animal productivity, ease of feeding, smaller storage space requirement, lower transport cost and non-selection of feed ingredients by animals and as a result better utilization of poorer quality ingredients, prevention of fire which could result on storage of forages in loose form	Ease of handling, no wastage because all is consumption by animals, lesser storage space requirement and increase in animal productivity.	Ease of storage and feeding, and efficient use of locally available feed resources.	Ease of storage or transportation while maintaining good quality. Lesser time required for feeding.
<b>Role of women &amp; Youth</b>	Currently women are involved in forage harvesting, collecting, drying, feeding and dissemination of the technology. Feeding of pellets and blocks takes less time, which is attractive to both the youth and women. Innovative nature of the technology is attractive for youth. Both youth and women have role in running of the densified plants. Increased use of the technology would create new employment opportunities. In addition, enhancing skills to produce formulations, operate and maintain the machines and run the densified forage production as a small business would attract youth in this innovative technology. It is also expected to stop the migration of youth which is of particular importance during the COVID-19 situation.	Increased opportunities for the youth in the densification business are anticipated. The reasons being: the products are innovative, youth are more open to new technologies, and they have recent knowledge and aptitude of rearing animals on scientific basis	Women are exclusively in charge of feeding and their role in feeding of pellets or blocks would be vital. The youth could participate in operation and repair of the machines after undergoing vocational training. They can also participate in the transport of densified feeds, from the factory to the livestock farmers.	Women play key role in feeding livestock and would benefit from easy access and storage of forage pellets and from lesser time required for feeding. For youth, opportunities exist in production of forages and processing.

### Case studies on feed reserves – Mongolia and India

The densified feeds in the form of bales, pellets or blocks can be easily transported, stored and fed. These merits provide opportunities for establishment of strategic feed reserves in the form of feed banks, which could improve preparedness against natural calamities and save animals from hunger and death during the emergency situations. The densification also makes possible the supply of feeds of uniform quality throughout the year, with lesser price fluctuation, as against the large price fluctuation and irregular supply of feeds and other feed ingredients in different seasons. This could help stabilizing prices of animal source products, irrespective of seasons. These benefits are illustrated through the following two case studies.

**Box 2: Mongolia, Fodder (hay) storage for winter in Mongolia (photo: Harinder Makkar)**



- Mongolia has very long, harsh winters with temperatures reaching as low as -40°C to -50°C. Mongolia has around 75 million livestock heads and approx. 74% of all families that own livestock earn their living from livestock herding. Livestock is the only source of livelihood for pastoralists, comprising of 35% households.
- In Mongolia, public and private stakeholders including federal, provincial and district level governments take part in storage of feeds for the severe winter period.
- By issuing resolutions the Government sets the targets of feed supplies for the winter, including volumes of emergency feed reserves to be prepared at aimag (province) and soums (district) level and by herders.
- To support herders, the Government of Mongolia also imports hay and fodder from the Russian Federation.
- Increased investments in improving feed availability and strategic feed reserves for the winter periods is one of the important points in the action program of the Government of Mongolia for 2016-2020.

**Box 3: India, Biomass bunkers for storing dry fodder in various locations (photo: NDDDB, India)**



- In arid areas the prices of crop residues nearly double during the dry season.
- National Dairy Development Board (NDDDB) of India implemented a holistic 'Crop Residue Management Model' under the National Dairy Plan (NDP) Phase I.
- Pick-up' devices for securing crop residues from the fields and balers for enhancing their bulk density were provided; and 'Biomass bunkers' for long-term storage of the crop residues were established in the Cooperative Institutions.
- A total of 119 such bunkers have been established under NDP Phase 1 and cost of each of these bunkers is approx. Rs 1 million (\$1 USD = Rs 73). These are managed by Milk Unions and village based Dairy Cooperatives. In the dry season, these storage facilities result in saving of 30 to 50% in the cost of purchase crop residues, which form almost 50% of the diet.

## Success story on digital Technology – S34D and Kuza

S34D and its partner Kuza One were featured in a Feed the Future article, "Young Entrepreneur Rethinks Future, Pursues Rural Agribusiness." Kuza's ONE Network – a digital platform to connect agripreneurs with farmers and input and output services – enables youth agripreneurs to grow their businesses and customer bases.

## Young Entrepreneur Rethinks Future, Pursues Rural Agribusiness<sup>10</sup>

*This article in brief:*

- *Young people in Kenya struggle to find sustainable ways to make a living.*
- *Those unable to find well-paying jobs in the city are taking what they learn in urban areas back to their rural roots and building careers in agribusiness.*
- *Feed the Future is empowering young farmers and strengthening seed systems through training and mentorship.*

In Kenya, young people regularly face barriers to earning a sustainable living. These hurdles are even higher for those working in agriculture, as they often don't own land and have a difficult time obtaining loans. While many leave rural farming communities seeking better job prospects and higher incomes in urban areas, many don't see great success.

Today, however, more young Kenyans like Lenah Mwangi, a 29-year-old graduate who studied commerce accounting at the University of Nairobi, are following their passion for farming and taking the skills learned from their university studies and urban jobs and applying them to careers in rural agribusiness.

With help from programs like the Feed the Future Global Supporting Seed Systems for Development (S34D) activity that provide research and mentorship and forge private sector partnerships for farmers, more agriculture entrepreneurs like Mwangi have viable opportunities for growth and social change through farming.

### *Going back to farming roots*

Mwangi is from Njoro, Nakuru County, an agricultural town on the western edge of the Rift Valley. She started a clothing business to help pay for her tuition when she attended the University of Nairobi and grew it into a lucrative enterprise after graduating. But she wanted to be closer to home and focus on farming, so she sold her clothing business to fund a rural agribusiness.

Mwangi realized she could leverage her business-savvy mindset and apply the same entrepreneurial skills she used to grow her clothing business. She researched the supply chains for crops and livestock. She then experimented with growing peas, maize, beans and poultry. She also created a group for young, local farmers to access funds from the government and other organizations. Mwangi later formed the Njoro Cereal Promoters Farmer's Cooperative and opened a supply store in September 2018, providing affordable and high-quality seed, fertilizer and animal feed to farmers.

### *Technology and innovation drive success*

As Mwangi worked to grow the cooperative, she received training and mentorship from Kuza, a Kenyan social enterprise, as part of Feed the Future's work to enhance farmers' access to a full range of seed choices and options to maximize their demand-driven decision-making and production planning. Kuza's ONE Network – a digital platform to connect agripreneurs with farmers and input and output services – enabled Mwangi to learn at her own pace, connect with her farmers and digitally track her business performance.

"I needed to track my business since I had been recording everything manually," Mwangi said. "Since getting on to the digital platform, I have added easily over 200 farmers and completed my transactions digitally, which makes them easy to follow, manage and retrieve."

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<sup>10</sup> From: [https://www.feedthefuture.gov/article/young-entrepreneur-rethinks-future-pursues-rural-agribusiness/?utm\\_source=Newsletter&utm\\_medium=Header&utm\\_campaign=Back\\_to\\_Their\\_Roots](https://www.feedthefuture.gov/article/young-entrepreneur-rethinks-future-pursues-rural-agribusiness/?utm_source=Newsletter&utm_medium=Header&utm_campaign=Back_to_Their_Roots)



Kuza helped Mwangi and her group grow their customer base from 70 to over 500 farmers, providing greater income for her members and creating jobs in her community.

Thanks to Feed the Future and Kuza's support, 16 additional youth agripreneurs like Mwangi have established 12 farmer services centers and connected with over 1,600 farmers, 41 input dealers and 43 buyers.

*Photo by WFP/Farm to Market Alliance*

"Through the mentorship from Kuza, I have gained so much, especially on helping my group not to overlook any agribusiness opportunity, to be attentive to customers' needs, and to offer farmers a reliable and convenient source of farm inputs," Mwangi said.

Today, Mwangi continues to gain new customers and help link farmers to markets, farming machines and certified seeds. Her contributions to rural farming have also earned her national recognition – she was recently invited by the U.S. Department of State to participate in the Mandela Washington Fellowship for the Young African Leaders Initiative.

S34D and Kuza's partnership is one of the myriad programs Feed the Future supports to empower women and rural youth, promote sustainable farming and business models, enhance emerging economies, and achieve food security. With support from these programs, farmers like Mwangi will be able to inspire the next generation of agricultural entrepreneurs.

## 5. Summary by country

### Kenya

This year S34D started working on a **seed profile** for Kenya, but it took longer than anticipated and the profile still needs to be restructured and synthesized. This will be completed in FY21.

A **micro franchise based last mile delivery model** was designed to reach farmers with multiple crop seed varieties (beyond maize) and is being implemented with a Kenyan seed firm FreshCo in Meru and Taraka Nidhi counties, in the semi-arid eastern province. After a meeting with 15 input distributors, 31 selected last mile input suppliers from Marimanti in Taraka Nidhi counties were trained on suitable crop-seed varieties available and suitable for the region along with crop management practices. 15 motorbike (boda boda) riders (no women riders) who were serving agrodealers in Gachuiriri region also were trained in safe handling of seeds and agriinputs during transportation, and given minimal technical knowledge on the seeds to manage customer queries during delivery. The above two activities were complemented by a farm level field day near Gachuiriri market with participation of local agricultural extension officials and FRESH CO seed firm that displayed seed varieties of different crops (besides maize) suitable for the region, which was attended by 108 farmers (87 women). During the field day, a male lead farmer was also selected to conduct field demonstrations on crop seed varieties of interest to farmers and suitable for the agro-ecology zone, such as sorghum (Gadam), Greengram (N26), Cowpeas (K80), KAT-1 and KAT-56 bean varieties. The field demonstration plots will be used for training purposes in the coming months and field days for farmers are planned at different stages of crop growth. The demonstrations are conducted in collaboration with the seed firms and with country extension officers.

Building off of the **rural digital platform for agripreneurs** prototype design and analysis conducted last year during *the incubation and launch phase*, this year CRS and KUZA further piloted and developed this prototype of a sustainable digital rural agent model during the *operations phase*. Two mentors trained the 15 rural agents (5 women and 2 agents under the age of 30) in using the digital extension toolkit, improving farmer engagement, good agriculture practices and leadership development skills. Four agents from Meru, four from Tharaka Nithi and seven from Nakuru County. 12 agents set up 12 farmers service centers and 15 agents were linked to mentors, input providers, off takers and financial service providers. In one growing season, these 15 agents reached 1,685 farmers with their extension, and the digital platform was used for input transactions reaching a total aggregation value of USD \$278,707. Because of the success of the pilot incubation, launch, and operations, KUZA is scaling their digital platform program operations exponentially with other donors and is already rolling out a national level program across 14 counties, targeting 200 agripreneurs with mentorship and support to set up and scale their agribusinesses. A story about this rural agripreneur digital platform was published on the Feed the Future website.

S34D tested the **Niche Market business model** for biofortified bean variety Nyota and explored the point of sales application (PoS) to monitor sales/adoption in the first season with Bubayi Products Ltd. in January 2020. An Agrilinks blog<sup>11</sup> published on June 11 highlighted some of the findings of the first season activity, specifically whether the point of sale (PoS) application could shed light on new varietal dissemination and farmers' preferences. The second season data collection is planned for January 2021 with Drylands Seed Ltd. Between March and September 2020, ABC/PABRA facilitated several **dialogues with KEPHIS and KALRO**. The most important one is on the use of *boda boda* riders to serve as last mile agents for agro inputs, specifically for new varieties like Nyota.

S34D facilitated and validated the draft of the **standard seed protocol** covering 10 non-hybrid crops with and by stakeholders. Five farmer group seed producers and at least two seed companies expressed interest in

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<sup>11</sup> <https://www.agrilinks.org/post/digitally-tracking-dissemination-targeting-markets-high-iron-bean-seeds-kenya>

producing seed under standard certified seed protocols during the pilot phase during the short rains of 2020 (starting October 2020). Two of these entities are women-led.

S34D undertook an evaluative learning question around what **incentivizes private seed companies to expand their crop-seed portfolios**. 21 private seed companies were surveyed in Kenya, Tanzania, and Uganda to collect information on the research topic. The results were analyzed and produced first draft of the findings. Seed companies have cited the need for a stronger partnership with the CG centers and that breeding needs to be participatory with the companies so the latter can help in rolling out new varieties onto the hands of farmers. Climate-smart, disease resistant, and nutrient-dense properties are in demand. Support from CG centers around technical capacity building and knowledge dissemination of the new varieties was stated as a need by several companies interviewed. Basically, there needs to be a stronger interface between R&D and commercial marketing and development. Production areas are often further away from where seed inspectors are located, thus increasing inspection costs. Such high costs are barriers for small companies to expand their businesses to other crop-seeds. A few large companies indicated the difficulties faced due to inconsistent and opaque seed regulatory and policy guidelines. Greater advocacy efforts should be in place to reduce the VAT on products and seeds. Almost every company stresses the need for real-time data and transparent information on markets. Seed demand forecasts are extremely difficult for companies to undertake, and those that have attempted found it quite expensive. Most companies suggested the national government to increase information about market demand for new varieties. Public-private partnerships along with the CG centers were suggested to conduct joint market surveys and create demand for new varieties. Distribution of free seeds by the national governments pose a challenge to predicting market demand. About 40% of the companies surveyed suggested incentives for farmers to adopt and use certified seeds through training and extension services.

## Uganda

S34D developed an assessment tool and assessed **seed companies' training needs** with input from and administered in collaboration with the Uganda Seed Trade Association (USTA). The seed companies' top priority areas were 1) quality assurance, 2) marketing and distribution, 3) seed production and 4) seed processing and storage. 20 seed companies sent 34 staff for a one-week training. Because of COVID-19, some participants joined virtually and other joined in person. In addition, after seeing the course outline, the Ministry of Agriculture sent 13 of their seed inspectors to the training and USTA sent four of their staff. In total, 51 participants (8 women) attended the training.

Based on the FY19 *Regional Financial Service Provider Inventory Scan* and *Seed and PHT Financial Bottlenecks Scan*, follow-up assessments were performed with Ugandan Financial Institutions to identify the perceived gaps in investment readiness for agro-dealers and last mile seed providers. As a result of these consultations, **curricula content was developed aligned with requirements of Ugandan FSPs** to assist in coaching firms that desire to access local commercial capital. Eight distinct modules were organized covering Business Plan Development; Market Research and Marketing; Business Record Keeping; Budgeting, Cashflows, and Income Statements; Balance Sheets; Profitability and Key Ratios; Risk Management; and finally, Available Financial Products in Uganda and Internal FSP Credit Processes. The design of this content was deliberately stand-alone modules so that any combination of these modules could be leveraged to aid in coaching clients based on both internal and external S34D Partner Firm-Level Appraisals and Firm self-assessments.

A **white paper** was written based on a review of recent case studies conducted with a focus on **agribusiness interventions and financing options for refugees**. Due to several unique policy and enabling environment considerations, the commercialization of refugee support services in Uganda has led to progressive market opportunities. Consultations were conducted with private and public seed sector actors, NGOs and UNHCR to explore the appetite for seed security and enterprise-level financing for refugees in Uganda. A review of recent case studies was conducted with a focus on Agribusiness interventions and financing options for refugees. An activity gap in current interventions was identified, demarcating an under-allocation of resources

dedicated to supporting livelihood development within long term refugee settlements. As sub-sets of livelihood development, agriculture, seed systems, and financing support were even more limited. Granular data on support interventions targeting women and youth within Ugandan Refugee Settlements was not found.

S34D undertook an evaluative learning question around what **incentivizes private seed companies to expand their crop-seed portfolios**. Twenty-one private seed companies were surveyed in Kenya, Tanzania, and Uganda to collect information on the research topic. The results were analyzed and produced first draft of the findings. Seed companies have cited the need for a stronger partnership with the CG centers and that breeding needs to be participatory with the companies so the latter can help in rolling out new varieties onto the hands of farmers. Climate-smart, disease resistant, and nutrient-dense properties are in demand. Support from CG centers around technical capacity building, and knowledge dissemination of the new varieties was stated as a need by several companies interviewed. Basically, there needs to be a stronger interface between R&D and commercial marketing and development. Production areas are often further away from where seed inspectors are located, thus increasing inspection costs. Such high costs are barriers for small companies to expand their businesses to other crop-seeds. A few large companies indicated the difficulties faced due to inconsistent and opaque seed regulatory and policy guidelines. Greater advocacy efforts should be in place to reduce the VAT on products and seeds. Almost every company stresses the need for real-time data and transparent information on markets. Seed demand forecasts are extremely difficult for companies to undertake, and those that have attempted found it quite expensive. Most companies suggested the national government to increase information about market demand for new varieties. Public-private partnerships along with the CG centers were suggested to conduct joint market surveys and create demand for new varieties. Distribution of free seeds by the national governments pose a challenge to predicting market demand. About 40% of the companies surveyed suggested incentives for farmers to adopt and use certified seeds through training and extension services.

## Tanzania

The **yellow bean report** was completed, however due to COVID-19 it was not possible to hold an in-person validation workshop with Tanzania's national stakeholders. The final report will be finalized after incorporating USAID and national stakeholders' inputs. This study was presented in an Agrilinks blog<sup>12</sup> published on July 1 and this study was also presented to USAID and the Feed the Future Innovation Lab for Legumes Systems Research during a webinar on August 6.

S34D undertook an evaluative learning question around what **incentivizes private seed companies to expand their crop-seed portfolios**. Twenty-one private seed companies were surveyed in Kenya, Tanzania, and Uganda to collect information on the research topic. The results were analyzed and produced first draft of the findings. Seed companies have cited the need for a stronger partnership with the CG centers and that breeding needs to be participatory with the companies so the latter can help in rolling out new varieties onto the hands of farmers. Climate-smart, disease resistant, and nutrient-dense properties are in demand. Support from CG centers around technical capacity building, and knowledge dissemination of the new varieties was stated as a need by several companies interviewed. Basically, there needs to be a stronger interface between R&D and commercial marketing and development. Production areas are often further away from where seed inspectors are located, thus increasing inspection costs. Such high costs are barriers for small companies to expand their businesses to other crop-seeds. A few large companies indicated the difficulties faced due to inconsistent and opaque seed regulatory and policy guidelines. Greater advocacy efforts should be in place to reduce the VAT on products and seeds. Almost every company stresses the need for real-time data and transparent information on markets. Seed demand forecasts are extremely difficult for companies to undertake, and those that have attempted found it quite expensive. Most companies suggested the national government to increase information about market demand for new varieties. Public-private partnerships

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<sup>12</sup> <https://www.agrilinks.org/post/yellow-bean-corridor-seed-grain-trade-potential>

along with the CG centers were suggested to conduct joint market surveys and create demand for new varieties. Distribution of free seeds by the national governments pose a challenge to predicting market demand. About 40% of the companies surveyed suggested incentives for farmers to adopt and use certified seeds through training and extension services.

For the pilot **SMS-based farmer feedback loop** on seed quality also known as the ‘**Stop Bad Seed**’ or *Ripoti Mbegu Isiyo Bora* (RIMI) campaign four telephone companies were mapped so as to be able to send bulk SMS, and the SMS system has been set up with questions. The questions were tested with 13 farmers (three women) to ensure the questions would be understood and correctly interpreted. After receiving the feedback, the anomalies were corrected. Posters were designed and draft talking points for the campaign developed. However, the campaign could not be carried out because the period which was allocated for the radio campaign coincided with the Tanzania presidentially election campaign period, causing anxiety from the regulator, TOSCI, that there could be negative effects (politically) if a campaign to promote speaking up about low quality seed was aired during the political campaign season.

## Malawi

An **actionable plan** consisting of nine actions was drafted, based on preliminary lessons emerging from the Southern Africa DiNER Fair evaluation study from Malawi, Zimbabwe and Madagascar, which advocated for greater attention on the supply-side aspects of seed fair planning and design. These actions were then tested in the context of the agricultural input fairs in Eastern Uganda implemented by CRS-Uganda and Caritas-Tororo in early 2020. Fairs tend to target the poorest, most vulnerable farmers, who are not the main client base of private agrodealers. Fairs implemented in emergency contexts have limited opportunity to focus on the supply side; the overriding aim is to support short-term recovery needs of farmers affected by crisis. Fairs implemented in more developmental contexts have greater opportunity for supply-side focus. Operational procedures for vendor selection and contracting may need to be relaxed to be able to include local agrodealers (which tend to be smaller and have less capacity) and farmer seed production groups. Concerns to ensure that vendors profit from fairs may lead to limited overall number of vendors, which may rule out smaller, local suppliers.

## Senegal

S34D worked with a master’s degree student in finance and management accounting at the African Centre for Higher Management Studies (CESAG) and CRS Senegal on this activity. Although twenty-one enterprises were identified, due to a low response from enterprises, telephone interviews were conducted with nine enterprises. Many of the enterprises were not able or willing to share their business details, strategic growth or investment plans. This made it harder to identify and refer enterprises to the CRS Impact Investment team for **impact investment for enterprises** to meet their growth objectives. After analysis of the questionnaire responses, two enterprises were selected to continue to work with CRS Senegal in their Private Agricultural Service Provider Model Project (PASP) and with CRS Impact Investment team for potential further enterprise analysis and impact investment. Bara N’gom and RESOPP are major partners in the commercialization of seeds for three PASP networks. An investment can help formalize and expand the partnerships over the long term and create added value for the thousands of producer clients who will receive in-demand, agricultural services from PASPs. If both enterprises are supported with an investment, PASPs will be able to expand their customer reach and supply quality seed at an attractive price that will generate a better profit margin. Moreover, the producers who are members of SILC groups, or cooperatives, will benefit from these partnerships by receiving quality inputs at fair prices and increase the likelihood of a higher production yields. Based on partnership's anticipated success, there is a strong interest in partnering with several other PASP networks located across Senegal.

## Zambia

A **virtual training for seed inspectors** was carried out by the Seed Control and Certification Institute (SCCI) for 71 participants (19 women and 40 participants under the age of 35). The participants came from different seed companies. These seed companies focus on the following crops: maize (23 participants), non-maize (31 participants), cotton (11 participants), research and government institutions (three participants) and individuals not affiliated with private seed companies (three). Existing materials were adapted for the digital training. A team of experts for SCCI, the Zambia Agricultural Research Institute and the University of Zambia reviewed the existing materials and produced new videos for practical sessions to demonstrate seed field inspections and seed sampling. A **digital functionality training** was held to acquaint 11 presenters with Zoom for them to make live presentations during the digital training. Out of the 68 affiliated with seed companies, 65 participants (18 women and 40 participants under the age of 35) took the seed inspector and sampler exam which authorized private seed companies to carry out seed inspections, showing the seriousness seed companies attached to the training and subsequent certification. 58 participants, of which 15 were women, passed the exam.

## Ethiopia

CRS, in collaboration with the CIAT livestock system and forage teams, have undertaken an **economic analysis of the forage seed value chain**. Cultivated forages play a significant role in bridging the gaps in feed supply and feed quality for the increasing livestock population in Ethiopia. S34D has conducted an in-depth desk review, and a partnership landscape survey to gather details of who is doing what, where, with whom, and how, to determine the disaggregated geographies where forage seed production and forage crop production can become viable businesses. Currently, S34D is conducting an in-depth value-chain survey, results of which are yet to be analyzed and disseminated in FY21 Q1.

Currently there is no manual or guidelines on how **demand forecasting for seeds** is undertaken in Ethiopia. S34D used area under cultivation and production estimates to derive the top priority crops for which demand forecasting is particularly important. Those crops are teff, barley, wheat, maize and sorghum. In coordination with MoA, Regional Bureaus of Agriculture (RBoA) and Central Statistical Agency (CSA) data dictionary and survey instruments were finalized and tailored for specific government branches and national / regional institutions. The sample of institutions and regions where the survey will be conducted was also completed. This survey will provide a systemic analysis and understanding how the various components fit together to forecast market demand for seeds, the methodology used, and the gaps or challenges that need to be addressed. We expect to disseminate the manual in FY21-Q2.

Livestock plays a key role in Ethiopia, contributing 35% to 47% of agricultural GDP. Ethiopia has experienced severe droughts in the past few decades. The drought-prone areas also inhabit large livestock populations. Therefore, we refined the activity from a **national seed reserve** to a “**feed reserve**” where the feed would be based on cultivated forages for high nutrient content. The production of high quality forages is in turn dependent upon a reliable and well-functioning forage seed system, thus bridging gaps between development and emergency seed systems. For this activity, the survey to assess and evaluate the potential for densified cultivated forage-based products, such as pellets, with stakeholders from India, Mexico, and Tunisia was completed. Costs and benefits were estimated, and lessons learned documented. We scoped out roles for youth and women for such potential businesses in Ethiopia. Case studies on feed reserves in Mongolia and India were collected. Based on the case studies from Kenya, India, Mexico, and Tunisia, women and youth could play a key role in the densified forage market products.

## Niger

Opportunity International combined assessments of both Supply and Demand for Financing into a single activity for Niger. In total, deep-dive interviews were conducted with 15 local financial service providers and 15 non-financial services stakeholders within the Niger seed sector (both S34D and non-S34D IPs). Key

recommendations and conclusions were documented for both S34D and Niger Mission Staff with regards to increasing the uptake of financial services within the seed sector. Current market demand for private sector investments into the seed sector in Niger is extremely limited, primarily due to the large footprint of local government within both seed purchasing and distribution. Beyond this, experience with and access to regulated financial services by clients across the agricultural sector is comparatively limited. Successful interventions would benefit by pre-investment coaching and technical assistance to prospective clients. Despite the perceived low-demand for private sector financing within seed companies, a more diversified product range of both short-term and long-term finance might be beneficial. Prospective finance clients within the seed sector should be better segmented by commercial activity such as seed production versus trading and sales to better inform the financial service sector.

## 6. Problems and Solutions

- COVID-19 restrictions to movement and gatherings made face-to-face meetings not possible such as is required for training and examination. A mixture of both virtual (where possible) and physical worked well both in the case of Zambia and Uganda. In Zambia, to safeguard the integrity of the examination and in the absence a proper digital training platform to enable exam taking, the exam was administered physically. In Uganda, on the other hand, there were challenges with internet stability in the locations where most seed company personnel are based, hence it was decided to bring learners to a central place with good internet connectivity where they could access the training, which was delivered virtually by the trainers. Both in Zambia and Uganda all COVID-19 recommendations regarding social distancing, max capacity, sanitation, etc. were implemented.
- In Tanzania (CCIR 2.3.2 – “Stop Bad Seed”) the RIMI campaign had to be postponed due to the presidential election, even though all preparations for the campaign were done and ready to launch. TOSCI was concerned that asking farmers if they had a bad experience with seed purchased would appear to negate the politicians campaign message that they care for the farmers. S34D respected TOSCI concern and postponed the campaign.
- The yellow bean study stakeholder validation workshop in Tanzania was postponed due to the COVID-19 pandemic that required extra effort to avoid exposure of personnel. However, this came at a cost of not being able to take in feedback from stakeholders and allowing structured dialogue on next steps for an ancillary activity. There is sufficient interest from grain traders to be linked to sources of new improved varieties, for production and trade in seeds and grain.

## 7. Best Practices in General, and for Dissemination

- It is important to employ a market systems-based approach and work through permanent actors in seed systems, e.g. the Uganda Seed Trade Association (USTA), Seed Control and Certification Institute of Zambia (SCCI), the Kenya Plant Health Inspectorate Service (Kephis), Tanzania Official Seed Certification Institute (TOSCI) and Tanzania Agriculture Research Institute (TARI), and embed the work with these institutions so that the change “sticks” even after the activity concludes. It is important to allow the time needed to develop solutions that are anchored in the institutions that have the responsibility of executing those solutions. While this may not be the fastest approach, the solutions are ultimately more sustainable.
- In view of the current COVID-19 pandemic, for all activities various safety precautions were undertaken during field days and trainings to ensure that S34D minimized the risks of spreading COVID-19. Specific safety precautions for activity 1.1.4.1 Last mile prototype were: Body temperature checks were recorded during indoor meetings; farmer training was held out-doors with extra tents and chairs to ensure social distancing; crowding was avoided by dividing the group into two and each group taken through the discussion; and mandatory wearing of face masks, washing or sanitizing hands and social distancing were observed in our engagements with the participants.

*Photos are from agrodealer training in Eastern Kenya (IFDC).*



## 8. Collaboration

- In Kenya, S34D collaborated with FRESHCO seed firm and IFDC's DGIS-funded 2SCALE project for Last mile prototype (1.1.4.1). 2 SCALE project contributes 25 % cost share - in terms of staff time besides networks, partnerships in their on-going work to promote inclusive agribusiness clusters on groundnut. The partnership with the private seed firm Fresh Co., offers private sector expertise and the vast network of retailers associated with the firm as well the much needed technical expertise on seed business operations. S34D also collaborated with KEPHIS under activity CCIR 1.2.3. the Standard Seed protocol and with Bubayi Products Ltd. and Dryland Seeds company under activity 1.2.4.1.
- In Uganda, S34D collaborated with the Uganda Seed Trade Association (USTA) under Activity 1.1.1.1 and 1.1.1.3.
- In Tanzania, S34D collaborated with TOSCI on the RIMI activity (CCIR 2.3.2) and TARI on the yellow bean study (1.2.1.1).
- In Zambia, S34D collaborated with SCCI on activity 1.1.1.6.
- For many of the EHAR activities S34D collaborated with the Global Food Security Cluster.
- In Ethiopia, S34D set up the Ethiopia Advisory Group with members from Agriculture Transformation Agency (ATA), ISSD Ethiopia, Ethiopian Institute for Agriculture Research (EIAR) for all activities being implemented in Ethiopia.
- The establishment and on-going collaboration with the Agriculture Working Group (AWG) of the Global Food Security Cluster is proving to be extremely valuable to EHAR activities. The AWG is comprised of key organizations involved in emergency agricultural interventions, including FAO, WFP, USAID, EU, and approximately 20 international NGOs. Through the cluster coordination mechanism, the AWG has direct links with the national Food Security Clusters in over 30 emergency countries. The AWG is divided into four task forces, including the Seeds & Crops Task Force, in which S34D/CRS plays an active role.

## 9. Associate Awards

There were no Associate Awards in FY20.

## 10.Next Steps

S34D will complete outstanding FY20 activities and deliverables in Q1 and Q2 of FY21.

In Q1 and Q2, S34D will implement the following:

- Finalize the Uganda and Kenya seed profiles
- Continue to work with SCCI on the development of the digital training and testing platform of seed inspectors and samplers in Zambia.
- Finalize the last mile prototype: micro-franchise model roll out in Kenya.
- Complete the framework and response options for resilient seed systems.
- Facilitate the consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response.
- Continue and complete Point-of-Sale pilot for the niche business model in Kenya, and disseminate the final second season report to complete the pilot in Kenya.
- Implement and pilot of Standard Seed Protocol in Kenya.
- Pilot SMS-based farmer feedback loop on seed quality, known as Stop Bad Seed (Ripoti Mbegu Isiyo Bora - RIMI) in Tanzania.
- Finalize interview report with private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi.
- Complete Uganda Seed Fair report, as an actionable plan output.
- Continue Forage and fodder value chain analysis, fodder reserve and technical roadmap in Ethiopia

IEE/EMMP and CRM

- S34D will update the EMMP based on the FY21 activities and include climate risk mitigation measures.
- Activities implemented in FY20 and activities planned in the next six months fall under the categorical exclusions 22cfr216 2(c)(2)(i)(iii)(v).

The ESR has been attached to **Annex 3**.

## 11. Annexes

## Annex 1. Planned outputs and achievements by activity

### Status Column Legend

pending	status of deliverable is or unknown or less than 50% complete
in draft	status of report, paper, brief: > 50% and <75% complete
in progress	status of deliverable is known; > 50% and < 75% complete
Completed	deliverable was completed or approved by USAID; >90% complete

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
<b>IR 1.1 Constraints in formal seed systems identified and mitigated</b>						
<i>Sub IR 1.1.1 Operational efficiency of seed companies increased</i>						
0.1	Develop country profiles and framework for engagement in Kenya and Uganda.	Kenya, Uganda	S34D	<ul style="list-style-type: none"> <li>One framework for rapid reviews developed (Q1)</li> <li>Lead development of country profiles and rapid reviews for KE and UG (Q2).</li> </ul>	Uganda (almost done) and Kenya (needs more work) draft	in draft
1.1.1.1	Document firm level needs assessment in Uganda (core).	Uganda	AE	One needs assessment report of 20-25 seed companies PowerPoint summary of key areas of training	questionnaire, training analysis and needs survey report received.	Completed
1.1.1.2	Gather, select and develop seed systems materials for coaching from partner organizations that meet client needs (technical, managerial and territorial marketing strategies) through engagement with internal and external partners in Uganda (core).	Uganda	IFDC	<ul style="list-style-type: none"> <li>Financial-access training content for seed companies and FSPs compiled and developed</li> </ul>	assessments were performed with Ugandan Financial Institutions to identify the perceived gaps in investment readiness for agrodealers and last mile seed providers; eight distinct modules were organized	Draft and will be submitted to USAID

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
1.1.1.3	Develop a fee-based training model for deployment by Seed Trade Associations or similar stakeholder organizations in Uganda (core).	Uganda	AE	<ul style="list-style-type: none"> <li>One fee-based training model developed. The model is a training strategy for the USTA to use and provide services (training) to their members, thereby increasing member value; Training in three modules: 1. Seed production, 2. Seed quality assurance and 3. Seed processing and storage carried out for 40 participants from 20 seed companies, including 10 inspectors from Ministry of Agriculture</li> </ul>	51 staff (8 women) participated virtually and in person	Completed
1.1.1.6	Improve certification efficiency of non-maize seed to promote sales volumes of non-maize certified seed, particularly for legumes in Zambia (core).	Zambia	AE	<ul style="list-style-type: none"> <li>Incorporate specialized training of non-maize inspectors into annual seed inspector training (Q2)</li> <li>Train inspectors from at least 6 non-maize seed producing companies (Q3)</li> </ul> With COVID-19 imposed restrictions on gatherings, carry out part of the training virtually	71 participants (19 women), 65 took the test (18 women) and 58 passed (of which 15 women). Training report received.	in draft
1.1.1.9	Develop an inventory of financial services to expand financing for seed sales from seed companies in Niger (core).	Niger	OI	The output is a methodology and report to assess the national lending environment for the seed sector.	inventory scan report under USAID review.	submitted to USAID
1.1.1.11	Map seed companies and other agribusinesses in the seed value chains and provide referrals for potential Impact, capital or equity Investment in Senegal (core).	Senegal	CRS	seed companies map/report	Draft report	in draft
<i>Sub IR 1.1.4 Pilot sustainable models with private sector players to supply quality EGS and QDS to a range of suppliers and scale using innovative financing</i>						
1.1.4.1	Prototype one last mile delivery models to reach last mile users with quality seeds in Kenya (core).	Kenya	IFDC	<ul style="list-style-type: none"> <li>One model prototyped</li> <li>One report on findings</li> <li>One digital farmer ranking system developed to allow SHFs to report on the quality of service delivery by distributors (OI)</li> </ul>	training of 31 selected last mile input suppliers; 15 motor bike riders (no women) trained; farm level field day with demo plots attended by 108 farmers (87 women)	in progress

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
1.1.4.4	Scale out last mile delivery through digitally enabled rural seed and enterprise agent systems in Kenya (cost share).	Kenya	Kuza	The outputs will be: (i) a cohort of trained last mile agents linked to local input supply markets; (ii) agents linked into the digital platform for capacity building and transaction support and analysis; and, (iii) a report on performance of field agents in terms of local farmer registration, training, input and output market transactions.	received report from KUZA. Produced FTF story and scale plan. reached 1685 farmers, 15 rural agents in 3 counties. \$80,257 in input transactions and \$200,453 in aggregated value.	Completed
<b>IR 1.2 Strengthened capacity of informal seed systems to offer a broader range of affordable, improved quality seed</b>						
<i>Sub IR 1.2.1. Informal trader capacity and local seed networks assessed</i>						
1.2.1.1	Complete report writing for yellow bean characterization study in Tanzania (core).	TZ	ABC-PABRA	•YB Tanzania Report completed	Report submitted to USAID. DDL dataset received and being prepared.	in draft
<i>Sub IR 1.2.4 Last mile delivery solutions through non-traditional partners and ICT strengthened</i>						
1.2.4.1	Niche Market business model: explore non-seed distribution and sale niches with seed varieties (linked to PoS ICT application with seed companies) and monitor sales/adoption in Kenya (core).	Kenya	ABC-PABRA	<ul style="list-style-type: none"> <li>•One seed company and 10 agro dealers supported with marketing of high iron bean seed variety and reaching farmers</li> <li>•Business model validated: a report that enhances the understanding of the niche model (of HIB), its policy implications, and financial viability and sustainability.</li> <li>•Financial profitability and sustainability of businesses assessed</li> </ul>	although report received, business model is not yet validated nor has the financial profitability and sustainability of business been assessed.	in progress
<b>IR 1.3 Strengthened capacity of emergency and humanitarian aid programs to respond effectively to acute and chronic stresses</b>						
<i>Sub IR 1.3.1 Select emergency and humanitarian past actions assessed: focus on farmer evaluation, new varieties, and markets (local and formal)</i>						
1.3.1.1	Disseminate results from FY19 studies on cash and markets using mixed modes of delivery (core).	Global	ABC-PABRA, CRS	<ul style="list-style-type: none"> <li>• Two webinars to disseminate results hosted (Q2)</li> <li>• One report on FY19 findings developed and disseminated (Q2)</li> </ul>	One webinar presented; one blog published.	completed
1.3.1.3	Interview private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi (core).	KE, UG, MW	ABC-PABRA	<ul style="list-style-type: none"> <li>• Interview questions (signed off by SMT) written</li> <li>• Interview outcomes/data set incorporated into one interview report</li> </ul>	no report yet	pending

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
1.3.1.4	Develop actionable plan based on lessons emerging from the cash transfer and market studies completed to date, and the (on-going) FY19/20. (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar).	Global	CRS	<ul style="list-style-type: none"> <li>One action plan developed based on results from two sets of in-person interviews and feedback</li> </ul>	Uganda seed fairs Report in draft	pending
<i>Sub IR 1.3.2 Emergency and humanitarian responses that promote climate resilience, including food, income, cover and fodder crops are catalyzed.</i>						
1.3.2.1	Support upgrades in functionality, socialization and promotion for SeedSystem.org website (core).	Global	ABC-PABRA	<ul style="list-style-type: none"> <li>Key issues regarding website usage metrics are updated and evaluated (Q2)</li> </ul>	Consultant was not hired through S34D for website upgrades	
<i>Sub IR 1.3.3 Tools and Information Systems to frame Shock Responsive Models developed.</i>						
1.3.3.1	Framework and response options for resilient seed systems (core).	Global	CRS	<ul style="list-style-type: none"> <li>Guidelines developed</li> </ul>	Will be completed in FY21 Q1	in progress
1.3.3.2	Inputs to a stakeholder consultation with the broader humanitarian community to determine and address the need for additional guidance for agricultural interventions (core).	Global	CRS, gFSC	<ul style="list-style-type: none"> <li>One in-person consultation with stakeholders hosted</li> </ul>	at least 2 consultations completed. PowerPoint slides to be submitted	in progress
1.3.3.3	Collect, compile, and analyze information on emergency and humanitarian seed interventions in relation to formal and informal seed sector development interventions (core).	Global	ABC-PABRA, CRS	<ul style="list-style-type: none"> <li>Database developed that houses emergency interventions and responses</li> <li>One-pager developed that shows S34D's value proposition for emergency seed context</li> </ul>	Info collected and shared with activity 0.1	Completed
<i>Sub IR 1.3.4 Last mile delivery solutions especially for chronic stress areas (small packs, boutiques, WhatsApp seller linkages) developed</i>						
1.3.4.4	Develop a 1-2 page white paper on possibilities for financing of different farmer segments (core).	Uganda	OI	1-2 page white paper	Revised draft currently under review	in draft
<b>IR 2.1 Strengthened interface and collaboration between formal and informal seed systems</b>						
<i>Sub IR 2.1.1 Local seed network strategies (to interface, collaborate, and leverage) and local capacities are assessed</i>						
2.1.1.2	Conduct a scoping study to assess the fodder/forage crop seed value chain in Ethiopia (core).	Ethiopia	CRS	one final report; a presentation deck; stakeholder consultations detailed in an annex; and, case studies detailed in an annex.	report and dissemination in Nov. Survey is completed. preliminary findings were shared with the donor and the Mission	in progress

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
<i>Sub IR 2.1.3 Formal sector suppliers and NARs/ breeders leveraged and linked.</i>						
<b>IR 2.2 Strengthened interface and collaboration between development and relief to resilient and market-based seed systems</b>						
<i>Sub IR 2.2.1 Seed System Security Assessments in Feed the Future Crisis Hotspot areas (focus on formal, semi-formal and informal seed systems) are adapted and scaled.</i>						
2.2.1.1	Lead or backstop SSSA acute assessments, inputs to locust and/or Coronavirus response planning, according to demand (core).	Global	CRS	• 1 SSSA completed	No demand for SSSA backstopping Rapid, remote SSSA tools drafted in response to Locust and C-19 crises	Completed
<i>Sub IR 2.2.2 Emergency and humanitarian responses that link relief to development, especially links to private sector and formal and biodiverse suppliers are developed and promoted.</i>						
2.2.2.3	Completion of DiNER studies in Southern Africa and Latin America (core).	Global	CRS	• 3 reports	Guatemala and Nicaragua reports final, Diner report is being edited then shared with USAID	in draft
<i>Sub IR 2.2.3 Emergency and development seed programs to capture market opportunities are leveraged.</i>						
2.2.3.1	Review DiNER/seed vouchers and fairs and their sustainable link to private sector (core).	Global	CRS	• One 3-4 page brief on best practices developed	This will be completed in FY21 Q1	pending
2.2.3.2	Facilitated consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response (core).	Global	CRS	• Consultation process facilitated • 1 report with best practices	This output was revised: 2-page think piece on recent developments, challenges and innovations with direct seed distribution will be done by end October	pending
<b>CCIR-1 Improved effective policy implementation and regulatory formulation for pluralistic seed systems</b>						
<i>CCIR 1.1 Develop country specific seed policy road maps</i>						
CCIR 1.1.1	Finalize the global seed policy review (core).	Global	CRS, NML	one report and a stakeholder consultation proceedings report	report, blog and webinar proceedings shared with USAID. Feedback received and revision to be shared in Q1	Completed
<i>CCIR 1.2. Practices to expand and liberalize seed quality possibilities developed and implemented; market outlets and venue expanded; counterfeit seed issues addressed; free seed distribution restricted.</i>						

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
CCIR 1.2.1	Assess policy implications of the niche market business model in Kenya (core).	Kenya	ABC-PABRA, CRS		this will be done when pilot is completed after Jan 2021	In progress
CCIR 1.2.2	Assess policy implications of the yellow bean field study in Tanzania, Kenya, and Uganda (core).	TZ, KE, UG	ABC-PABRA, CRS	comprehensive report	This is the global study now as an evaluative learning. It will be finished by the end of October. Survey completed. Results being reviewed to be submitted	in draft
CCIR 1.2.3	Facilitate implementation of standard seed in Kenya (core).	Kenya	AE	<ul style="list-style-type: none"> <li>Standard Seed protocol written (Q2) and tested (Q4) with 2-3 seed producers / seed companies</li> </ul>	validated draft protocol. At least 3 farmer group seed producers and 2 seed companies expressed interest in producing seed under standard certified seed, for OPV sorghum, beans, cowpea, green gram and sweetpotato, 2 of which are women-led.	In draft
<i>CCIR 1.3 Linkages and coordination of seed development efforts through consolidation of data and evidence are strengthened.</i>						
CCIR 1.3.2	Conduct a learning study on national seed reserve systems with examples from other countries with implications for Ethiopia (core).	Ethiopia	CRS	one investment plan with a few business models and propositions	Report and dissemination in Q1 FY21. Surveys completed. Results being reviewed and written. Preliminary findings were shared with the donor.	In progress
<b>CCIR-2 Established enhanced quality information flows for seed systems</b>						
<i>CCIR 2.2 Tools and technologies to capture quality information about seed supply in a geo-referenced manner are developed.</i>						
CCIR 2.2.1	Assess the nature and genetic quality of seed (different grades) and grain of yellow beans produced and traded using DNA fingerprinting (Linked to activity 1.2.1.1) in Tanzania (core).	TZ	CRS, CIAT	<ul style="list-style-type: none"> <li>DNA analysis and report completed (Q3)</li> <li>DNA reference library established and shared (Q4)</li> </ul>	DNA analysis done, reference library established under TLIII, activity is complete, but output not delivered as planned	Analysis completed, reference library not done
CCIR 2.2.2	Work with national and regional stakeholders to develop a technical road map (framework) for demand estimation / forecasting in Ethiopia (core).	Ethiopia	CRS	One document / manual that explains how seed demand forecasting is currently done in Ethiopia.	Phase 1 will be finished by end of November. Phase 2 planned for FY21. Data dictionary is completed.	In progress

	Activity Title	Country	Partner	Planned FY20 Outputs	FY20 Achievements	Status
<i>CCIR 2.3 Last mile markets for new and quality-assured seed varieties are enabled by developing, piloting, adapting, and scaling feed-forward and feedback mechanisms that loop farmers' preferences, as well as provide information on new varieties and quality assured seed</i>						
CCIR 2.3.1	Activity CCIR 2.3.1 Continue monitoring feedback for the new biofortified bean varieties disseminated for the niche market business model using ICT in Kenya (core).	Kenya	ABC-PABRA	monitoring report	to be completed in FY21 Q1 and Q2	In progress
CCIR 2.3.2	CCIR 2.3.2. Pilot SMS-based farmer feedback loop on seed quality, known as Stop Bad Seed (RipotiMbegu Isiyo Bora - RIMI) in Tanzania.	Tanzania	AE	<ul style="list-style-type: none"> <li>• Short codes for transmission procured (Q1-Q2)</li> <li>• SMS messages developed, tested with a few farmers and feedback received from farmers used to make changes to messages (Q3) ; Draft talking points for TOSCI developed; Banner designs finalized</li> <li>• Actions taken by the Tanzanian government are tracked upon receipt of the feedback (Q4)</li> </ul>	Due to election campaigns happening in Q3-4, FY20, Regulator requested to carry out campaign in FY21 (Q1-2) after elections.	pending



## Annex 2. FY19 and 20 reports by activity and status

Ref. from FY19 and FY20 AR	Activity title	FY19 activity number	FY20 activity number	Status
CRS,2020	Develop country profiles and framework for engagement in Kenya and Uganda.		0.1	Both in draft form.
AE, 2020	Activity Document firm level needs assessment in Uganda.		1.1.1.1	The assessment tool and analysis are completed
OI, 2020	Gather, select and develop seed systems materials for coaching from partner organizations that meet client needs (technical, managerial and territorial marketing strategies) through engagement with internal and external partners in Uganda.		1.1.1.2	Coaching modules developed and to be submitted to USAID
AE, 2020b	Improve certification efficiency of non-maize seed to promote sales volumes of non-maize certified seed, particularly for legumes in Zambia.		1.1.1.6	Training report completed
OI, 2020b	Financial Service Provider Inventory Scan for Niger		1.1.1.9	Submitted to USAID on Oct 16.
Adam, 2020	Map seed companies and other agribusinesses in the seed value chains and provide referrals for potential Impact, capital or equity Investment in Senegal.		1.1.1.11	Draft report to be submitted to USAID
IFDC, 2019	Review of Existing Last Mile Seed Delivery Models and Approaches	1.1.3.1		IFDC working on USAID feedback

Ref. from FY19 and FY20 AR	Activity title	FY19 activity number	FY20 activity number	Status
IFDC, 2019b	Potential Business Models on Last mile seed delivery for Prototyping	1.1.4.1		IFDC working on USAID feedback
OI, 2019	FSP Inventory Scan	1.1.1.5		Submitted to USAID on Oct 13.
OI, 2019b	SEED AND POST-HARVEST TECHNOLOGY PROVIDER FINANCIAL BOTTLENECK ANALYSIS	1.2.1.4		Submitted to USAID June 11.
CIAT, 2019	Yellow bean study in Tanzania	1.2.1.1	1.2.1.1	Submitted to USAID on Oct 16
Purdue, 2019	Field survey to assess storage and postharvest constraints and capacities in northern Tanzania	1.2.1.3		Submitted to USAID on September 1.
CIAT, 2019b	Niche business model with biofortified high-iron bean variety – Nyota	2.1.4.1; CCIR 1.2.6 and CCIR 2.3.4	1.2.4.1	1. Workshop report submitted June 18 and Niche model business report and POS submitted to USAID on July 30.
CIAT, 2019c	<a href="#">Study on cash transfers for seed security in humanitarian settings</a>	1.3.1.2		Approved and posted on Seedsystem.org, DEC and S34D website: <a href="https://pdf.usaid.gov/pdf_docs/PA00WH2D.pdf">https://pdf.usaid.gov/pdf_docs/PA00WH2D.pdf</a>
CIAT, 2019e	Interview private and research sector actors on their role in emergency and humanitarian seed programming in Kenya, Uganda and Malawi.	2.2.2.1 and 2.2.2.2	1.3.1.3	No report yet
Raboanarielina, et al, 2020	DiNER and Seed Fair Evaluation Research & Learning	1.3.1.4		Report completed and currently being edited by CRS.

Ref. from FY19 and FY20 AR	Activity title	FY19 activity number	FY20 activity number	Status
CRS, 2020	Develop actionable plan based on lessons emerging from the cash transfer and market studies completed to date, and the (on-going) FY19/20. (DiNER) evaluations in Southern African region (Malawi, Zimbabwe and Madagascar).		1.3.1.4	Uganda report in draft and to be submitted to USAID for review.
	Framework and response options for resilient seed systems.		1.3.3.1	This activity was delayed and will be completed in FY21 Q1.
	<a href="#">Inputs to a stakeholder consultation with the broader humanitarian community to determine and address the need for additional guidance for agricultural interventions</a>		1.3.3.2	Guidance in consultation with gFSC members completed and made public:
<a href="https://fscluster.org/sites/default/files/documents/guidance_for_emergency_seed_interventions_new.pdf">https://fscluster.org/sites/default/files/documents/guidance_for_emergency_seed_interventions_new.pdf</a>				
OI, 2020c	Develop a 1-2 page white paper on possibilities for financing of different farmer segments.		1.3.4.4	White paper completed and will be shared with USAID
	Conduct a scoping study to assess the fodder/forage crop seed value chain in Ethiopia		2.1.1.2	In progress
CIAT, 2019f	<a href="#">Review of Practice and Possibilities for Market-led Interventions in Emergency Seed Security Response</a>	2.2.2.2		Approved and posted on Seedsystem.org, DEC and S34D website: <a href="https://pdf.usaid.gov/pdf_docs/PA00WPBN.pdf">https://pdf.usaid.gov/pdf_docs/PA00WPBN.pdf</a>

Ref. from FY19 and FY20 AR	Activity title	FY19 activity number	FY20 activity number	Status
Raboanarielina, et al, 2020;  CRS, 2020b; and  CRS, 2020c	Completion of DiNER studies in Southern Africa and Latin America.		2.2.2.3	The Diner evaluation study, Guatemala and Nicaragua reports are completed and will be submitted to USAID.
CRS, 2020d	Review DiNER/seed vouchers and fairs and their sustainable link to private sector (core).		2.2.3.1	Review paper has been drafted and will be submitted to USAID.
	Facilitated consultation process with stakeholders in developing best practices for seed distribution interventions in emergency response		2.2.3.2	In progress
CRS, 2019b	Policy Landscape (database)	CCIR 1.1.2		Completed: <a href="https://www.crs.org/sites/default/files/seed_policy_landscape.pdf">https://www.crs.org/sites/default/files/seed_policy_landscape.pdf</a>
CRS, 2019c	Global policy report	CCIR 1.1.3	CCIR 1.1.1	Submitted to USAID on Aug 12. Received feedback on Sept 20. Under Review.
	Assess policy implications of the yellow bean field study in Tanzania, Kenya, and Uganda		CCIR 1.2.2	In progress
AE, 2020c	Facilitate implementation of standard seed in Kenya		CCIR 1.2.3	Standard seed protocol drafted and will be shared with USAID
CRS, 2019d	<a href="#">Seed indices workshop proceedings</a>	CCIR 1.3.1		Completed: <a href="https://www.crs.org/sites/default/files/seed_metrics_ppt_6.8.20.pptx">https://www.crs.org/sites/default/files/seed_metrics_ppt_6.8.20.pptx</a>

Ref. from FY19 and FY20 AR	Activity title	FY19 activity number	FY20 activity number	Status
	Conduct a learning study on national seed reserve systems with examples from other countries with implications for Ethiopia (core).		CCIR 1.3.2	In progress
	Work with national and regional stakeholders to develop a technical road map (framework) for demand estimation / forecasting in Ethiopia		CCIR 2.2.2	In progress

### Annex 3. Environmental Status Report

#### S34D ESR Facesheet

**Activity Title:** Feed the Future Global Supporting Seed Systems for Development

**Cooperative agreement Number:** 7200AA18LE00004

**Activity country of operation:** Kenya, Uganda, Malawi, Tanzania, Zambia, Ethiopia, Niger and Senegal

**Awardee:** Catholic Relief Services

**IEE prepared by:** Mark Huisenga, BFS Office: MPI

**Date prepared:** 03/20/2017

**Life of Activity:** 08/23/18 to 08/22/23

**Fiscal Year of Submission:** FY20

*Note: the following information is for the fiscal year of submission.*

<b>Funding Begin:</b> 10/01/2019	<b>LOA Estimated Amount:</b> \$ 20,773,976 FY20 estimated amount: \$ 2,132,337
<b>Funding End:</b> 09/30/2020	<b>Sub-Activity Amount:</b> \$

<b>ESR Prepared by:</b> Nikaj van Wees, S34D COP	<b>Date:</b> 10/30/2020
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<b>Date of Previous ESR:</b> Oct 30, 2019	<b>Date of Most Recent IEE:</b> 03/20/2017
<b>Contact:</b> Nikaj van Wees, COP S34D - Nikaj.vanwees@crs.org, +1 443 254 1424	

## Environmental Status Report

### A. Status of the Initial Environmental Estimate

☒ **No revisions or modifications** of the Initial Environmental Estimate (IEE) are needed.

☐ An amended IEE is submitted.

### B. Status of Fulfilling Conditions in the Initial Environmental Estimate, including Mitigation and Monitoring

☒ **All mitigation measures were successful at** preventing environmental impact as specified in the original IEE. An Environmental Status Report (ESR) describing compliance measures taken is attached.

☐ **Improved mitigation measures** were adopted to better reduce environmental impacts. An ESR describing these improved compliance measures taken is attached.

### C. Approval of the Environmental Status Report

USAID RFS Officer \_\_\_\_\_ Date: \_\_\_\_\_

DCHA Bureau Environnemental Officer \_\_\_\_\_ Date: \_\_\_\_\_

## Environmental Status Report

### A. Status of the Initial Environmental Examination

i. Modified or New Activities

Have new activities been added or activities substantially modified? *No.*

ii. Resolution of Deferrals

Did the current IEE have deferrals? *No.*

iii. Updates to the Initial Environmental Examination

Based on the above, is an updated IEE needed?

☐ **Yes** (if yes, attach here) ☒ **No.**

If the previous documentation was a categorical exclusion submission, is an updated categorical exclusion needed to deal with new categorical exclusions for new activities?

☐ **Yes** (if yes, attach here) ☐ **No.** ☒ **Not applicable**

----- end of FY20 AR -----