



Mid-Term Review

Accelerating Agriculture and Agribusiness
in South Sudan for Enhanced Economic
Development (A3SEED) project

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Abbreviations and Acronyms

A3-SEED	Accelerating Agriculture and Agribusiness in South Sudan for Enhanced Economic Development
ABC	Agriculture Business Clusters
AR	Annual Report
COP	Community of Practice
EKN	Embassy of the Kingdom of the Netherlands
FAO	Food and Agriculture Organization
FNS	Food and Nutrition Security
GAP	Good Agriculture Practice
IPM	Integrated Pest Management
ISSD	Integrated Seed Sector Development
ISFM	Integrated Soil Fertility Management
MAFS	Ministry of Agriculture and Food Security
MRM	Monitoring and Results Measurement
MSD	Market System Development
MTR	Mid Term Review
OECD-DAC	Organisation for Economic Co-operation and Development's Development Assistance Committee

OPV	Open Pollinated Varieties
OU	Opportunities Unlimited
QDS	Quality Declared Seed
SACCO	Savings and Credit Co-Operative Society
SSP	South Sudan Pound
STASS	Seed Traders Association of South Sudan
TOC	Theory of Change
TOR	Terms of Reference
WFP	World Food Programme

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Executive Summary

The MTR found that the lack of supply of quality seeds delivered at the right price, right place and right time is the biggest limiting factor in the growth of the private commercial seed market.

Commercially-oriented farmers want more and better seeds and are willing to pay for them, at market prices ranging from \$1-1.2/kg for locally produced and packaged QDS seeds to as high as \$8-10/kg for imported certified hybrid seeds. Access to free seeds through SeedAid distribution channels appears to have had a negligible distorting effect on farmers incentives to purchase seeds. No locally produced and commercially available seed goes unsold; in fact, farmers perceive that local seeds are cheaper and better than imports. When purchased seeds used don't perform as advertised then farmers will stop buying them.

The MTR concluded that supply is the major constraint to develop South Sudan's quality seed market. This starts with farmer access to sources of better-quality seeds no matter their origin, imports, or locally produced seeds. Poor road infrastructure limits access to farmers within a 20 km radius of a sales point. Information on the existence of quality seeds and where to buy them is a big problem as is information to forecast future farmer demand by crop, variety, and location.

The MTR noted that seed companies have made impressive gains in increasing QDS seed output through their out grower production model from 2,500 MTs in 2021 to 4,500 MTs in 2022. The out grower production model is seen by all companies as the preferred option over leasing community land to produce seeds by themselves. Useful lessons have been learned on how best to organize (e.g., location density) and support out growers (e.g., a ratio of 1 extension agent to 15 out growers) while also exposing management weaknesses with respect to lack of working capital to buy back seeds as agreed and rightsized storage at the site of production and seed company aggregation. Additionally, the opportunity to win SeedAid tenders, while understandable for cash short companies without access to bank finance, can dilute and distract limited seed company capacity away from producing quality seeds for local commercial markets.

The seed market value chain is weak and disconnected. Seed companies know that their future competitiveness is tied to producing early generation seeds (e.g., foundation seeds) and yet sourcing foundation seeds is an Africa-wide problem: MAFS is always short of supply and sourcing from NARO Holdings/Uganda, the alternative, is costly. A weak retail function – agro-dealers are few and town based in the States where they exist at all¹ -- urges seed companies to add retail sales to their business model when they know that this is not sustainable (e.g., seeds sales are seasonable whereas a retailer must make daily sales). Business management capacity varies between seed companies with some unable to accurately cost and price their seeds.

The MTR concluded that solutions required to foster the growth of the local quality seed market will require A3SEED to work *beyond but for* seed companies, their suppliers, and customers. With an out grower production model in place, and early lessons from ProSeed's foundation seed pilot in Yambio, now is the time for A3SEED to facilitate an

¹ There are no agro-dealers in Bor and Rumbek

industry wide, demand led (e.g., crops, varieties by location and amounts needed) foundation seed initiative coordinated by STASS with government endorsement/support.

Strengthening the weak retail function in the agriculture inputs market requires immediate A3SEED attention and this is best done independent of but in coordination with seed companies. New locally owned agriculture products processors are entering South Sudan with processing capacities of anywhere between 10 to 100 MT/day. They need to be linked into the seed market as better seeds means more and better-quality grain to source locally. A3SEED is effectively positioned to make these linkages with the view of putting in place a pre-sales mechanism to help seed companies forecast future demand.

The lack of working capital finance requires an immediate solution which most likely excludes local banks at this stage, as no seed company has succeeded so far in securing bank financing (e.g., land can't be used for collateral as there is no land titling system). A short-term solution would be for seed companies, through the Seed Traders Association of South Sudan (STASS), to create their own Seed SACCO. A3SEED could match seed company investment in its Seed SACCO provided STASS study's its feasibility and secures member investments.

The lack of agriculture services (e.g., land clearing/preparation, crop protection, soil fertility management) requires seed companies to embed these services in their offer to out growers to insure desired results. These costs are unsustainable in the long term and best performed by specialists. A3SEED can play an important role in creating these future services by seeking new partners and pilot testing viable and scalable models. Business management capacity varies between companies as might be expected as most seed company owners have strong backgrounds in agriculture but not in managing an agri-business. A3SEED can play a role in deepening their business management systems and related skills by linking them to more established seed companies for technical assistance.

The MTR concluded A3SEED private sector/seed company led approach with its demand-led organizing rationale is relevant for the South Sudan quality seed market context, despite its nascent stage of development (only 0.83% of all seeds used are sourced through commercial channels²), its messiness (bulk prices of maize seed averaging \$1.5/kg for tenders are 50% higher than the retail price of \$1.00/kg for locally produced QDS maize seed) and the frequency of shocks (e.g., crop failure, pest infestation, death of the family member) virtually all rural households experience.³

A3SEED current theory of change – essentially better functioning and more competitive seed companies will leverage change throughout the value chain --is too narrowly conceived to position the project to tackle seed market system challenges by seed companies or their representative body can address on their own. The solutions to many of problems the seed market now faces – lack of information, finance, rightsized storage, and other agriculture services (land preparation, soil fertility, crop spraying product development, foundation seeds) – requires A3SEED to better understand these interconnected market systems as they will have different functions and players and will be governed by different rules than the seed market. This will require A3SEED to select and engage with a broader mix of market system players performing a broader mix of market system functions beyond the narrow confines of seed companies and their suppliers and sellers. All the puzzle pieces

² Reference, A3SEED baseline survey.

³ Reference, A3SEED baseline survey, Figure 5 Common Shocks Experienced by Households

of the broader seed market system are already included in A3SEED's design; the MTR helped the A3SEED team to see how they could fit together.

The MTR concluded that the MSD approach is better fit for the purpose of seed market development, and it can work because the conditions exist to support this approach.

Demand for quality seeds, though small, is effective as indicated by farmer's willingness to pay for quality seeds at prices with enough margins for suppliers and sellers of those seeds. Key actors⁴ in the SeedAid channel recognize that access to quality agriculture inputs (beyond seeds) is constrained by the absence of a more robust private sector agro-dealer network with sales agents in or nearby farming communities. They have plans to incentivize the growth of the retail function through voucher schemes. Agriculture products processors offer a growing source of organized and effective demand. The adoption of a seed policy will likely enable the growth of the private sector seed market system and yet its absence will not handicap the use of the MSD approach.

Review goals and context

Objectives

Over the past decade, the Embassy of the Kingdom of the Netherlands in South Sudan (EKN) have invested in seed sector and market development projects, including the EKN-funded project **Seed Sector Development for South Sudan (SSD4SS)**, led by the Alliance for a Green Africa (AGRA), the **Food and Nutrition Security and Resilience Programme (FNS-REPRO)** led by the Food Agriculture Organization of the United Nations (FAO) and the **Food Security through Agribusiness in South Sudan (FSABSS)**, led by CORDAID. EKN's seed sector project portfolio is designed to effectively contribute to the protection and rehabilitation of the South Sudan seed sector and the livelihoods of the most vulnerable and affected people in South Sudan.

The challenge now is to build on and leverage these interventions to build a dynamic private seed sector based on successful entrepreneurship; one in which relief seed distribution is minimized and informal seed exchange is complemented by a functioning *commercial* seed market from which smallholder farmers regularly buy high quality seed for production of marketable surpluses sold into competitive markets.

Accelerating Agriculture and Agribusiness in South Sudan (A3SEED) is a 5-year project (January 2021 – December 2025) funded by the Embassy of the Kingdom of Netherlands and implemented by the International Fertilizer Development Center (IFDC) in collaboration with the Royal Tropical Institute (KIT). EKN has invested a total of €8.5 million in the A3SEED project, to build upon previous and expand on other EKN's investments in the seed sector and agribusiness of South Sudan. A3-SEED aims to reduce the dependency of the South Sudanese seed sector on humanitarian support—and especially on international seed-

⁴ Interviews with relevant FAO and WFP staff.

aid (or on the distribution of free seeds of foreign origin)—and promote the rise of domestic seed value chains and markets.

The Terms of Reference (TOR) for this independent Mid-Term Review (MTR) of the Accelerating Agriculture and Agribusiness in South Sudan for Enhanced Economic Development (A3SEED) Project tasked the OU team (*Annex A: Terms of Reference*) with assessing progress in each of its four (4) results areas towards achieving its goals of quality seed⁵ delivery and use by farmers; agri-business development in the seed sector; building resilience through adoption of agro-ecological farming practices; and, ensuring the SeedAid channel procures more locally grown seed. The four results areas are:

- **Results Area 1.** Commercial Quality Seed Production focused on increasing seed company capacity to multiply QDS from early generation varieties through an out grower production system inclusive of women farmers.
- **Results Area 2.** Quality Seed Use and Good Agriculture Practices focused on grain farmers' capacity to maximize the benefits of better quality seeds through good agriculture practices including climate smart crop production and soil management practices.
- **Results Area 3.** Quality Seed, Input and Output Marketing and Distribution focused on the distribution and sale of quality seeds to the “last mile” inclusive of women and youth.
- **Results Area 4.** Capacity Building and Learning focused on building capacity of “local cadres” (private sector seed market players) to adopt climate smart agriculture practices for future sector sustainability, to instill adaptive management behaviors by A3SEED and its private sector partners and to share lessons from A3SEED experience with the Africa-wide Integrated Seed Sector Development (ISSD) community of practice (COP).

The OU team was also tasked with highlighting lessons for improving the next phase of the project beyond 2025 as the Embassy of the Kingdom of the Netherlands (EKN) develops plans for its larger Food Nutrition Security (FNS) program. This included commenting on the viability of the MSD approach in the context of South Sudan's nascent and messy seed market and the project's Theory of Change that guides all interventions.

The TOR did not ask the OU team to assess the links between market outcomes and desired impact of increased income, reduced food insecurity and improved household nutrition as it was premature to attribute changes in impact after only one full agriculture season. However, the TOR did ask the reviewers to highlight the early signs of impact to inform baselines for a future impact assessment of A3SEED.

The TOR included three deliverables:

- An inception report with details on methods for data collection and frameworks for analyzing the information collected.

⁵ Maize, sorghum cowpeas, groundnuts, beans, and soybeans.

- A one-day stakeholder workshop – A3SEED and its donor -- to review the findings, conclusions, and recommendations conducted at the conclusion of the field work.
- A final draft of the MTR report to be reviewed by A3SEED (IFDC and KIT), and EKN.

Background

Opportunities Unlimited (OU), a Rotterdam-based development consulting firm, was contracted by IFDC, the project implementer, to conduct the MTR with the proposed team of Marshall Bear and Muneeb Zulficar. The first step in the MTR process was a virtual discussion between A3SEED (IFDC AND KIT) and the OU team to ensure that all parties had a shared understanding of the TOR and its expectations, required contents for the inception report, and, an analysis framework to present and report on the MTR's findings and recommendations for the way forward.

The Inception Report informed A3SEED (IFDC and KIT) that the OU team would use an MSD adapted OECD-DAC analysis framework to ensure a better fit for reviewing an MSD program. Each of the seven (7) OECD framework categories – relevance, effectiveness, efficiency, coherence, impact, sustainability, and learning – were reframed and tightened and in some cases new definitions added. The reasoning behind these framework changes were explained. Key review questions were presented and discussed. In addition, the inception report presented the approach and methods to be used and outlined an activity plan for the field mission.

The inception report was submitted to the A3SEED team on July 13 and subsequently discussed in detail between Muneeb Zulficar and the A3SEED team on July 17, the first day of the OU sixteen (16) day field mission arranged by A3SEED (*see Annex C: Field Plan with People Interviewed*).⁶

The highlights of the field mission included:

- Debrief with EKN on the Inception Report at the start of the field work;
- Site visits to 3 of the 5 A3SEED hubs including Juba, Torit/Magwi and Yambio;
- In depth interviews with all A3SEED Staff at HQ and Regional Hubs, EKN, and a diverse range of Seed Market Players;⁷
- Live half day MSD introductory training for A3SEED headquarter and regional staff;
- Two live debriefing sessions, one for A3SEED staff and a second for EKN and A3SEED staff.

Following the field mission, the OU team conducted virtual interviews with the KIT team, submitted its draft report on August 15 for review and comment by A3SEED (IFDC and KIT),

⁶ Annex C: *Field Plan with names of people interviewed* shows the actual vs planned activities.

⁷ Seed Companies, Out growers, Grain Farmers, Local Government Officials, FAO, WPF, Agro-Dealers, Seed Quality Control Board, Seed Inspectors, Lab Technicians, Juba University Breeder, STASS representatives at HQ and in the Regions Grain Processors.

EKN. In response to the comments received, this version of the report was re-organized to report A3SEED progress against its four (4) results areas and related interventions. The report also offers the reader more context by adding activities the project conducted to advance progress over the last two years. This final draft was submitted to IFDC on August 30, 2023.

Report flow and contents

This report follows the flow and content of our half day debriefing session with the A3SEED team conducted on September 30 at the Crown Hotel in Juba. This flow enabled the OU team to present their findings, the implications for adapting A3SEED interventions, and forward-looking recommendations better than the OECD-DAC framework. This framework did not allow the OU team to capture the complex inter-relationships between the 7 OECD categories without avoiding repetition. As requested by EKN, this report includes an annex that overlays a condensed version of our findings and recommendations against the OECD-DAC framework (see Annex D).

Most readers of this report will be familiar with seed terminology, but it bears repeating here to ensure our use of these terms is accurate. Quality Declared Seeds (QDS) is the designation seed companies use to position their seeds in the South Sudan market. This is not a formal designation because at present there is no formal seed policy in South Sudan that designates quality standards against which seed producers must comply. Contrast this with Uganda, for example, where QDS is a formal level of quality certification, organized in such a way that it is more feasible for cooperatives – and only cooperatives -- to produce quality assured seeds. Foundation seeds are offsprings of breeder seed and their genetic purity can be traced back to the breeder. Maize seed produced by seed companies are OPV's of foundation seed derived from Longe 5 breed by MAFS. The report interchangeably uses the term EGS (early generation seeds) and foundation seeds to designate desirable quality features bred into the seed.

Some readers of this report may not be familiar with market system terminology. The *Seed Market* describes the transactions between sellers and buyers of quality seed. The *Seed Market System* describes the formal and informal rules that influence transactions and the wider environment of support – information, coordination, agriculture, and business services – that informs and guides these transactions. The report provides the reader with market system definitions and why they are important in recommending future actions for consideration of A3SEED (IFDC and KIT) and EKN.

Methods

The information for this MTR came from multiple sources: review of A3SEED project reports/studies and data in its MELs system; a literature review of documents relevant to the seed and SeedAid sector in South Sudan and beyond to other commercial seed markets in the Africa region; and in-depth interviews with all A3SEED staff, seed company partners and multiple seed market players were undertaken by the OU team during visits to three of A3SEED's five hubs: Magwi/Torit, Juba, and Yambio. A3SEED chose these hubs in advance of the field work.

The information gathered from A3SEED staff aimed to understand how they see the opportunities and challenges in seed market development. Key informant interviews with public sector (government officials and university professors) were aimed at a big picture overview of the seed subsector.

Interviews with seed company personnel, their out growers, agro-dealers, and their customers aimed at understanding their incentives to transact with each other, the nature of their relationships, their capacity to deliver on their promise to each other, and the rules, both formal and informal, that may have influenced their behaviors.

Interviews with humanitarian aid agencies (FAO and WFP) aimed to understand their perspective of the role of the private sector in the SeedAid channel beyond local sourcing of seeds.

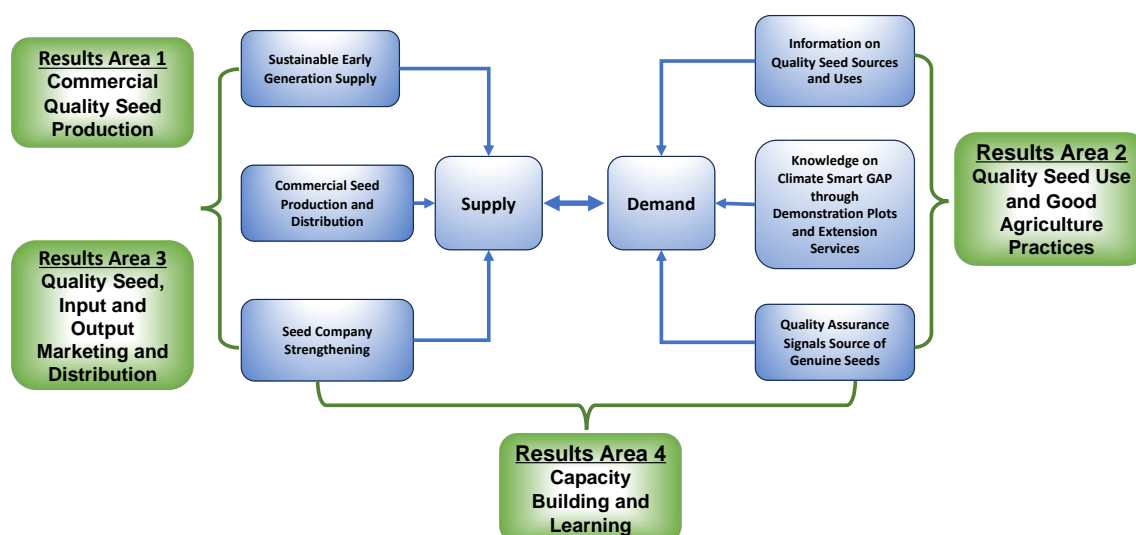
Section 1: Progress Against A3SEED's Four Results Areas presents evidence of progress based on previously reported (Annual Report 2022) and updated data available from the project's MELS system and our assessment and interpretation of this data. Our recommendations rely largely on the authors' professional judgements in reviewing similar agri-business programs in thin and nascent markets of different types including agriculture inputs. References are made in the report narrative and to relevant literature to supplement and support these judgements.

Section 2: Recommendations for the Way Forward summarizes our findings and recommendations in each of the four (4) results areas, proposes a revised private sector/seed company led Theory of Changes as well as briefly presents an alternative MSD approach. This section also proposes a tool for A3SEED to articulate its sustainability strategy and lastly it proposes a revised strategic results chain to guide the project's implementation and results management.

Section 1: Progress Against A3SEED's Four Results Areas

Figure 1: A3SEED Project Design and Related Results Areas offers a snapshot view of how the 4 results areas aim to concurrently build the supply and demand sides of the quality seed market. The project is implemented in partnership with local private seed companies, currently with 10 seed companies in business an average of 8 years before partnerships began. Each seed company is supported through a cost share grant of around US\$55,000 to perform multiple market functions either directly in or in collaboration with other seed market actors (e.g., agro-dealers, seed quality inspectors). A3SEED complements its seed company partners by supporting radio shows and seed market participants to attend Seed Fairs organized by A3SEED and others. A3SEED has a plan to launch a pilot test a private spray service with subsidies to enable seed companies to trial this service for the first time.

Figure 1: A3SEED Project Design and Related Results Areas



This section reviews progress in each of the four (4) results areas, sequentially. Each result area starts with a summary overview of the relative degree of progress in all interventions within the result area followed by a more detailed unpacking of findings in each intervention. Each result area review ends with recommendations where changes are advisable to improve the results area contribution to achieving A3SEED's project goals.

1.1. Results Area 1. Commercial Quality Seed Production

1.1.1 Overview: Among the six interventions in result area 1,⁸ the project has made the most progress in contributing to project goals by assisting seed companies to develop, manage and support their out grower model of producing quality seeds for sale. Seed company partners almost doubled seed production from 2,500 MT in 2021 to 4,500 MT in 2022 across all crops by using an out grower model by putting more land into production (around 924

⁸ Sustainable EGS supply. Strengthen private seed companies. Develop local commercial seed production. Strengthen STASS. Decentralize seed quality assurance. Promote domestic seed procurement by relief and development efforts.

hectares). Three (3) seed company partners (ProSeed, MASCO, Afrogenics) produced a total of 64.6 MT of QDS from EGS/foundation seeds with 54% sourced from NARO/Uganda and 46% locally (MAFS Juba/Polataka) across different crop types with maize the largest overall percent (reference A3SEED Annual Report 2022 pages 13-15). A3SEED linked the seed companies to these sources. Shortages of foundation seed Africa-wide slowed progress in the EGS intervention. Project resources were used to establish STASS (e.g., governance, office set up) and set up two local chapters in the Yambio and Torit hubs, but with little progress made in “strengthening” STASS other than adding new members (from 8 – 15) and assisting all members to better understand SeedAid tender procedures. STASS facilitated some of its members to win SeedAid tenders from 10 institutional buyers totaling 162 MT of QDS. A3SEED has made progress by putting in place processes (inspection and testing regimes) and capacity (inspectors and lab technicians) for third party inspection of quality but these services have not yet been used by seed companies for lack of incentives to do so. QDS was distributed through both commercial (34% of total) and the SeedAid channel (64% of total) in 2022. (Reference A3SEED MELs data).

1.1.2 Findings and Recommendations:

1.1.2 a: Strengthen private seed companies to develop commercial seed production.

Seed companies are evolving an effective and scalable production model using out growers instead of producing seed on land they could lease from communities. “We want local communities to view seed companies as partners instead of competitors (interview with Isacc Woja Enock of ProSeed and head of STASS).” All seed companies have experienced teething problems – high management costs and lack of cash to buy back seeds at harvest -- but, they are making informed changes based on experience: consolidating the number of out growers to improve productivity/per out grower; and reducing the ratio of 1 extension worker to 15 - 20 out

CROP	PERCENTAGE OF 4,500 MT SEED IN 2022
Maize	72
Bean	3
Groundnut	10
Sorghum	12
Soybean	1
Cowpea	2
Total	100

Table 1: Cropwise Breakdown of QDS

out grower support and system in the country) or with a purchase order as a collateral substitute.⁹

growers to optimize returns on oversight. Seed companies have been unable to access formal finance without collateral (e.g., there is no formal land title

Table 1: Cropwise Breakdown of QDS Production shows that maize was 72% of seed company’s output of 4,500 MT in 2022. As such, the MTR focused its review in this result area on maize QDS. Table 2: Total production of maize QDS Seed, below, shows that the actual production of maize QDS among

all out growers (1,488 MT) exceeded the projected volume of seed production (916 MT) by 63% (reference MELs data). The overall volume of seed purchased back from out growers by the seed companies (1,123 MT) was 75% of the total volume of QDS produced. The remaining 25% of total seed that was not purchased back includes post-harvest losses on the farm and processing, as well as some seed that was not purchased back due to cash

⁹ FAO tried but failed to leverage bank financing with a purchase order guarantee (reference interview with Joseph Okidi, head of procurement planning at FAO in Juba.)

flow issues with the seed companies.¹⁰ AACS and Seed Grow had the highest volume of seed that they could not buy back at 71% and 44% respectively.

Table 2: Total production of maize QDS Seed

SEED COMPANY	PROJECTED VOLUME OF SEED PRODUCED (2022)	ACTUAL VOLUME OF SEED PRODUCED (2022)	VOLUME PURCHASED BY BACK BY SEED COMPANIES	% OF TOTAL PRODUCTION NOT PURCHASED BACK
Green Horizon	90,000	129,600	84,000	35%
Afrogenics	116,550	125,000	112,500	10%
AACS	100,000	70,000	20,000	71%
MASCO	150,000	115,000	75,000	35%
Gumbo Glow	72,000	70,200	63,180	10%
Pro-Seed	112,500	482,647	434,382	10%
Smart Seeds	125,000	162,148	146,512	10%
Seed Grow	150,000	334,000	187,500	44%
Total (kgs)	916,050	1,488,595	1,123,074	25%

* The table above is collected using A3SEED’s MEL data and only shows details for maize production by 8 seed companies as Maize is not being produced in Rumbek and Bor Hubs.

Table 3 Total number of out growers engaged by seed companies per year, below, shows that seed companies started off big in 2022 with the out grower model engaging 2,096 out grower farmers and activating 1,633 feddans of land for maize seed production. In 2023, there is a big drop in the total number of out growers as it reduces to a total of 436 across 8 seed companies.

The decision to decrease the overall count of out growers stemmed from several challenges faced by seed companies. Providing effective extension services through agronomists to geographically dispersed out growers became arduous, as did the provision of on-farm inputs for seed production, land management, and clearance. Reducing the number of out growers reduces the cost of aggregating production. Furthermore, seed companies used the experience from the first year to disengage underperforming out growers who disregarded Good Agricultural Practices (GAP) recommendations or engaged in unauthorized side selling, thereby breaching their contractual obligations.

This decrease in out growers should not be misconstrued as a reduction in seed production, as it is anticipated that both productivity and cultivated land per out grower will increase in 2023, as seed companies with their extension workers focus their attention on a smaller number of out growers and open more land per out grower for seed production.

¹⁰ The breakdown from the total volume of seed not purchased back due to post harvest losses and cash flow issues with seed companies will be tracked by the project moving forward.

Table 3: Total number of out growers engaged by seed companies per year.

SEED COMPANY	TOTAL NUMBER OF OUT GROWERS IN 2022 (SEASON 1 AND 2)	TOTAL FEDDAN BY MAIZE OUT GROWERS IN 2022 (SEASON 1 AND 2)	TOTAL NUMBER OF OUT GROWERS IN 2023 (SEASON 1 AND 2)
Green Horizon	342	200	4
Afrognanics	256	259	30
AACS	96	47	40
MASCO	270	452	25
Gumbo Glow	205	81	35
Pro-Seed	350	200	251
Smart Seeds	265	183	25
Seed Grow	312	211	26
Total	2,096	1,633	436

Table 4 Cost of production and selling price of 1kg maize seed through different channels, below, shows the cost of production of 1 kg of maize seed and the margins at each point of transaction.¹¹ The sales margin for seed companies to sell to the aid channel is almost 50% more as compared to selling to agro dealers, but the volume, type of seed required, and the time of procurement from the aid channel is uncertain. At the seed company request, agro dealers have introduced an introductory price for farmers (margins of 20 – 30%) and are likely to adjust the price based on client feedback. Agro dealers are already selling hybrid maize seed to farmers at prices ranging from USD5-10 per kg.

Table 4: Cost of production and selling price of 1kg maize seed through different channels.

COST OF PRODUCTION OF 1 KG MAIZE SEED FOR SEED COMPANIES	SELLING PRICE OF 1 KG MAIZE SEED FROM SEED COMPANIES TO AGRO DEALERS	SELLING PRICE OF 1 KG MAIZE SEED FROM SEED COMPANIES TO AID CHANNELS	SELLING PRICE OF 1KG MAIZE SEED FROM AGRO DEALERS TO FARMERS	SELLING PRICE OF 1KG HYBRID MAIZE SEED FROM AGRO DEALERS TO FARMERS
USD 0.55 – 0.60	USD 0.8 – 1	USD 1.4 – 1.7	USD 1 – 1.2	USD 5 – 10

A3SEED technical staff trained a total of 27 seed company field staff in variety selection, seed production planning and field crop management, out grower recruitment, training and management, internal seed quality control, seed conditioning and cost benefit analysis. They, in turn, trained 3,953 out growers – 66% males and 34% females – in good agriculture practices.

Two (2) day trainings of 54 seed company extension workers from 10 seed companies were trained in the Bor, Magwi, Rumbek, and Yambio hubs on the establishment of crop

¹¹ Due to South Sudan Pound (SSP) devaluing rapidly against the USD, the selling price is adjusted by seed companies and agro dealers per season.

demonstration plots, principles of quality seed production, integrated pest management, and harvesting and post-harvest handling techniques. Of those trained, 52% were female and 48% male with an age range between 15 and 36 years old. (reference A3SEED AR 2022 pages 18-19).

A3SEED established 51 crop demonstration plots across the different hubs near seed production sites. The demonstration plots were established around two objectives: to show the effects of using improved crop varieties versus local recycled varieties of the same crops; and to show the effects of GAPs. These demonstration plots were established by seed company extension workers using IFDC's demonstration protocol guide and were guided by A3SEED technical staff.

The demonstration plots were also used by A3SEED as a tool to increase farmer awareness on the benefits and costs of better quality seed and better agronomic practices (see below the discussion on progress in Results Area 2: Quality Seed Use and GAP).

Although seed companies have significantly reduced the number of out growers from 2,096 in the 2021 season to 436 in the 2022 season for reasons noted above, those trained and dropped may have adopted GAP for use in crop production on their farms (reference AR 2022, page 16). The MELS team will conduct an end of year assessment to ascertain whether they still use the practices learned on their own farms.

1.1.2 b: Sustainable EGS supply:

Product development is an essential firm function in a commercial seed market where differentiation by quality is a competitive advantage. Seed company focus on evolving an effective business model of multiplying open pollinated varieties (OPVs) seeds for distribution sale is a logical starting point for their seed business.

Yet, seed companies also know that their future competitiveness depends on bringing better quality/higher yielding seeds to the market including hybrids which are not yet commercially produced in South Sudan.¹² At present, seed companies are stymied by Africa-wide shortages of foundation seeds from genetically pure breeder seeds (including South Sudan) and the lack of internal funds to allocate to product development.

PROSeed Limited took the lead among STASS member companies and produced on 8.5ha of land 13,000 kg of foundation seed for the maize variety Longe 5 from MAFS breeder seed in season 2022A working with two out growers, one female and one male. These foundation seeds were later processed, packed in varying quantities, and sold to seed companies, such as Afrogenics in Torit, Smart Seeds, and Seed Grow for QDS multiplication in season 2022B (reference A3SEED Annual Report, page 13).

Magwi Seed Company Limited (MASCO) and Afrogenics Seed Company produced 8,000 kg of foundation seeds of maize, groundnuts, and beans sourced Polataka Basic Seed Centre.

Access to early generation seed totaling 6.5 MT (mostly maize) has enabled the seed companies to double their production in both season 2022A and season 2022B (reference A3SEED Annual Report page 15). Grain farmers also report yield increases of between 30%

¹² Interviews with Isacc Woja Enock of ProSeed and Mr Francis Bile of Seed Grow on their plans for company growth.

– 60% from using QDS maize multiplied from foundation seeds (reference FGD with farmers in the Magwi/Torit hub).

The project assumed it could leverage past donor investments in MAFS' breeding program to source genetically pure breeder seeds at scale. This assumption proved to be false. As such, the A3SEED EGS agenda was put on the back burner. It needs to be put back on the front burner.

- A3SEED seed company partners have developed an effective out grower production model for QDS (even with its teething problems noted above) which can be used to produce foundation seeds with some adjustments: careful selection of out growers and production sites and more intensive seed company technical assistance to out growers.
- Pro-Seed's, MASCO's and Afroganic's modest foundation seed pilots signal to the sector that the private sector cannot afford to wait for MAFS to produce genetically pure foundation seeds at scale nor hope that Africa-wide supply shortages will be solved in the near term. It is likely that more seed companies will jump on this bandwagon provided they can pool and supplement their limited product development budgets. Selected seed companies should start small with 1 or 2 qualified out growers and build from there because of the technical rigor of multiplying foundation seeds.

A potential solution to accelerating A3SEED's EGS intervention could be found in the following discussion on what to "strengthen" STASS to do.

1.1.2c: Strengthen the Seed Trader Association:

A3SEED has invested in establishing STASS¹³ but it was unclear to the MTR team just how A3SEED has strengthened STASS and, for that matter, what to strengthen it to do. A3SEED reports that STASS advocates for better policies with Government, seed certification and minimizing the distorting effect of SeedAid on markets but we didn't see any evidence of STASS's advocacy work on the ground. STASS did create local chapters, and this is very important for gathering market intelligence on seed demand, addressing local government issues but the local chapters are dis-connected from STASS headquarters (reference interviews with local STASS chapter coordinators).

STASS could perform the critical function of coordination which is vitally important in thin/nascent markets because market players don't know but need to know each other (e.g., seed companies, agro-dealers, processors, relevant government officials) and why working together is the best way to solve problems.

- A private sector led EGS foundation seed program will require a high degree of coordination between MAFS, university-based breeders, and seed companies. The MAFS may push back against this unless they can see mutual benefits of allowing the private sector to take the lead in commercializing breeding technology from local professional breeders within and outside government.
- Working capital shortages prevents timely buy back of seeds from out growers among some of its members. Unless addressed this will undermine the effectiveness

¹³ USD 128,250, reference A3SEED records.

(more seed consumed and sold as grain) and efficiency (e.g., wasted investment in drop-outs) of this seed production system. A STASS coordinated seed SAACO among its membership will require incentives and enforceable sanctions for it to be effective and worthy of support by current and future STASS members (reference interview with Isaac Woja Enock head of STASS).

- STASS can play an important coordinating role to guide and inform new entrants in the seed market – likely with very different backgrounds than its agriculture trained professionals/seed farming pioneers – with knowledge of best practices and codes of conduct to preserve the seed industry’s well-deserved reputation as being pro-farmer.
- A3SEED should reformulate its current offer with STASS to clarify the purpose of STASS strengthening initiatives, how these initiatives will benefit members and put in place cost share payments contingent upon STASS performance benchmarks.

In thin nascent market systems, there is a tendency for firms to do everything themselves (e.g., land clearance, pre-finance out grower production, crop spraying) because there are no supporting services (e.g., finance, training, spraying services) to turn to for assistance. While embedding many services to kickstart production is a logical starting point it can lead to a costly, unsustainable business model. STASS can counter this go-it-alone tendency by organizing information exchanges between its membership on the potential to outsource services as part of its business model. A3SEED project design includes an intervention to facilitate access to input support mechanisms (result area 3.4) which broadly speaking is all about assisting seed companies to become more competitive.

Dunavant, a multinational cotton company operating in Zambia in the early 2000’s, embedded many services in their out-grower model with cotton farmers because there were no established commercial service providers and banks avoided agriculture in a copper-led economy. PROFIT, a USAID funded project, developed the services market – land clearing, spray services, logistics etc – so that these large cotton companies could outsource rather than embed these services in their business model. The cost price of cotton ready for ginning was reduced by around 20% as a result. (Reference PROFIT project reports, 2007)

1.1.2 d: Decentralize seed quality assurance:

A robust quality assurance system performs a critical market system function: it lowers the farmer/consumer search costs and risks to find genuine quality seeds in a context of both genuine and fake seeds. Key informants interviewed for this study suspect there are fake seeds in the seed market that are either sold and/or distributed as seeds but are actually grain.¹⁴ There has been no formal study on the degree of fake seeds in the market and its potential chilling effect on farmer demand. A3SEED will need to monitor this issue and take corrective action. For example, the prevalence of fake seeds in the Uganda seed market (circa 2015) was so pernicious that donors and the Government of Uganda intensively

¹⁴ Once seeds are treated, they can not be sold as grain.

studied this problem with a view to adopt formal mechanisms to counteract cheaters including police raids.¹⁵

There is no complete certification protocol in place in South Sudan to formally “certify” seed. QDS is an “informal” designation adopted by seed companies in the absence a government seed policy and related regulations and standards. FAO tests seeds they procure at three different points: at the farm, in the truck during transit, and at the FAO warehouse. FAO tests for germination rates (e.g., higher than 85%) and moisture content. It does not test for genetic purity. At present, an FAO funded consultant is working with the Government of South Sudan to put in place a formal certification system (reference interview with Vincent Kiwanuku, WFP).

A3SEED has put in place the information, the processes (the sequential steps in a uniform testing regime for lab technicians), and the capacity for third party inspectors (training local inspectors to perform basic tests with appropriate equipment) to decentralize quality assurance at the sites of seed production. However, inspection and lab testing services are not being used by seed companies as they should be. At present, they do not see the benefits of paying for inspections other than some testing for germination rates for meeting the criteria set by SeedAid channel clients. It is unlikely that they will adopt this fully (inspection and testing) until the Government adopts a seed policy with regulations against which seed companies must comply (reference interviews with inspectors and seed companies).

It is premature for A3SEED to invest more in a decentralized third-party quality assurance system until a formal seed policy is in place. The OU team found that the market itself is disciplining seed vendors: farmers will not buy the same seeds if they underperform as advertised (reference FGDs with farmers in the Magwi/Torit and Yambio hubs).

The Quality Control Board is better positioned than A3SEED to advance this quality assurance agenda in the absence of a seed policy. The quality control board consisting of MAFS, FAO and Cordaid have dedicated resources to coordinate for seed testing. As such, A3SEED should phase out its work in this area and let the seed control board manage this process. Instead A3SEED should focus, through its partnership with STASS, on ensuring that the private sector has a seat at the policy table to present evidence on the attention paid to quality in their out grower production model and their effectiveness, yet to be studied, in maintaining the genetic purity of early generation seed.

1.1.2e: Promote domestic seed procurement by relief and development efforts.

FAO adopted a policy of sourcing 25% of its annual procurement for South Sudan – ranging for 5,000 – 10,000 MT of seed depending on need – because South Sudan bidders could not compete on costs against other firms based in the region (the cost of locally produced seed is estimated to be 25% higher than regional suppliers, reference interview with FAO in Juba). This policy has worked in providing opportunities for South Sudan companies as FAO has incrementally increased local sourcing from 25% in 2019/20 to almost 50% in 2022/23 (reference interview FAO). Local procurement, however, does not equate with the supply of locally produced seeds. In the most recent procurement, FAO reports that of all the maize

¹⁵ *Evaluation of the impact of e-verification on counterfeit agricultural inputs and technology adoption* IFPRI contract with USAID. *Anti-counterfeiting within the seed sector in Uganda*, Bill and Melinda Gates Foundation. *Assessment to understand the legal/regulatory basis for anti-counterfeit enforcement action/s*, USAID. *Anti-counterfeit private sector task force*, convened by Government of Uganda and funded by USAID.

seed procured from South Sudan companies (traders, agro-dealers, seed companies) 80% was imported seed and 20% was sourced from locally produced seed.

Winning a SeedAid tender can be good for the seed company for two reasons: it offers them bulk sales at higher prices than retail, USD 1.5/kg versus USD 1.00/kg. However, the SeedAid channel is not always a guaranteed market and presents risk of loss when the

winning bidder fails to meet FAO standards on germination rates and moisture content or when the tender holder seeks to renegotiate the price because of higher costs than expected (see text box).

One company sought a price adjustment from the FAO upon the delivery of treated seeds against a multi-million-dollar contract. FAO could not comply with the request because it would have been a violation of FAO's competitive bidding process. The supplying company lost USD 1,000,000 on this contract. *Joseph Okidi FAO.*

The SeedAid channel may be good for the seed company, but it may not be good for agriculture. A3SEED's

study on Seed Aid Governance in the South Sudan (IFDC and KIT, January 2023) found that SeedAid did not raise maize productivity between those farm-households who did or did not receive seed aid nor did it have a significant effect on land under maize cultivation (page 16).

The distribution of free seeds may not have distorted farmers incentives to buy packaged seeds as much as had been thought (A3SEED AR 2021 and 2022). In fact, it made have sowed the seeds of dissatisfaction among seed users encouraging them to seek alternative sources. In our view, the main negative effect of seed aid on the seed market is that distribution of free seed effectively blocks consumer/farmer feedback to seed producers and agro-dealers.

Resilient Farmers Navigate Seed Challenges: Insights from Nzara County

Ms. Baskita Grace and Ms. Nadia Samuel, two hardworking farmers from Nzara county in Yambio, share a common tale of hope and disappointment. In a recent focus group discussion, Ms. Baskita recounted her experience as a recipient of free maize seed for the past two years. However, her excitement dimmed when last year's harvest yielded a mere 6 bags of grain from the 1-acre plot where she sowed the seeds. Ms. Nadia's story mirrored this disheartening outcome, with just 1.5 bags of grain harvested from her own 1-acre field. Both farmers expressed dissatisfaction with the quality of the provided seeds and found the quantity insufficient for their available land. Faced with no alternative sources, they resorted to purchasing maize grain from the local market at USD 1 per kg for planting. Despite the uncertainty of future free seed distribution, both women revealed their willingness to invest in quality seeds, with Ms. Baskita even suggesting she would pay USD 1.5 per kg for maize seed if it met her standards. Their anecdotes shed light on the challenges faced by modest-income farmers and the value they place on dependable seed resources.

In addition, why would seed companies want to position their seeds in a distribution channel perceived by farmers to deliver, often too late, varieties poorly adapted to local agro-ecological conditions and farming practices. (reference A3SEED SeedAid report, page 17).

A3SEED needs to take a view on its role in encouraging its seed company partners to participate in the SeedAid channel or not. There is very little rationale for seed companies in the greenbelt (Torit, Magwi, Yambio) to pursue SeedAid tenders when demand exists among farmers for more and better seeds with a demonstrated willingness to pay market prices. According to STASS chairman, seed companies are looking to increase supplying the private

sector channel over the SeedAid channel so that they can get feedback on farmer preferences which in turn improves seed production planning.

The Rumbek and Bor hubs, on the other hand, are States with greater food insecurity, less agriculture potential, and a far less developed commercial seed market. As such there is a greater justification for A3SEED's seed company partners in these hubs to pursue the SeedAid tender market. A3SEED reported that local government officials in these hubs want the SeedAid channel to exclusively source locally with a focus on crop and seed varieties preferred by farmers.¹⁶ Parenthetically, the State Ministry of Agriculture, Forestry and Environment based in Yambio has prevented the delivery of SeedAid to his region (reference interview with Hon. Alison Barnaba and Samuel Datio).

In all hubs, A3SEED should seek partnerships with key players in the SeedAid channel (FAO, WFP, NGOs) with incentives aligned with A3SEED's private sector approach. Interviews with FAO (Joseph Okidi) and WFP (Vincent Kiwanuka) indicated that they are reshaping livelihood programs to bridge access gaps for agriculture inputs through voucher schemes which will rely on agro-dealers as places where farmers can redeem their vouchers.

1.2. Results Area 2. Quality Seed Use and Good Agricultural Practice

1.2.1 Overview:

This result area includes four (4) interventions¹⁷ and targets two groups: out growers of seed companies and small holder farmers/consumers of better quality seeds and related agronomic practices. As quality seed use and related GAP is inextricably linked to the success of a seed company's out grower production system, progress made with out growers and their contribution to results were discussed in Result Area 1: Quality Seed Production. Our focus here is A3SEED's progress in reaching out to commercially oriented small holder farmers by means of both direct – group-based field training at demonstration plots and farmer field days – and indirect approaches through radio jingles, radio shows and flyers.

A3SEED reports that over 7,307 farmers (45% female and 55% male) were reached by means of these extension approaches in all five hubs. An additional 29,232 farmers benefited indirectly through radio messages, interacting with farmers who have been trained directly, and observation of demonstration plots (reference A3SEED AR 2022, page 24).

1.2.2: Findings and recommendations:

In presenting our findings and recommendations we will combine interventions in scaling seed use by different private sector extension approaches (services, demonstrations, ICT) as

¹⁶ The A3SEED team did not know FAO's position on this request.

¹⁷ Scaling quality seed use and good agricultural practices (GAPs) through private sector-led extension. ICT4Ag solutions to support private sector led extension. Develop evidence-based soil fertility management recommendations. Develop evidence-based crop protection recommendations

one intervention and developing an evidence base for recommendations in soil fertility management and crop protection as the other intervention.

1.2.2 a: Scaling seed use through different methods of private sector led extension:

South Sudan is a data desert when it comes to agronomic and market intelligence. According to the A3SEED baseline survey, less than half of the households in the sample (40%) indicated having interacted with an agricultural advisor or extension agent during the last agricultural season (A3SEED Baseline Project Report, page 11). NGOs are farmer's primary source of information followed by government. A3SEED interventions to fill information voids included radio shows, demonstration plots, extension services to out growers (not yet direct to grain farmers) and seed fairs.

Radio shows do build awareness, at scale, that quality seeds exist and where to get them as illustrated by interviews with agro-dealers who reported that customers heard about their shop's existence from the radio. Demonstration plots have been important mechanisms to transmit knowledge, but they are costly and have limited outreach to grain farmers. Farmers are copying better agronomic practices from their out grower neighbors (mainly line planting and spacing) with modest improvements in yields. Conversely, farmers are planting what are advertised as better seeds from the SeedAid channel and getting disappointing results. (reference A3SEED Governance of SeedAid and farmer interviews).

Scaling up of quality seed use by small holder farmers is much more likely when farmers combine the use of better seeds with better agronomic practices as this gives them higher yields. Agro-dealers are best placed in the system to combine both these functions and there are indications that some agro-dealers have already adopted a sale plus services business model as noted by agro-dealers Vincent Okut and Simon Mbata (text box).

Empowering Agriculture: Vincent Okut and Simon Mbata's Transformative Agroinput Ventures in South Sudan

Vincent Okut, an agronomy expert in Torit, runs an agroinput store stocked with high-quality seeds from Afrogenics, ProSeed, and imported hybrid varieties from Uganda. In addition to seeds, Vincent also sold other inputs such as fertilizers, pesticides, and farming tools from his shop. He held a good reputation in the community as he also offered GAP advise to his clientele. This business brought him a net profit of 30%. The margins from local seeds was relatively lower at around 20% as an introductory offer to farmers.

Similarly, Simon Mbata, a burgeoning agro dealer from Yambio, matches this impressive 30% net margin, strategically tailoring his offerings and curating his input inventory to customer preferences. Simon's success enables him to expand his impact and he is already considering employing sales agents working on commissions and extend his reach to distant farming communities.

The MTR recommends that A3SEED:

- Update the baseline survey data to determine who commercially oriented small holders turn to for advice with the completion of one full agriculture season to include agro-dealers, seed company extension workers, farmer to farmer exchanges, government, and NGOs.
- Better understand how agro-dealers can embed better information and knowledge of GAP into their offers to their customers (farmers) and customer feedback (crop/variety preferences) to their seed company suppliers (see Results Area 3 for a more detailed discussion of this recommendation).

- Explore the use of out grower farms as demonstration plots especially those located relatively close to agro-dealer shops and other points of sale.
- Continue paying for radio shows: the format and content builds awareness of where to go versus selling any specific brand; it's premature to expect agro-dealers to investment in advertising in a thin market.
- Explore the feasibility of seeking sponsors for these shows by companies, like seed companies, with an interest in getting their message to the farming community.

1.2.2.b Evidence based on soil fertility management and crop protection recommendations.

The future sustainability of South Sudan's agriculture productivity, resilience and sustained farm incomes depends on farmer adoption of climate smart practices which include Integrated Soil Fertility Management (ISFM) and Integrated Pest Management (IPM). A3SEED's contribution to this vision has been to publish useful manuals on ISFM and IPM with recommendations to farmers for their adoption. There is evidence that neighboring farmers of out growers are copying some better agronomic practices (e.g., line planting and spacing) but that's about the extent of it. It's safe to assume that grain farmers don't yet see the benefits of investing in ISFM and IPM practices as they have not yet been targeted for this by the project.

A3SEED faces a strategic choice: Should the project support direct farmer subsidies to create future farmer demand for a full or partial suite of climate smart agronomic practices? Or should the project do more research on the benefits of adopting these practices as the basis for future adoption by farmers, their suppliers of inputs and buyers of outputs?

The OU team believes that the second option is more consistent with A3SEED's organizing rationale of being demand led. Additionally, A3SEED cannot meet adoption targets of these practices by farmers without direct delivery and/or imposing these targets on its seed company partners.

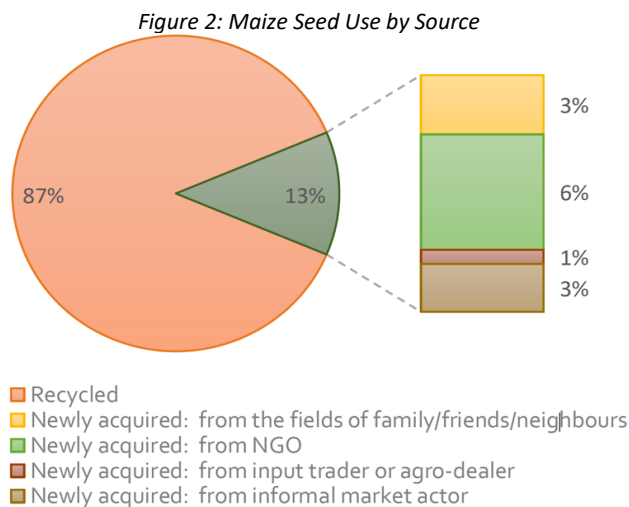
A3SEED should:

- Rethink this intervention as perhaps more of an applied research activity by learning more about the changes in soil fertility on out grower fields that may have resulted from their adoption of improved agronomic practices. More evidence is needed on what agronomic practices work in South Sudan's different agro-climatic settings.
- Consider a partnership with a relevant University of Juba department where agronomic practices are studied for use by the private sector.
- Explore the feasibility of other agriculture service options where the case for adoption is driven by farmer demand. A3SEED will soon pilot test a private spray service. This is a good first start.

1.3. Results Area 3. Quality Seed, Input and Output Marketing and Distribution

1.3.1: Overview:

Figure 2: Maize Seed Use by Source shows that of all maize seeds used by commercially oriented farmers 87% recycled their own seeds, they sourced 6% from the SeedAid channel and 7% from market-based transactions of different types. A negligible 1% came from input traders and agro-dealers. (reference A3SEED baseline report, page 27). A3SEED data shows that commercial sales to commercially oriented farmers increased to almost 6.2% by 2022 from direct seed company sales, seed fairs, agro-dealers and grain traders (reference A3SEED AR 2022, page 25).



While small, this is a significant increase and suggests to us that the lack of supply of quality seeds delivered at the right price, right place and right time is the biggest limiting factor in the growth of the private commercial seed market. Interviews with QDS out growers, their neighboring farmers, seed company representatives, and their agro-dealers all corroborated this finding: small holders want more and better seeds and are willing to pay for them at market prices ranging from \$1-1.2/kg for locally produced and packaged QDS seeds to as high as \$5-10/kg for imported certified hybrid maize seed.

Put another way, farmers are short of seeds to plant and will use whatever seeds they can get rather than not plant at all. Anecdotal information supports this finding: no locally produced QDS seed available through private channels goes unsold; and farmers are copying better out grower practices (e.g., line planting, spacing) without better seeds and getting modest yield improvements. They can see the big difference in yields¹⁸ when better practices are combined with better seeds. Small holders perceive that local seeds are cheaper and better than imported seeds. *Why? Seeing is believing!*

From Recycling to Purchasing Quality Seeds: A gradual shift in farmer perception on seeds in Torit

In Torit, a focus group was held with farmers who shifted from using recycled seeds to purchasing maize and ground nut seeds from "Afrognics" – a seed company supported by A3SEED. This marked their first venture into purchasing seed as it became available through the Afrognics sales point for the 2023 season. Although none of these farmers had harvested yet, they expressed confidence in obtaining higher yields due to better seed quality. Interestingly, they planned to revert to recycling seeds from their produce, believing the "pure" seed would sustain good yields for multiple cycles.

This underscores the gradual nature of altering farmer behavior and perceptions.

¹⁸ Small holders select varieties mainly for their yields. Reference A3SEED baseline survey, page 27

1.3.2: Findings and Recommendations:

Our review of progress combines two interventions: facilitate last mile distribution through private sector delivery channels and establish agribusiness clusters (ABCs). These interventions are two sides of the same coin: one side of the coin is supply push and the other side is demand pull (ABCs). Both approaches are complementary but in our view demand pull will more likely come from bulk buyers of seeds such as farmer cooperatives and processors of grain than through newly established ABCs.

1.3.2 a: Facilitate last-mile distribution through private seed and agro input dealers and establish ABCs

Table 5: Distribution of QDS by Source shows the different channels of commercial seed distribution from all seed company partners (reference Table 5, A3SEED AR 2022, page 27).

Table 5: Distribution of QDS by Source

Source	Agro-dealer	Sales Agent	Village Agent	Grain Trader
Number	33	19	60	16

New sources of agro-input distribution are centered primarily in the greenbelt but both Sun City (Bor) and AMASCO (Rumbek) have increased their outreach to commercially oriented farmers with a combined total of 4 agro-dealers, six sales agents and 5 village-based agents as part of their distribution network. Only ProSeed used grain traders as a means of seed distribution and sales.

A3SEED supported the establishment of agro-dealers through training in business modeling to include engaging village-based agents, basic business management, marketing, and customer care. A3SEED encouraged seed companies to distribute free, 50-gram sachet packs of seeds, to farmers as part of their marketing strategy. A total of 1,750 seed packets of different crops/varieties were distributed.¹⁹ (Reference A3SEED AR 2022, page 23).

The established agro-dealer shops and marketing outlets have reduced the distances traveled by farmers looking for seeds in the markets in the project areas. According to the A3SEED baseline report, it takes an unacceptably high average of about 93 minutes (by foot, bicycle, or motorbike) for a farmer to reach the nearest agro-dealer.²⁰ It's no wonder that 77% baseline survey respondents had not visited an agro-dealer or input supplier at all during the 2021 cropping season.²¹ Conversely, when farmers have more convenient access to an agro-dealer they make frequent visits²² during the cropping season.

¹⁹ 720 sachet packets of maize, 710 of sorghum and 420 of cowpeas

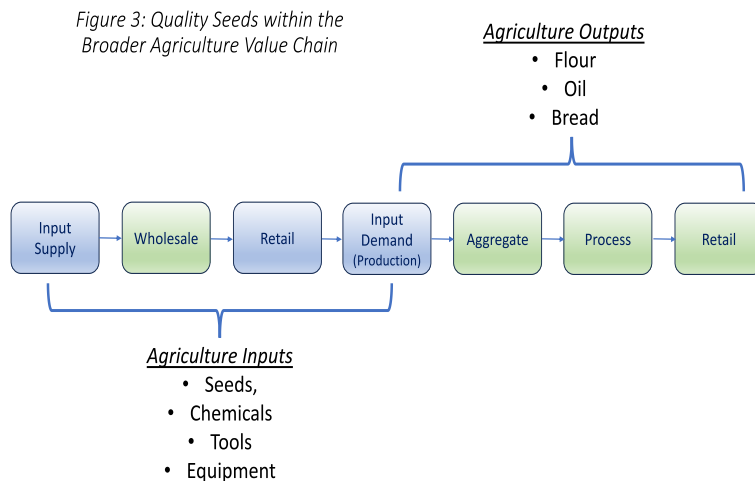
²⁰ Reference, A3SEED baseline survey, page 12.

²¹ Ibid

²² An average of 2.4 visits per cropping season, reference A3SEED baseline survey page 12.

The MTR was better able to assess what's working, what's not, what could work to improve small holder access and use of genuine, quality seeds through the lens of a more complete picture of the quality seed value chain.

Figure 3: Quality Seeds within the Broader Agriculture Value Chain places A3SEED's picture of the seed market value chain (blue shaded boxes) within this more complete picture (green shaded boxes).



At present, there is confusion on which player (seed company vs agro-dealer) is best positioned to retail quality seeds to farmers. This has resulted in some competition for customers between agro-dealers and seed companies. Aware of this clash of incentives, some seed companies have discontinued their own retail sales and refer customers to agro-dealers. They report that more quality seeds get sold when retail is left to agro-dealers and their own network of sales agents. Agro-dealers are “closer” to customers which allows them to customize and adjust their product/service offers to their context -- irrigated vs rainfed, highland vs lowland, surplus vs subsistence farming.

To Make or Buy Decision:
 Klein Karoo, a South Africa seed company doing business in Mozambique, saw the writing on the wall that the Government of Mozambique was going to discontinue its procurement of OPV seeds as part of its food security policy. The company decided to sell their imported seeds through every channel possible including, at the start, setting up five company-owned agro-dealers in different regions of the country. After 3 years of operation, Klein Karoo closed their own agro-dealer shops because it was far more cost-effective to sell their seeds through agro-dealers or distributors. (reference interview with Klein Karoo country manager in 2018 for an MTR of the USAID, Inova Project).

Other seed companies – in all 5 hubs -- continue to pursue direct sales through their own retail outlets including their own part time sales agents. Seed companies in the greenbelt will realize it will be more cost effective to expand sales through independent agro-dealers than investing in more company owned agro-dealer sales outlets (see text box).

The expansion options for seed companies serving Bor (Sun City)

and Rumbek (AMASCO) are limited to referrals to Juba based agro-dealers or investing in their own retail shops which can be profitable with limited startup capital²³ but they are also very time intensive and can dilute seed company limited staff capacity.

Seed companies have required agro-dealers to sell their packaged seeds at an introductory price of around \$1.00/kg to encourage more farmer sales of a relatively new packaged seed product in the market. According to STASS, the local seed industry's coordinating body, this sales price includes profit margins for both seed companies and agro dealers. Interviews

²³ Vincent Okut, an agro-dealer in Torit, started with an inventory valued at USD2,000 and grew it to USD 10,000 after one agriculture year.

with agro-dealers, however, suggests that profit margins embedded in this price may be insufficient for them to aggressively promote locally produced packaged seeds. STASS is now recommending to its members to drop uniform pricing and allow retail seed sellers to set prices in line with commercially oriented farmers willingness to pay premium prices for better performing seeds. (Reference post-review email exchange with A3SEED's Justin Miteng).

Interviews with established agro-dealers in Torit and Yambio show that incentives are reshaping their business model from one of sales alone to include services: advising customers on product options/choices and better agronomic practices; outreach to potential customers through sales agents instead of waiting for them to come to the shop. Interviews with more established and larger agro-dealers in Juba tells a similar story of embedding more services in sales including supplier credit for best customers and trialing mobile money for more distant customers in Bor and Rumbek (reference interview with Keji Clara (F), store manager, Farm Foundation agro-dealer, Juba).

Agriculture product output links in the value chain are presently missing from A3SEED's view of the seed market²⁴ but they should be added especially to link the wholesale function of seed sales to potential bulk buyers of seeds such as grain processors and farmer cooperatives. Interviews with Juba-based grain mill owners/operators pointed to installed milling capacity from a low of 10MT/day (Geofry Kape at Kaniyek Millers) to a high of 50 MT/day for sorghum flour and 100 MT/day for maize flour (Ruben Laku Pious at Blessing Millers). Ruben Laku reports that local grain is cheaper and better than imported grain with a higher milling efficiency (75% local grain vs 64% imported grain). The mills operate at around 25-30% installed capacity; their future profitability depends on sourcing larger quantities of grain locally.

They have a huge incentive to invest in a reliable source of local grain at scale. Blessing has recently entered into a pre-sales agreement with the Kare Seed Company to produce quality maize seeds for use in Blessing's own farm and for distribution through traders to grain farmers (Reference Rueben Laku Pious, technical consultant to Blessing Millers).

The MTR recommends that strengthening the weak retail function in the agriculture inputs market requires immediate A3SEED attention and this is best done with independent agro-dealers in coordination with seed companies and already established ABCs. The MTR recommends that A3SEED take the following steps to formulate a strategy and plan to work with existing or create new agro-dealers where they are needed most.

- Urge seed companies to shift from retail to wholesale. Two key lessons support this conclusion: seed companies sell more seed when they work through agro-dealers; its time consuming and will detract seed companies from their core business. Seed companies operating in regions where agro-dealers do not exist will have no other option than to directly sell seeds to small holder farmers, refer customers to Juba based agro-dealers and await the arrival of more independent agro-dealers through A3SEED and other project efforts.²⁵
- Create a dedicated intervention area to support existing agro-dealers not yet in seed company networks and/or create new ones. A3SEED will need to understand more about agro-dealers within its project hubs to create selection criteria and frame transactional and performance-based offers with ambitious yet realistic targets. A

²⁴ This may be the case because the 2Scale project works with agro-processors.

²⁵ USAID's Resilience through Agriculture in South Sudan (RASS) has a dedicated component on agriculture input markets including retail.

growing customer facing retail function can be a job generator for women and youth as sales agents, extension advisors, service providers to grain farmers.

- Discontinue allocating resources to the creation of new ABCs and those that are not fully developed. A3SEED experience suggests that these mechanisms are slow/costly to form with real concerns about ownership – the participants, seed companies or the project? Continue to work with ABCs in the Torit and Yambio hubs where ABC's are represented by all value chain actors as originally envisaged by A3SEED.
- A3SEED should assess how agro-dealers and ABC's interact to improve access by farmers to a diverse mix of affordable and genuine agriculture products and services on a timely basis.
- Learn more about customer facing agro-dealer businesses and their networks in the Africa region. Discover how their business models emerged, the gradual integration of services (e.g., spraying) to add customer value, and their strategies for growth both in competitive and nascent markets settings.²⁶
- Seek more flexibility from EKN to engage directly with existing Juba-based agro-processors²⁷ so that A3SEED can better understand their mutual incentives to establish business links: seed companies have information on their production plans and the prospects for multiplying new and better local seeds (e.g., foundation seeds); and processors have knowledge of farmer demand for better seeds.

1.3.2 b: Promote women and youth empowerment in seeds, inputs, and commodity aggregation and marketing

The increased participation of women and youth from subsistence to commercial agriculture can be blocked by disabling societal social and cultural norms. In South Sudan, specific circumstances of women such as land ownership challenges, security and mobility issues, social restrictions, and the inter-household work burden of women – all impede women's engagement in seed and related sectors as producers and sellers of quality seeds.²⁸ Yet, at the same time, women were found to comprise the majority of the customer base for most of the interviewed seed vendors and agro-dealers (for seeds). All this indicates that women's role in seed purchase is very important.²⁹

The IFDC and the KIT inclusion team conducted inclusion/empowerment training for a total of 87 women along with seed company extension workers, ABC coaches, personnel from the county agriculture department, project hub coordinators, seed-producing cooperatives, agro-dealers, and out grower farmers. The trainings provided an opportunity for women participants to interact with male counterparts in a way that promoted understanding of women and youth challenges, leading their male counterparts to gain an understanding of

²⁶ Opportunities Unlimited has studied agro-dealers in various Africa countries including Ethiopia, Kenya, Uganda

²⁷ Rueben at Blessing reported that 3 or 4 new processors will be entering the South Sudan market.

²⁸ Report on Gender and Youth Assessment of Seed Sector in South Sudan, Fouzia Nasreen, Canopy Lab, May 2021

²⁹ Ibid, page 26

appropriate inclusion strategies and gender and youth inclusion issues that would likely emerge during project implementation.

The MTR was unable to track how these trainings have influenced seed company behavior toward women. We did learn that some seed companies prefer male extension agents to support out growers of QDS because of the mobility constraints females face (e.g., security while in the field, transport by car versus motorcycle/bicycle) when serving out growers in dispersed large areas. However, seed companies have found female extension agents to be superior to their male counterparts in accelerating out grower adoption of GAP.

Women and youth participate in the seed market as out growers of foundation and quality declared seeds, extension agents, and more recently as sales agents for seed companies. The seed market values women's contribution as showcased by the empowering journey of Garibere Josephene in Yambio (see text box). In the relatively brief period of three years, Josephene has gone from a user of recycled maize/sorghum seeds to a producer of foundation seeds, which in turn has elevated her status as a community leader and trusted source of information about seeds. She has been recruited by ProSeed as a sales agent because of her reputation as an experienced user of better quality seeds and GAP.

Seeds of Transformation: The Empowering Journey of Garibere Josephene in Yambio

Garibere Josephene used to recycle maize and sorghum seed for her own use on 1 feddan. In 2019, FAO introduced her to ProSeed which changed her life! Before this, she did not even know how to plant seed properly and then she was able to learn everything about seed multiplication from ProSeed. After successfully producing QDS for ProSeed for two years, she graduated to produce foundation seed for them (after A3SEED partnered with ProSeed).

In 2020, she produced foundation seed using breeder seed provided by ProSeed for the first time. Foundation seed production was relatively more profitable than producing QDS. She used all her income from this to open more land and by 2022, she was producing foundation seed from 14 feddans. She has already opened up and prepared 40 feddans for foundation seed production for 2023 and had enough savings to construct a storage space for her seeds. Beyond her own success, Garibere has become a community leader, employing workers, advising fellow farmers—especially women—and acting as a vital QDS sales agent for ProSeed, exemplifying an inspiring journey of growth and empowerment.

The A3SEED project showcases the valuable contribution of women in commercial agriculture whereas humanitarian aid agencies tend to showcase their vulnerability in agriculture and society more generally. The A3SEED program could do more to influence humanitarian aid agency thinking about ways to help women reduce their vulnerability by showing their valuable contributions to agriculture.

- Remove this intervention from Results Area 3 and elevate A3SEEDs Inclusion objective as a cross cutting theme with activity and outcome targets in all results areas.
- Articulate through research the business case for integrating more women in the seed market as producers and sellers of quality seeds and in extension support to seed producers and seed users.

1.3.2 c: Facilitate access to input support mechanisms, including savings clubs, smart vouchers, and seed fairs

The majority of services received by out growers are embedded in their commercial relationship with seed companies. This includes access to foundation seed, extension, and financing for land opening and weeding. Seed out growers were given high yielding varieties of maize, groundnut, and sorghum on credit, and later, the seed companies bought back the produce at pre-agreed terms. These results of these embedded services are captured under Result Area 1: Commercial Quality Seed Production.

Groups based savings and agri-input buyer clubs could be an important part of A3SEEDs demand pull strategy. ABC's are in their formative stage and, as such, A3SEED has not yet reported the results of any activities it may have done to encourage ABC's to create these mechanisms.

A3SEED organized two agricultural trade shows: In Yei, 1,000 smallholder farmers (700 male and 300 female) accessed quality agricultural inputs. In Torit, 1,500 smallholder farmers (800 male and 700 female) purchased agro-inputs from agro dealers, seed companies. Sales at these events represent 3% of all sales of quality seeds (reference MELS data). The OU team could not track how attendance at trade show/seed fair influenced future demand for seeds; however, those attendees who want more seeds will face significant hurdles in gaining access given the nascent stage of agriculture inputs retail countrywide.

Subsequent to our study, the OU team did learn from the A3SEED team that the project is planning to launch a spray service intervention with six agro dealers (reference TOR for spray services in Eastern Equatoria State). Once launched, A3SEED should carefully monitor how the pilot works out in practice as this could become a future service agro-dealers and farmers could outsource to increase their efficiency.

1.4. Results Area 4: Capacity Building and Learning Agenda

1.4.1: Overview:

Our review of progress on the capacity building of professional cadres (e.g., extension workers, inspectors, lab technicians and inclusion sensitivity) and training manuals written on IFSM and IPM has been discussed in other Results Areas. This will not be repeated here. This section identifies what A3SEED has done to exchange learnings with different stakeholders and the targeted action research it has completed. The MTR comments on how these activities have contributed to overall progress against A3SEED goals.

1.4.2: Finding and Recommendations

1.4.2 a: Share learning through learning events:

A3SEED organized a three-day learning event in Yambio around the central theme of strengthening effective last-mile distribution of quality seed. The event attracted 120 participants including 82 commercially oriented farmers (40% women, 60% men among which were 33% young women and men), high ranking state government officials,

representatives from two seed companies, two grain processing and marketing cooperatives, agro-dealers and representatives from A3SEED, STASS, GIZ, World Vision and Cordaid.

Although the events focused on the theme of last mile distribution farmer/attendees were also interested in learning about good agriculture practices associated with quality seed use. The MTR confirmed that the awareness raising and trust building events on the A3SEED project also conveyed important messages about new, better performing varieties, the existence of local seed companies in Western Equatoria state and where to gain access to seeds in future.

A3SEED staff attended the Integrated Seed Sector Development (ISSD) Africa conference held in Kigali in October 2022 with a key take away that many functions of the seed market system need A3SEED attention (reference AR 2022 page 35). A3SEED stakeholders – IFDC, KIT, STASS, seed companies, Quality Control Board, MAFS Research Department, Cordaid – attended a seed certification multi-stakeholder meeting which resulted in A3SEED conducting refresher training for seed inspectors and lab technicians.

1.4.2 b: Targeted Action Research

The OU team read A3SEED's study on SeedAid Governance (January 2023). The paper informed our thinking on the possible distorting effects of widely disbursed free seed on the commercial seed market. In a context of huge seed shortages, commercially oriented farmers will use any seed they can get – recycling their own seed, seed exchanges with other farmers, free seed and purchased seed -- to grow grain and vegetable on large amounts of available land. The main problem with free seed distribution is that it effectively blocks farmer feedback useful for seed companies for production planning.

The OU team read The Gender and Youth Assessment of Seed Sector in South Sudan, May 2021. The report was a useful guide to understand the current and potentially future roles of women and youth in the commercial seed market. Our report corroborated the study's recommendations that seed companies get feedback from women on their crop/variety preferences (typically associated with family food security, health, and nutrition), opportunities for women as out growers of foundation and quality declared seeds and especially as sales agents because they are rightfully viewed by their neighbors as trusted sources on seed choice and use.

Throughout our review of progress of all 4 results areas, the OU team identified targeted action research topics that should be considered by A3SEED:

- Changes in soil fertility on out grower fields that may have resulted from their adoption of improved agronomic practices.
- Consumer research across a range of topics including satisfaction surveys of all seeds used and who commercially oriented small holders turn to for advice to improve their crop yields.
- More evidence is needed on what agronomic practices work in South Sudan's different agro-climatic settings.
- Articulate the business case for integrating more women in the seed market as producers and sellers of quality seeds and in extension support to seed producers and seed users.

Section 2: Recommendations for the Way Forward:

2.1: Re-frame Results Areas Definitions and Related A3SEED Interventions

A3SEED needs to reframe the definition and strategic intent of results areas and related interventions. *Tables 6a, 6b, 6c and 6d: Reframing Result Area Definitions and Intent* shows the MTR suggested changes at a glance. The current definition of the results areas and related interventions are either (i) keep as is, (ii) reframed by adding words (underlined) or dropping words (~~a line through them~~), and (iii) combining 2 results areas into one (**words in bold**). The intervention column summarises the MTR's main findings already presented. The column entitled A3SEED Implications include recommendations on removing two sub-results – STASS strengthening and Inclusion -- and elevating them as cross-cutting themes across all result areas. This column offers recommendations on staff composition (adding two new MELS staff and two new business advisors) to fill staff capacity gaps.

There are three main take aways in Results Area 1: (i) Remove STASS strengthening from here and manage its as cross cutting theme with activity and outcome targets across all the results areas; (ii) reallocate existing project resources or seek additional funding to focus on building a sustainable supply of early generation/foundations seeds; and, (iii) promote targeted support of SeedAid tenders for seed companies operating in Bor and Rumbek.

Table 6a: Reframing Results Area Definitions/Intent

Results Area 1: Commercial Quality Seed Production

Sub-Results	Interventions	A3SEED Implications
1.1 Sustainable Early Generation Supply	Private sector should take the lead given its urgency and government inertia	<ul style="list-style-type: none"> • STASS leads and A3SEED supports feasibility study and costs to arrive at tightly defined intervention. • Reallocate existing or seek new funding
1.2 Strengthen private seed companies <u>to be competitive</u>	Develop criteria on seed company entry and exit from A3SEED support based on capacity to compete in commercial channels.	Reframe seed company offer to focus on increasing distribution through commercial vs SeedAid channel
1.3 Develop local commercial seed production <u>system</u>	Measure success by capacity of outgrower system to multiply a diverse mix of seeds as seed companies learn more about consumer preferences	Urgently address cash flow problems at the time of buy back and rightsized storage at the site of seed production.
1.4 Strengthen STASS <u>to be an effective body to coordinate seed market players, private, public and SeedAid</u>	Reformulate STASS support to focus on its coordination role to address urgent strategic challenges in the sector.	Remove from Results Area 1 and create coordination of integrated seed sector as a cross cutting theme.
1.5 Decentralize seed quality assurance	Premature to advance formal regulations in absence of seed policy	Undertake research on consumer satisfaction and related behaviors about seed preferences in the absence of a third-party certifier.
1.6.1.6 Promote domestic seed procurement by relief and development efforts <u>targeted in more food insecure States with less agriculture potential.</u>	Promote seed company SeedAid participation only in Bor and Rumbek and phase out support to seed companies in the greenbelt.	Align A3SEED with humanitarian aid agencies seeking to find private sector solutions to food security – such as vouchers for agri-inputs.

There are three (3) key takeaways in Results Area 2: (i) make explicit that seed users are the target group this result area as out growers are covered in Result Area 1; (ii) update the baseline survey to better understand who commercially-oriented small holders turn to for advice on improving crop yields; and (iii) phase out A3SEED own research and phase-in support to university based research on IFSM and IPM readiness for adoption by farmers.

Table 6b: Reframing Results Area Definitions/Intent

Result Area 2: Quality Seed Use and Good Agricultural Practice by Commercially Oriented Small Holder Farmers

Sub Results	Interventions	A3SEED Implications
2.1/2.2 Scaling quality seed use (GAPs) through private sector-led extension and ICT solutions	<ul style="list-style-type: none"> • Update baseline survey data on who commercially oriented small holders turn to for advice to improve their yields • Study the feasibility of locating existing demonstration plots closer to the site of agro-dealers • Continue radio shows as a useful promotional tool for seed companies. 	<ul style="list-style-type: none"> • The target group for this intervention should focus on seed users and not outgrowers as they are already covered in results area 1. • Assess the potential of either third party sponsors or seed companies to pool resources to pay for radio as a promotional awareness raising tool.
2.3./ 2.4 Develop evidence-based soil fertility and crop protection management recommendations	Explore the business case for farmer adoption of ISFM and IPM as the basis for promotion to commercially oriented farmers.	Phase out A3SEED own research and phase into university research on these topics for future use by the private sector

There are four (4) key takeaways in Result Area 3: (i) reframe the definition of results area as Marketing and Distribution of a Diverse Mix of Quality Products and Services for Agriculture (ii) create a dedicated intervention to support existing and/or create new independent agro-dealers; (iii) create and recruit two (2) business advisors (iv) remove inclusion from this result area and elevate its status to a cross-cutting theme and (v) focus on making the business case for more inclusion in the seed market system.

Table 6c: Reframing Results Area Definitions/Intent

Results Area 3: Marketing and Distribution of a Diverse Mix of Quality Products and Services for Agriculture

Sub Results	Interventions	A3SEED Implications
3.1 Facilitate last-mile distribution through private seed and agro-dealers in all hubs	<ul style="list-style-type: none"> Seed companies to focus on bulk sales from cooperatives and processors Independent agro-dealers focus on retail sales 	<ul style="list-style-type: none"> Adjust A3SEED offer to seed companies to incentivize them to create pre-sales deals with large volume buyers Create a dedicated intervention on supporting existing and/or creating new independent agro-dealers. Create a job description for a business adviser position with the requisite qualifications and recruit 2 persons for this position including at least one female.
3.2 Establish agribusiness clusters through seed producers, input dealers, and traders	<ul style="list-style-type: none"> A potentially useful demand-pull mechanism in the seed market. 	<ul style="list-style-type: none"> Continue working with already established ABCs where all VC players are present. Don't create new ones and phase out under-performing ABCs. Explore roles of cooperatives to perform this function.
3.3 Promote women and youth empowerment in seeds, inputs, and commodity aggregation and marketing	Communicate through research and/or case studies the valuable contribution of more inclusion in the seed market.	<ul style="list-style-type: none"> Remove inclusion from this result area and elevate its status to a cross cutting theme in all results areas. Focus research and case studies on making the business case for more inclusion in the seed market system.
3.4 Facilitate access to input support mechanisms, including savings clubs, smart vouchers, and seed fairs	Important intervention requiring more A3SEED attention. The spray service pilot is a good start.	The rationale behind building services is to enable seed companies and commercially oriented small holders to outsource services linked to improved and more cost-effective performance.

There are three (3) key takeaways in Result Area 4: (i) Sub-results definitions are vague and without strategic direction; (ii) build A3SEED capacity as “local cadre capacity” is already

Table 6d: Reframing Results Area Definitions/Intent

Results Area 4: Capacity Building and Learning Agenda

Sub Results	Intervention	A3SEED Implications
4.1 Capacity building of local professional cadres of A3SEED staff to adopt a more holistic approach to seed sector development	<ul style="list-style-type: none"> Drop capacity building of local cadres as it is already included in other results areas. At a minimum build staff capacity in systems analysis and business advisory services. 	<ul style="list-style-type: none"> Identify training and backstopping support to fill these gaps. Consider adopting an MSD approach which the OU team believes is a better fit for A3SEED's goal achievement than the narrow private sector/seed company led approach (discussed below)
4.2 Share learning through learning events of A3SEED experience working with the private sector	<ul style="list-style-type: none"> Focus on lessons related to private sector solutions to issues of food insecurity. 	<ul style="list-style-type: none"> Interest exists among humanitarian agencies and donors to integrate the private sector as a partner to address food insecurity and related nutrition issues in South Sudan. Network with these agencies to form strategic alliances.
4.3 Targeted action research across a range of technical and business challenges	Develop a learning agenda and communications strategy to inform relevant audiences of A3SEEDs experience.	<p>Topics might include:</p> <ul style="list-style-type: none"> Enhanced soil fertility among outgrowers Consumer satisfaction surveys Evidence of GAP for different agro-climatic zones Business case for greater inclusion in the seed market system.

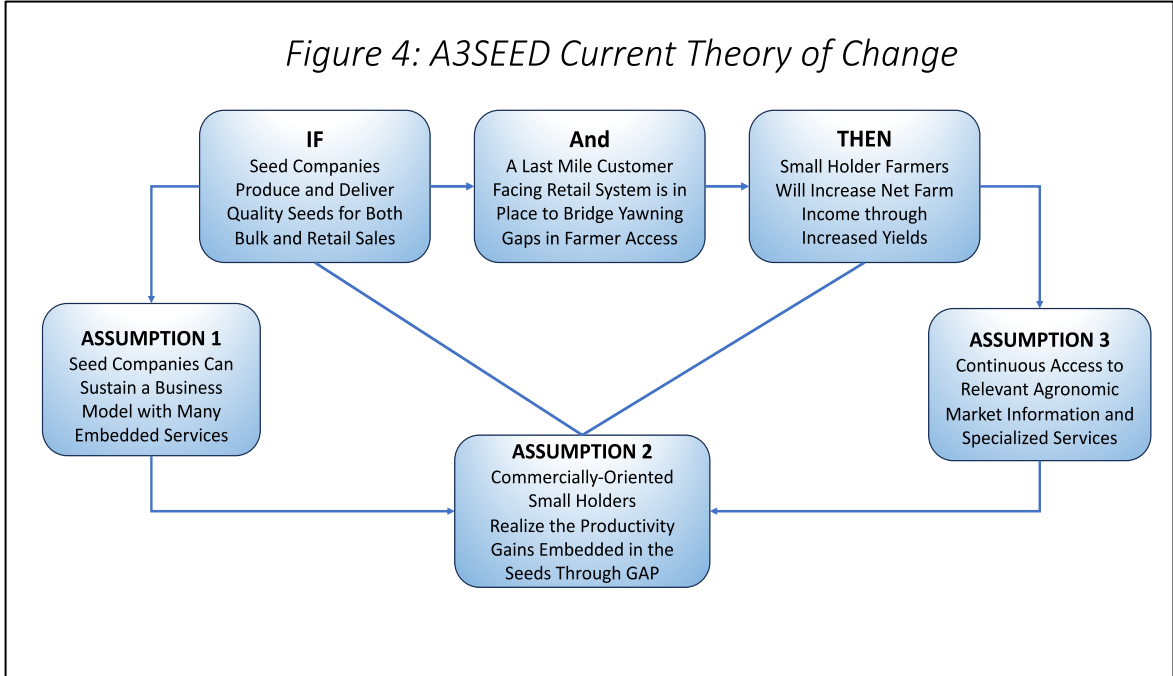
included in the other results areas; (iii) A3SEED is uniquely positioned to showcase private sector solutions to reducing food insecurity in the country.

A3SEED is currently organized by results areas which could result in silos of information and management unless the nuanced inter-relationships better each result area is better understood, and project management mechanisms are put in place to continuously share information at a team level between results area managers and hub coordinators.

2.2 Tighten Current Theory of Change or Adopt a More Wholistic Market System Development Theory of Change:

A3SEED’s current private/seed company led Theory of Change that guides project implementation is formulated this way. *If seed companies build upstream linkages with seed out-growers as well as downstream linkages with seed dealers and seed-aid agencies and indirectly also with seed consumers [then agriculture productivity and output will be improved].*³⁰

Figure 4: A3SEED Theory of Change is our interpretation of this statement in graphic form. It adds missing assumptions required to support the validity of this theory. Our MTR examined the first assumption – the sustainability of the seed company business model – and found that seed companies need to shift from doing everything themselves (e.g., vertical integration) to focus on their core competence: producing a diverse mix of quality seeds to meet the needs of commercially-oriented small holders and large sum buyers at wholesale prices. Some seed companies have realized this by doing pilots on foundation seeds and shifting out of retail and into wholesale. This will create more space for independent agro-dealers.



³⁰ Reference, TOR.

A tighter focus on sustainable seed company business models necessarily adds another step in A3SEEDs chain of logic – bridging access gaps through a customer facing last mile distribution system – that seed companies can't nor should try solving by themselves. A3SEED needs to foster the development of existing or new independent agro-dealers separate from seed companies. A3SEED currently has no particular view on how to strategically shape this function, aligned with its objective of inclusive growth. Nor does A3SEED have any partnerships with independent agro-dealers, and they must as the retail function is the weakest link in the seed market value chain.

In theory, assumption 2 is addressed by results area 2 -- Quality Seed Use and GAP – but so far A3SEED has primarily targeted out growers because of resource constraints. A3SEED needs to develop a cost-effective strategy and a set of related interventions to target commercially oriented small holders with the same bundle of better seeds and better practices so that they can realize the productivity gains embedded in the seeds. Strengthening independent agro-dealers to adopt customer facing models of distribution and sales is the recommended strategy.

The small sample of male and female commercially-oriented small holder farmers with whom we spoke tells us that they are early adopters of innovation and change and role models for neighboring farmers; thus, the addition of assumption 3. This group will want to have continuous access to diverse mix of products and services along with relevant agronomic and market information to take advantage of these agriculture inputs. This will require A3SEED to actively crowd in more private, public, university, humanitarian aid organizations into the commercial seed market system with objectives and policies aligned with A3SEED's private sector approach. A3SEED needs to better articulate the business case for these organizations to invest resources in a better functioning and inclusive seed market.

Figure 5: Quality Seed Market System presents a picture of South Sudan's multi-function (e.g., core, support, and rules) and multi-player (e.g., private, public, humanitarian aid and business member organization) quality seed market system. As shown in this figure, A3SEED interventions touch most every function in this system (the functions circled in green) but in our view there is no strategic coherence that ties these interventions together to facilitate seed market development in line with A3SEED's objectives. A3SEEDs journey through the system has been to link one market player -- seed companies -- to the wider system to find solutions to the challenges seed companies face.

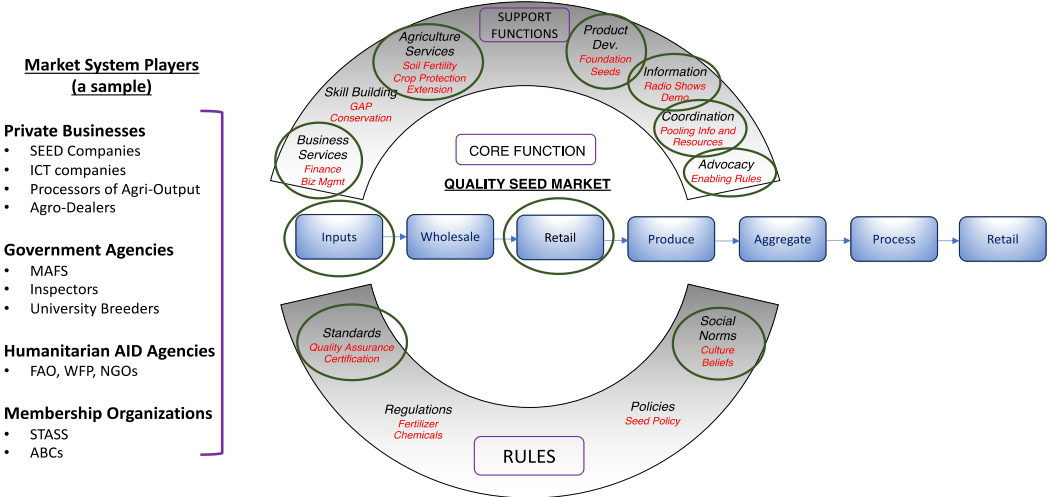
The solutions to many problems the seed market now faces – lack of information, finance, storage, and other agriculture services (land preparation, crop protection, soil fertility) product development (foundation seeds) – requires A3SEED to engage with a broader mix of market system players performing a broader mix of market system functions beyond the narrow confines of seed companies, their suppliers, and sellers. All the puzzle pieces of the broader seed market system are already included in A3SEED’s design; in the course of the MTR the OU team helped the A3SEED team to see how they could fit together.

The MTR concluded that the MSD approach is not only relevant, but it can work because the conditions exist to support this approach. Demand for quality seeds, though small, is effective as indicated by farmer’s willingness to pay market prices with enough margins for suppliers and sellers of those seeds. Key actors in the SeedAid channel recognize that access to quality agriculture inputs (beyond seeds) is constrained by the absence of a more robust private sector agro-dealer network with sales agents in or nearby farming communities. They have plans to incentivize the growth of the retail function through voucher schemes. Agriculture products processors offer a growing source of organized and effective demand. The adoption of a seed policy will likely enable the growth of the private sector seed market system and yet its absence will not handicap the use of the MSD approach.

Figure 6: MSD Theory of Change³¹ shows the theory of change associated with the MSD approach. This theory of change starts with creating the right conditions for change by aligning the incentives of all key market system actors around inclusive and resilient growth. In our view, A3SEED current Theory of Change bypasses *market system change* and assumes that seed companies can influence the wider market system through the demonstration effect of their successes. A more explicit private sector/seed company led theory of change is still based on a flawed assumption that seed companies as market leaders will eventually create favorable market system conditions through their actions. Or, if not them, then A3SEED will attempt to create those conditions by themselves. Either option is unlikely to succeed in developing an inclusive, resilient, competitive quality driven seed

Figure 6: MSD Theory of Change

Figure 5: Quality Seed Market System



³¹ Courtesy of the Springfield Centre Making Markets Work training program.

market at scale. As such the MTR recommends that A3SEED and its donor consider a market system development approach to achieve its objectives.

2.3 Formulate a Sustainability Strategy:

A3SEED does not guide project implementation against a future picture of a changed seed market system at the conclusion of the project beyond the assumption that its seed company partners will perform and pay for the support now subsidized by A3SEED to continue and expand its out grower production model. *Table 7: Formulating a Sustainability Strategy* illustrates a tool A3SEED can use to formulate a sustainability strategy against its future vision of a changed seed market system for the remaining period of the project. The left-hand column denotes the three main functions in a market system: core, rules, and support functions. The next two columns show a current picture of the seed market system by asking two questions: who performs what functions and who pays for these functions to be performed. The last two columns ask: who should do and who should pay for these functions by the 2025, the current completion date of the project.

The completed table shows that currently A3SEED does not directly subsidize transactions between sellers and buyers of quality seeds; indirectly it does by subsidizing capacity building of seed companies by doing and paying for multiple supporting functions. A3SEED assumes that the seed companies will pay for these costs in the future: some seed companies have factored A3SEEDs cost share into the cost price of the seeds they sell. A future vision of the core of the seed market includes donor supported vouchers to stimulate future demand, a positive development from the OU team’s perspective

Table 7: Formulating a Sustainability Strategy

Functions	Who Does?	Who Pays	Who Should Do	Who Should Pay
CORE MARKET				
Commercial Transactions between Sellers and Buyers of Quality seeds	<ul style="list-style-type: none"> Local Seed Companies Importers 	<ul style="list-style-type: none"> Commercially Oriented Farmers 	<ul style="list-style-type: none"> Local Seed Companies Independent Agro-Dealers 	<ul style="list-style-type: none"> Commercial Farmers Processors Cooperatives Donors (Vouchers)
RULES				
Quality Assurance	<ul style="list-style-type: none"> A3S/Donor 	<ul style="list-style-type: none"> A3S/Donor 	?	?
SUPPORTING FUNCTIONS				
Product Development	<ul style="list-style-type: none"> MAFS Seed Companies 	<ul style="list-style-type: none"> Government Donors Seed Companies 	?	?
Information on Sources of Seed and Proper Use	<ul style="list-style-type: none"> Radio Seed Companies Agro-Dealers 	<ul style="list-style-type: none"> A3SEED/Donor 	?	?
Extension Services/Demo Plots	<ul style="list-style-type: none"> Local Seed Companies A3SEED 	<ul style="list-style-type: none"> A3SEED/Donor 	<ul style="list-style-type: none"> Local Seed Companies? 	<ul style="list-style-type: none"> Local Seed Companies?
Advocacy	<ul style="list-style-type: none"> Private Sector 	<ul style="list-style-type: none"> A3SEED/Donor 	?	?
Coordination	<ul style="list-style-type: none"> STASS 	<ul style="list-style-type: none"> A3SEED/Donor 	<ul style="list-style-type: none"> STASS? 	<ul style="list-style-type: none"> STASS?

The table also shows that A3SEED does and pays for a number of supporting functions – coordination, product development, information. In nascent markets these subsidies are justified as the service economy surrounding the seed market is very weak. At the same time, A3SEED leadership must continuously ask: *If what we are doing and paying for is*

critical to the future functioning of the market system, then who's going to do it when the project is no longer there?

This is why the MTR recommends that A3SEED formulate an explicit and transparent strategy for sustainability at least through the remainder of the project (2025) to guide its choice of interventions and partnerships. The previous section of the report offers a number of recommendations for A3SEED to consider when doing this exercise.

2.4 Reformulate the Strategic Results Chain:

The proposed strategic results chain (*Annex E*) articulates a broader vision of change than A3SEED's current results chain.³²

The 'yellow boxes' show the intervention areas (related with results areas for consistency) where A3SEED should focus. From left to right:

Results Area 1:

- Support selected seed companies to expand multiplication and production of foundation seed to produce specific high-yielding varieties demanded by farmers.
- Facilitate seed companies to produce QDS through the out-grower model.

Results Area 3:

- Strengthen and expand private sector retail network for improving access of quality seeds and other agriculture inputs for farmers.
- Link private sector retail points with seed companies to increase distribution of QDS.

This collectively will lead to increased volume of QDS being available and accessible for farmers.

Results Area 2:

- Disseminate information on GAP through demonstration plots which may be held with seed out growers and will need to be close to seed retail points.

This increases the awareness of farmers on the benefits of using QDS. An increase in awareness and availability will result in farmers buying and using QDS properly. At a sector level, this will increase farmer crop yields and increase incomes for everyone involved in the system including seed companies, agro dealers/retailers, out growers, farmers using QDS, and grain processors.

The 'blue boxes' in the results chain, show other relevant actors that may not necessarily need direct financial facilitation from the project but would require steering/linkages to make the system run better. For example:

³² A3SEED MELs Intervention Guide, tab 1.

- On the left, processors can be linked with farmers using QDS to source higher volumes of quality grain locally. Processors may even work with farmers/farmer groups with a buy back agreement.
- On the right, we assume that a seed policy will be approved in the near future. The seed testing and inspection processes already exist and can be utilized by seed companies provided there is an incentive or need for testing/certification.

The 'orange boxes' in the results chain, show A3SEED's direct delivery of information and training to farmers, such as promoting GAP, CSA, and soil conservation practices. Although these activities are important, these are not sustainable beyond the project if they are not facilitated through actors (with the right incentives) in the seed system. Hence, we believe that these change steps should be realigned and facilitated through agro dealers who have an incentive to build a good reputation with farmers and convert them to loyal clients.

The suggested results chain is only indicative of the changes required to meet project goals. The specific intervention strategies to get there will need to be developed by the project team using their implementation experience and evidence from different evaluation efforts.

2.5. Strengthen A3SEED capacity to manage its current and/or a best practice MSD approach to project implementation:

A3SEED is not but, in our view, it should become an MSD program practitioner for the many reasons presented in this report. The project's partnership deals with seed companies for example are inconsistent with MSD best practice. They outline the partnership objective and each party's roles and responsibilities and include deliverables and benchmarks, but they are mainly focused on achieving activity targets required to meet production targets for quality seed. Now that A3SEED knows more about the out grower system new milestones should be added on production efficiency, timely buy back of seed and updating cost price calculation to monitor a seed companies capacity to pay for any future technical support they may continue to need past 2025, the completion date of the project.

Also, missing are distribution and sales deliverables/milestones especially in commercial markets the primary focus on A3SEEDs private sector led strategy. And these targets need to be customized to the seed company context: Seed companies serving the greenbelt should be incentivized to sell the majority of all seeds produced in commercial markets whereas in the Bor and Rumbek hubs the milestones set for these companies should fit the context with an appropriate mix between SeedAid and commercial channels.

These benchmarks should serve as incentives to reward partners for good performance and cost share payments should be tied to these benchmarks. The A3SEED contract provides its seed company partner 50% of its cost share on signing the contract and in doing so reduces the project's ability to steer its partner in the right direction when they may stray.

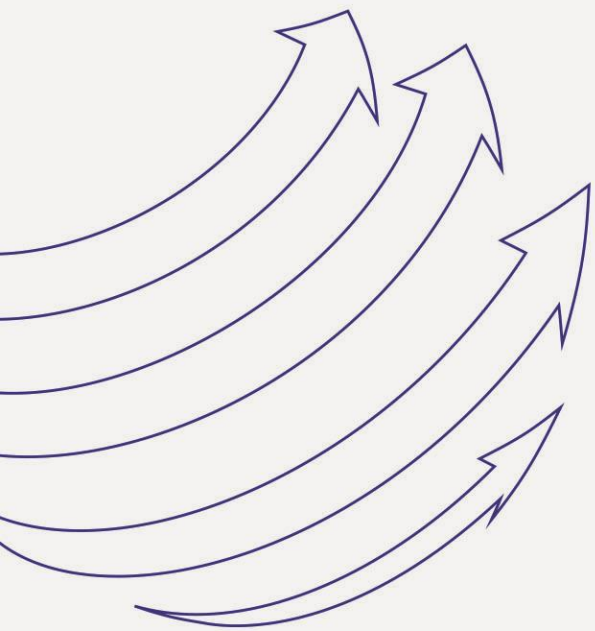
The MTR recommends changes to A3SEEDs staff composition and capacity. We recommend that both Inclusion and Coordination become cross-cutting themes with activities and targets integrated into all results area and managed by full time staff members. We also recommend A3SEED add four new staff with at least two positions reserved for women:

- Two (2) additional MELS staff to allow MELS to better perform its functions of data collection/retrieval/reporting, continuous monitoring of project outcomes and case study research on links between market system changes and desired impact.

- Two (2) more staff to fill recommended business advisory positions: appoint one to push out the agro-dealer intervention and the other to support the result area managers with business support to all private sector partners.

The A3SEED team needs a stronger foundation in systems thinking and best practice. This will require targeted staff training and continuous backstopping to design interventions, select partners and manage performance-based partnerships, and adopt a MELS system better fit for the MSD approach. This will have implications on effective program design and implementation beyond 2025 where a strategic systems approach will help the A3SEED project to look beyond working through lead seed company firms and design win-win partnerships with relevant stakeholders in the seed system. Of course, these proposed changes in staffing and capacity building will have cost implications which A3SEED will need to speak with EKN about additional funding.

Annex



Annex A: Terms of Reference (available upon request)

Annex B: Inception Report (available upon request)



Annex C: Field Plan with People Interviewed

ANNEX C: PEOPLE INTERVIEWED					
Hub/ State	County	Activity	Sample		Name
			FGD	KII	
Yambio Hub (Western Equatoria State)	Yambio	Meeting with State Ministry of Agriculture, Forestry and Environment -SMoAFE		2	Hon. Alison Barnaba (M) Samuel Datiro (M)
	Yambio	Meeting with Seed Quality Control Board (Leadership)		2	Samuel Datiro (M)
	Yambio	Meeting with seed inspectors		2	Philip Bullen Zabidaya (M) Simon Mbata (M)
	Yambio	Meeting with Lab Technician		1	James Gabriel Gugu (M)
	Yambio	Meeting agro inputs dealer		1	Simon Mbata (M)
	Yambio	Meeting with Pro Seed Ltd representatives		2	Micheal Ocuon (M)
	Yambio	STASS representative (Leadership)		2	Gibson Gaaniko (M) Chistopher Ismail (M)
	Nzara	Meeting with farmers -2M 2F users	4		Nazent Charles (F) Atonita Singbabe (M) Justin Morris Gabriel (M) Emmanuel Mborinani (M) Perina Vincent (F)
	Nzara	Meeting with farmers -2M, 2F non-users of seeds	4		Bakistina Grace (F)
					Nura Hirisongba (F)
					Nadia Samuel (F)
	Nzara	Meet seed out-growers – Individual foundation seed outgrowers	2		Garibere Josephene (F) Tambua Richard (M)
	Nzara	Meet sales agent		1	Garibere Josephine (F)
Yambio	Meet seed out-growers – group outgrowers	3		Samuel Abel (M)	
				Nyakangba Emmanuel (M)	

					Christine Charles (F)
Juba Hub (Central Equatoria State)	Juba	Meeting with Blessing Millers		1	Ruben Laku Pious (M)
	Juba	Meeting with Kanybek Millers		2	Geofry Kape
	Juba	Meeting with WFP		2	Gideon Ben Thompson (M) Peter Lodu and Vincent Kiwanuku
	Juba	Meeting with FAO		2	Joseph Okidi Morris Felix
	Juba	Meeting with STASS		2	Isaac Woja Enock (M) Francis Yiga (M)
	Juba	Meeting with Pro-Seed representatives		1	Isaac Woja Enock (M)
	Juba	Meeting with Green Horizon representatives		1	Swaki Charles (M)
	Juba	Meeting with Gumbo Glow representatives		2	Asiki Thomas (M) Pitia Michael (M)
	Juba	Meeting with Seed Grow representatives		3	Francis Bile (M) Arike Emmanuel(M) Okiya Jacob (M)
	Juba	Meeting with Agro dealers for Gumbo Glo Farm foundation		1	Keji Clara (F)
	Juba	Meeting with Pleroma for Green Horizon agro dealer		1	Assasira Kenneth (M)
	Juba	Meeting with Gumbo Glow (farm foundation) farmers (4 2M 2F users of seeds)		2	Kamugisha Annet (F) Getro Banziziki (M)
	Juba	Meeting with ABC Representatives		1	Asiki Thomas, Coach (M) Nathan Momo, Chairman (M)
	Juba	Meeting with Juba University Representatives		1	Dr Tony Ngalamu (M)
Torit Hub (Eastern Equatoria State)	Torit	Meeting with Afroganics		3	Dr. Magret Itto Leonardo (F) Jimmy Anum (M) Drazilega Emmanuel (M)
	Torit	Meeting with seed inspector/Lab technician		1	Mr. Timateo Amanamoi (M)

Torit	Meeting agro inputs dealer 1. Nile Agro-tech 2. Felixton Agro Input		2	Lohuyoro Peter (M) Vincent Okot (M)
Torit	Meeting with farmers -2M 2F seed users (Afroganics)	4		Muraa Grace (F) Cizarina Ayur (F) Emma Amerika (M) Abau Beatrice (F)
Torit	Meeting with farmers -2M, 2F non-users of seeds	2		Jenifer Akong (F) Tiondi Albert (M)
Torit	Meet seed out-growers – Individual & group outgrowers	4		Damma Grace (F) Tabua Scovia (F) Mangwii Fred Paul (M) Angua Florence (F)
Magwi	Meeting with MASCO		2	Oryem Cosmas (M) Bagia Charles (M)
Magwi	Meeting agro inputs dealer		1	Onek Joseph (M)
	Meeting with Director of the County Agricultural department		1	Augustine Manix (M)
Magwi	Meeting with farmers -1M non-users of seeds		1	Did not capture his name
Magwi	Meet seed out-growers – Individual & group outgrowers	2		Ezekiel Mono (M) Ojara Paul (M)
Magwi	Meeting agro ABC Coach		1	Onek John Peter (M)

ANNEX D: A3SEED MTR FINDINGS OVERLAID ON MSD ADAPTED OECD/DAC FRAMEWORK

Definitions/Key Questions	Substantiating Evidence / Indications of Change	Information Sources Collection Methods	Analysis Framework
RELEVANCE: Unblock systemic constraints to opportunities for inclusive growth in the SEED market.			
<p>1. Is A3SEED addressing the right problems to insure farmer access and use of affordable quality seeds?</p>	<ul style="list-style-type: none"> Supply is the primary constraint in the seed market. Effective demand, while small, is indicated by farmers willingness to pay market prices for seed both local QDS seeds (\$1.00 - \$1.50/kg) and imported hybrids (\$5.00 - 10.00/kg). No local quality seed goes unsold. A3SEED's work with seed companies directly addresses this supply constraint 	<ul style="list-style-type: none"> Interviews with seed buyers and seed suppliers 	<ul style="list-style-type: none"> Seed market value chain.
<p>2. Is A3S addressing the right market system constraints to solve these problems?</p>	<ul style="list-style-type: none"> Many factors contribute to local seed shortage: Africa-wide shortages of foundation seeds; lack of information quality seeds exist and where to buy; lack of sales points within 20 kms of farming community; lack of coordination between seed companies and sources of demand (e.g., processors and cooperatives). A3SEED interventions touch these seed market system constraints but the project doesn't yet see the inter-connectedness of these system functions in strengthening a more inclusive seed market for the next stage of its development. 	<ul style="list-style-type: none"> Interviews with A3S staff, university researchers, processors, agro-dealers 	<ul style="list-style-type: none"> Market System Matrix
EFFECTIVENESS: Progress in putting in place viable, scalable, and inclusive seed company business models for production, distribution, sales of quality seed to small			

<p>3. Developing an outgrower production model for QDS?</p>	<ul style="list-style-type: none"> • Seed companies increased overall production from 2,500 kgs (2021) to 4,500 (2022) across all seed types. • Maize QDS output (1,488 MT) exceeded projected volume (916 MT) by 62% on 924 hectares. • Seed companies consolidated the number of outgrowers from 2096 in 2022 season to 436 in 2023 season for right reasons: now know best performers; management efficiency/cost saving; increase output by increasing land/outgrower. • Timely buy back of seeds at harvest a problem in some seed companies due to working capital constraints. Potential solutions included in the MTR report. • Ability to cost and price seeds for sale varies between seed companies. • Women outgrowers are 34% of total outgrowers. • Women extension agents though fewer in number (mobility/security concerns) are superior to their male counterparts in transmitting best practices. 	<p>Seed Company collected by A3S.</p> <p>Interviews with Seed company personnel</p> <p>Cost/price data supplied by STASS</p> <p>Interviews with 2 ProSeed outgrowers of foundation seeds.</p>	<p>Standard cost/pricing tools</p>
<p>4. Adding early generation seeds to the production mix?</p>	<ul style="list-style-type: none"> • ProSeed, Afrogenics and MASCO seed company partners, started their own a foundation seed pilots (maize QDS) production with ProSeed the largest at 13,000 kg of foundation seed on 8.5 hectares • A3SEED derived useful lessons on how best to manage outgrowers for best performance. • Multiplying QDS from foundations is key to future seed company competitiveness • A3SEED needs to place EGS on the front burner by pursuing a private sector led EGS program coordinated by STASS. 		

<p>5. Sale of quality seeds through the private sector channel?</p>	<ul style="list-style-type: none"> • A3SEED records show distribution of all QDS procured by channel at 60% SeedAid and 40% commercial channel. Interviews with seed companies confirmed this estimate. • More seeds are sold when seed companies sell through agro-dealers than direct sales to farmers. • MTR supports the trend of seed company shifting out of retail to focus on wholesale to avoid competing with retailers and unsustainable investment in retail for a seasonal product. • A3SEED needs to start a new intervention to strengthen independent agro dealers separate from seed companies. • ABC's can offer a demand-pull to complement the agro-dealer supply push marketing strategy. A3SEED should continue to support only established ABCs where all VC players exist. • MTR found that the SeedAid channel doesn't distort farmer incentives as much as thought but why position quality seeds in a channel with a bad reputation and one that effectively blocks consumer feedback to seed companies. 	<p>Interviews with Seed companies and agro-dealers in their sales network.</p> <p>A3S MRM data</p> <p>KIT and other studies on the additionality of the SeedAid channel.</p>	<p>Interview guidelines</p>
<p>6. Scaling quality seed use and good agricultural practices (GAPs) through private sector-led extension</p>	<ul style="list-style-type: none"> • Premature to see much scaling taking place after only one full agriculture season. • Some evidence of neighboring farmers copying outgrower practices with modest results (mainly line planting and spacing). • Combination of quality seed and GAP give users best results: demo plots convey knowledge but with limited outreach; radio show tell farmers that seeds exist and where to buy them. • Best scaling strategy of seed use by farmers is through agro-dealers with sales and after sales services (report showcases a few example). 	<p>Observation of farmer fields</p> <p>Interviews with grain farmers.</p>	<p>Interview guidelines</p>

<p>7. Promote women and youth empowerment in the seed market.</p>	<ul style="list-style-type: none"> • A3SEED should elevate Inclusion to a cross-cutting theme with activities and targets set and monitored in all results areas. • A3SEED needs to document the business case for more inclusion in the seed market and use this information to inform humanitarian aid agencies on how the A3SEED project showcases the valuable role of women in the seed market system as outgrowers, sales agents and reputable sources of information on seed choice and use. 	<p>Interviews with female outgrowers and extension staff</p>	
<p>8. Quality Assurance</p>	<ul style="list-style-type: none"> • A3S has upgraded rudimentary testing labs and effectively trained inspectors but inspection services not being used by seed companies. In absence of seed policy, no incentive to get a third-party stamp of approval. • In the absence of a formally adopted seed policy, seed users are best means of quality assurance in the absence of a third party certifier. • Interviews with commercially oriented farmers indicated that they will not repeat purchase/use of poorly performing seeds. • The Quality Control Board is better positioned than A3SEED to advance this quality assurance agenda in the absence of a seed policy. • A3SEED should A3SEED should continue to focus, through its partnership with STASS, that the private sector has a seat at the policy table. 	<p>Interviews with trained inspectors</p>	<p>Interview guidelines</p>
<p>9. Developing an evidence base for soil fertility and crop protection management</p>	<ul style="list-style-type: none"> • ISFM and IPM manuals with recommendations for farmers have been completed and made available to seed companies. • Adoption awaits a better understanding of the business case for farmer adoption. • A3SEED should reach out to a relevant University of Juba department where agronomic practices are studied for use by the private sector. 	<p>Review of the manuals with seed company extension agents</p>	<p>Interview guidelines</p>
<p>EFFICIENCY: Value for money</p>			

<p>10. Efficient use of resources invested in partnerships with seed companies</p>	<ul style="list-style-type: none"> • A3SEED partnership deals with seed companies include performance milestones/benchmark but they are mainly focused on activities with the exception seed output production targets. • Missing are targets associated with outgrower efficiency, productivity, timely seed buy back and increased distribution of QDS through commercial versus SeedAid channels. • Partnership deals need to be customized to the context with greater expectations set for the greenbelt versus the seed companies operating in Bor and Rumbek with less agriculture potential. • Cost share payments are too liberal (50% upfront) and need to be tied to achieving benchmarks. This limits A3S leverage to steer partnerships in right direction and/or increase the pace of implementation. 	<p>Review of partnership agreements</p>	<p>N/A</p>
<p>11. Efficient use of project resources by A3SEED management.</p>	<ul style="list-style-type: none"> • No value for money calculation was done as the TOR did not call for one. • Our assessment did address staffing composition and capacity issues and recommended two changes that would enable A3SEED to be more effective and efficient users of project resources: (i) Inclusion and Coordination with both STASS and Humanitarian Agencies need to be removed their corresponding Result Areas and elevated to cross cutting themes with targets established and monitored across all results areas. (ii) four (4) additional staff should be recruited: two (2) to expand MELS capacity to continuously monitor outcomes and their link to impact and undertake case study research; and two (2) to fill newly created business advisory positions to launch a dedicated project intervention for agro-dealers and provide business insight and support to both results managers and regional hub coordinators. 		

COHERENCE: The extent to which the A3S project (a) hinders or contradicts or (b) support and reinforce the work of other projects and interventions.

<p>12. Coordination with the SeedAid Channel</p>	<ul style="list-style-type: none"> • FAO and WFP want to find ways to engage the private sector in the seed market (besides local procurement) by increasing farmer access to inputs. Voucher programs are in the planning stage create opportunities for agro-dealers. • A3SEED is one of the few projects with any knowledge of the private sector, its players, interests, and capacity and as such opportunities exist for cooperation between A3SEED in building the commercial seed market. 	<p>Interviews with FAO and WFP officers across a range of different programs.</p>	<p>Interview Guidelines</p>
<p>13. Coordination with MAFS</p>	<ul style="list-style-type: none"> • Lack of stock of genetically pure breeder seeds for multiplication is a major constraint to seed market growth Africa-wide including South Sudan. • The MTR proposes that A3SEED address this constraint by a STASS coordinated private sector led foundation seed initiative. MAFS endorsement will be required and push back because it may perceive an encroachment in this space. A3SEED can play a critical intermediary role to smoot the path for such an initiative. 	<p>Interviews with STASS, University breeder, Director of Research, MAFS, regional director Yambio</p>	<p>Interview Guidelines</p>

IMPACT: Plausible link between desired market outcomes and desired impact on households

<p>14. Is A3SEEDs Theory of Change Valid?</p>	<ul style="list-style-type: none"> • The TOR for this MTR did not ask for an assessment of the causal links between desired seed market outcomes and reducing food insecurity by increasing farm income because it was too early in project implementation given year 1 COVID-19 delays to make such an assessment. • A3SEED's private sector/seed company led theory of change – essentially investing its resources in seed companies to create the conditions for accelerated seed market growth --is too narrowly conceived. • The multiple challenges faced by the seed market for inclusive growth must be addressed by multiple market system actors, both private and public: increased farmer access to agriculture inputs beyond just seeds requires A3SEED to crowd in many more independent agro-dealers into the market; the support services seed companies need to create viable and sustainable business models – land clearance, spray services, finance, foundation seeds – requires A3SEED to engage in multiple market system actors best positioned to effectively perform system functions. • The OU team introduced the A3SEED team to market system thinking and practice through a half day training. • The final report does a comparative analysis between A3SEEDS current theory of change against an alternative MSD theory of change for A3SEED consideration. 	<p>Interviews with MRM staff and managers</p>	<p>DCED guidelines & practices</p>
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<p>15. Is A3SEEDs results measurement fit for the purpose of seed market development?</p>	<ul style="list-style-type: none"> • A3SEED's MRM system needs to be updated as a result of the MTR (e.g., track seed distribution by channel, track the reasons for seed losses during and post-production and storage; track gender disaggregated data consumer behavior of seed users resulting from better quality seeds and other agriculture inputs. • Should A3SEED chose to adopt an MSD approach then its MRM system will need to be repurposed to better fit this approach. • The MTR recommends MSD capacity building and continuous project backstopping by an experienced MSD practitioner (s). 	<p>As above</p>	
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SUSTAINABILITY: Capacity of the seed market system – core value chain transactions, supporting functions and rules – to learn, adapt and change to sustain inclusive, resilient

<p>16. Does A3SEED have a future picture of a changed seed market and a sustainability strategy to get there?</p>	<ul style="list-style-type: none"> • A3SEED leadership (IFDC and KIT) likely has a future picture of a changed seed market system based on their prior experience, but there is not an explicit/transparent picture of this future picture. • A3SEED assumes that the seed companies will pay to strengthen its outgrower production model post project. The current cost/price of quality seeds factors in A3SEED's subsidy. • The OU team presented/discussed a tool A3SEED could use to formulate its sustainability strategy. 	<p>Information for interviews and all internal project documentation</p>	<p>MSD best practice frameworks and tools</p>
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LEARNING: The fit between A3SEEDs private sector/seed company led approach and South Sudan's quality seed market

<p>17. Is the learning agenda targeted on showcasing the relevance and effectiveness of A3SEEDs contribution to a competitive, inclusive and resilience in nascent and thin agriculture input markets.</p>	<ul style="list-style-type: none"> • Studies already completed on SeedAid Governance, Gender/Youth and Political Economy Assessment and the Baseline Survey offer useful context setting information for future learning pieces. • The MTR suggested topics for targeted research for the purpose of improving A3SEED performance and communicating its lessons to different audiences: (i) Changes in soil fertility on outgrower fields; (ii) Consumer satisfaction surveys of quality seed users(iii) Updating baseline on who small holders turn for advise (iv) More evidence on relevant agronomic practices in different agro-climatic settings (v)Articulate the business case for more inclusion in the seed market system. 	<p>Cited internal studies</p>	<p>MSD best practice tools.</p>
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Annex E: Suggested Strategic Results Chain

