



Achievements and Lessons from Improving Delivery of Seed and Soil Fertility Technologies (IDSST) Project in Malawi

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Acronyms

AGRA	Alliance for Green Revolution in Africa
IFAD	International Fund for Agriculture Development
DARS	Department of Agriculture Research Services
CSP	Community Seed Producers
DAES	Department of Agriculture Extension Services
DAO	District Agriculture Office
MUSECO	Multi-Seed Company
RUMARK	Rural Market Development Trust
AFAP	African Fertilizer and Agribusiness Partnership's
FAM	Fertilizer Association of Malawi
IDSST	Improving Delivery of Seed and Soil Fertility Technologies
SAPP	Sustainable Agriculture Production Program
MoAIWD	Ministry of Agriculture, Irrigation and Water Development
DADO	District Agriculture Development Officer
GAP	Good Agricultural Practices
GIS	Geographical Information Systems
NGO	Non-Governmental Organizations
PPP	Private Public Partnerships
PCU	Project Coordination Unit

Introduction

The Improved Delivery of Seed and Soil Fertility Technologies (IDSST) project is a partnership between Alliance for Green Revolution in Africa (AGRA) and the International Fund for Agricultural Development (IFAD). The partnership was implemented with a Grant amount of \$2 million (\$1 million from IFAD and \$1 million co-financing from AGRA) was commissioned in June 2017. Under the IDSST project, AGRA has been complementing IFAD supported loan programs in Malawi, Mozambique and Ethiopia to address the challenge of weak cropping systems linking new crop varieties and improved soil fertility management research outputs to smallholder beneficiaries, which is key in sustaining gains made by the IFAD programs. The project goal is to generate improved and more resilient livelihoods for poor rural people in IFAD's existing portfolio in Ethiopia, Malawi and Mozambique.

AGRA has achieved the project objectives through strengthening the capacities of NARIs and rural agro-dealers, increasing adoption of improved seed and soil fertility technologies by smallholder farmers. The project also has generated knowledge on farmer uptake of new technologies and has documented lessons learnt in linking IFAD projects with research outputs/solutions.

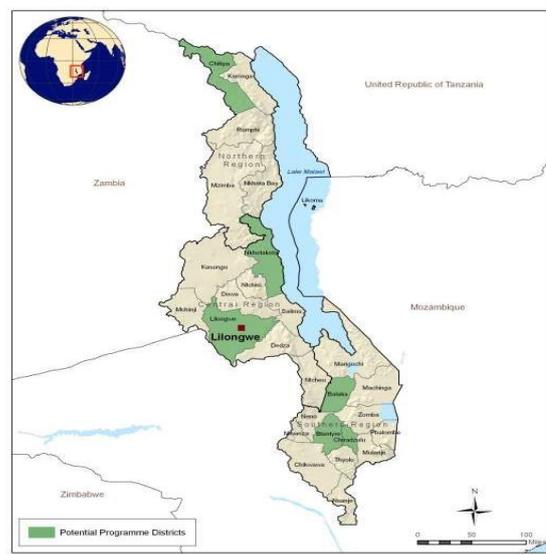
In Malawi IFAD through Sustainable Agricultural Production Program (SAPP) is promoting generation and adoption of Good Agronomic Practices (GAPs). Sustainable Agriculture Production Programme (SAPP) is a 9-year (2012-2021) program being implemented in 6 districts of Blantyre, Chiradzulu, Balaka, Lilongwe, Nkhosha and Chitipa in Malawi. The goal of the project is to contribute to reduction of poverty and improved food security among the rural population with a specific objective of achieving a viable and sustainable smallholder sector through promotion and adoption of Good Agriculture Practices (GAPs). The programme target to benefit about 200,000 smallholder households. The programme has 3 components: (1) Adaptive research, (2) Farmers adoption of Sustainable Good Agricultural Practices, and (3) Programme Management and Knowledge Management.

SAPP has achieved tremendous progress and impact executing the three components however, productivity has been hampered by lack of availability of improved seeds (especially legumes). SAPP has seen sixteen varieties of breeder seed being released by research institutions in Malawi but the seed is not locally available for smallholder farmers.

To bridge this gap, AGRA partnered with the Department of Agriculture Research Services (DARS), Multi Seeds Company (MUSECO) and Rural Market Development Trust (RUMARK) to compliment SAPP's effort in creating a sustainable seed system to increase uptake of high quality seed of improved legume varieties. The objective is to increase the availability and accessibility of high quality seed for soy beans, groundnuts, beans, pigeon peas and cowpeas among farmers and use of appropriate agronomic practices by the SAPP farmers.

Process of Engagement

IDSST project required AGRA to validate preliminary intervention areas that were identified during the grant development in this case SAPP. AGRA in collaboration with IFAD Country Teams, Project Coordination Units (PCU's) and other stakeholders held an in-country validation and inception meetings. AGRA also held field visits to concretize the outcomes of the validation meetings and thereafter, a project inception meeting was held in Malawi on 22 August 2017. The table below provides a summary of the key findings from the stakeholder validation meetings.



Map of Malawi showing SAPP districts of interventions

Country	Gaps at proposal	Validated gaps
Malawi, SAPP	<ul style="list-style-type: none"> • Screening, testing and promotion of legume crops with higher productivity, preferred consumer and market traits as well as enhanced nutritional and cooking qualities. • Supporting development of geo-referenced Information system (GIS) for fertilizer recommendations. • Developing integrated soil fertility management practices in maize-legume systems that are adaptable in different agro-ecological zones. 	<ul style="list-style-type: none"> • Create sustainable seed system to improve availability and uptake of high quality Early Generation Seed and certified seed for legumes to the farming communities. • Create mass awareness amongst smallholder farmers, private traders and NGOs on the importance of using high quality seed of the improved varieties and appropriate agronomic practices. • Support development of geo-referenced Information system (GIS) for fertilizer recommendations.

AGRA conducted a baseline survey between October and November 2017 to establish levels of the indicators selected to measure progress and performance towards achievement of the program goal, objectives and outcomes. To identify partners AGRA released call for concept notes to which the would be sub-grantees responded and concept notes were reviewed in quarter 1 of 2018. Development of proposals by sub-grantees and joint reviews of proposals were held from March 2018. The first grants awarded in June 2018.

Two sub-grantees were selected, the Department of Agriculture Research Services (DARS) & Multi-seed Company (MUSECO) and Rural Market Development Trust (RUMARK) to form a Public Private Partnership (PPP) to demonstrate how the grant and loan can work together to address the identified gaps, through the involvement of private sector. This has increased the effectiveness of the loan program in Malawi in ensuring that the beneficiaries (smallholder farmers) have access to the demanded quality seeds of improved crop varieties in their locality and at the right time.

It was also noted that DARS has released and continues to release good performing varieties for farmers to produce. However, most of these technologies are still on the shelf due to limited capacity to produce early generation seed for subsequent production of other classes of seed.

In this PPP arrangement, DARS is leading the production of high quality breeder seeds of grain legumes and releasing them into the seed system through private seed companies. On the other hand, Multi Seeds Company (MUSECO) Limited, a privately owned Malawian seed production company whose core business is to produce quality seed for a variety of crops is leading production and distribution of high quality pre-basic, basic seed and certified seed for groundnut, soya beans and beans to the farming communities in the SAPP districts. These improved legume varieties with traits such as high yield, pest/disease resistance and high iron content were bred under SAPP, however they had not reached the farmers because of a broken seed system.

The third sub-grant of \$135,207 was given to Rural Market Development Trust (RUMARK), under the project strengthening seed, fertilizer and other farm inputs distribution system through enhancing the capacities of agro-dealers. RUMARK is a Malawian NGO dedicated to increasing and sustaining rural incomes and agricultural productivity by empowering rural entrepreneurs. RUMARK specializes in enterprise-based agricultural development initiatives designed to facilitate market access, enhance agribusiness competitiveness, increase productivity and improve access to agro-inputs, credit and financial services.

Building Synergies Among Investments: Seed Multiplication in Malawi (MUSECO)

Seed is one of the critical inputs to improved agricultural productivity. Agricultural development cannot advance without a reliable seed supply system, as such, a vibrant smallholder-based commercial seed sector devoted to serving smallholder farmers can significantly complement efforts by the commercial multinational companies which seem to monopolize the seed trade. Maredia, et.al (1999) noted that developing a seed system based on greater integration, broader participation, and decentralization is an attractive concept but raises several issues including the potential risk posed to small-scale seed entrepreneurs if seed stocks go unsold and the regulatory role of the government in an increasingly decentralized seed system, among others.

In Malawi, it is difficult to access high quality seed of improved varieties for most crops, except maize and tobacco, through the normal market channels because the private seed industry does not produce and market sufficient seed for these crops.

Under adaptive research of the SAPP project in Malawi, improved Agricultural techniques are being refined further to suit Malawian conditions. In addition, evaluation of advanced varieties of beans, cowpeas, soybeans, groundnuts and pigeon peas is being undertaken in line with farmers' climatic and environmental conditions in order to assess their wide adaptability and farmer acceptance. These are being undertaken in collaboration with national, regional and international research institutions. The adaptive research component aims at strengthening action research programmes which develop and refine GAPs packages adapted to various agro-ecological and socioeconomic contexts. One of the major activities under the component includes Seed maintenance and certification. The component also aims at ensuring that appropriate good agricultural technologies are developed and understood by potential farmers.

AGRA partnered with the Department of Agricultural Research Services (DARS) and Multi-Seed Company (MUSECO) Ltd to compliment Sustainable Agricultural Production Program (SAPP) in creating a sustainable seed system to increase uptake of high-quality seed of improved legume varieties. The objective is to increase availability and accessibility of high-quality seed for soya beans, groundnuts, beans, pigeon peas and cowpeas among farmers and use of appropriate agronomic practices.

Multi Seeds Company (MUSECO) Limited is a privately owned Malawian seed production company founded in 2014. MUSECO's core business is to produce quality seed for a variety of crops. Multi Seeds Company's expert Knowledge of latest practices, technology and seed development is continually intertwined with the essence of crop diversification, climate change, ecological and nutritional factors. The company aims to provide the industry with the best varieties in a range of crops focusing on selected varieties that have strong adaptability to different growing conditions and a high level of nutrition.

The Department of Agricultural Research Services (DARS) a public institution under the Ministry of Agriculture, in partnership with MUSECO a private seed company, implemented an AGRA grant to increase the availability and accessibility of high quality seed for soya beans, groundnuts, beans, pigeon peas and cowpeas among farmers in Malawi and use of appropriate agronomic practices. The grant had three specific objectives:

- (a) To improve availability of high quality Early Generation Seed and certified seed for legumes to the farming communities.
- (b) To improve the capacity of seed out-growers, community seed producers and service providers in seed production, handling and distribution.
- (c) To create awareness amongst smallholder farmers, private traders and NGOs on the importance of using high quality seed of the improved varieties and appropriate agronomic practices.

This project intervention complemented the existing efforts by SAPP through building capacity of seed growers as means of quality control, engaging SAPP farmers as seed producers, linking farmers to markets such as Seed companies and agro dealers and production of breeder and foundation for the newly released varieties as well as varieties which have been on shelf due to lack of capacity to produce early generation seed.

DARS releases and continues to release good performing varieties for farmers. However, most of these technologies remain on the shelf due to limited capacity to produce early generation seed for subsequent production of other classes of seed. The coming in of MUSECO has seen the increase in the quantities of seeds that have been procured and distributed to farmers.

Impact of the Grant Among Targeted Farmers

- a. 3 solutions recommended and adopted by out growers.
- b. 885 out-growers and community seed multipliers identified and engaged.
- c. **Training of Community Seed producers:** 65 community certified seed producer groups linked with commercial seed companies.
- d. 21 Metric Tonnes of breeder seed produced by DARS (8MT groundnut, 6MT for soya bean, 4Metric Tonnes of beans, 1.5Metric Tonnes for pigeon peas and 1.5Metric Tonnes cowpeas).
- e. 788 Metric Tonnes of pre basic and basic seeds produced.
- f. **Training of agro-dealers:** 286 agro dealers trained and remain in business.
- g. **Field Days:** 14 field days and agricultural fairs conducted/attended.
- h. **Awareness creation:** 1 roadshows conducted to create awareness amongst smallholder farmers.
- i. 16 varieties of breeder seed released by DARS.

Impact of the Grant Created to the IFAD Investment

In Malawi, there is a growing number of seed companies, however, most of these seed companies depend on the Department of Agricultural Research Services (DARS) for early generation seed of most legumes. This has for the past years led to significant shortage of early generation seed required on the market. In order to address this situation, Sustainable Agriculture Production Programme (SAPP) introduced a sub component of access to seed multiplication which has seen DARS realising good performing varieties for farmers. However, most of these technologies remain on the shelf due to limited capacity to produce early generation seed for subsequent production of other classes of seed. Thus the partnership between DARS and MUSECO under AGRA funded IDSST project has seen the later enhance the increase in the quantities of seeds that have been procured and distributed to farmers especially in the SAPP districts as a result contributing to the efforts of SAPP in increasing access to improved legume seed locally and introducing viable farm business to smallholder farmers.

To this effect, DARS has seen an increase in quantities produced and procured by MUSECO and other Seed companies such as Global Seeds.

Lessons Learned and Recommended Solutions for Scaling up

Under this category, we have compiled eight lessons which are the success factors for this project

(a) Public Private Partnership are key for increased seed multiplication

SAPP has benefited from Multi-Seed Company (MUSECO) and RUMARK involvement in promoting a Public-Private-Partnership in seed multiplication and distribution arrangements. MUSECO supplies basic seed to farmers under contract farming arrangements. In return, MUSECO also buys the certified seed which is produced by farmer groups. In this arrangement, the seed multiplying farmers have a readily available market.

SAPP has also benefited from working with RUMARK in all districts with an agro-dealer perspective. RUMARK is building capacity of retail agro-dealers and links them to hub agro-dealers. Through the partnership with RUMARK, district specific agro-dealer directories have been developed showing agro-dealer location, contacts and inputs that are being stocked for farmers to access.

RUMARK has been training agro-dealers with skills in proper handling and storage of farm-inputs such as seeds and chemicals so that agro-dealers should also provide complimentary advisory services to farmers on the same.

(b) On Farm demonstrations as centres for learning

On farm demonstrations help farmers to learn and understand the processes and are able to choose which technologies work best in their area. RUMARK in collaboration with Extension Workers from the Ministry of Agriculture has been using demonstrations to enhance new technology adoption under the IDSST project. On farm demonstration is a training methodology used to train farmers in carrying out relevant farm activities.

Farmer managed on-farm trials have helped many other farmers to learn about new improved varieties and technologies and be able to choose the right type of crop varieties suitable for their areas. The demonstrations were especially those identified by SAPP Adaptive Research for ready adoption. The demos included climate smart agricultural innovations like GAPs focusing on resilient farming systems intensification.

(c) Knowledge and information sharing forums support business linkages and agricultural productivity among players and smallholder farmers

Farmers who were direct beneficiaries under this project benefited a lot from the knowledge and information sharing forums that were convened by RUMARK. Knowledge on Good Agricultural Practices for increased production of legumes and maize were shared among implementing partners, in collaboration with the Extension workers under the Ministry of Agriculture. Such information included, advantages of using certified seed, Double row planting, recommended plant populations and agronomic practices to be followed.

Under the IDSST project, Multi Seeds Company (MUSECO), and other private seed companies have been key in providing farmers with information on new crop varieties which the companies produce and distribute through trained agro-dealers.

(d) Investing in private seed companies for increased Seed Multiplication and Distribution

The partnership between DARS and MUSECO has realized increased production of seed and improved seed delivery. DARS saw an increase in seed produced and delivered to MUSECO which distributed the seeds to farmers who are engaged in the business of seed production. As one of its aims of the project is to ensure the availability of good quality seeds for beans, groundnuts, soya

beans and pigeon peas through production and dissemination of early generation seed of the target crops.

What Worked/not Worked?

What Worked	What did not work
<p>Identification and involvement of smallholder farmers in seed multiplication. The process was easy as it was done by the government extension workers with support from the SAPP district desk officers. As such seed companies in this case MUSECO did not have challenges in identifying the farmer groups to involve in seed multiplication.</p>	<p>Too many farmer groups were identified by the extension workers but a few were selected and involved.</p> <p>Farmer groups were not given enough seed as expected taking into consideration of their membership as a result they had to share among all the little they got. This resulted into low production as expected.</p>
<p>Training of farmers as community seed growers.</p>	
<p>Production of breeder seed by research institutions. The coming in of private seed companies has enhanced an increase in breeder seed production to meet the demand created through awareness</p>	
<p>Involvement of other seed companies in distribution, awareness and demand creation:</p>	
<p>Mounting of demonstrations for new seed varieties: the good foundations of partnership between SAPP and IDSST partners resulted into flexible implementation of activities on the ground. This has seen government extension work planning and mobilizing demonstrations as learning platforms for new technologies by farmers</p>	

Development Challenges

Some of the challenges encountered during the implementation of this project includes the following

1. Defaulting by farmers: While linking farmers to seed companies was seen as an opportunity for readily available markets, the seed company that was involved had no enough funds for buying back. As a result, the farmers sold the seed to other companies which resulted MUSECO losing a lot.
2. Late delivery of seeds to farmers.
3. Lack of frequent monitoring to community seed breeder's fields.
4. Not clear contracts between MUSECO and farmers cooperatives: Contracts between Seed companies and farmer group were not transparent and binding.
5. Lack of initial capital for buying back.

Success Story from the Field

AGRA Funded Project Introduces Farmers to Early Maturing Crops



80 years, but still strong carrying out farming activities to feed his family, Mr Kaipanzaru Kanthole vividly remembers that even though households that consider cassava as their staple food were encouraged by extension workers to intercrop with maize for diversity, they were reluctant to do so. As a result, most farming families in his village have struggled to be food secure for years due to over-dependence on Cassava which takes long to mature.

“I have relied on Cassava to feed my family for many years, our generations have always believed that only Cassava is our main food”

Kanthole is the village chief, and hails from Chiboko Village, Traditional Authority Mphonde in Nkhotakota District. He is one of the many farmers in the district who have learned about the improved crop varieties and participated infarm demonstrations. He received a small pack of 600grams of MH36 (Manthu) an improved maize variety that is being multiplied and distributed by Multi Seeds Company Limited (MUSECO) through a network of agro-dealers across the country.

“At first I was reluctant when the Community Agribusiness Agent approached me to try the improved maize variety, because it was late in December and I had already planted crops of my choice. I was afraid I will waste my energy and time with the new seed varieties.”

Kanthole says he was compelled to still carry out the baby demo and try the maize variety as this was a way for him to explore other maize varieties that can do better in his area.

“We were told this is an early maturing variety, I was moved to try it because the Extension worker, told us during training of demonstrations that the new crop varieties will improve food and nutrition security for many households”

According to Kanthole, many farmers in his area are used to Cassava as their main food crop and a source of income for others. However, cassava doesn't mature early as compared to maize hence farming families face acute shortage of food every year which also increases cases of malnutrition in the district. He says, these demonstrations came at the right time for him and other farmers as they have been thinking of ways of diversifying food and income sources. Thanks to this project as

Kanthole now is going to grow early maturing maize crops to beat hunger and improve food and nutrition security for his family.

“Cassava is a late maturing crop, while this MH36 (Manthu) is early maturing. In just three months after planting on my demonstration, the crop was ready for harvesting which means this crop will save me and others from hunger. This is a much better complement to Cassava as a main food crop. Many farmers who came to the field days have learned about these new varieties from my demonstration” He says.

Thomas Ng’oma is the Government extension worker in the area. He says farmers received high quality improved seed varieties such as Maize (MH36, P2809), Soya (Tikolore), and Groundnuts from Rural Market Development Trust (RUMARK) to make baby and mother demonstration and try the varieties. His role was to train farmers and conduct periodic inspections to the demo-fields to provide information on good agriculture practices, and to ensure that the demonstrations were successful.

“My role was to facilitate and support farmers on the whole process of conducting demonstrations and also conduct monitoring of the fields.

Ng’oma said within a space of three months, all the crops reached harvesting stage, this means that, if farmers are encouraged to start planting early maturing crops, cases of hunger will be reduced, a development which will subsequently contain escalating cases of malnutrition in the district.

“We have been conducting field days to raise awareness and promote these early maturing maize varieties. Many farmers have shown interest and are eager to start growing in the next farming season, hence we ask Seed companies that supplied the seeds to increase production and distribute the seeds in time through agro-dealers so that farmers can access it” He said.

Farmers are encouraged to use quality seed of improved crop varieties, because they are early maturing, resistant to pests and diseases and are tolerant to climate situations. However, many farmers are not aware about these improved crop varieties hence the partnership of agro-dealer networks and input suppliers is closing on this gap by complimenting government raising awareness and demand creation to improve access to high quality seed of improved varieties for smallholder farmers in remote areas.

With financial support from Alliance for Green Revolution in Africa, RUMARK is strengthening the country’s Agro-dealer network to improve access to high quality seed of improved crop varieties in the country identified by *Sustainable Agricultural Production Program (SAPP)* implemented by the Ministry of Agriculture with support from IFAD.

Linking IFAD Investment to Private Sector: Case of Seed Producers in Malawi (DARS, MUSECO and Rumark)

During the process of engagement IDSST noted that SAPP’s long-term targets are to ensure that appropriate agricultural technologies and GAPs are screened and adapted for each agro-ecology. SAPP is working to ensure that the farmers in its districts are applying improved technologies or management practices and that farmers are participating at least in one of the improved technologies. However, there are a number of gaps and challenges that needed to be addressed to achieve the long term goals. Thus private sector investment and building partnerships was critical at this stage to address the following identified gaps and challenges:

1. The need to help the identified seed companies and agro-dealers improve their working relationships with national agricultural research systems (‘NARIs’) in the target areas to increase and expand the supply of certified crop seeds, crop seed information and fertilizers to increase access to quality seed and fertilizers by smallholder farmers.
2. Agro-dealers seed channel, which put on offer modern varieties and certified seeds for smallholder farmers across crops and sites but not meeting the demand.

3. Although DARS has been producing breeder seed, the demand is high for the production of certified seed by seed companies and access by agro-dealers. The demand for certified seed has to be created through extensive participative demonstrations.
4. The proximity of agro-dealers to farmers needing specific seed requirements needs to be improved.
5. The need to build the capacity of agro-input and produce buyers to play a significant role in improving delivery of seeds and soil technologies for the SAPP project. This will enable dissemination of correct information on usage of inputs to farmers at the point of selling improved seeds and fertilizers.

To address these gaps, AGRA sub-granted RUMARK to implement interventions aimed at strengthening seed, fertilizer and other farm inputs distribution system through enhancing the capacities of agro-dealers. The objective of the grant is to enhance the capacity of hub and rural agro-dealers in the target districts in order to improve the delivery of seeds, fertilizers, good agricultural practices, soil fertility enhancing agents and extension services to smallholder farmers. The grant aims to reach out to at least 10,000 smallholder farmers with access to affordable inputs who adopt and use good agricultural practices and reduce distance travelled by farmers to access inputs from 14Km to 10Km. The grant specific objectives are:

- a. Mapping and training of agro-dealers in the target districts. (Hubs and rural agro dealers).
- b. Linking agro-dealers to input suppliers especially legume seed suppliers and good agricultural practices to increase the flow of inputs in the target districts.

The Strengthening Seed and Other Farm Inputs Distribution Systems for Improved Food Security and Incomes of Smallholder Farmers in Malawi project has contributed to addressing two critical challenges as identified in the SAPP program;

- a. Severe lack of access to high quality seed of improved crop varieties.
- b. Lack of dissemination of improved seed and soil fertility technologies.

The Project has established and strengthened critical linkages between technological solutions developed by Research Institutions and the various soil and seed related challenges impeding smallholder farmer development in the target districts. Specifically, Agro dealers have been developed to accelerate access to improved technologies and also help to create awareness of the improved technologies.

Interventions under this initiative have improved the proximity of agro dealers (in terms of zones of coverage) and investing in demonstration plots to increase awareness of new technologies and improving the adoption of the same in the central region of Malawi, specifically Lilongwe and Nkhosakota districts where the project was implemented.

Achievements and impact of the grant among targeted farmers

- 60 New start-up agro dealers trained and remain in business.
- 12 hub agro dealers developed and support New small agro dealers.
- 95 existing Agro dealers mapped (geo referencing), retooled and profiled.
- 8 New varieties of seed promoted by the project.
- 58 crop demos established showcasing GAP's and improved technologies.
- 5 field days held reaching out to 4351 Farmers (2322 F, 2009M).
- 260 village-based agents linked to agro-dealers.

Impact of the grant created to the IFAD investment

In the SAPP IFAD loan program, the gaps into which the IDSST could feed in were identified in a participatory process where private sector stakeholders were fully involved in the process to support a public program.

This is an innovative way of demonstrating how the grant and loan can work together to address the identified gaps, through the involvement of private sector. This process has increased the effectiveness of the loan program in Malawi in ensuring that the beneficiaries (smallholder farmers) have access to the demanded improved seeds, at the right time.

In this PPP arrangement, DARS is leading the production of high-quality breeder seeds of grain legumes and linking them to private seed companies. On the other hand, MUSECO is leading production and distribution of high quality pre-basic, basic seed and certified seed for groundnut, soya beans and beans to the farming communities in the SAPP districts. These improved legume varieties with traits such as high yield, pest/disease resistance and high iron content were bred under SAPP, however they had not reached the farmers because of a broken seed system. The third sub-grant of \$135,207 was given to Rural Market Development Trust (RUMARK), a local NGO on strengthening seed, fertilizer and other farm inputs distribution system through enhancing the capacities of agro-dealers. Through the support agro-dealers have been developed and linked to seed companies to ensure farmers access improved seeds and technologies without traveling very long distances.

Lessons Learned and Recommended Solutions for Scaling up

The project's interventions aimed at improving the coverage of agro-dealers in the target areas and investing in demonstration plots for improved awareness and adoption of technologies included. Below are some top lessons that have been captured

(a) More start-up Agro-dealers increasing access to quality seeds and other inputs

Training of more start-up agro dealers in business management is key to increase access to high quality seed of improved crop varieties and create awareness of improved seed. The new agro dealers have been trained and empowered to operate in remote and underserved areas so as to reach out to smallholder farmers. Training of more start-up agro-dealers will in the future, completely reduce the distance between agro-dealers and farmers hence improving access to specific seed and input requirements.

(b) Village Based Agents increasing demand and creating farmer linkages with agro-dealers

Identifying and training of Village Based Agents (VBAs) has been key to increased demand creation and creating farmer linkages with agro-dealers in rural areas. RUMARK championed the introduction of a platform which introduces farmers to trained agro dealers as a way of creating business linkages. This is where Village Based Agents (VBAs) becomes a link between smallholder farmers and agro-dealers where their core function is to solicit input requirements from the smallholder farmers and liaise with the agro dealers to supply the inputs. VBAs were trained to assist in demand creation by setting up demonstrations and distribution of small packs to smallholder farmers in an effort to increase adoption of new crop technologies on offer on the market.

(c) Improving supply distribution through linkages with input suppliers

Establishing the linkages between agro dealers and input suppliers has improved the input supply distribution channels available to smallholder farmers in the rural areas. The partnership between

RUMARK and MUSECO has seen the later supplying seed to hub agro-dealers who distribute to a network of agro dealers in remote areas where they are accessible by many farmers.

(d) Face-to-face interactions promote knowledge transfer and awareness raising

Farmer field-days are key in raising awareness and promotion of new varieties and technologies available and suitable for their areas. It provided a platform for knowledge transfer as farmers interacted with research teams, agriculture officers and seed suppliers on multiple technologies they would like to be advised on. Farmers have had opportunities of learning different agronomic practices they are supposed to apply in their farms. Alternatively, research teams and seed suppliers have had opportunities to learn from farmers about what they want and get feedback on the performance of new seed varieties.

The field days provided a platform for learning, raising awareness and promotion of linkages between farmers and trained agro-dealers doing business within farmer localities. The type and nature of interaction during the field days pointed towards creating demand and awareness for agro dealer services.

What worked/not worked?

What worked	What did not work
Support of government extension workers at district level in identifying the village based agents.	
Training of VBAs	
Mounting of demonstrations	
Organizing of field days: field-days were key in raising awareness and promotion of new varieties and technologies available and suitable for their areas.	
Growth rate of the seeds provided to farmers: Farmers who participated in the baby and mother demos reported an average of 95% germination rate of the legume seeds provided	
Seed companies providing inputs that were used in demonstrations	

Development Challenges

Some of the challenges as narrated by farmers, partners and implementers are as follows:-

1. Late distribution of seed packs to farmers. In some areas the seeds were distributed late hence denied farmers early planting.
2. Small packs of seeds.
3. No fertilizer support for demonstrations.
4. Conflicting of information.

Success Story from the Field

Agro-Dealership Driving the Economy of Young Entrepreneurs

Success Story of Biton Katseka, Bika Agro-dealer

The idea of starting own business and consequently become one's own boss is a very exciting one for young people. This brings up fancy titles like Director or Executive Officer. While this may be a wishful thinking for most rural youth, it is becoming a reality for one, Biton Katseka who upon working as a shop assistant in Nkhotakota where Sustainable Agricultural Production Program has been working decided to start supplying inputs to farmers in the area. And now he has opened an agro-dealer shop trading as BIKA agro-dealers.

AGRA has partnered with IFAD to strengthen input systems and increase farmers' access to improved inputs in IFAD supported SAP Program areas which include Nkhotakota. Through the partnership Rural Market Development Trust (RUMARK) builds the capacity of existing and new agro-dealers in the area with the purpose of reducing the distance farmers have to travel to access the much-needed inputs. Through the partnership, 98 new agro-dealers have been trained and linked to seed companies like MUSECO. One of the agro-dealers trained is youthful Biton Katseka who has found gold in supplying inputs to farmers in Nkhotakota.

Born on 27th February 1986, Biton Katseka worked as a shop assistant with a small scale business person named Mr. Zenus Zulu in 2005. After he had worked for two years, he decided to quit his job to start his own small business with an initial capital of 1300 USD (current monetary value) to supply vegetable seeds and agro-chemicals to aid the plight of farmers traveling long distance to access seeds in his area. Sometimes farmers had to wait for a market day to access inputs from unknown vendors who brought fake seeds and chemicals from town. This motivated him to open a shop so he could be a reliable source of inputs in his area.

He learnt about trainings offered by RUMARK from an agriculture officer who was working in his area. His quest to learn and know more on how to manage his business propelled him to attend a business management training (BMT) by RUMARK which has opened more avenues to serve farmers better and grow his business. He has now become a recognized agro-dealer in his area serving farmers including those from SAPP. The training that he attended has helped him to ply his business in a trustful manner as opposed to some unscrupulous traders who sell counterfeit seeds to farmers and end up losing trust from them. He is also distinguished from other traders by his involvement in demand creation activities where field-days provide the much-needed platform for interaction with agriculture extension staff on good agriculture practices (GAPs) product handling and safe use.

These lessons have helped him to reach to more farmers in Nkhotakota where he has four selling outlets at Nkaika, Nkhotakota boma, Mwansambo and Dwangwa. During planting season, he records about 20,000 customers for each shop, courtesy of demand creation activities.

He serves not less than 100,000 farmers per annum. He has employed about ten permanent workers whom four are women and six are men. He has built his own dwelling house, bought two minibuses, a plot in Salima town and is also keeping livestock.

His future plans are to expand his business by opening a hardware shop so that farmers can also buy building materials from him.



Picture above: One of Bitoni Katseka's shops which serves more than 20,000 farmers in a year.

Mr. Biton Katseka is now a shining example among his fellow friends. He owes all his success to hard work coupled with the business acumen he learnt from RUMARK's BMT training.

Production of Soil Maps in Malawi

SAPP has been supporting research to address critical soil fertility issues and improve the effectiveness of fertiliser distributed under the Farm Input Subsidy Programme. It was noted that whilst the impact of the FISP is positive, the response to fertilisers is less than potential and there are concerns about nutrient imbalances arising from the absence of potassium in the standard fertiliser. Thus, SAPP initiated trials to evaluate the performance of fertility management practices using inorganic and organic sources of plant nutrients. However, implementation of this activity delayed for years. AGRA has interest with area specific fertilizer blends hence collaborated with companies and partners and provided technical support to the development of GIS Soil Maps for guiding fertilizer recommendations in the project targets district under SAPP.

AGRA made a complementary grant to DLRC-DARS to support the development of fertilizer blends and validation in support of development of geo-referenced Information system (GIS) for fertilizer recommendations under SAPP. With AGRA's efforts, maps in six SAPP districts have been completed and validation of formulations underway. Once this exercise is fully completed it will help fertilizer companies to produce area specific fertilizer blends which is envisaged to boost maize crop productivity

Key Lessons Learned

1. **Process of engagement to create partnerships:** Engagement with public institution may vary from country to country depending on governance systems and specific sector policies for partnerships. In Malawi, the Agricultural policy is open in accommodating development partners thus SAPP was very key in leading and engaging with identified partners and departments under the Malawi Ministry of Agriculture to understand their roles and contributions to the IDSST programme in the country. The basis of IFAD – AGRA co-funding

also played a critical role in enacting this partnership as both AGRA and IFAD had similar interests.

- 2. Identification of preliminary interventions:** To institute a PPP arrangement, there is need to identify an existing intervention. IDSST success hinges on AGRA's validation of preliminary intervention areas that were identified during the grant development phase, in this case SAPP. During the process of engagement IDSST noted the gaps in SAPP's long-term targets of ensuring that appropriate agricultural technologies and GAPs are screened and adapted for each agro-ecology. IDSST came in to address the identified gaps and challenges.
- 3. Investment in Public Private Partnerships:** In the IDSST-PPP model, it has learnt that DARS, a public institution leads the production of high quality breeder seeds of grain legumes and releasing them into the seed system through private seed companies. These improved legume varieties with traits such as high yield, pest/disease resistance and high iron content were bred under SAPP, however they had not reached the farmers because of a broken seed system. It has also been learnt that seed companies have no financial capacity to procure large quantities of breeder seed for multiplication and distribution. Thus, the sub-granting of private seed companies such as Multi Seeds Company (MUSECO) Limited has realized increased production and distribution of high quality pre-basic, basic seed and certified seed to the farming communities in the SAPP districts.
- 4. Creating complete input supply chain:** The agro-dealer model has been successful through the partnership which has seen increased number of seed producers, input supplies and distributors in the project to reach increased number of consumers. The supply chain link has resulted into increased number of agro dealers stocking and providing a variety of farming inputs to small holder farmers in remote areas. For instance, BIKA Agro-dealers in Nkhotakota had a diversity of farm inputs accessible to smallholder farmers because of the number of input suppliers he is linked to.
- 5. Increased quantity of basic seed produced:** The increased number of seed producers in the project has enabled DARS to produce more basic seed which has been purchased by private seed companies such as MUSECO and Globe Seeds.
- 6. Investment in seed multiplication:** Promoting Public Private Partnership in seed multiplication arrangements has seen private seed companies supplying basic seed to the farmers in the districts under contract farming arrangements. In return, the seed companies buys-back the certified seed which is produced by farmer groups helping the seed multiplying farmers have a readily available market. Training of community seed production groups has enabled an increase in production of basic seed to meet the demand of the new varieties to smallholder farmers. This will increase adoption of use of quality improved seed by farmers. The community seed production groups are connected to seed companies that are outlets for the certified seed. MUSECO supplied seed to Kasipa Cooperative in Nkhotakota district which after harvesting farmers were able to sell to other seed companies.
- 7. Investment in Training:** Many agro dealers operate on seasonal basis when demand for specific farm inputs is high. They lack financial literacy and business knowledge to operate on long term because they do not have business expansion skills and capital investment for expansion. The partnership allowed institutions to identify existing and new agro dealers, train agro-dealers and retailers in fields that include business management, marketing and product handling and link them to the input suppliers who supply commodities on and in bulk. This has allowed some agro-dealers to benefit on rotational profit basis which they invest into business expansion.
- 8. Increased awareness and access of high-quality improved seed varieties and other inputs:** Many farmers still use uncertified seed; as a result, it gives them low yield due to a number of effects. It has been observed that there is potential to improve adoption of new technologies by farmers if more awareness is done. Under the IDSST model RUMARK has been building capacity of spoke agro-dealers and link them to hub agro-dealers. Through the

partnership district specific agro-dealer directories have been developed showing agro-dealer location, contacts and inputs that are being stocked for farmers to access.

- 9. Creating channels for Increased knowledge access of products and use:** Training of agro-dealers in business management and technical knowledge on the products they sale has enabled them provide complimentary over the counter extension services and advice to farmers where farmers access inputs from knowledgeable agro-dealers. Agro-dealers were trained in proper use and storage of seed and agrochemicals by RUMARK, Malawi Pesticide Board and DCD. The training equipped agro-dealers with skills in proper handling and storage of pesticides. So that agro-dealers should also provide advices to farmers on pesticide and seed on use, handling and storage.
- 10. Joint Planning and Review meetings:** Periodical reviews and reflections meetings are key to learning and innovativeness in PPP arrangements and implementation. Sub-grantees and implementing partners in the IDSST-PPP model benefitted from the joint review meetings, monitoring exercises, and AGRA technical support and supervisions to strengthen weak areas of implementation. These meetings help in sharing experiences among implementing partners developing action plans, sharing and consolidating activity reports from various players, setting standards for delivery of services, identifying challenges that are delaying progress as well as provision of corrective measures.

Policy Recommendations

These policy briefs have been developed from the implementation of the IDSST programme in Malawi from which the lessons and recommendations have been drawn for scaling up and to inform future programming and designing of interventions. The recommendations are presented to Government, Donors and Development partners, Research institutions, NGOs and private companies plying their trade in the agricultural sector.

Policy Brief 1: Strengthening Seed and other Farm Inputs Distribution Systems

Background

In Malawi, most of the population depend on agriculture as a source of livelihood. The agriculture sector in Malawi is in two parts; the large estates and the smallholder sectors. The estates are characterized by high capital-intensive farming, mainly high value crops like tea, sugar, coffee and tobacco (Masanjala, 2006). Despite being characterized by resource constraints (Chowa et al., 2013), the smallholder sector is the main producer of food commodities. It contributes up to 70% of Malawi's agricultural share of the GDP (Agunga and Manda, 2014). However, the smallholder sector is faced with a lot of challenges including lack of access to improved seed varieties and low adoption of good agricultural practices.

To deal with the above challenges faced by smallholder farmers, the government of Malawi is implementing a nine-year programme called Sustainable Agriculture Production Programme (SAPP) within the Agriculture Sector Wide Approach (ASWAP). The objective of the SAPP is to contribute to reduction of poverty and improved food security among rural farmers by promoting good agriculture practices.

Materials and Methods

This policy brief provides findings from an action research study by Rural Market Development Trust (RUMARK) with funding from the Alliance for a Green Revolution in Africa (AGRA). The study complements SAPP which is being implemented by the Malawi government through the Ministry of Agriculture. The study was aimed at strengthening the distribution system of high-quality seeds and other inputs to improve their availability and accessibility. The objectives were to map and train the

hub and rural agro-dealers and; link the hub agro-dealers to input suppliers and promote good agricultural practices to increase the flow of inputs in the study areas.

The study covered two districts in the central region of Malawi; Lilongwe and Nkhosakota. The project's interventions which were aimed at improving the coverage of agro-dealers in the target areas and investing in demonstration plots for improved awareness and adoption of technologies included:

- **Business management training for startup agro-dealers:** RUMARK conducted a four-day training of new agro-dealers in business management and technical knowledge in the two target districts. The aim of this training was to increase access of high-quality seeds and promote awareness of new seed and technologies in remote areas. A total of 86 agro-dealers of which 27 were female and 59 males were trained and were encouraged to train and teach farmers good agricultural practices.
- **Developing a hub of agro-dealers:** hub agro-dealers are defined as seasoned agro-dealers that have the capacity to wholesale to and mentor new and small agro dealers in remote areas. RUMARK developed 12 hub agro-dealers, of which 5 were female and 7 males. The hub agro-dealers were linked to major input suppliers where they were able to purchase inputs in bulk and at a discount. This enabled the startup agro-dealers to have a constant supply of inputs thereby remaining competitive in the business. The hub agro-dealers were training in advanced business management.
- **New technology demonstrations:** RUMARK established demonstrations to teach farmers various agricultural techniques and good agricultural practices (GAPS) and showcase new or improved technologies for improved production. This was aimed at promoting awareness and adoption of available technologies for farmers to increase their production and ultimately their incomes. The project established 149 demonstrations, in both summer and winter cropping, which have been used to showcase efficacy of the available technologies.
- **Knowledge sharing and learning forums:** the project conducted knowledge sharing and learning forums with smallholder farmers, agro-dealers and lead farmers in the target districts. These knowledge sharing forums were held twice in each target district in order to share agricultural information.
- **Agro-dealer mapping:** this was an exercise that was undertaken to identify areas that had very few agro-dealers and providing them with agro-dealers. The mapping exercise allowed the development of a database of all agro-dealers in the target district.
- **Village based agent identification:** to reach out to as many farmers as possible, the project mentored village-based agents and lead farmers so that they can be linkages between the farmers and agro-dealers.
- **Input sales data:** throughout the program period, data was collected on input sales in order to assess progress and performance of agro-dealers.

Findings

The findings revealed that the implemented activities highlighted above improved access to high quality seed of improved varieties and awareness of improved seed and soil fertility technologies.

First, training of new agro-dealers increased input outlets in the target districts, which led to reduced distances travelled by the smallholder farmers to access improved technologies. The trained agro-dealers also improved their business skills and gained the ability to provide over the counter extension service to the smallholder farmers.

Second, development and training of hub agro-dealers improved input delivery system and the efficiency of small remote agro dealers. Third, new technology demonstrations increased demand of certified high-quality seed as well as adoption of good agricultural practices. Fourth, conducting knowledge sharing and learning forums in the target districts increased both awareness and adoption of good agricultural practices.

Lastly, training village-based agents and hub agro-dealers increase in sales of inputs through facilitated contractual agreements.

Overall, the demand driven supply system implemented in this project, enhanced access to seed, fertilizer and other farm inputs by smallholder farmers by linking them to input suppliers by establishing hub agro-dealers, training lead farmers and village-based agents. The lead farmers were also provided with small seed and fertilizer packs and GAP technologies for their demonstrations to the project beneficiaries. The village-based agents solicited input requirements from the smallholder farmers and liaised with the agro dealers to supply the inputs. This contributed to SAPP's long term targets of 30% of appropriate agricultural technologies and good agricultural practices being adapted: 50% of farmers applying improved technologies or management practices and at least 60% of farmers participating in at least one of the improved technologies. This will sustain surplus production and lead to significant increase of incomes of smallholder farmers in the intervention areas.

Conclusion

In conclusion, the strengthening seed and other farm inputs distribution systems for improved food security and incomes of smallholder farmer's project in Malawi has been a major success. The project has conclusively demonstrated that the lack of adoption of new technologies is a consequence of the technologies not being made known and available to the smallholder farmer. Such interventions need to be scaled up to other SAPP areas to reach more farmers and have greater impact on the nation. There has also been an increased demand for agro-dealer trainings as they have observed growth in business of fellow agro dealers in the project areas.

Policy brief 2: Production and Delivery of Early Generation and Certified Seed for Improved Livelihoods of Smallholders in the farming communities

Background

In Malawi, there is a gap between technology awareness and adoption. Many smallholder farmers are aware of improved technologies but do not adopt them. This is mainly because the technologies require inputs that are unavailable and unaffordable to them. However, this is not the case for all crops. Hybrid maize seeds are readily available in commercial shops whereas self-pollinated crops like legumes are not. Seed producers in Malawi produce more certified maize seed than legumes, making legumes inaccessible to farmers.

To address this challenge, the Sustainable Agriculture Production Programme (SAPP) introduced a subcomponent on seed multiplication to improve farmers' access to improved legume seed like soya beans, pigeon peas, groundnuts and beans while improving the incomes of the seed producers. This is done by multiplying certified seed of selected legume crops such as soya and groundnuts through a network of farmer groups

Methodology

This study was conducted in 6 districts (Lilongwe, Blantyre, Chiradzulu, Balaka, Nkhosakota and Chitipa) to increase access to improved legume seed locally, to introduce viable farm business to smallholder farmers, improve access to income among smallholder farmers through sales of certified seed and, reduce poverty and improve food security of smallholder farmers.

Farmers in groups of 10 – 15 members were identified and registered with the Seed Services Unit (SSU). A total of 234 farmer groups were registered for the intervention. These farmers had their land verified for the team to understand the cropping history of the land. The farmers were provided with basic seed as start-up capital. At all stages of crop production, their fields were inspected by SSU to look for field hygiene, seed testing to check if there is variety mix up, checking for pest and disease outbreaks and quality adherence. In addition, farmers and extensions workers in this intervention were receiving regular training in modern seed multiplication technologies and post-harvest handling among other topics. The seed growers were also linked to markets.

Findings

The findings from this action research show an increased uptake of high-quality legume seed and increased income to the farmers and communities in the study. The following are the key findings from the study:

- **Improved farmers' attitude towards seed multiplication:** in the past, smallholder farmers believed that seed multiplications can only be done by commercial farmers. With the coming of the program, a lot of smallholder farmers produced the seed. This has led to an increase in demand by farmer to participate in the programme.
- **Improved standard of living for the smallholder farmers:** participating in the program helped farmers increase their income, thereby improving their living standards. A lot of farmers accumulated household assets and were able to pay for their children's education with the money they got from selling seed.
- **Increased access to high quality seed:** access to high quality legume seed especially soya and groundnuts has improved with the seed multiplication programme. It has also improved crop diversification as most farmers used to grow maize only. With more legumes available and accessible, farmers are growing different crops.
- **Increase in area under legume cultivation:** with the availability and accessibility of legume seeds, farmers have increased the area under legume cultivation. Farmers have scaled up production of legumes from an average of 0.1 hectares to 0.6 hectares per household
- **Better linkages to potential markets:** the programme linked its farmers to markets through agro-dealers. They also engaged Multi Seed Company for contractual arrangement with farmers to multiply seed in groups for an enabled market.
- **Established business entities:** through this programme, farmers were organized in groups where they adopt farming as a business. This helped the farmers in their business operation because being in a group helped them have a bargaining power when it came to market their produce.

Recommendations and Conclusion

Although there is clear evidence that the seed multiplication programme improves access to legume seed as well as income of smallholder farmers, there are areas that require attention. First, the study showed that there is a lack of value addition by the farmers. The farmers lack necessary value addition skills for the business, like packaging and labelling which makes it hard for them to sell their produce as seed on the market. The programme should therefore include value addition training to allow them to easily market the seed.

Lastly, there is a lack of reliable market for the legume seed that was multiplied. Most of the farmers that multiplied the legume seed reported that they sold it as grain because there was no market to see as seed. This was mainly because of unavailability of seed companies in remote districts. Having more contractual arrangements with multi-seed companies and other seed companies is a solution to this challenge.



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