FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

EXISTING AND POTENTIAL BUSINESS MODELS ON LAST MILE DELIVERY OF SEEDS

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Cover photo: Seed distribution vans reached farmers at the last mile in Ghana (IFDC, 2018).

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Feed the Future Consortium Partners in the Feed the Future Global Supporting Seed Systems for Development activity:

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Abbreviations and Acronyms

AO	Anchor Organization.
CBSP	Community-Based Seed Producers
CRS	Catholic Relief Services
EABL	East African Breweries Ltd
FMCG	Fast-Moving Consumer Goods
FSP	Financial Service Provider
IARI	International Agricultural Research Institute
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
KALRO	Kenya Agricultural and Livestock Research Organization
KCDMS	Kenya Crop and Dairy Market System
KEPHIS	Kenya Plant Health Inspectorate Service
MFE	Micro-Franchise Entrepreneur
NARI	National Agricultural Research Institute
NGO	Non-Governmental Organization
OAF	One Acre Fund
ODI	Overseas Development Institute
OPV	Open-Pollinated Variety
PCPB	Pest Control Products Board
PICS	Purdue Improved Crop Storage
QDS	Quality Declared Seed
SMS	Short Message Service
SSA	Sub-Saharan Africa
USAID	United State Agency for International Development
VBA	Village-Based Advisor

Executive Summary

The first part of this report builds on insights developed from the review of **existing models of seed delivery systems** available in sub-Saharan Africa (SSA) that serve most smallholder farmers. The first chapter begins with a summary of what the various models seek to address in the smallholder farmer operating landscape. A description of the various operating models identified in the formal[1] and informal[2] seed sectors are reviewed. The greatest responsibility for the model to function is borne by the principle or anchor entity that brings together other supportive partnerships to make the model function in seed delivery to farmers. The review recognizes that no one entity can satisfy all farmers' needs identified in delivering quality seed at the last mile, but a series of formal and informal working relationships between various players in the seed value chain are necessary, each with different roles and responsibilities in the entire process.

The report further identifies the dominant models as being those operating at the informal seed system level, which are models driven by commodity traders and community-based seed producers. Models operating in the formal seed system are responsible for distribution of certified seed and are also captured in their various forms; they are described as government-backed models that include seed parastatal-based models and relief-based models that encompass seed aid, seed vouchers and trade fair approach. Models based on aggregation are also described and these include formal and informal farmer groupings, such as cooperatives that deal with input and output aggregation models that take the form of off-takers, contract farming or out-grower schemes.

The report further recognizes the agro-dealer model as being at the core of the certified seed delivery system, driven by a network of rural based brick and mortar agro-dealer enterprises with varying capacities and operating structures. The Village-Based Advisor (VBA) model is also captured as one that helps to combine seed delivery together with on-the-ground extension service support. With access to finance having been identified as a major factor in affecting farmers' productivity, various organizations have developed innovative models that offer agricultural inputs and other bundles of services on credit. These models are described in detail and include the One Acre Fund (OAF) social enterprise model with other new and upcoming organizations taking an almost similar basic approach of input credit, but with a distinctly different route to market that involves digital financing, use of intermediaries and local networks. These include models by Apollo Agriculture®, Tulaa® and Agri-wallet® that recruit small-scale farmers every season with similar packages of input supplies (seed and fertilizer), crop insurance and extension services.

Models that involve vegetatively propagated crops, namely Irish potato, sweet potato and cassava, have been described separately so as not to diminish their importance and the special characteristic of this group. The seed systems in this category are characterized by being farmer and trader

[1] **Formal system** is the system which breeds and produces seed of varieties with traceable genetic parentage, and seed which has been produced to meet legally mandated standards and is labelled as such.

[2] **Informal system** includes forms of sharing and distributing seed that does not follow legally binding standards and includes farmer-selected and saved seed and potential seed that is procured in grain markets. Seed often moves from the formal system to the informal system as it is recycled. The informal system incorporates farmer-saved seed, for their own use or to be exchanged with other farmers on a barter or cash basis. These seeds can be local landraces, or they can incorporate community-based seed multiplication and distribution, e.g., by community groups, farmer associations, and/or non-governmental organizations (NGOs). Multiplication can include both local varieties and modern open-pollinated varieties (OPVs). If community-based seed production incorporates some level of quality control, for example some level of production inspection, it can be regarded as part of the continuum between informal and formal, or semi-formal.

dominated, highly dependent on public research and development, and less formally regulated with most of the delivery models taking a decentralized multiplication process approach to increase localized availability of disease-free planting material to farmers. The fodder seed systems have been described as underdeveloped, due to limited progress in the livestock sector in which animals are kept on subsistence. There is, however, growing interest in this sector with the increase in demand for livestock products and the presence of new market actors for fodder seed in the market.

The second part of the report proposes **potential models** that can be adopted and gives basic guidelines that should be embedded in them. These include scalability, sustainability, quality standards, incorporation of technological advancements, and the creation of a local ecosystem around the solution considering of inclusivity nature i.e., considering gender, age and disability of the population involved. Input into these models has also borrowed from the Fast-Moving Consumer Goods (FMCG) industry that is very efficient in delivering goods from producers to consumers even in very remote areas. Some of the solutions have been tailor made to suit the special conditions and regulatory framework that exist in the seed industry. The review goes further to propose and describe the Business Model Canvas[3] as a tool which will aid in understanding the proposed models in a systematic and concise way. The outcome will be insights about last mile customers, important partnerships required, the value proposition offered and through what channels the models hope to generate revenues while managing costs for sustainability. Various models have been proposed which all focus on last mile delivery solutions. These are labeled as the micro-franchising model; Regional clean seed producers with hub entrepreneur model; Dry legumes production financing model; Seasonal Rural Aggregation and Distribution Kiosks model; and the Motorcycle Distribution Agents model. The rational of proposing each model is explained in-depth with an accompanying business model canvas.

No one model will be able to deliver on all the needs of rural small-scale male and female farmers; what is required is a combination of different ingredients incorporating a market-based systems approach, learning from previous projects, multiple partnerships, borrowing successful models from other industries, taking advantage of technological advancements, and eventually taking calculated risks. Through experimentation with different approaches, we will eventually produce models that are able to drive more quality seed and related inputs sustainably to most small-scale male and female farmers in rural SSA.

[3] The Business Model Canvas, developed by Alexander Osterwalder, is a visual representation of current or new business models, generally used by strategic managers. The Canvas provides a holistic view of the business as a whole and is especially useful in running a comparative analysis on the impact of an increase in investment may have on any of the contributing factors. This method from the bestselling management book Business Model Generation is applied in leading organizations and start-ups worldwide.

Part 1. Existing Business Models for Last Mile Delivery of Seeds and Other Inputs

Introduction

Seed delivery business models have been evolving over time to serve the needs of small-scale male and female farmers in acquiring seeds and other related inputs. The channels that each of the inputs follows will be heavily dependent on various factors that change from region to region, crop to crop and farmer to farmer. It is not a generic concept but a combination of approaches that are geared towards addressing the needs of small-scale farmers. The process of making seed physically available to farmers in combination with relevant supporting services is one that is carried out by various entities within the formal and informal seed systems. Some of the fundamental points that all seed delivery models seek to satisfy are:

- Right seed – seed of the crop and variety as desired by the farmer.
- Right quantity – amount of seed packaged as (e.g., smaller packs, tamper proof) required by the farmer in relation to the area that they plan to cultivate during that season.
- Right time – seed accessed in time for planting. This is considering that the need for seed is seasonally time bound especially with rainfed agriculture, which is what the majority of SSA farmers rely on.
- Right place – this is a location within the farmer's zone of mobility.
- Right condition – high and verifiable seed quality in terms of all attributes.
- Right price – a price the farmer can afford and is willing to pay.
- Right planting information – correct agronomic practice for that crop variety, e.g., spacing, weeding, fertilizer application, pest and disease control etc.

All these requirements will seek to be satisfied by an intricate system which will vary depending on the region, crop varieties, local prevailing circumstances including gender dynamics, and varying degrees of market systems success (or failure). The channels that seeds and related inputs follow to reach the farmer may be comprised of a) no step, where the farmer uses own saved seed and other inputs like manure from own farm; b) single step, where seed is sold directly to the farmer c) or, multiple steps comprising several actors in the transaction, each fulfilling a critical role at their level in the value chain. The choice of distribution pattern or business model is also influenced by a series of factors that include costs, intermediaries, type of seed involved, nature of the competition, needs of the male and female farmers, available infrastructure, and much more.

Previous studies by Almekinders et al. (1994), Cromwell and Wiggins (1993), Grossman et al. (1991) assert that "Government and seed companies in developing countries typically supply no more than 20% of seed of most food crops. Such institutions typically produce certified seed in centralized facilities." In a more recent study, conclusions arrived at by McGuire and Sperling (2016) indicate that "farmers access 90.2% of their seed from informal systems with 50.9% of that deriving from local markets." This conclusion was drawn from a data set that included 9,660 observations across six countries (Haiti, Zimbabwe, South Sudan, Kenya, Malawi, and the Democratic Republic of Congo) and covering 40 crops. The study goes further to demonstrate that there is however great variability within crop clusters with maize accounting for a highest percentage of seed that farmers sourced from formal systems that ranges from 17-31%.

Other crops that were included which are mostly self-pollinating or vegetatively propagated accounted for an insignificant percentage while considering access from the formal seed system that was below 1% to 2.9% across the countries that were selected in the study. Crops in these categories bring little profit to seed companies for several reasons: uncertain and fluctuating demand caused by competition from farm-saved seed (grain legumes), low multiplication rates (grain legumes), transportation and storage difficulties (soybean, root, and tuber crops), and strong regionally specific preferences (grain legumes, indigenous vegetables).

The imperative is to support more home-grown initiatives, especially those around the informal sector as it is vital to the seed delivery system for most farmers. Activities here should be decentralized and revolve around local entrepreneurship, seed banking, community-based seed production or seed villages. A more effective strategy to improving national and local seed supply would be to link formal and farmer seed systems while improving the latter. Drawing from the experience of the seed producer cooperatives in Ethiopia that were shown to improve seed availability and access in the country (Sisay et al., 2017), there are opportunities for smallholder seed production systems that can borrow from the practices of the formal seed sector to improve on seed quality, increase variety and access operating under an intermediary system. This would increase the flow of new highly producing seed varieties (though not certified under the formal system rules) to meet demand and increase smallholder productivity using the already existing informal networks operating at scale. By unpacking the various models identified the review seeks to understand in greater detail the workings of the various seed delivery models, how they can be improved to meet farmer's needs and contribute to food and livelihoods security.

Methodology

To identify and further classify the existing seed system delivery models, an initial literature review on available models in SSA was conducted. The findings of this review contributed to the description of the models and identification of the various value chain players of importance in the seed industry. In addition to this, face to face interviews were conducted with various stakeholders in the seed industry that had been previously identified through desk research and referrals. Discussions with the various stakeholders revealed a lot more information on the intricate workings of the models as described in this document. Stakeholders that were interviewed included seed companies, financial institutions, non-governmental organizations (NGOs) involved in agriculture development projects in the region, innovative ICT solution providers, agro-dealers, and farmers. A comprehensive list is provided as Annex 1.

Identification of Last Mile Seed Delivery Models

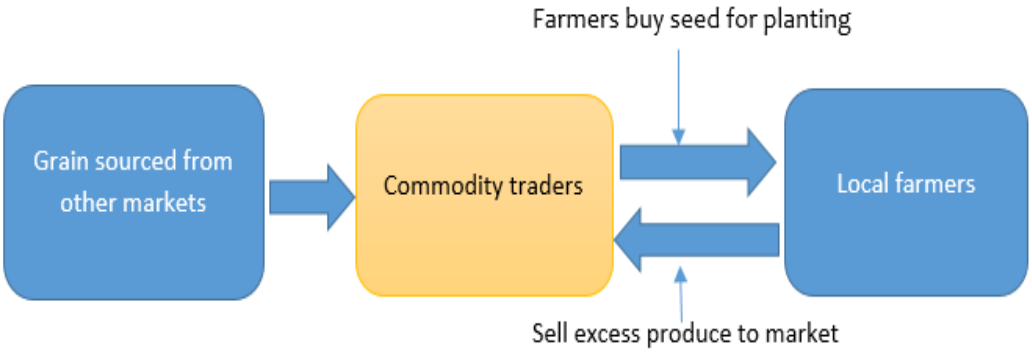
In analyzing the models, it is apparent that no one actor can fulfill the needs of small-scale farmers on their own. Various partnerships are forged to be able to achieve the task of seed delivery to the last mile. It should be noted that the description given to the models is based on the nature of market actors that **bears the greatest responsibility for driving the supply of seed and related inputs** to the smallholder farmers. This forms the key differentiating factor between the various models.

Informal Seed System Models

Informal seed systems have been recognized as primarily the major source of planting material for a great majority of farmers in SSA, however, as a source of new or improved varieties, they are not delivering with the efficiency and effectiveness needed. It is common practice for farmers to rely on fellow farmers for the distribution new seed varieties, which is just too slow for new_varieties to have major impacts.

Commodity Traders

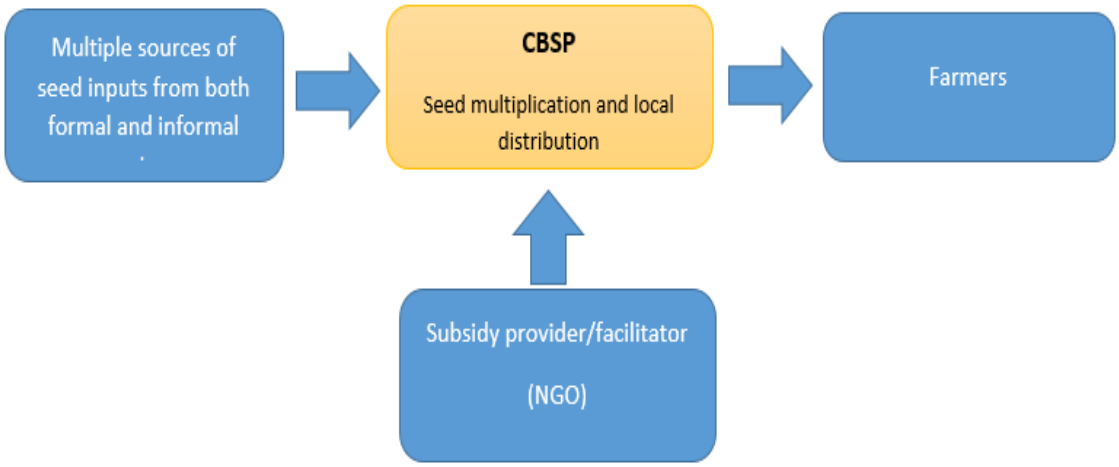
Commodity traders have long been recognized as an important source of seed for many farming communities in Africa in the informal seed system. Sperling et al. (2013) named seven attributes that typify informal markets which are "already work at scale, market driven, move a wide range of crops, work everywhere, rarely break down entirely, distinguish between grain and seed and are highly dynamic." She further claims that "as a source of seed, local markets were found to be particularly important for legumes, accounting for 64% of seeds for crops like beans and cowpeas." This proportion dwarfs all delivery models especially for legumes. Local traders bring in grain from a variety of sources, which is subsequently sorted and used by local farmers as planting seed. It has been a long-held belief that farmers bought seed locally based on failed harvests, loss of saved seed or failure to source from their regular networks. The local commodity traders can provide a desirable range of crops and varieties, on time, and at acceptable quality and price. As it stands, seed/grain markets are the major source of seed for many farmers in many different cropping systems in Africa (Sperling et al., 2006).



Community-Based Seed Producers (CBSP)

"Community-based seed producers normally involve associations of individuals that are usually organized as a group or cooperative through the support of non-governmental organizations or state agents that assist them in entrepreneurial forms of seed multiplication and the marketing of seeds. These systems are established either to support other farming systems recovering from systemic stress such as drought, pests or diseases or to strengthen farmer-based systems. These systems are characterized by unregulated (informal) seed quality control mechanisms" (Munyi and De Jonge, 2015). However, they occupy the middle ground between the farmer based/informal seed system and the formal system. This "intermediate category of seed systems in which farmer associations or cooperatives go into commercial seed production to produce Quality Declared Seed (QDS), which is sold in local markets and as such does not necessarily compete with national varieties and the seed companies that market them" (Ayieko and Tschirley, 2006).

Formal Seed System Models



The formal seed systems which are identified as the main pathways of certified seed delivery in the region have been described as "a framework of institutions linked together through a combination of components and processes of production, multiplication, storage and marketing of improved varieties of specific quality along with the interactions and support to make seed available to a particular end user" (FAO and ICRISAT, 2015).

Public Sector Driven Models

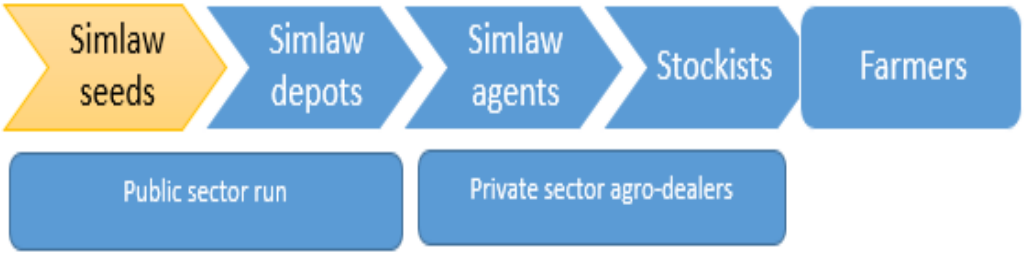
Government Seed Parastatals

Seed parastatals are state agencies usually operating under the Ministry Agriculture with varying degrees of government control. They will usually have some level of autonomy however their operations in seed systems will usually not be driven by prevailing market situations but by official policy.

> "The degree of government control and investment varies between countries and indeed may change over time, in response to changes in economic policy and external pressures. Policy often has a significant influence on seed pricing. Profit-making is not usually the primary objective of this type model, although importance may be attached to full cost-recovery. This model entails serving all categories of seed users, particularly those less able to participate in commercial seed markets and can be an important part of the mandate of public sector seed organizations. This can oblige them to deal in a wide range of seeds, including those that are relatively high cost to produce and/or relatively low value"(Cromwell et al., 1992).

These parastatals are usually closely linked to the country's National Agricultural Research Institutes (NARIs) through which they are able to offer a route to market for many of the new varieties that are released.

Example: Kenya Seed Model



Kenya Seed Company Ltd is a state corporation that produces and markets quality certified seed. It was incorporated in 1956 in Kitale. In its expansion into the East African market, Kenya seed has incorporated other subsidiaries Simlaw Seeds (Kenya), Simlaw Seed Uganda, Simlaw Seed Rwanda, and Kibo Seed Company in Tanzania with their core business being selling high-quality seeds, pesticides and fertilizers in East Africa. Currently Kenya seed and its subsidiaries deal in over 60 certified seed varieties of maize, pasture, horticulture sorghum, sunflower, and vegetable and legume seeds for different agro-ecological zones in the region. Their product portfolio is divided between Kenya Seed and its subsidiaries such that Kenya Seed Ltd deals in cereal crops (maize, wheat, sorghum), while its subsidiary Simlaw Seeds deals in vegetable and legume seeds. The model is structured in such a way that seeks to ensure penetration and availability of certified seed at the last mile with the vision that a farmer should not walk more than 3 km to procure seed.

Simlaw Seeds sources and supplies certified seed to its depots that are strategically located country wide, which in turn supplies a network of Simlaw agents who are private sector agro-dealers appointed to re-distribute on their behalf to village-based stockists. They have a network of product promoters on the ground in many regions that offer on farm demonstrations and extension services that assist in creating demand for their products. The company policy is such that the price of seed is the same across the board no matter the region where the seed is supplied which helps to maintain its affordability to rural last mile farmers.

Relief-Based Models – Seed Aid Model

Various relief and government agencies operating within the region engage in seed aid as a routine complement to food aid assistance. It is established that seed delivery has been seen as an innovative and effective step forward in helping farmers recover, re-establish, and sustain their farming systems. This system is a result of persistent emergency response that includes distribution of seed to support relief and rehabilitation projects It involves many different players: governments, donor agencies, NGOs and implementing agencies, private and parastatal seed companies, seed procurement agencies, contract seed growers, and eventually the farmer beneficiaries.

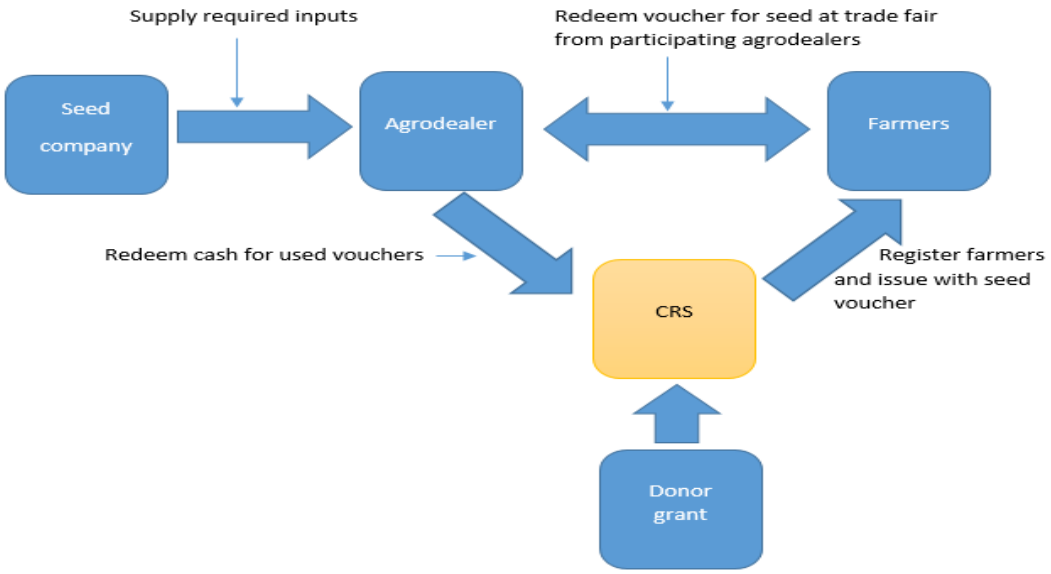
Seed is distributed using a **seed voucher and trade fair system** or given free of charge based on the organization's assessment of the communities they work in, or the prevailing relief program operations in place at that point in time. This is usually donor funded support in the seed delivery system and will normally cease after the project ends. The long-term effects of these are usually varied, with some farmers continuing to seek improved seeds through other means, while in other cases they would resort to what they were using before the project. These humanitarian actions are however not devoid of their challenges when it comes to delivering quality seed. Whereas the model suggests that it is always the seed companies or certified farmer groups that supply the agro-dealers with quality seed, the reality is that there are incidences of other intermediaries getting involved in

the procurement process to influence the final product either by supplying poor quality seed from dubious sources, replacing genuine seed with low-quality varieties or inflating prices for their own personal benefits at the expense of the humanitarian project objectives.

Seed Voucher System and Trade Fairs Model

Example: Catholic Relief Services (CRS)

Since 2000, Catholic Relief Services (CRS) has conducted seed fairs in Uganda, Tanzania, Kenya, Burundi, and Sierra Leone. CRS seed fairs work by providing vulnerable households with voucher worth a specific cash value. The fairs are organized on a specific day in a specific location. The seed sellers redeem the vouchers for cash or cash transfers as such from CRS and its partner. The seed fair approach addresses the problem of lack of access to seed in a household following a disaster or displacement, and in doing so, challenges the assumption that seed is unavailable in a community during an emergency and chronic situation. A detailed manual is available from CRS on how to conduct a seed voucher and trade fair (CRS (2017), ICRISAT, and ODI, 2002[4]).



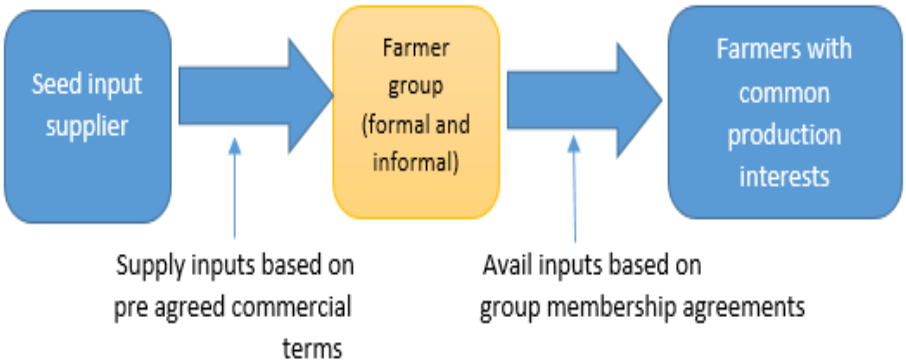
Aggregator Models

The main driver of aggregation models in agriculture comes from the fact that through this approach, groups of low-income small-scale farmers who are customers or suppliers become economically viable trading partners, able to access markets that they would otherwise not be able to on their own.

[4] https://www.crs.org/our-work-overseas/research-publications/agricultural-fair-and-voucher-manual-1 The model has been adapted to address nutrition, resilience, and gender. Gender specific recommendations include conducting a gender analysis or integrating gender into planned assessments to guide fair and voucher design, considering issues related to mobility and safety, addressing concerns about use and control of the voucher at the fair and others.

Collective Producers Model

This model is based on membership of farmers to producer groups, usually cooperatives, registered farmer groups or even informal association of farmers with common interests. The common theme is usually a grouping of farmers with collective production needs. The entity then assumes the responsibility of coordinating farm inputs access for their members and non-members based on the various agreements that bind the grouping together. In rural areas, this could typically be a village-level cooperative or association dealing with inputs as needed by the members, the resource owners, to enhance the productivity. These organizations are small, have well-defined geographical areas, and are concerned about inputs. However, the client group is highly diversified in terms of crops and commodities. There are many primary-level agricultural cooperatives or farmer groups in SSA, but most of them have been financially vulnerable and ineffective. This group of organizations can generate income from the sale of inputs and outputs. The income can then be put back into the organization by spending it on extension, data generation, business planning, and administration. It is essential to have professional and honest management with constant monitoring and periodic rounds of evaluation for the group to remain effective.



Off-Taker (Contract/Out-Grower Farming) Model

Contract farming may be defined as a system for the production and supply of agricultural products under forward agreements. The main feature of such agreements is to obtain a commitment from farmers to provide an agricultural commodity of a specific type, at a specified time, price, and quantity, to a buyer (Encyclopedia.com 2020). The arrangement also invariably involves the purchaser in providing a degree of production support through, for example, the supply of farming inputs like seeds and the provision of technical advice that goes with them. The basis of such arrangements is a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity. The challenge for rural farmers is availability of reliable and affordable inputs such as technical advice, seeds, fertilizers, credit, mechanical services, and consistent access to profitable markets which is what contract farming arrangements seek to address. It provides opportunities of introducing seed varieties as demanded by the market together with the technical support that goes with it. These forwards and backwards linkages by investors seek to guarantee a reliable source of supply, from the perspectives of both quantity and quality.

With effective management, contract farming can be a means to improve seed systems and to bring about the transfer of technical skills in a way that is profitable for both the contracting organization

and farmers. The contract farming system should be seen as a partnership between agribusiness and farmers. To be successful, contract farming requires a long-term commitment from both parties. The approach would appear to have considerable potential in SSA where small-scale agriculture continues to be widespread. Small-scale farmers are unable to remain competitive without access to the services provided by contract farming companies. The farmers on their own may not have the necessary production and logistical capacity to access markets regularly. Exploitative arrangements by managers are likely to have only a limited duration and can jeopardize agribusiness investments. Similarly, farmers need to consider that honoring contractual arrangements is likely to be to their long-term benefit. Several strategies can be adopted at the different levels of the value chain in these contractual agreements to mitigate the risk of exploitation by any of the partners.

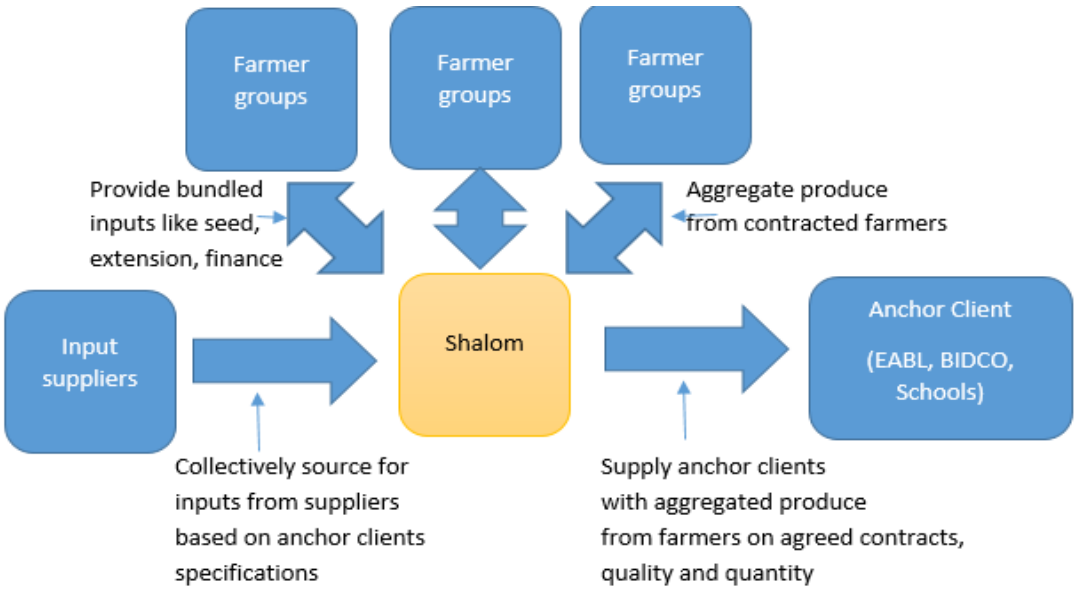
i. Creation of farmer groups or growers' associations among the small-scale producers are a good way to give a bargaining edge to the famers and protect their interest in the agreements.
ii. Quality and quantity specifications of the produce should be clearly stipulated in contracts with embedded incentives for consistency.
iii. The quality of inputs received by farmers should be verifiable by industry bodies, e.g., KEPHIS for seed quality, relevant Agrochemical regulatory authority, e.g., Pest Control Products Board (PCPB) in Kenya, Registration of service providers especially the agro-dealers servicing the networks, etc.
iv. Consumer protection bodies to ensure that end products meet the necessary quality standards.

These are but just some of the measures that can be undertaken to ensure transparency and fairness in such contractual arrangements. However, there are still voluntary agreements between the farmers and out-grower company's operating in free market economies with minimal official government policies to regulate their engagements.

Example: Shalom

Shalom is an aggregator that works with small-scale farmers' groups in Meru region to produce sorghum and soya beans on contract for supply to East African Breweries Ltd (EABL) and Bidco, respectively. The services they offer their contracted farmer are bundled to include access to finance, seed, fertilizer, crop insurance, extension services that are given on credit and later buy back their produce at pre-agreed terms. They are currently working with around 30,000 farmers in 17 farmer groups. The contract farmers they deal with produce various seeds for a specific end market as follows:

- Sorghum for supply to EABL®
- Soybean and sunflower for supply to Bidco®
- Green grams and beans for supply to schools and prisons
- Maize for personal milling for their own brands

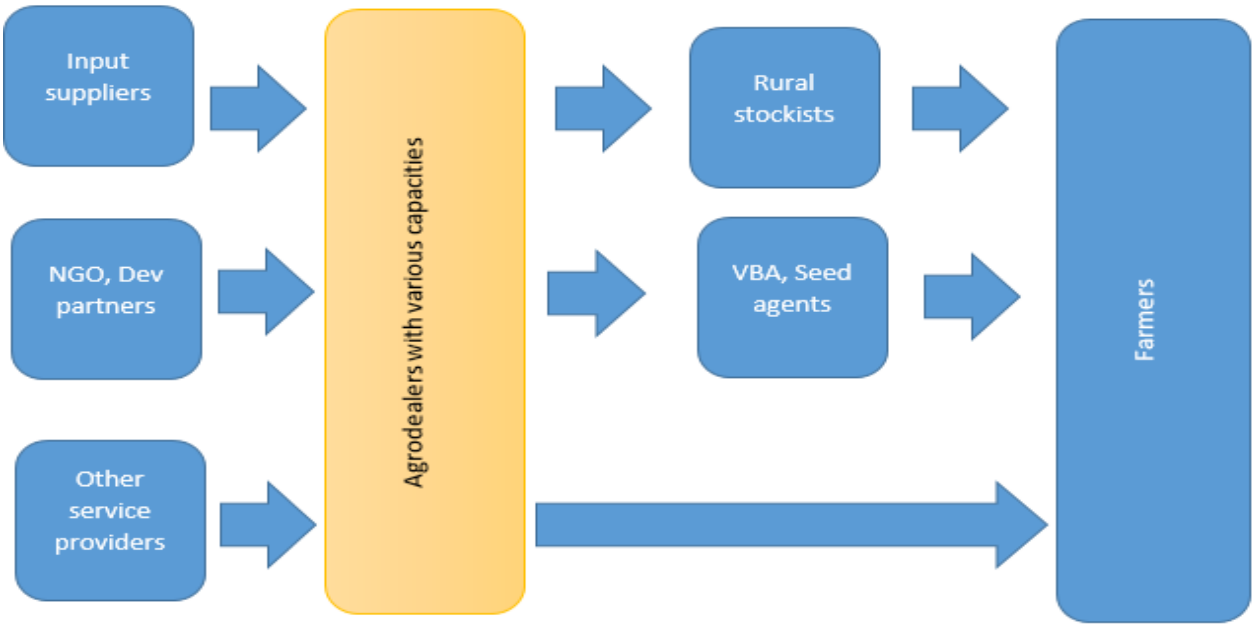


Agro-Dealer Model

Agro-dealers are recognized to form an essential link between seed companies (including other farming input suppliers) and the seed consumers (farmers). The agro-dealer model is central to the formal seed system distribution network. This model is driven by profit-seeking entrepreneurs who often run several business streams within their premises (hardware, agro-vet, etc.). Agro-dealer operations vary in size, ranging from small stockists to large wholesale stores. There are seasonal agro-dealers who stock a small range of agricultural inputs during certain seasons, as well as permanent agro-dealers who have stores that sell inputs all year. The agro-dealers come from varied backgrounds (gender, youth, wealth status etc) and include people with professional qualifications in agricultural and veterinary sciences to those without any qualifications at all.

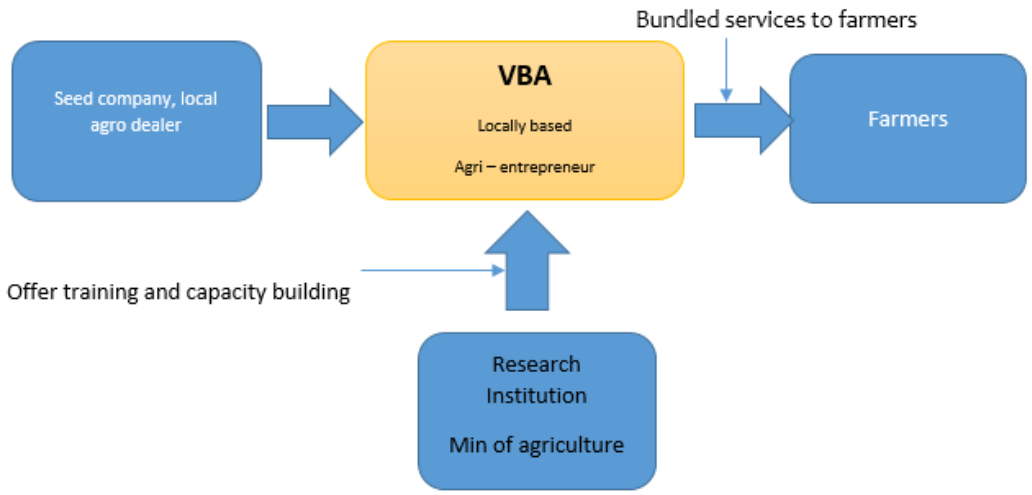
Agro-dealers are an important part of the farm inputs value chain, playing a major role in ensuring that farmers have access to important agricultural inputs required to improve agricultural productivity on their farms. Agro-dealers are also recognized as a major cog for many of the other models in which they participate as the major seed input supplier, due to their vast presence in many of the rural areas giving them proximity with farmers. Substantial resources have gone into agro-dealer support programs to build their capacity and create networks that can effectively be able to meet farmer's needs.

Most of the agro-dealers operating in rural areas operate on a small capital base that limits their capacity to be able to deliver on a wider variety of farmers' seed requirements. The greatest majority will focus on stocking certified maize seeds and a narrow range of vegetable seeds an indication of the supply and demand dynamics for seed in rural areas. Agro-dealers play multiple roles in rural areas besides selling inputs. They can offer a variety of services depending on their individual capacities. These add on services include farmer extension services, preparation of demonstration plots, farmer training, mobile money transfers services, conduct field days in conjunction with seed companies and provide technical on farm assistance. Many organizations, both commercial and relief-based, 'piggy-back' services on the agro-dealer local networks to be able to reach farmers in rural areas.



Village-Based Advisor (VBA) Model

The VBA model is a self-sustaining extension service approach that disseminates inputs and information at the last mile. The success of the model is dependent on the efforts of the VBA. One VBA can be able to cover at least 500 farmer families. The VBAs are keen, hardworking farmers at the village level who have been developed into local agro-entrepreneurs. They form a critical function of increasing awareness and stimulating demand by use of local based individuals who have roots within the community and are also capable of offering multiple services to farmers within their locality. Seed distribution is undertaken through linking community-based or village-based advisors with city based agro-dealers or seed companies. They can also be linked to research institutions or Ministries of Agriculture through which they are able to acquire training and capacity building to enable them to perform their role on the ground. They disseminate a wide variety of improved seed (and other income generating services) for important crops in the region using small packs/whole village approach and advise farmers on soil and crop management. More entrepreneurial VBAs can also become points of output aggregation to link the farmers with the market since they have relatively very good knowledge of who is planting what and where they can source for the market.



Access to Finance Backed Models

Most smallholder farmers have difficulty obtaining appropriately structured financial services to meet their needs, which comprise a combination of short-term working capital, medium-term equipment financing, and longer-term capital investments, savings products, and risk management products. "Farmers have insufficient volumes of produce and inadequate connections with markets to generate substantial cash flow and subsequent 'bankability,' while financial service providers (FSPs) lack connection to farmers and understanding of farmers' needs" (Dalberg, 2015). This trend is however changing as agribusiness investments by foreign firms in Africa are growing rapidly, providing important sources of financing and technical assistance for farmers and businesses along agricultural value chains. This new stream of Agribusiness investments financing is targeted at smallholders and cooperatives at the farm level, and processing and trade at midstream and downstream segments of value chains. Financing is provided for working capital, using different arrangements such as contractual or off-take agreements with individual farmers and farmer associations, out-grower schemes linked to nucleus farms, and third-party financing involving commercial financial institutions or NGOs.

Various models are emerging that address the issue of access to capital by small-scale farmers with the following basic characteristics being observed:

1. **Input support on credit**: The models provide appropriate agricultural inputs to smallholder farmers on credit to overcome the barrier of initial high-cost outlay. These inputs are usually from recognized companies that offer high quality products in the local markets. Input support varies from one model to another depending on the value chain and smallholder commitment. (This is an exception with **myAgro** which provides inputs based on farmers own savings over time.)
2. **Utilize local networks for service provision**: Building local networks offers valuable logistical support and creates opportunities for local agro-dealers, village-based agents, transporters, input suppliers, etc., that also help stimulate the local economy by providing business opportunities.
3. **Farmer selection**: Selecting suitable farmers to participate is critical to the success of the models. Farmer selection is done through a recruitment and vetting process conducted by the

company using various in-house tools and not the conventional approach as local financial institutions would do.

4. **Farmer training**: Effective farmer training is part of the model since it is through their improved productivity that the organization can increase the probability of successfully recovering their investments.
5. **Risk mitigation**: Including insurance as part of the package mitigates the risk to both farmer and financier in the event of losses due to adverse weather events.
6. **Use of digital financing services**: Almost all transactions are carried out through the use of digital financing services like (Mpesa in Kenya and MyAgro in Malawi).
7. **Access to markets**: Most of the financing is directed towards farmers that grow cash crops with easy access to markets like maize and potatoes; however, this is expanding into other areas like legumes and vegetables.
8. **Bundling of services is at the core of the model**: These include access to finance, crop inputs, extension services, crop insurance and in some cases access to markets.

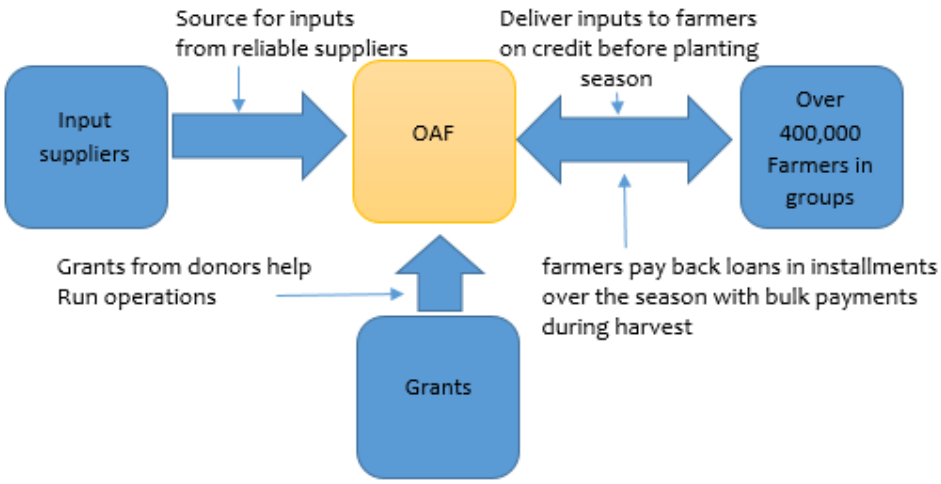
Examples of Available Models

One Acre Fund Model

One Acre Fund (OAF) is a nonprofit organization operating as a social enterprise that supplies smallholder farmers with asset-based financing, farm inputs and agriculture training services in a bundled package. OAF provides a bundle of agricultural inputs including seed and fertilizer together with extension services to smallholder farmers in organized groups in several East African countries. This package includes:

- Credit for farm inputs: farmers receive improved seeds and fertilizers on credit before the planting season and repay on a flexible repayment schedule throughout the season with the bulk coming after their harvest.
- Distribution of seed and fertilizer: they deliver the inputs within walking distance of farmers' homes to ensure that all farmers recruited in their program can access them.
- Training on agricultural practices: after delivering inputs, field staff teach farmers agricultural practices designed to increase yields so that farmers can earn more from increased productivity. They have adopted clear Monitoring and evaluation strategies to ensure that farmers are able to clearly see the distinction in the change of their production trends while partnering with them as compared to their traditional practices.
- Market facilitation: OAF will at times help farmers get better prices for their crops by assembling farmers into groups to increase leverage with traders and by storing crops after the harvest so that farmers can get higher prices a few months later.

According to their reports the organization has been able to achieve an average 98% repayment rate on the loans disbursed and uses this earned revenue to sustain about 75% of its field operations with the balance coming from various donors and grants. Their main inputs of focus are hybrid maize and fertilizer while grain legumes are yet to feature significantly in their packages.

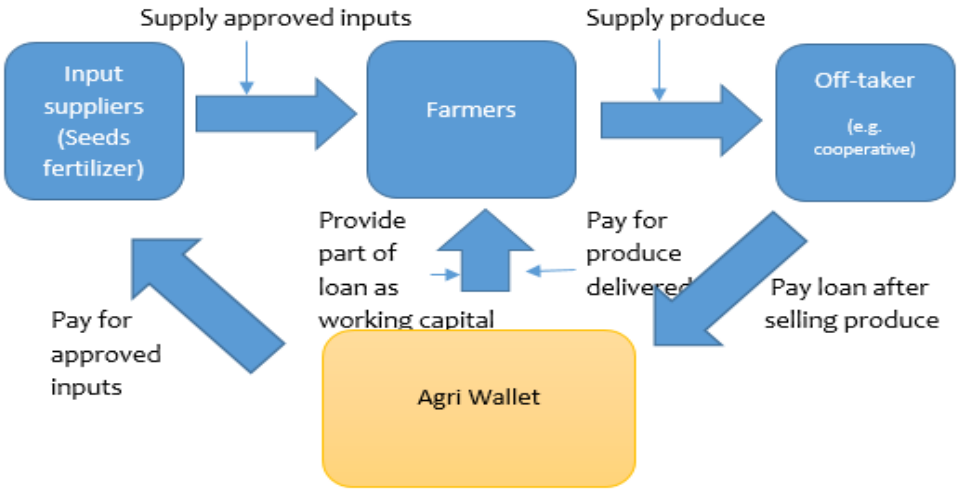


Dodore Agri-Wallet[5]

Agri-wallet® started their operations in the health sector before venturing into agriculture in 2018. They have previously worked with IFDC in the 2SCALE project. Their model revolves around financing farmers, agro-dealers, and off-takers along the value chain. Trained field agents act as Trainer of Trainers and recruiters of customers plus also aid in monitoring their activities. Farmer loans are capped at a maximum of Ksh 50,000 with a 1% interest rate. Their farmers must be linked to an off taker[6] to qualify for a loan, i.e., where they are going to sell their produce. Farmers are required to save on their platform before the planting season before requesting for a loan. The loans are disbursed in the form of inputs which farmers will collect at agro-dealer registered with Agri-wallet and part of it is also in cash to cover for on farm working capital requirements. On delivery of produce to the registered offtake, Agri-wallet pays the farmer directly for the supply and the off taker settles the loan after they have sold the produce.

[5] https://agri-wallet.com/

[6] *Offtaker Model*: the challenge with offtaker models is that these crops are essentially "club goods". That is, the model is usually underpinned by a processing facility -- a brewer, ginner, or miller. The capacity of the facility is the club and once production is at capacity, without further investment in expansion, demand swiftly drops off. It's great for the producers that are in the club but there are limits to scalability. That said, these are still some of the best opportunities to scale improved varieties since there is a committed buyer.



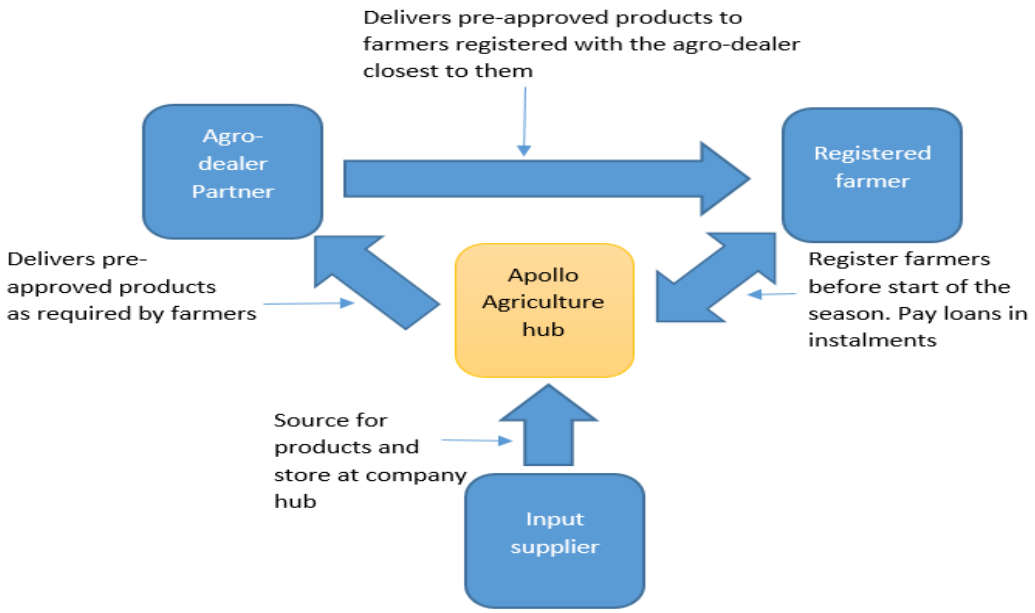
Apollo Agriculture[7]

The company was formed in 2017 and provides financing to smallholder farmers growing maize, wheat, sorghum, potatoes, tomatoes, and beans. They are an input supplier financer offering a fixed bundled package to farmers with the smallest package able to serve half an acre. A package includes seed, fertilizer, herbicide, extension service and crop insurance. They recruit farmers through a network of rural based agents who are activated before the planting season. Agents make commissions based on each farmer they recruit into the platform and what package they buy into. Field staff use the Apollo mobile app for Android-based phones to keep track of farmers and agents in the field. Field agents input data collected from farmers which is then entered into an automated credit model to determine each farmer's suitability to receive the loan package. They utilize a hub and spoke approach to distribute inputs to farmers with the help of locally based agro-vets. They operate a central warehouse in each region of interest where they source products directly from manufacturers and redistribute to the agro-dealer based on how many farmers have been recruited and the input products requested. The agro-vet earns a commission via mobile money when a farmer registered under them collects their goods.

Once a farmer is approved, they will collect their goods from an accredited agro-vet within their locality. There is no contractual obligation by the farmers to supply their produce to any institution. Their model removes the burden of having to work in farmer groups. Extension service is provided by field agents through an innovative Interactive Voice Response that can also utilize local vernacular language to deliver extension services depending on what crop the farmer planted. Farmers repay their loans over the period of the season with the bulk of it due during harvest. Apollo Agriculture takes out crop insurance for all their farmers which is a yield insurance index cover that covers the farmer against all risks that have an impact on yields. Farmers who do not pay

[7] https://www.apolloagriculture.com/

are passed through an escalation process to try to recover the outstanding loan from phone calls to in person visits and finally get listed with the local credit reference bureau.

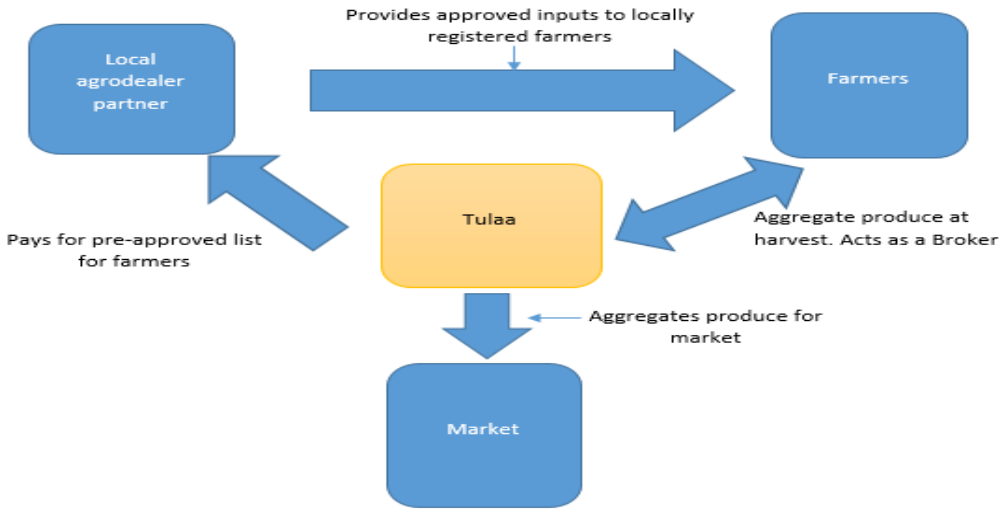


Tulaa[8]

Established in 2017, Tulaa provides smallholder farmers with quality agricultural inputs on credit and brokers the sale of their crop at harvest time. The company uses mobile technology and technology to smartly connect farmers, input suppliers, and buyers in a digital marketplace. The drive behind the model is interest in produce aggregation for market linkage. They use local agent networks for farmer recruitment, monitoring, and training. Tulaa provides access to inputs through locally accredited agro-dealers where farmers can collect inputs that they had requested for during registration. These inputs are approved by Tulaa based on the crop variety of interest, e.g., maize, potatoes, tomatoes, that are consistent with that crop variety and quantities commensurate with the acreage that will be planted during that season. Farmers pay back loans over 6 months, with the first 3 months being interest only, while the remaining months will cover interest and principal. Upon harvest, farmers utilize local transporters for produce collection and aggregation. It is not clear if they have binding contracts with the farmer for this or whether it is voluntary. Their focus is on high value highly perishable crops with high post-harvest losses like tomatoes, potatoes, and cabbages.

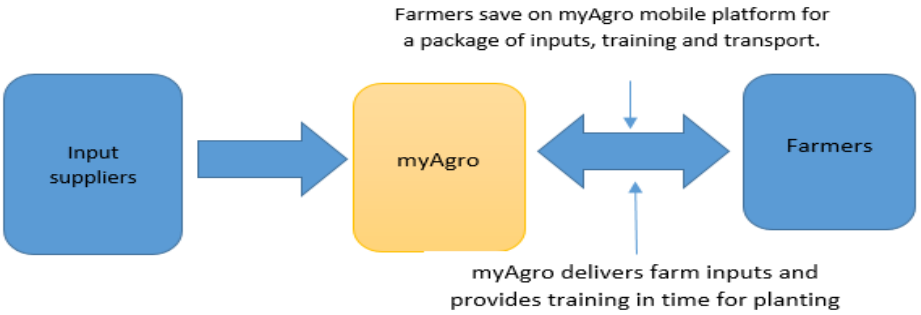
Tulaa employs several ways to control risk namely by use of proprietary credit score (using alternative data), a cash collateral that is equivalent to 20% of the input loan, tight loan monitoring by their field staff, crop insurance on their loan book, targeting borrowers with their market linkage service and deducting the loan balance from the proceeds. All their loans have a crop insurance policy that protects Tulaa in the event of drought and floods experienced by borrowers. As a final resort, any farmer that defaults and refuses to pay back the loan are blacklisted by Tulaa and listed by the credit reference bureau.

[8] www.tulaa.io



myAgro[9]

MyAgro, established in 2011 in Mali, uses an innovative bank less mobile-based platform farmer savings approach, as opposed to farm input loans exhibited by the previous models. myAgro's three-tiered approach of mobile layaway, input delivery, and tailored agricultural training is one that helps farmers source their farm inputs like seeds and fertilizers through small savings done over time. Through their mobile phones' farmers buy scratch cards with values from $.50 to $50 from their local stores and send the code revealed in the same was they would when purchasing airtime. This goes into payments for a package of farm inputs, training, and transport costs, after which MyAgro will deliver in time for the planting season.



[9] https://www.myagro.org/

Models Specific to Forage and Vegetative Crops

Vegetative Propagated Crops Delivery Models: Roots and Tubers

Seed systems for roots, tuber, and banana crops receive little attention from development-oriented research and commercial seed sector actors, despite their importance for food security, nutrition and rural livelihoods.

"Reproducing and distributing the planting materials for vegetative propagated crops presents complex problems and many logistical issues for their extensive use This is particularly an issue for smallholder farmers because of:

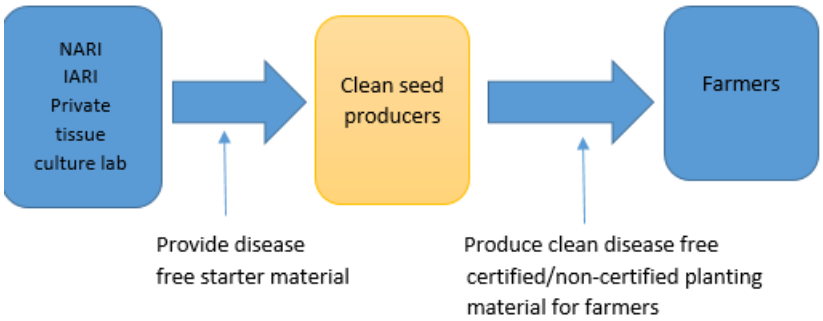
- Absence of formal seed systems (except potato).
- Lack of knowledge of phytosanitary measures and quarantine issues related to safe movement of germplasm, plants, and planting material across regions.
- Lack of consistent supplies of good quality planting material.
- Variable demand for clean planting material.
- Bulkiness and perishability of planting materials.
- Use of traditional varietal mixtures, including local varieties" (FAO paper 195).

The resulting seed systems are therefore quite distinct and characterized by being farmer and trader dominated, highly dependent on public research and development and less formally regulated. Most of the delivery models tilt towards a decentralized multiplication process to increase availability of disease-free planting material to farmers. Due to the bulkiness and highly perishable nature of the seeds, agro-dealers shy away from dealing with any of the vegetatively propagated crops.

Certified/Clean Seed Producers Models

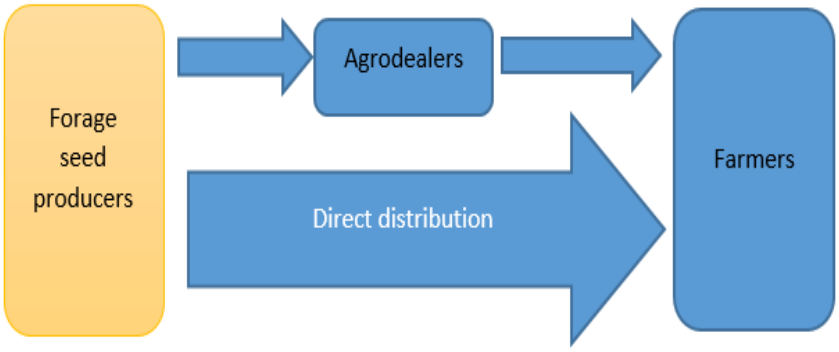
- **Potato seed growers**: These are enterprises that grow and sell certified and non-certified seed potato as a business. National research organizations (e.g., KALRO) are the source of modest amounts of disease-free starter seed, meant for further multiplication by potato seed growers. Other private sector-based organizations that use tissue culture technology are also able to supply disease free certified starter material on demand, e.g., Stockman Rozen.
- **Cassava cuttings producers and sweet potato vines producers**: As with potato farmers, cassava and sweet potato farmers also rely heavily on their saved seed from the previous seasons. They are propagated through stems and vines cuttings. Access to clean disease-free planting material is a challenge, especially when farmers share diseased planting material, reducing their yield year after year. Developing a disease-free system for the two crops has involved linkages with NARIs, international agricultural research institutes (IARIs), local tissue culture agri-businesses and local farmer enterprises. This three-tier approach enables the local farmers' enterprises to be engaged in multiplication and sale of clean planting material of improved varieties that are disease-free and adapted to the local agro-ecological zones.
- **Seedling nurseries**: These are farmer or entrepreneur-run nurseries offering planting material for sale either from the farm or along the roadside. Majority of these are unlicensed operations and, for the crops of relevance to this project, are primarily involved in the production and distribution of sweet potatoes and in some instances fodder. According to research findings by the Kenya Crops and Dairy Market Systems activity (KCDMS, 2018) scoping study, demand for quality seedlings currently exceeds the supply by a significant margin, and it is anticipated that

this demand will increase as value chains are strengthened, hence leading to increased export opportunities. This demonstrates the immense opportunity for small-scale seed entrepreneurs working in this space as identified by the Ethiopia Seed Producer Cooperatives project.



Fodder Seed Models

The commercial demand for and cultivation of fodder and forage crops in many rural areas in SSA is weak because of a poorly developed livestock sector in which animals are kept on subsistence. The demand for fodder and forage seed depends on the development of the local livestock sector and a value-added industry to livestock products. If the livestock sector develops, particularly value-added industry, demand for intensive fodder cultivation is likely to increase. This will translate into demand for fodder seed. The current fodder and forage seed value chain in SSA has been classified as largely underdeveloped in comparison to other regions in the world where livestock production thrives. It has been described as weak and barely functional with inadequate research on forage seeds and a general lack of reliable forage seed production, processing, and distribution schemes, along with poorly developed seed marketing systems and limited involvement of private seed companies. Few companies deal in certified seed but the interest in the sector is growing. Kenya Seed, a government parastatal, has a substantial fodder seed production and marketing unit with other companies beginning to make forays in the region, e.g., Advanta seeds. The main model used in dissemination of their seed in direct distribution to customers that request for it, with low level involvement of rural based agro-dealers. Only those who have substantial capacity to carry a wide variety of seeds and large customer base within the dairy production areas will regularly stock it. There are various initiatives to strengthen farmer-based forage seed production, but these are hampered by unsustainable supply and erratic demand in the market.



Conclusion

This paper attempts to classify the models into specific groups; however, there will be many variations of the models. With various market actors developing innovative ways to reach small-scale farmers, many similarities shall be witnessed between models. No one model will be able to deliver to all rural based small-scale farmers in all regions. The models will keep evolving with time and technological advancements and what works today may not work in the future; what works in one region may not work in another. Value chain actors must continue to innovate to be able to reach the underserved rural small-scale farmers that hold the key to food security and millions of productive sustainable livelihoods.

Part II. Potential Business Models Towards Last Mile Delivery of Seeds

Introduction

To increase the reach of appropriate seed to rural small-scale male and female farmers, innovative models that are able bridge the vast gap between service providers and rural small-scale farmers are required. The agriculture sector needs to borrow examples from other industries and tweak them to suit the special requirements in the seed industry. The rural small-scale farmer is under-served and should be viewed as a potential game changer for many businesses working in this landscape. This market segment should be targeted as a viable business opportunity by value chain actors using innovative approaches. Many other industries have recognized that this segment is large and lucrative, and the potential cannot be realized unless organizations are willing to experiment with new ideas and borrow a leaf from other industries and take advantage of technological advancements. Awareness, access, affordability, and availability are key ingredients for the penetration of improved seed varieties in this market segment.

In designing these models, some broad guidelines have been considered:

1. Scalable: Unless the model can be scaled, it will be of little use to most farmers in dire need of product and services.
2. Sustainable: The models must be able to resilient beyond the project period and market dynamics.
3. New technology: Advancements in technology are opening new frontiers in agriculture service delivery.
4. Incorporation of quality or standards that will ensure safety, drive overall performance and will be acceptable by regulatory authorities.
5. Build home grown solutions: No amount of investment can substitute for utilizing locally available grassroots expertise which utilizes the skills and knowledge available at the rural level.

What Problem Are You Solving for Small-Scale Farmers at the Last Mile?

Putting the needs of the farmer first is key in designing models that will be successful overall. Rural small-scale farmers must be viewed as active participants in the value chain and not as passive beneficiaries. While seeking solutions to seed delivery it is important for one to understand the needs of the target farmers. These have been previously summarized as:

- Right seed – seed of the crop and variety as desired by the farmer.
- Right quantity – amount of seed required by the farmer in relation to the area that they plan to cultivate during that particular season.
- Right time – seed is accessible in time for planting. This is considering that the need for seed is seasonally time bound especially with rain fed agriculture which is what majority of SSA farmers rely on.
- Right place – sales and distribution location is within the farmer's zone of mobility.
- Right condition – verifiable high seed quality in all attributes.
- Right price – price the farmer can afford and is willing to pay.
- Right planting information – correct agronomic practice for that crop variety, e.g., spacing, wedding, pest and disease control

Business Model Canvas Tool for Visualizing Business Models

The canvas model is a great tool to help you understand a business model in a straightforward, structured way. Using this canvas will lead to insights about the last mile customers, the value proposition offered and the channels through which the model hopes to make revenue. This can be enriched by further discussions with the relevant stakeholders along the seed value chain to update it and make it relevant during pilot and implementation phase. It seeks to document the key sections described in the table on the next page, through Business Model Canvas.

A key benefit of the Business Model Canvas tool is that it works as both a business model design tool as well as a validation tool.

- The canvas allows the interested parties to spot 'gaps' or inefficiencies in the logic of how the business will add value.
- The canvas will help in the thought process of the impacts of change on disparate elements of the model.
- The canvas prompts design work to consider all necessary elements when planning change.

When in consultation with the various stakeholders, the canvas will aid in:

- Consolidating the core business model around seed delivery for the desired range of crops.
- Further defining the operating model.
- Considering recruitment for additional skills in risk areas that are identified.
- Optimizing and identifying new value propositions within the constraints of the model and capacity of partners operating within it.

Table 1. Business Model Canvas: (Questions to be answered in populating the canvas)

Key Partners	**Key Activities**	**Value Propositions**	**Customer Relationships**	**Customer Segments**
Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform? MOTIVATIONS FOR PARTNERSHIPS: Optimization and economy, Reduction of risk and uncertainty, Acquisition of particular resources and activities	What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams? CATEGORIES: Production, Problem Solving, Platform/Network **Key Resources** What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships Revenue Streams? TYPES OF RESOURCES: Physical, Intellectual (brand patents, copyrights, data), Human, Financial	Which customer needs are we satisfying? What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? What are we doing to ensure women, male/female youth , PwD and other vulnerable groups clients are equitably participating and benefittig? CHARACTERISTICS: Newness, Performance, Customization, "Getting the Job Done", Design, Brand/Status, Price, Cost Reduction, Risk Reduction, Accessibility, Convenience/Usability	What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they? **Channels** Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?	For whom are we creating value? Who are our most important customers? Is our customer base a Mass Market, Niche Market, Segmented, Diversified, Multi-sided Platform?

Cost Structure	**Revenue Structure**
What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive? IS YOUR BUSINESS MORE: Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing), Value Driven (focused on value creation, premium value proposition). IS YOUR BUSINESS EQUITABLY DRIVEN? SAMPLE CHARACTERISTICS: Fixed Costs (salaries, rents, utilities), Variable costs, Economies of scale, Economies of scope	For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues? TYPES: Asset sale, Usage fee, Subscription Fees, Lending/Renting/Leasing, Licensing, Brokerage fees, Advertising FIXED PRICING: List Price, Product feature dependent, Customer segment dependent, Volume dependent DYNAMIC PRICING: Negotiation (bargaining), Yield Management, Real-time-Market

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

Micro-Franchising Model for Last Mile Delivery

Franchising is a business model that expands an existing successful concept through a licensing relationship to third parties to offer products or services under their brand and offer them training and support throughout the process. **Micro-franchising** is a subset of the franchising concept that refers to smaller scale or even single person enterprises that distribute standardized branded products and services. Developing a Micro-franchise offers existing businesses a road map to penetrate to the last mile through partnering with locally based micro-entrepreneurs by offering them access to supply chains, equipment, products, finance, training branding and marketing with a strong support system that is built into the business model.

Rationale for Proposing This Model

Farmers at the last mile require a myriad of products and services which would not make economic sense for a single product/service provider. However, through micro-franchising model these needs can be met sustainably by a network of rural based micro-franchised entrepreneurs. This model engages existing well-established businesses and rural based entrepreneurs to provide quality assured products and reliable services to the last mile farmer while creating value for other existing partners who would otherwise not be able to reach this class of customers in an economically sustainable manner.

A micro-franchising model allows the organizations and partners involved to utilize the vast human capital that is available in rural areas at the last mile, simultaneously ensuring that it can be interlinked with an existing successful business looking to grow without expending vast amounts of capital that would be required for organic expansion. The organization would need to find the right level of control vs. flexibility as well as the right mix of risk between franchisor and franchisee as they implement their model. The partnerships and respective organizational processes and structure would have to be technically well suited to guide and operate the business, focusing on key areas such as distribution, customer segmentation, farmer training, product and service bundling all encapsulated in a branded outfit to ensure realization of the value proposition. Organizations will also additionally need to focus on IT and mobile phone technology to alleviate the transactional burdens of scale, and reach more rural customers in a cost-effective, sustainable manner.

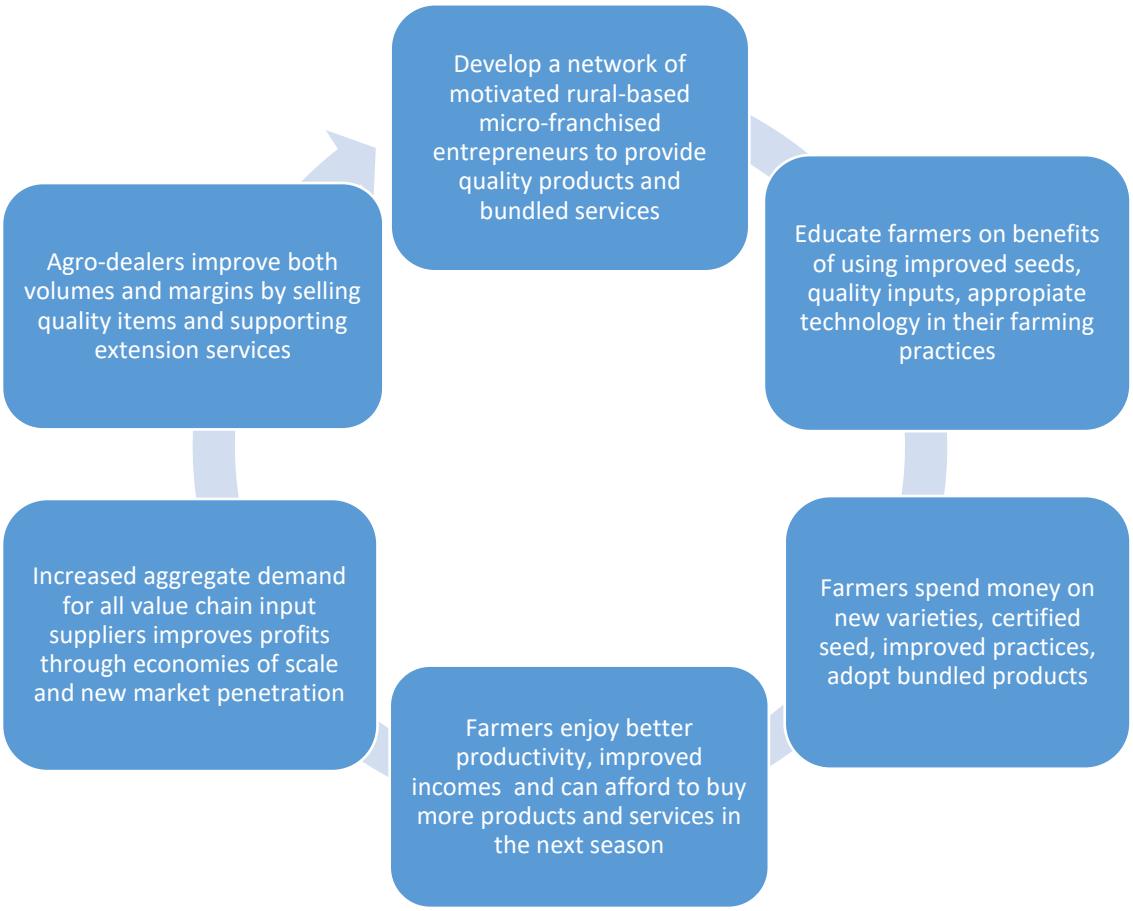
Sustainability is embedded in the micro-franchising model through:

- Delivering high-quality agricultural inputs and extension services to last mile underserved markets. Through piggybacking on this network, legumes and other crops of importance and associated complementary services of interest to farmers can be promoted and distributed directly to farmers at the last mile.
- Creating immediate social benefit by encouraging rural entrepreneurs and village-based advisors recruited as micro-franchisees to provide or tailor services and products such as good quality seeds, introduce and promote new varieties, offer appropriate extension advice and other bundled products like crop insurance, access to finance and link to markets, to be more gender sensitive and client oriented.
- Lessening demands on financial and human capital from the key organization responsible for driving the supply of inputs compared to an organic growth approach. It will allow a successful concept to scale rapidly by sharing cost and risk with micro-franchisees.

The basic premise for intervention in the S34D activity using a micro-franchise model approach will be:

- The project will not create new market players but utilize existing market actors in the seed value chain and the available network that they have already established.
- The project activities will be geared towards catalyzing systemic change on how market actors view and interact with seeds of other crops beyond maize in their everyday operations, from farmers to agro-dealers, seed companies research organizations and regulatory authorities.
- The program will be implemented by existing permanent market actors like seed companies, agro-dealers, farmers, training institutions and not by the project.
- The program will be seeking to encourage replication and crowding in by other market players to adopt the concept or variations of the same.
- The program will seek to attract private sector investment in the model that can be achieved through cost sharing in the various activities that are planned, e.g., agro-dealer training, demonstration plots, farmer training, field days, branding, new seed packaging, etc.
- Gender, youth, and other marginal groups – to be inclusive as a part of the model.

It is important to note that these principles will be applicable across all models as a foundation for ensuring they attain long term sustainable impacts in communities. The critical success factor of the model presupposes that it will create long term value for farmers, franchisees, seed suppliers and other associated support partners when they are able to promote the virtuous circle shown below.



Pitfalls of other Franchised Models

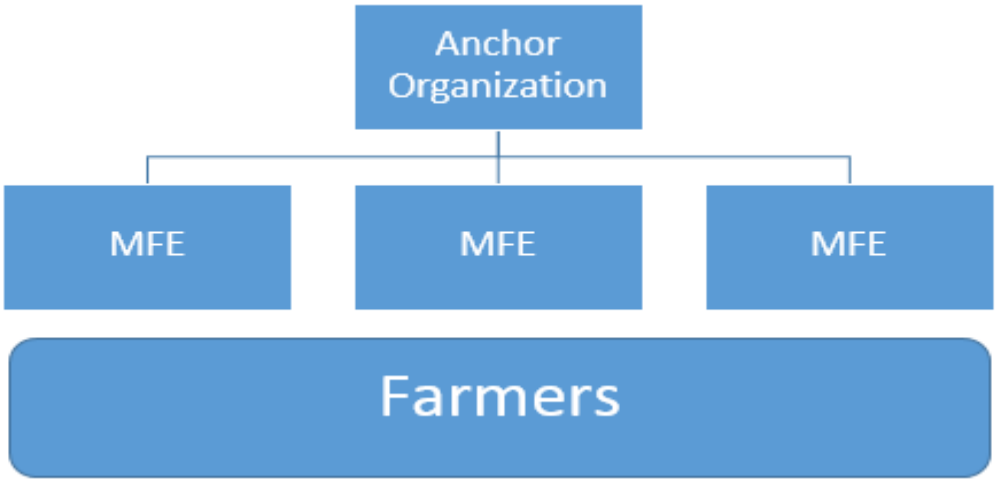
Various other initiatives have been attempted in the past with varying degrees of success. One major characteristic has been the need for grant funding to keep the operations of these initiatives running over time, with little attention to sustainability.

Some of the common denominators identified in these initiatives are:

1. They have all been start-ups in the industry. Organizations that have come up as social franchises required grant funding to start up their operations. They came to compete or replace existing organizations working under established market systems. Grant funding is what has been able to help them build assets inventory, establish a brands and operational systems, expand extremely fast in the market while soaking up losses without the basic consideration of return on investment that your everyday private sector investor must grapple with before seeking new markets and expensive initiatives.
2. Ignored to consider the existing networks and relationships between suppliers' distributors and customers that previously existed in the market. Their activities proved to be less disruptive to the status quo than they that they had anticipated. In as much as exiting relationships have their own weaknesses and draw backs, they have been developed over a long period of time to serve the needs of all partners in the value chain.
3. Success of the Franchisor was entirely dependent on Franchisee profitability. This was even though most of the franchisees coming on board were not profitable to begin with. The basic premise of franchising is that success is interdependent. When one part of the relationship is unable to contribute to the financial success of the network, it ends up draining important resources from the franchisor/franchisee, a relationship that is not sustainable leading to high dropout rates. The very high expenses incurred in seeking, recruiting, and converting stores into fully branded outlets which turn out to be unprofitable or drop out is a sure way of scaling these ventures out of business. The franchisees should not be the only source of revenue and route to success. Failure to have a diversified portfolio of revenue streams is extremely risky for any organization.
4. Attempting to scale operations without validating the underlying financial assumptions that underlies the business model. This could be since such initiatives that rely on grants have made commitments to the development partners of reaching certain milestones in terms of number of outlets opened and customers served without due regards to market dynamics.
5. Integrating and committing to numerous social good activities that are expensive to the franchisor before establishing a financially viable business. Social suitability of operations should come after financial sustainability has been established. These are activities such as farmer training and extension services that are expensive to sustain. Donor grants would normally take care of some of these expenses in the short term however the negative long-term effect of this financial dependency cannot be ignored in overall management practices. Private sector organizations operating in the same value chains would ideally allocate resources for social good based on financial performance of the organization in the market with clear cut strategies on how these activities will eventually also help their bottom line or brand.

How Would the Model Work in Improving Seed Systems?

An anchor organization (e.g., seed company, established town agro-dealer) working in the seeds value chain will partner with selected individuals based at the last mile, e.g., Village-Based Advisors, seed marketing agents, etc., to offer their range of products and services directly to farmers through a mutually agreeable micro-franchising partnership. The partnership will be in the form of a formal agreement or Memorandum of understanding between the entities which stipulates every partner's responsibilities and spells out the working relationship.



This concept targets improving service delivery to farmers, particularly those that are under- or poorly served by existing service providers. Servicing at the last mile will allow women to engage in farming activities using external inputs as the accessibility to market is reduced and easiness of accessing inputs at their doorstep. They will make up the customer base for these branded micro-franchisees. Other beneficiaries of the business model will be micro-franchise holders themselves. Persons deserving of being included in the network will be profiled and recruited as franchisees. The preference will be for those that are already working in these communities, offering some form of basic service to farmers. Through forming linkages with the anchor organization, these individuals will be able to upgrade their service and product offering that will be aligned to improving seed systems in the regions selected.

Table 2. ***How Does the Micro-Franchise Model Address Farmers' Needs?***

• Right seed – seed of the crop and variety as desired by the farmer. • Right quantity – quantity of seed required by the farmer in relation to the area that they plan to cultivate during that season. • Right time – seed accessed in time for planting.	• Micro-franchised entrepreneur **(MFE)** with linkage to anchor organization **(AO)** will be able to advise and source on behalf of farmers the seed that is suitable for planting in the region. • Planning for sourcing seeds can be done collectively with farmers around the MFE's area of operation and booked with the AO in advance so that its available before the planting season begins.

• Right place – this is a location within the farmer's zone of mobility. • Right condition – high and verifiable seed quality in terms of all attributes.	• MFE will be assisted to acquire a cost-effective means of transport suitable to the rural areas (e.g., motorbikes with carry on) that assists him or her to quickly access farmers in his region and offer quality supplies sourced from reputable sources. Note: Gender issues to be considered while proposing offering services thru' motorbikes. It depends on the size of zone, safety issues and cultural barriers that allow women to operate, own and engage with men as customers. These will be evaluated while considering the model. The MFE can also open a small village kiosk where he or she can store products during times of high demand These can be purchased through a guarantee with a finance provider for purchase of the motor bike and kiosk, whose repayments will be generated from the services the franchisees will offer. • Seed can be verified through the SMS-based system provided by KEPHIS to ensure no substandard/fake seed is availed through the network.
• Right price – a price the farmer can afford and is willing to pay.	• Products and services offered will be on a for profit basis. The MFE reduces the cost and trouble of the farmers having to travel to the nearest main town to access seeds. By bringing the services to the farmers' doorstep, the MFE can build and maintain a loyal customer base that is the source of his/her income.
• Right planting and crop management information.	• The MFE is required to operate within his/her locality, where he/she will have access to farmers on a day-to-day basis, offering correct planting and crop management information. • The MFE will also receive training and backstopping services from the anchor organization in the model, thereby ensuring that he/she has the correct/latest information on farming techniques.
• Sustainability and scalability	• All services being offered by the AO and MFE will be on a for profit basis, thereby ensuring sustainability of the model. Once the model is perfected, it can be easily scaled up in any other region of interest.

Table 3. Business Model Canvas: Example of Micro-Franchising Model for Improved Seed Delivery, e.g., Bubayi seeds.

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Village based Micro-franchised entrepreneurs Financing institution Other input suppliers, e.g., crop insurance Local authority MOTIVATIONS FOR PARTNERSHIPS: Increase product penetration in the rural areas. Information dissemination on their available varieties.	What Key Activities do our Value Propositions require? Intensive distribution Farmer training Demonstration **Key Resources** Motorbike Kiosk Branding material Farmer training material Recruitment and Training personnel	Availing quality seed and gender sensitive extension service provision to farmers at the last mile. Solve the problem related to access to quality seed while still maintaining its affordability and relevant extension service Offer other bundled relevant services like crop insurance and access to finance that meet the needs of men and women farmers	Create interpersonal relationships with the customers through frequent contact with MFE - In specific adapt to needs of specific clientele – based on gender, and other inclusive groups. **Channels** Direct distribution channels SMS based extension services. Farmer field days (the choice of channels depends on the type / access of audience and their needs)	For whom are we creating value? Rural Small-scale farmers at the last mile.- gender, age based and ability of the male and female Mass market product for farmers

Cost Structure	Revenue Structure
Cost of motorbike or Kiosk for MFE and AO Farmer field days Extension services (inclusive of gender, youth, PwD, vulnerable groups) Product Promotions Branding activities Communication budget	MFE get to keep a margin from the direct sale of products to farmers They can also charge a small fee for delivery of bulk products Other bundled services will also be promoted to farmers (gender, age and ability disaggregation of revenues)

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

Critical Areas of Focus in the Micro-Franchise Model that Require Inputs for AO and MFE

1. **Value proposition to farmers**: Communication to male and female farmers on what they are to expect should be clear and within the ability of AO and MFE to deliver within the constraints of working in a rural setup and gender dynamics.
2. **Branding is key**: Strength of a brand is critical in any franchising model**.** The AO and MFE will have to focus a lot of their efforts in marketing to support the network developed resonate with the target farmers and meet the needs of different types of customers – including gender, youth and physically disabled clientele.
3. **Distribution is key to the value proposition to farmers and suppliers; it lies at the heart of how micro-franchising works**:
   a. For farmers, access to new varieties, superior quality products and added services at an affordable cost at your doorstep or local kiosk.
   b. For the AO and associated partnerships, Access to untapped markets, are key consideration in the distribution strategy adopted.
4. **Extension services are a key value proposition, but expensive**: Franchisees will benefit from tools to deliver services cost effectively, especially a means of transport that enables them to cover more ground, while at the same time affording the opportunity to distribute and sell products.

Note: This is a tentative list of critical areas that require further attention in the validation process. This can be fleshed out during the planning process with the actual AO that will generate more information on how the model can best work for them.

Financial Modeling: What Will this Model Require to Actualize?

The process of financial modeling should be undertaken in conjunction with the AO. It will answer two key questions:

1. What growth strategies best position the organization to achieve critical mass of MFE and customers (based on gender, youth and vulnerable including physically disabled) to be sustainable and deliver social benefit and what are the key constraints?
2. What are the critical success factors that will allow the model to be a sustainable enterprise in the long term?

The key influencers on these questions are expected to be (but not limited to):

- Customer Demand, and potential for stimulating growth from a low base.
- Whether and by how much MFE profits and customer reach can be improved by becoming part of the network.
- Whether retained margins from MFE will cover increased costs of setting new model for the AO to warrant the investment required.
- Nature of the agreement? How much control does the AO have over the MFE business operations?
- What are the set-up costs for each new MFE? Who pays for what?
- What investment is required in marketing, farmer training and advertising to develop markets?
- What value of stock (if necessary) must be extended to franchisees on credit to help them start or grow their businesses?

- How will the approach adjust to equitably engage women, male and female youth, male/ female PwD, other vulnerable groups?

Regional Clean Seed Producers with Hub Entrepreneur Model

For Vegetatively Propagated Crops: Seed Potato Production

New, improved or disease free vegetatively propagated crops are unique in their penetration of the market in that they do not use the conventional vast agro-dealer network to move from seed producer to farmers. Its value chain profile presents complex logistics problems mainly because of lack of knowledge of phytosanitary measures and quarantine issues related to safe movement of planting material across regions, lack of consistent supplies, variable demand, bulkiness, and perishability of planting material. The commercial seed sector has not shown any significant interest getting engaged in this sector hence its absence in the vast agro-dealer network that serves the seed industry. Demand for certified or clean seed far outstrips supply with reports indicating that around only 2% of farmers in the region rely on certified seed in their potato production.

Rationale for Proposing this Model

Due to the complexity and logistics involved in the production and trade in vegetatively propagated crops, the conventional private sector vast agro-dealer network is unwilling or unable to engage in the distribution and marketing of certified planting material. The resulting seed systems that have evolved are therefore quite distinct and characterized by being highly dependent on public research and development to produce certified (best case) or clean (acceptable case) planting material, which is then bulked by an intermediary private sector entrepreneur before onward distribution to a limited reach of interested farmers.

A hub multiplier approach diminishes the risk of spreading disease across regions, reduces transport costs for farmers and avails improved disease free planting material at the last mile in a value chain whose demand goes unmet despite its importance in food security. This approach can be further refined to be used for farmers who grow and supply potatoes for a particular group, cooperative or processor who is in need for a particular variety of the crop.

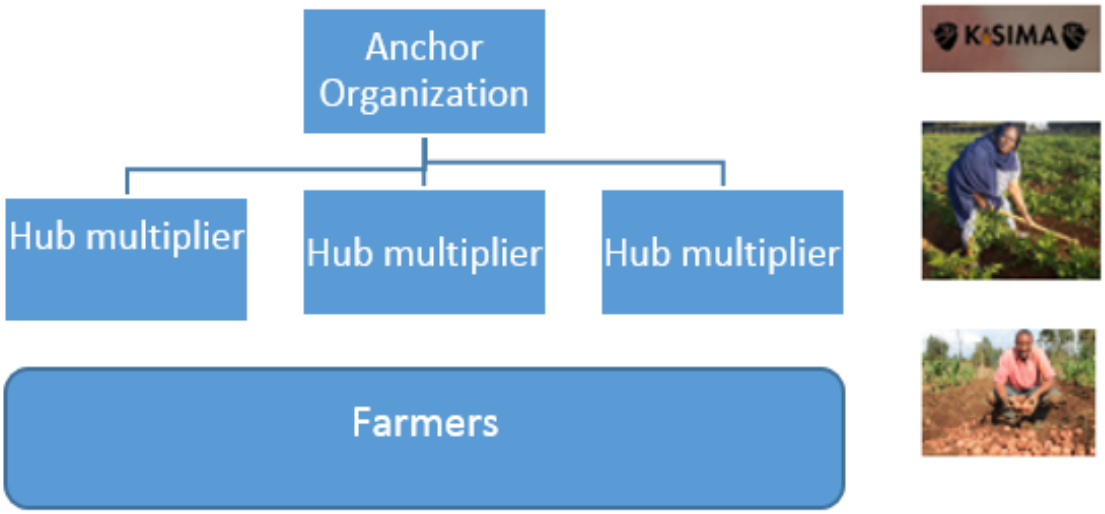
How Will the Model Work to Support Seed Systems?

The model will promote decentralized propagation of the crop through linkage of potential farmer-based enterprises with the few available certified seed producers who rely on aeroponics technology in the region, e.g., Kisima Farm to produce their certified seed. The farm shall offer starter seed for multiplication including technical and backstopping support to ensure that recruited farmers are able follow the protocols required to be observed for proper clean seed production. The resultant clean seed produced can then be repackaged (if necessary) and supplied within the region with a mark of quality from the anchor firm involved in its production, specifying the region in which it can be sold to ensure that potential for spreading diseases is minimized. The nature of production will be such that it will not make any economic sense to transport small quantities over long distances. Contracted farmers can be limited on how much acreage they can put under production of clean seed by the amount supplied to them, the logistics of which will be fleshed out during implementation. The resultant effect will be to raise the physiological and phytosanitary quality of

the plant reproductive materials available to farmers at the last mile and therefore increase their production and incomes.

Table 4. How does the seed hub producer approach address challenges in the vegetatively propagated crops plating material production and distribution?

• Phytosanitary concerns in movement of planting material across regions.	• Movement of planting material across regions limited to certified planting material from research organization or firms with high level quality control measures (Kisima) who are already well monitored by regulatory authorities. Local distribution of clean seed limited to regions where the hubs operate. Anchor firm also provides backstopping services for hub entrepreneurs on phytosanitary matters
• Lack of consistent supplies for farmers.	• Local hub operations can better plan with male and female farmers for supply of clean seed depending on their needs to ensure they get their planting material on time.
• Bulkiness and high perishability of products.	• Distribution limited to the local area using available means like motorbikes, donkeys, ox drawn carts, which reduces transportation cost over long distances. No need to invest in expensive cold storage facilities as production and consumption is localized.

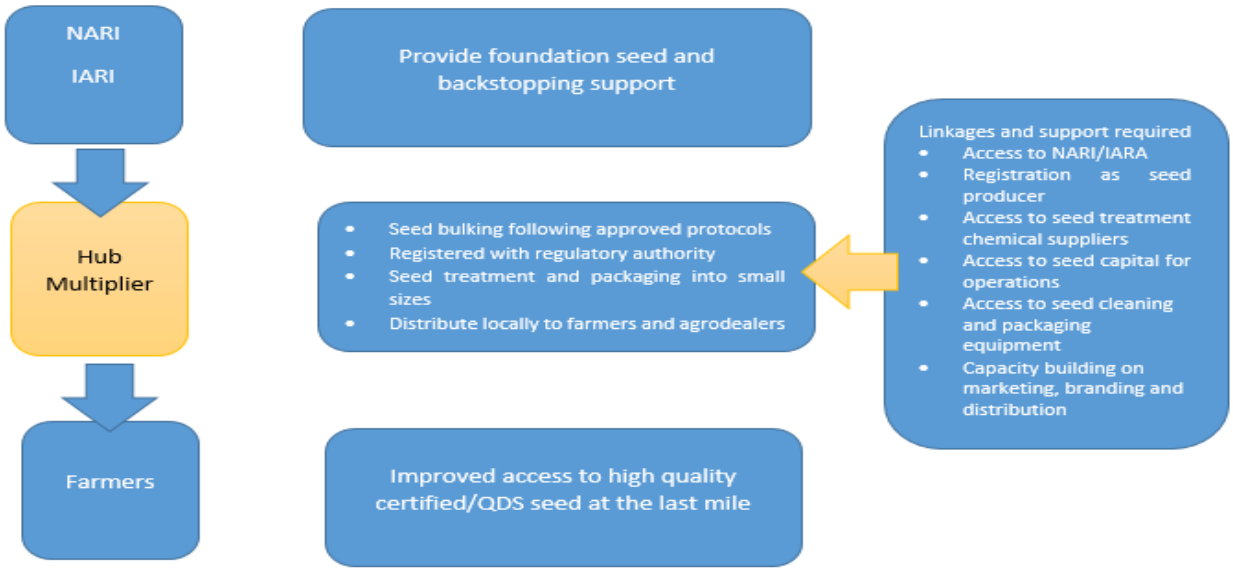


For Legume Seed Production

The hub multiplier approach can also be used for legume seed production either as certified seed or quality declared seed, depending on the strategy and capacity of the producer and availability of regional certification personnel and protocols. Farmers can derive various benefits of including legumes as part of their crop and this should be well communicated to them especially those that practice intercropping with maize. These benefits include health and nutrition, enhancing soil fertility and more importantly becoming an alternative source of income to maize. Whereas the use of certified maize seed is well developed in most countries, this has not been the case when it comes to legumes despite the farmer being the same.

Rationale for Legume Seed Model

Increasing legume production by farmers requires concomitant increase in provision of certified or improved seed varieties that will be affordable and accessible to them. Most commercial certified seed companies shy away from engaging in certified legume seed production because they consider it to be to be risky business since the crop is open-pollinated and self-fertilized. This has led to a lack of certified/improved seed availability for farmers in the vast agro-dealer networks leaving them to rely on the informal sector channels for their needs.



How the Model Works

Since germplasm developed by NARS is openly available to any interested parties for multiplication with some support, entrepreneurial farmers will be able access certified seed suitable for their regions from the NARS, bulk it in their farms following required protocols, and treat, package, brand and sell it to other local farmers within their vicinity. Through this decentralized approach, farmer entrepreneurs will be able to vastly increase the quantity of certified seed available to their local communities either through direct supplies or via local agro-dealer networks. By availing treated certified/QDS seeds in smaller packets and at the last mile, an approach considered to be commercially unsustainable by the large commercial seed companies, local farmers will be able to afford improved varieties to try out at their doorstep.

Table 5. Business Model Canvas: Hub Seed Multiplier Approach, e.g., Kisima Farm.

Key Partners	**Key Activities**	**Value Propositions**	**Customer Relationships**	**Customer Segments**
KEPHIS Farmer entrepreneurs Processing companies Financiers MOTIVATIONS FOR PARTNERSHIPS: Increased revenues for AO Employment for Hub entrepreneurs Phytosanitary requirements observed	Supply of certified planting material by AO Bulking of clean seed by hub entrepreneurs Phytosanitary Backstopping services by AO Extension service provision to farmers Provision of seed capital to hub entrepreneurs	Delivery of clean, improved varieties, disease free planting material at the local level.	Local customers have direct contact with hub entrepreneur, can offer clean planting material and associated extension services	Rural small-scale farmers at the last mile
	Key Resources		**Channels**	
	Access to branded certified seed from AO Technical staff to offer backstopping services. Access to hub entrepreneurs willing to engage in this venture Financing hub entrepreneurs		Direct contact with farmers for the hub entrepreneurs. Anchor firm offers backstopping services to the hub	

Cost Structure	**Revenue Structure**
Training costs Planting and farm management costs Transport costs Backstopping services	AO collects revenue from sale of certified seed Hub entrepreneur collects revenue from sale of clean seed to farmers – including disaggregated revenue data by types of customers – gender, youth and physically disabled. Hub entrepreneur can charge for extension services. Backstopping services fee for AO

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

Critical Areas of Focus in the Regional Clean Seed Producers with Hub Entrepreneur Model

Value Proposition to Farmers

Communication to the farmers on what they are to expect should be clear and within the ability of the Hub entrepreneur to deliver within the constraints of working in a rural setting. Vegetatively produced crops are highly vulnerable to spreading diseases across regions if not properly managed.

Organizations' Reputation

Well established organizations like Kisima need to maintain their reputation throughout the process as they risk damaging this if the hub entrepreneur that they partner with is unable to deliver on the value proposition.

Backstopping and Extension Services are Key but Expensive

To ensure integrity of the material provided to farmers, regular visits to the hub entrepreneurs operations are required until they are fully trained on clean seed production and handling. The hub entrepreneurs also to ensure the services offered are gender sensitive, using gender neutral approaches. In general all services to ensure inclusiveness in terms of gender, youth and physically disabled participation.

Regulatory Authorities' Acceptance of the Model

The various countries' regulatory authorities require to be consulted to ensure that they give their support and view on how best the model can work before implementation.

Note: This is a tentative list of critical areas that require further attention in the validation process. This can be fleshed out during the planning process with the actual AO that will generate more information on how the model can best work for them.

Financial Modeling

What will this model require to actualize?

The process of financial modeling must be undertaken in conjunction with the AO and hub entrepreneurs:

1. What are the critical success factors that will allow the model to be a sustainable enterprise in the long term?
2. What will be costs involved to set up the hub entrepreneurs operations and what type of returns are expected for financial viability of the model?
3. What are the costs involved for the AO to offer backstopping services to the hub?
4. How to address female hub entrepreneurs access to finance to support their role?
5. How can the model be designed to support female hub entrepreneurs in retaining control of their income in context where gender dynamics limit women's control of own-earned income?
6. How to address gender-related barriers and opportunities of female hub entreprenuers?

Dry Legumes Production Financing Model

Pulses (beans, peas and green grams) production in the region is an activity that is primarily conducted by small-scale farmers. Typically, pulses are intercropped with maize and other crops like bananas and coffee. There is usually minimal use of commercial inputs like fertilizer, certified seed or agrochemicals.

Rationale for Proposing this Model

Most of the organizations that offer access to finance to farmers in their models through provision of inputs on credit do so primarily for crops like maize and potatoes which have ready markets for farmers. Through this channel, they can provide certified maize seed, fertilizers and agrochemicals, essentials which are also required for bean production.

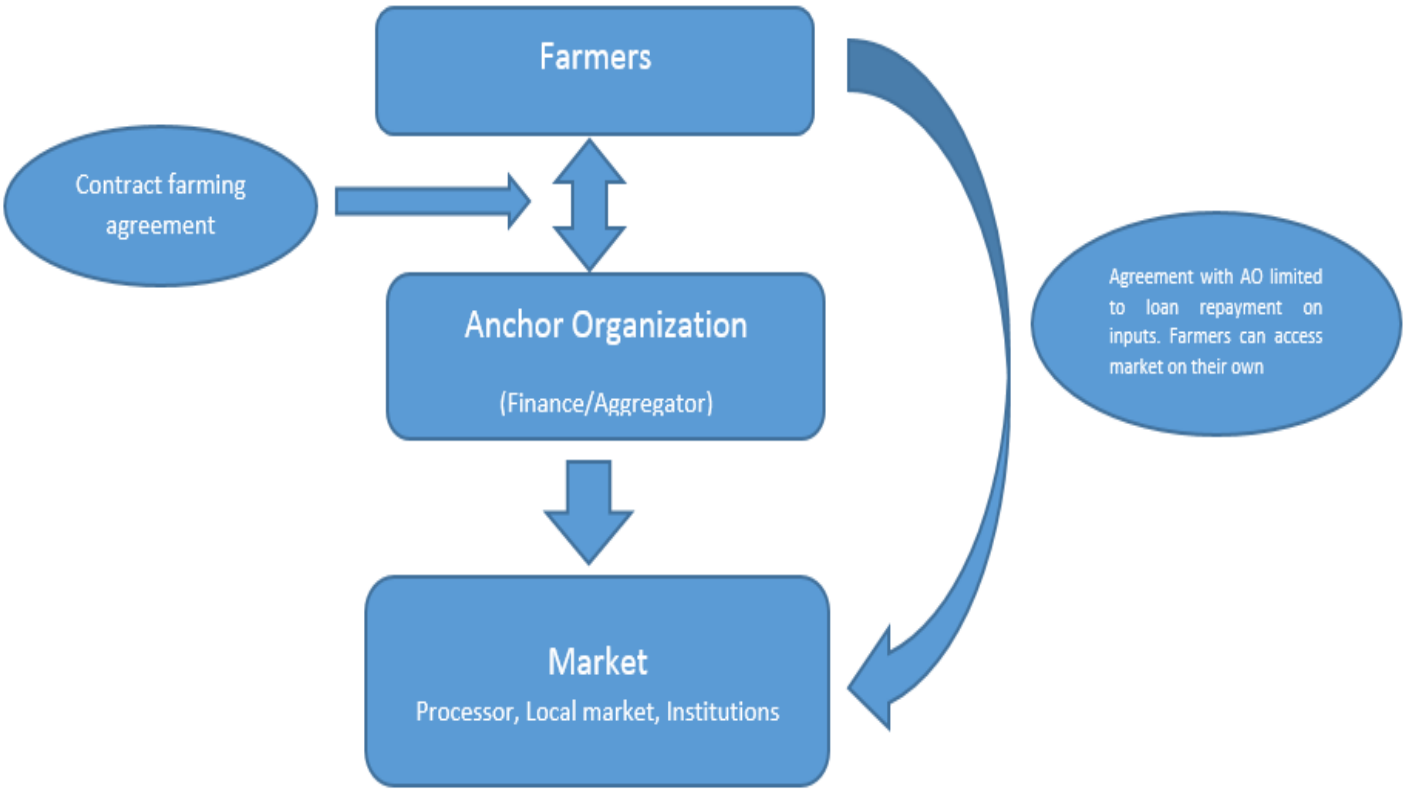
There exists a great opportunity to venture in the dry legumes value chain (beans, peas, green gram, soya) as there is increasing demand for the products. The markets are characterized by being highly fragmented. The marketing of dried legumes is not well-structured, because there are hardly any single large-scale wholesaler or retailer exists. This creates an investment opportunity for entrepreneurs to set up a structure for buying pulses to supply other entities for direct consumption (schools) further processing (e.g., bean canning, dhal manufacturing, soya meal) or direct exporting (green grams).

Access to finance and markets must be interlinked to reduce farmers' risks in the production and selling of dried legumes. The prevailing logic in this model is that through availing financial products (input credit, crop insurance), farmers will able to invest in improved varieties and inputs for improved production with the knowledge that there is a viable market for their produce. Also make sure gender issues related to use of the inputs received on credit and the control of the resources to repay credit are given importance.

To improve on the model, post-harvest management would be an additional area of focus. This can be incorporated through:

- Mechanical harvesting support. Use of **mobile threshers** to assist farmers which reduces labor costs at the household level. This can be integrated in the field agents support service for a small fee. While assessing these farm tools, we apply the gender-sensitive technology tool to identify any gender barriers (e.g USAID INGENAES) .
- Post-harvest loss management through inclusion of appropriate storage techniques at the farm level **(PICS bags)**. Post-harvest losses can account to up to 30% of grains lost.

Overall, this improves on the output quality and quantity of the resulting product increasing its marketability.



How Does the Model Work?

The anchor organization can either be a finance-based institution (e.g., Tulaa, Apollo, Agri-wallet, OAF) or a contract grower (e.g., Shalom) able to include access to inputs/finance in their package. The model would work best if farmers are organized in groups especially when dealing with an aggregator.

AO provides farmers with:

- Access to appropriate certified seed on credit and appropriate extension service through network of field agents, who are gender sensitive.
- Post-harvest handing services support to reduce labor and improve on quality and quantity of produce.
- Incorporate appropriate on farm storage products, e.g., PICS bags as part of the input loan
- If AO is a contract grower, aggregate produce from farmers for market (export, processing, institutions, e.g., schools). If not, farmers can sell excess produce to the local grain markets or store for their own consumption.

Table 6. Business Model Canvas: Input credit & Aggregator approach - Tulaa, Shalom.

Key Partners	**Key Activities**	**Value Propositions**	**Customer Relationships**	**Customer Segments**
Farmer groups Processing companies Financiers - Stakeholders based on gender, youth, and other vulnerable to be the major partners. MOTIVATIONS FOR PARTNERSHIPS: Increased revenues for AO Employment for Hub entrepreneurs Increased incomes for farmers through access to markets	Supply of certified planting material by AO Extension service provision to farmers, services should be gender sensitive. Provision of seed capital to hub entrepreneurs	Delivery of clean, improved varieties, disease free planting material at the local level.	Local customers have direct contact with hub entrepreneur, can offer clean planting material and associated extension services	Rural small-scale farmers at the last mile
	Key Resources		**Channels**	
	Access to certified seeds Access to backstop services including finance institutions and credit Capacity building to improve technical and financial management skills Post harvesting facilities including value addition/processing facilities and potential market linkages Transportation		Direct contact with farmers for the hub entrepreneurs. Anchor firm offers backstopping services to the hub	

Cost Structure	**Revenue Structure**
Training costs Planting and farm management costs Transport costs Backstopping services	AO collects revenue from sale of certified seed Hub entrepreneur collects revenue from sale of clean seed to farmers (gender and age disaggregated) Hub entrepreneur can charge for extension services. Backstopping services fee for AO

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

Seasonal Rural Aggregation and Distribution Kiosks Model

In many rural areas the need for seed is seasonal, with the highest demand coming just before planting begins. Thereafter farmers will low demand for seed until the next season. This sudden rush for inputs increases pressure on the local agro-dealers many of whom operate on low capital base and are unable to service farmer needs. In many instances, the agro-dealer are located far away from the farmers who must go through the trouble of travelling only to find that what is required is not available.

Rational for Proposing this Model

Rural based agro-dealers operate on a low capital base and are unable to fulfil demand for seed when the season begins. Due to this fact they will only chose to stock what they are guaranteed will be sold out, which is why they focus on maize seeds and choose to ignore legumes in their product portfolio, even though farmers have been willing to try out new varieties instead of farm saves seed. Access to credit by major suppliers is also a main challenge in the business environment. The distance that farmers must cover further exacerbates the problem. A combination of these factors limits the amount and probability of legume seeds availability at the last mile.

How the Model Works?

In many villages in the rural areas there will be presence of markets which sell everyday consumer goods. The customers that frequent these kiosks in the marketplace are the same farmers that will require seed come planting season. An agro-dealer with enough capacity to partner with one of the kiosk entrepreneurs can reach an agreement to get extra temporary space during the planting season, which can be used as a re-distribution point. In the off season the agreement with the local kiosk owner can be such that he utilizes the space for storage purposes for his other household goods.

The local entrepreneur would then utilize his presence in the area to be a place where farmers can place orders for seed in advance, which are relayed to the main agro-dealer store, which helps them, plan for purchases in advance. To ensure that farmers will collect their stocks come planting season, they can be required to place a small deposit that guarantees them they will get the stocks they requested.

How Does the Model Assist in Seed Delivery?

- Seed will only be availed when needed most and much closer to the farmers. The operations of the temporary kiosk are only activated before the season starts, thereby reducing operational costs. Off season, the premises can remain useful to the local entrepreneur for storage or other purposes.
- Local entrepreneurs are much close to the farmer and interacts with them daily. It would be easier for an agro-dealer that is not close to piggyback on his operations and develop rapport with his clientele for delivery of seeds when required most.
- Through placing orders in advance with deposits paid, the agro-dealer can plan their procurement and finances accordingly in readiness for peak demand.
- By separating the premises from where foodstuff is and using the license of the agro-dealer the operations will remain within the law as prescribe by regulatory authorities.
- This model can amorph into a micro-franchise.

Table 7. Business Model Canvas: Seasonal rural aggregation and distribution kiosks.

Key Partners	**Key Activities**	**Value Propositions**	**Customer Relationships**	**Customer Segments**
Seed companies Town Agro-dealers Rural entrepreneurs, Kiosk owners, VBA, Seed agents MOTIVATIONS FOR PARTNERSHIPS: Increased revenues for AO Employment for village-based entrepreneurs	Supply of certified planting material by AO Activation before planting season	Delivery of certified seed and other quality inputs at the right time to your local level markets/kiosks.	Local customers have direct contact with village-based entrepreneurs on an daily basis for their other needs. Use this relationship include seeds in the service offering	Rural small-scale farmers at the last mile
	Key Resources		**Channels**	
	Access to certified seeds Financial institutional linkages Farmer training material Recruitment and Training personnel Accessible forms of transportation		Direct contact with farmers for the hub entrepreneurs. Anchor firm offers backstopping services to the hub	

Cost Structure	**Revenue Structure**
Training costs Seasonal kiosk set up and maintenance. Transport costs Backstopping services	AO collects revenue from sale of certified seed Rural entrepreneur collects revenue from sale of clean seed to farmers Backstopping services fee for AO

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

Motorcycle Distribution Agents Model

Urban and rural distribution networks in SSA rely on motorcycles to deliver goods to the last mile, including directly to people's homes. This is due to the convenience it affords the customers and the poor infrastructure witnessed in rural areas. With the drop in price of motorcycles and entry of low-cost brands, there has been an explosion of local riders in every small town or marketplace in the rural areas, especially run by youth. This huge presence of motorcycle riders remains untapped by agriculture input providers. Through partnership with selected trusted individuals well known to the locals, local agro-dealers can increase their reach into the rural areas beyond what their current distribution capacity can handle.

Rationale for Proposing this Model

Local agro-dealers do not have much distribution capacity due to the expensive nature of setting up a network of motor vehicles required to achieve this. Farmers who must travel long distances to the agro-dealer end up incurring extra costs and time to get their desired stocks, especially for repeat customers who already know the quantity and variety of stocks that they require.

Rural based motorcycle riders are idle after the morning and evening rush and just hang around the market/shopping centers. The proposed model will be providing them with an extra source of income during this period as they can become seed/inputs delivery agents and sales agents.

Photo 1. Motorcycle Distribution Agents ready for Business.

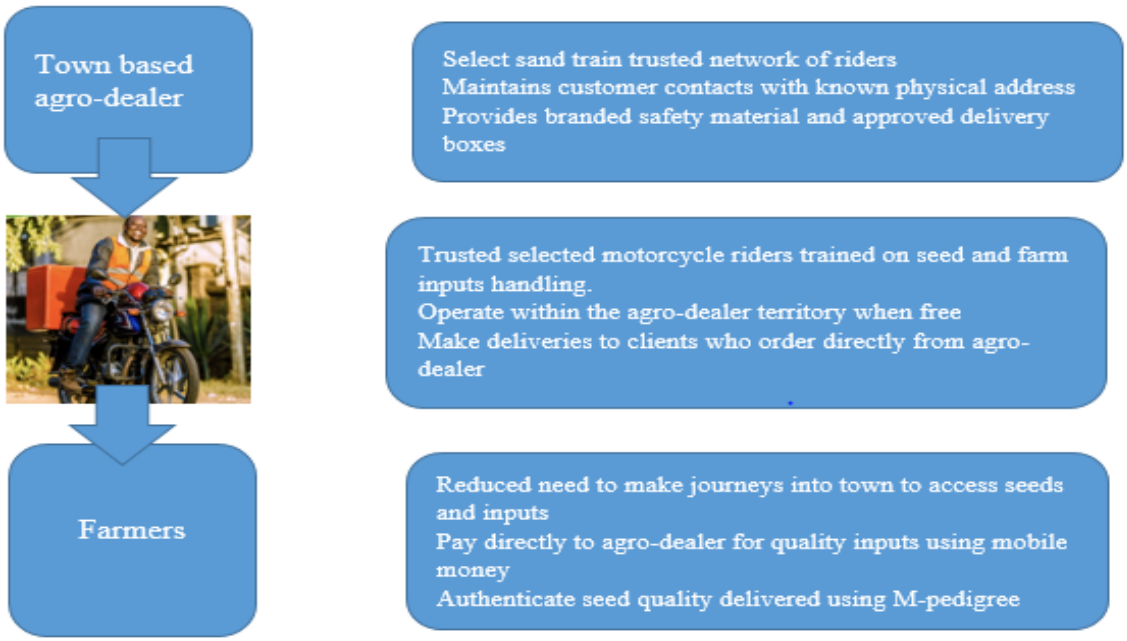
The model will utilize existing networks of transport already in existence. There will be no need of expensive investments to get it up and running. It is one that can be replicated by any other agro-dealer with a desire to expand their customer reach.

How Will the Model Will Work?

An agro-dealer will select trustworthy motorcycle riders who operate around his/her premises and link them to customers that require seed or other inputs. Anytime the customer requires products, he/she need not come to the store physically but place orders that will be delivered by the rider, who will have learned of the customer's location or agree to meet at certain landmarks in villages.

The motorcycle riders will be required to be trained on the basics of handling and transporting inputs (seed, other inputs like agrochemicals, fertilizers, etc.), including basic customer service, and

be branded with distinct logos/attire that differentiate them from other riders. This is also a marketing tool that can be used to advertise the agro-dealer or certain products, e.g., certified legume seed. Transport costs can be loaded on to the service (the farmer was going to spend time and money) at a degree that is acceptable under local terms.



How does the model assist in seed delivery?

- Reduce the gap between agro-dealer and farmers through use of widely available motorcycles in rural areas.
- Increase customer reach for agro-dealers.
- Motorcycle riders act as a distribution, sales and marketing tool all put in one.
- Create extra revenue for motorcycle riders, agro-dealer and save time and money for farmers.
- This model can be combined with other models, e.g., micro-franchising or seasonal kiosks.

Table 8. Business Model Canvas: Branded motorcycle sales agents.

Key Partners	Key Activities	Value Propositions	Customer Relation	Customer Segment
Motorcycle riders Town Agro-dealer as AO MOTIVATIONS FOR PARTNERSHIPS: Increased revenues for Agro-dealer Increased incomes for riders during off peak periods. Farmers get good delivered to their doorstep in the rural areas, save them time and money	Selection and Training of motorcycle riders Building customer base for Agro-dealer with names and physical addresses of clients	Delivery of quality seed and inputs at the farmers doorstep	Local customers have direct contact quality inputs suppliers	Rural small-scale farmers at the last mile
	Key Resources Motorbikes Legal authorization to sell seeds Finance availability Technical training on seeds- i.e, knowledge		**Channels** Direct contact with farmers for the town agro-dealers	

Cost Structure	Revenue Structure
Training costs Branding Transport costs Backstopping services	Agro-dealer collects revenue from sale of certified seed Motorcycle rider gets extra revenue during off peak hours

Notes: Various components of this business canvas would ask specific questions related to activities involving inclusive groups based on gender, age and disability issues of the customers/stakeholders and services offered to such clientele. Customer here will be segmented based on gender, age and disability and other vulnerable groups involved.

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Annex 1. List of Stakeholders Visited

Stakeholder	Contact Person
AGMARK	Alan Mukhisira
Agrico	Corien Herenijer
Agrochemical Association of Kenya AAK (Croplife)	Eric Kimunguyi
Apollo Agriculture	Benjamin Njenga – Co founder
Arifu	Wanjiru Kiragu
CIAT	Justin Mabea, Solomon Mwendia
CIP	Moses Wamalwa
Dodore Agri-wallet	Vyone Mingate
Dryland seed company Machakos	Nicholas Mutune (Sales Manager)
East Africa Seed	Chege Macharia (Marketing Manager)
Freshco	Christopher Gasperi
IFDC 2SCALE	Peter Kirimi, Judith Chabari
KALRO Katumani	David Karanja, Noah Wabwire
KALRO Naivasha	Michael Akhwale, Joyce Malinga
Kisima Farm	Saidi Abyud Production manager
M-pedigree	Timothy Maina
Mtela	Peter Njoroge
National Potato Council NPC	Wachira Kaguongo
One Acre Fund	Amy Azania
RTI International	Geoffrey Kiganiri, Jaquelin
Seed Traders Association of Kenya (STAK)	Duncan Ochieng
Shalom	Christine (Program Manager)
Simlaw Seed	Robert Musyoki (Marketing Manager)
Stokman Rozen	Nichlas Munyao, Justin Muchiri
Syngenta Foundation	George Osure
TASIA	Michael Waithaka
Tulaa	Hillary Miller Wise

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