



Creating demand by catalyzing public and private sector investments

Factors that catalyze formal seed systems investments in legume production and marketing in Sub Saharan Africa

Paul Aseete, Sylvia Kalempera, Lucky Omoigui, Jean Claude Rubyogo

SUMMARY

This article presents a review of factors that could catalyze formal and informal seed systems investment in legume seed production in sub-Saharan Africa. A triangulation of methods, including key informant interviews, multi-stakeholder meeting discussions, literature review, and validation exercises, were used to identify economic, institutional, and social incentives for private and public sector actors. We find that consistent and assured market, cost efficiency, quality and quantity assurance, licensing of varieties, improved information flow, financing options, trust building, and social impact are some of the key factors that could stimulate or boost investment in bean seed systems. The review also discusses the challenges and opportunities for integrating formal and informal seed systems and fostering the roles of different actors, such as grain off-takers, local seed businesses, and community-based organizations.

BACKGROUND

Leveraging synergies between the formal and informal seed system sectors in delivering common bean seed is important and requires an enabling policy environment and adequate incentives for investment. Formal and informal seed system integration can help reach the ‘unreached’ and at scale (Sperling et al., 2021). However, achieving this integration requires innovative approaches to exploit the complementarity and synergies among the two systems and remain within the limit of the legal principles of seed systems. For common bean, the reach of the formal sector is still lower and localized mostly in easy to reach (farming communities next to urban) areas and can most often be accessed by well-off farmers yet the majority of bean farmers are women small holder farmers in rural areas. This creates self-selection and an access bias for quality common bean seed. Because of these biases, women and other disadvantaged farmers rely on saved bean seeds or seeds from informal sources (local grain market). Informal seed sources are local, hence easy to access and use. However, these sources may not supply improved varieties and encourage recycling may hinder productivity gains and economic empowerment of their dominant users.

Improving the quality of seed offered through informal sources could thus be a game changer in improving access to quality seed and thus varietal turnover and subsequent multiple of benefits to small holders and countries. Interventions, policy, and investments to grow bean seed systems should promote the integration of formal and informal seed systems while supporting women and youth participation. The role of local seed businesses, off-takers (traders), and community-based organizations is thus apparent.

For common bean, there is increasing recognition that off-takers play a significant role in providing potential seed, creating a demand pull and thus supply response for seed and in creating incentives for investment (Sperling et al., 2021 and RadeGunda et al., 2022). Similarly, local seed businesses have proved efficient in serving underserved areas.

This review sought actor information to document approaches for promoting investment, co-ordination and synergies between formal and informal sectors to best serve seed users and producers from underserved/disadvantaged groups. This is also important in understanding market and non-market pull factors that could catalyze bean seed and grain trade and thus investment.

1. OBJECTIVES

1. To document incentives required to catalyze formal and informal actor investment in bean seed systems
2. To identify modalities of how such incentives can be put in place and operationalized for significant impacts
3. To document challenges in achieving full integration of formal and informal seed systems.

2. KEY MESSAGES

- For bean seed systems sustainability, the effective seed demand for specific varieties is created by grain demand by the consumers and translated to variety seed demand by small holders
- The economic benefits from seed systems investments should be sufficient for the private sector for more investments.
- Economic, institutional, and social factors could boost investment in bean seed systems, though clear modalities for their operationalization are key.
- Some factors identified are crosscutting and could affect investment in seed systems regardless of the seed class

3. METHODOLOGY

To identify factors that could catalyze formal and informal seed systems investment in common bean production and marketing a triangulation of methods was used. These included Key informant interviews, multi stakeholder meeting discussions, and literature review. Following data collection, validation exercises were conducted to ensure consistency, accuracy and completeness of information.

The opinions obtained were synthesized and summarized into a report. Information was obtained from seed system actors (seed companies, community-based producers, grain traders, policy makers, certifying services, academia, NARS researchers, Nongovernmental organization, community-based organizations, grain producers, and processors) in Burundi, Kenya, Rwanda, Zambia, and Zimbabwe.

a. Key informant interviews

These were conducted in Burundi, Kenya, Rwanda, Zambia and Zimbabwe. The interviews were conducted using a guide to ensure elicitation of appropriate information. The key aspects discussed include:

- i. Incentives required to catalyze formal and informal actor investments in bean seed systems while paying close attention to;
 - Barriers to scaling private sector investment in seed systems
 - The role of the informal seed sector
 - Challenges in investing in bean seed systems,
 - Strategies for de-risking seed systems and thus seed system investments
 - Innovative financing approaches for developing formal and informal seed systems
 - How risk can be shared between the private and public sector
 - Varieties and how they could pull formal and informal seed system investments
- ii. Modalities of how such incentives can be put in place and operationalized for significant impacts, and
- iii. Likely challenges in achieving full integration of formal and informal seed systems.

b. Multi stakeholder meeting discussions

Through in-country multi -stakeholder meetings/discussions, a list of factors that could catalyze investments into bean seed systems was developed. Similar discussion points as in key informant interviews were used to document incentives required to catalyze formal and informal actor investments in bean seed systems, identifying modalities for operationalization, and challenges in achieving full integration of formal and informal seed systems.

c. Literature review

Literature was reviewed on the best bet strategies for private sector participation in seed value chains for commodities like legumes and other open pollinated crops. Information was also reviewed on modalities for putting in place and operationalizing such an incentive system and the challenges for attracting and sustaining bean seed system investments.

d. Validation exercises

Following data collection, validation exercises were conducted to ensure consistency, accuracy and completeness of information. This was done through:

- Feedback sessions involving multiple actors
- Review by selected actors and experts.
- Feedback survey will be mailed (online survey) to key actors to validate and rate information and to provide further insights into the investigation.

4. A SYNTHESIS OF FACTORS THAT COULD CATALYZE FORMAL AND INFORMAL SEED SYSTEMS INVESTMENT

For investments in bean seed systems to be boosted, the economic benefits from such investments should be sufficient for the private sector. Several economic, institutional, and social factors were identified as

having a potential to stimulate or boost investment into the bean seed system. The level of intervention and investment depends on the class of bean seed (breeder, foundation, certified or quality declared seed) under consideration. However, several of the factors identified could also be crosscutting and could have effects on investment in bean seed systems regardless of the seed class.

Broadly, there is need to reduce barriers to scaling private sector investment, tackle challenges in investing in bean seed systems, devise strategies for de-risking investments in bean seed production and supply, explore innovative financing approaches for developing bean seed systems, and build cases for bean seed, through leveraging on grain demand.

In some countries where formal seed systems are dominant, actors noted that the informal seed system only serves to constraint investments because costs and processes (quality checks) in making seed available are different and much high for formal seed which creates unnecessary competition from “potential seed” supplied by the informal seed sector. If both systems are to co-exist, then clear cut regulations, standards, distinctions, and modalities for market access are required. The role of the grain market in pulling and creating demand for seed from formal seed sources was however widely recognized.

Views obtained from various actors (from Burundi, Kenya, Rwanda, Zambia, and Zimbabwe) and information from literature on incentives required to catalyze private sector investment in bean seed production are summarized below.

4.1. ECONOMIC AND MARKET INCENTIVES

a) Consistent and market assurance

Demand for bean seed of specific varieties, regardless of the class of seed, is a driver for increased investment in seed production and marketing. When bean seed producers have market for their product (bean seed of different varieties), just like any other competitive market product, they are stimulated to invest in the production and marketing process. Seed recycling and a long lag between common bean seed purchase has for long curtailed the growth of formal bean seed businesses. Reducing recycling and thus the lag between seed purchases, through increased grain demand but pull seed demand, could stimulate business and thus more investment.

There is a need to develop strategies of informing and engaging farmers about the importance of regularly replacing/renewing seed stocks. Developing strategies to make farmers continuously buy bean seed goes hand in hand with reducing seed recycling so as create market for seed produced by seed producers. This can be made possible if for example grain off takers engaging farmers require them to use seed from a specific source or supply seed with a promise of a guaranteed market. Secondly, seed companies can promote the value of using quality seed especially higher yield potential (high productivity) and better adaptability of newer seed. Thirdly, seed should have trusted quality (exhibit superiority) and should be affordable.

In creating demand for seed, grain off-takers must be integrated because they have a significant role to play (Rubयोगo et al. 2019; Sperling et al., 2021 and Radegunda et al., 2022). First, they move large volumes

of “potential seed” – a significant seed source for the poor and women farmers. Secondly, there is derived demand for seed by investing in grain trade of specific market varieties. Third, they provide market opportunities and incentivize farmers to buy seeds of improved varieties. The successful integration of off-takers and other bean seed system value chain actor’s starts with demand-led breeding and involvement of the end users in variety development and release. Given the scale of operations at the grain off-taker level, they relevant in leading variety promotional activities like demos so that farmers produce the varieties they want. A critical mass of farmers producing a given variety would then pull demand for seed of those varieties.

Achieving consistent assured market can be through continuous seed and grain off-taker engagement to know their needs and how best these can be fulfilled. Market can also be expanded by tapping into and incentivizing production and supply of high nutritional value-legume-based products, producing for the feed and food processing industry, and expanding grain demand (Mastenbroek and Ntare, 2016). All these require farmer and consumer demanded market varieties that could pull demand for seed. However, the main challenge remains with producing significant volumes to meet market requirements given weather variability and climate change effects and demand uncertainties.

b) Cost efficiency in seed production and marketing

High cost of seed and its unavailability discourages seed purchase. If farmers are to invest in regular purchase of bean seed, the cost of seed needs to be modest. The cost of seed is a function of input costs and margins set at various levels of seed production. For example, if the cost of EGS is high, that cost is passed to certified and QDS seed producers who in turn pass the cost to farmers. Efficient and cost-effective models for seed production need to be devised at various levels to lower the cost per unit of production and thus the price of seed. Achieving cost efficiency is required among all actors producing different bean seed classes to make significant volumes of affordable quality seed available. Cost efficiency can be achieved using commodity corridor approach (Birachi et al. 2023) which is based on decentralizing production to suitable agro- ecological zones to spread risk, increase productivity and tap into actor expertise and more important seed demand aggregation through farmers responding to specific variety demands

c) Correct market failures in pricing seed

In countries where seed prices are regulated, for example in Burundi and Rwanda, the mechanism of pricing should either be revised regularly to reflect prevailing market conditions or pricing be left to market forces of demand and supply and guided by production costs. There were incidences where the set price of seed was lower than the price of grain, e.g., in 2022, the price of bean seed in Burundi was set and not revised on time, making it go lower than the price of grain. In that case, seed producers could be tempted to sell seed as grain, switch to other businesses or risk their seed businesses by going against policy and law to sell bean seed at prices higher than established prices. In Rwanda, RAB dictates seed pricing in the marketplace and has set prices low (tight market margins for seed producers) to stimulate demand. While the low-price benefits farmers, it is a disincentive to seed producers (Nelson et al., 2016).

d) Manage side selling of seed and reduce seed sold as grain.

Another market failure arises from failure to coordinate and enforce contracts. Seed producers lose part of their investments because of side selling. Even with contracts, farmers still side sell and systems for sanctioning them are weak. Some seed producers therefore limit their investments and prefer to integrate with already established supply arrangements which perpetuates the status quo. Managing side selling of seed should go hand in hand with the development and strengthening of out-grower and farmer organizations. The issue of side selling was cited in all countries as a disincentive to investment. For beans, this problem persists as non-contracting parties lure farmers to sell produce to them while avoiding the full cost of supervising production and the initial cost of seed.

e) Quantity and quality assurance

Failure to get required quantities of the right quality of common bean seed is encouraging innovation among seed producers. To meet quality requirements, seed producers have invested in building the capacity of their producers through training, offering inputs, offering machinery among others. Also, when quantities and quality are consistent, seed producers invest more in acquiring and marketing seed. On the other hand, consistent supply of poor-quality seed discourages investment as the cost of processing becomes high (for labor and from off types and chaff discarded).

4.2. INSTITUTION INCENTIVES

a) License varieties to seed producers

Licensing will encourage seed producers to invest in promotion and distribution networks since they can benefit from their investments. It also has the potential of limiting and focusing competition within the bean seed market. The free-rider problem (e.g., in advertising and promotion to create demand) is still prevalent among seed producers which crowds out investment. This can be lessened through nonexclusive licenses to particular producers. In Kenya for example the commercialization of Nyota bean variety released in 2017 has been licensed to 6 seed companies (to produce and market) and 4 companies (to only market), which have significantly boosted investments in the production and marketing of the variety. While licensing is paramount, it could make the price of seed high as actors try to recoup costs. It is therefore important that policy enables setting of fair prices, matched with the cost of production and other market conditions.

b) Assured supply of affordable early generation seed

One of the bottlenecks to the growth of downstream bean seed businesses is limited availability and the high cost of EGS. To incentivize production, EGS should be made readily available and at affordable rates to avoid passing the cost to farmers. This calls for adopting business centered EGS production systems rather than current systems that are dominated by the public sector with limited production capabilities. While the desire of seed producers is to have sufficient volumes of EGS to boost their investments, several constraints including low quality breeder seed, mismatch between breeder and subsequent seed grades, high production costs and low volumes affect subsequent investments in seed production (Opie et al., 2022).

c) Improve bean seed trade information flow

Currently there is “information drought” between actors. The flow of seed trade related information to facilitate trade between value chain actors is poor or nonexistence thus the stakeholders miss business and market opportunities. For example, predicting and forecasting demand is not possible because actors are not aware of each other seed needs. If information and seed flow systems were efficient, demand for one seed class (e.g., foundation seed) would inform the production of another class (e.g., Breeder seed). There is a need to create a system for sharing information on bean trade that is capable of updating businesses on available markets for different classes of bean seed. For example, there is need to strengthen the commodity exchange system, centralizing production and supply information, and developing easy and convenient systems for accessing seed production and marketing information. In Zimbabwe, for example, linking the Agricultural Marketing Authority (works with companies that buy commodities) with AGRITEX (offers extension and farmer mobilization services) and the crop breeding institute (CBI) has the potential of reaching several farmers by creating synergies and capitalizing on existing networks. Also, adopting and or adapting multi-stakeholders’ platform including digitalizing information services for delivering market information is inevitable for wider engagement (Alejandro, 2023). PABRA is already expanding the approach on beans and cowpea across countries under SeedEqual and to other commodities e.g., lentils in Nepal (Radegunda, 2023) in partnership with the USAID -Feed the Future -Legume Research Innovation Lab. A need for continuous updates about demand, prices, and market for bean seed and grains was viewed as an enabler for seed businesses and investment

d) Strengthen common bean seed actor business linkages.

One strategy for creating and facilitating information flow is strengthening business bean multi-stakeholder platforms to link actors and facilitate bean trade (Rubyogo et al., 2019). There is need for continuous engagement and information flow which can be facilitated if functional platforms for engaging actors exist. Creating and effectively operationalizing platforms was also viewed by actors as a viable strategy for growing common bean business and thus their investment in the bean seed sector. However, if bean business platforms are to serve their purpose sustainably, they must be led and coordinated by the private sector (off-takers, seed producers, NGOs and individual farmers). In the platform, each actor has a role to play which creates and eases business.

e) Out grower/farmer organization development

Farmers’ production is fragmented and in most cases with no common goal. This makes linking them with seed and grain off takers hard and thus no market. Poor farmer networks affect operations of seed and grain actors but also limit benefits to farmers since their interests may not be supported but abused by those who buy seed and grain from them. To create more structured business, it’s important that (1) farmers organize themselves into viable seed business units and production hubs (Birachi et al. 2023), (2) seed off-takers invest in the process of organizing farmers to whom seed production is outsourced. (3) Grain off-takers focus on bean varieties and quality of grain required by their market. The result is an organized and efficient system that facilitates bean seed and grain trade.

f) Improve financing options for private sector seed enterprises

Poor, expensive and inconsistent financing was viewed as a hindrance to investment in common bean businesses. Actors noted as need to lobby governments and other stakeholders to reduce interest rates on loans acquired to facilitate seed production and grain off taking when working with small holder farmers. Also, actors identified the need to for strategies to introduce subsidies for inputs used for legume seed production to encourage input use and thus boost productivity and continuity without compromising quality.

g) Limit supply of free seed

Sometimes, availability of free seed (mostly from governments and NGOs) crowds out private sector investment. Instead of offering free seed, there is need to strengthen the capacities or incentivize farmers to buy seed. Free seed also increases and or creates dependency which affects the development of seed business (Otim et al., 2020, Nelson et al., 2016). Seed that is distributed free to farmers is bought from seed producers, through donor projects or government programs. Seed producers often fail to sustain their businesses when such procurements stop and this creates erratic regimes in bean seed supply.

h) Strengthening Intellectual Property and payment of royalties

To recoup investment costs, there is need to set modest royalties for institutions maintaining and supporting EGS production. Also, to boost production activities of seed producers especially seed companies, government-recommended royalty needs to have caps to prevent addition of other licensing fees and costs that drive up the expense of procuring breeder seed and cost of certified and QDS production. Access to breeder seed and multiplication rights must be at a cost low enough to attract commercial interest, and annual licensing fees should not be cost-prohibitive. Furthermore, mandates for minimum seed production for some varieties should be avoided or should be reasonable to avoid discouraging commercial interests from private investors.

i) Develop or maintain supportive infrastructure

The cost of establishing seed production and marketing infrastructure is high. Where possible, government should support development or maintenance of facilities such as irrigation systems to support off season seed production or production under weather uncertainty. Such facilities have played a significant role in supporting formal and informal seed system investments in Zimbabwe and in Rwanda.

j) Favorable policies for cross border trade

There exist opportunities for cross border seed and grain trade that could catalyze investment. However, there is need for policies that favor cross border. These include harmonized seed and grain standards, phytosanitary requirements, custom taxes and requirement, other trade regulations. Bean seed and grain trade should be informed by the bean corridors and enabled by policy. Actors noted a need for continued harmonization of trade policy and creation of business-to-business linkages.

a. SOCIAL FACTORS

a) Trust between seed system actors

There are several issues that require trust within the seed production business which if not met discourage private sector investment in seed systems. At the EGS production levels, the institutions offering EGS need to trust that the seed producers will declare correct volumes and will pay the right royalties. Also, the quality and consistency in the supply of EGS need to be reliable. For contracted growers, there need to ensure that seed of the right quality is supplied to the contracting party by avoiding side selling and under declaring output. Also, out growers need to be guaranteed that the beans they produce will be bought and payment made in a timely fashion.

b) Need to create social impact and inclusivity

Not all seed production ventures were driven by profit. Some seed system actors were driven by the urge to grow communities especially by creating opportunities for women and youth. Such ventures invested in developing systems that ensured inclusivity in the production and supply of bean seed and grain. They recruited women and youth into bean seed production, built their capacity in production and marketing and linked them to bean seed and grain markets. Such business-related social schemes existed in all the countries studied.

5. SUMMARY AND CONCLUSIONS

Private sector investment in seed systems, creating linkages between formal and informal seed systems, and fostering the roles of the public sector have become paramount in developing strong seed systems for crops like common bean and other legumes. In this review, we assess factors that could catalyze formal and informal seed systems investment in common bean production using a triangulation of methods.

We find that several incentives are available to boost and catalyze formal and informal seed systems investment. These can be classified into economic, institutional, and social factors. For investments in bean seed systems to be boosted, the economic, social and institutional benefits from such investments should be sufficient for the private and public sector actors. The identified factors are cross cutting and could potentially affect investment in different seed classes (breeder, foundation, certified or quality declared seed). The main economic factors include ensuring consistent market for EGS and other seed classes, cost efficiency in seed production and marketing, correct market failures in the pricing of bean seed, manage side selling of seed, quality and quantity guarantees in production and marketing. On the other hand, key institutional factors that could catalyze formal and informal seed systems investment include licensing varieties to seed producers, assured supply of affordable early generation seed, improved information flow, strengthen bean actor linkages, improve bean seed sector financing, and limit the availability and supply of free seed. Socially, there is need to build trust between seed producers and between seed producers and the market. Broadly, there is need to reduce barriers to scaling private sector investment, tackle challenges in investing in bean seed systems, devise strategies for de-risking investments in bean seed production and supply.

In some countries where informal seed systems are dominant, the formal seed sector actors noted that the informal seed system only serves to constraint investments because costs and processes (quality checks) in making seed available are different and much higher for formal seed which creates unnecessary competition from “potential seed” supplied by the informal seed sector. It was noted that if both systems are to co-exist, then clear cut regulations, standards, distinctions, and modalities for the production and marketing of seed by the informal sector. Clearly, there is need to match the production of different seed classes, by different sectors, with associated benefits and costs. No sector should crowd out the other but their roles should reinforce each other.

REFERENCES

Alejandro, M. (2023). Exploring the potential of bean-based products through public-private partnerships and multi-stakeholder platforms in Malawi and Zambia. <https://www.pabra-africa.org/exploring-the-potential-of-bean-based-products-through-public-private-partnerships-and-multi-stakeholder-platforms-in-malawi-and-zambia/>

Astrid Mastenbroek and Bonny Ntare, 2016. Uganda Early Generation Seed Study: unlocking pathways for sustainable provision of EGS for food crops in Uganda. Wageningen University & Research (Wageningen UR) Centre for Development Innovation. Report CDI-16-030. Wageningen.

Birachi, E.; Rubyogo, J.C.; Abang, M.; Kalemera, S.; Fungo, R.R.; Nchanji, E.; Mukankusi, C.; Buruchara, R.; Mutua, M.; Onyango, P. (2023) Bean commodity corridors scaling up production and market expansion for smallholders in Sub-Saharan Africa. Nairobi (Kenya): Pan-Africa Bean Research Alliance (PABRA); International Center for Tropical Agriculture (CIAT). 72 p.

Nelson, M. M. W. E. S. U. C., Walton, M., Sikinyi, E., & Urinzwenimana, C. (2016). Rwanda Early Generation Seed Study. *Feed the Future, Kigali*.

Opie, H., Akpo, E., Desmae, H., Okori, P., Ininda, J., & Ojiewo, C. O. (2022). Business models for early generation seed production and marketing (No. 2022-02). Wageningen University & Research.

Otim, G., Ntare, B, and Arnab, G. (2020), Assessment of the Performance of the Seed Subsector
Radeunda, K., Kalemera, s., Fadhili, K., Ndunguru, A., Ndimbo, M., Mdachi, M., Mbiu, J., Rubyogo, J.C., Onyango, P. (2022). Making the Bean Corridor work: Lessons from Tanzania. <https://www.pabra-africa.org/making-the-bean-corridor-work-lessons-from-tanzania/>

Radeunda, K. (2023). Taking the PABRA’s multi-stakeholders platform model to transform Nepal’s lentil value chain. <https://www.pabra-africa.org/taking-the-pabras-multi-stakeholders-platform-model-to-transform-nepals-lentil-value-chain/>

Regulatory and Institutional Framework in Uganda. [assessmentoftheperformanceoftheseedsubsectorregulatoryandinstitutionalframeworkinuganda.pdf](https://www.issduganda.org/assessmentoftheperformanceoftheseedsubsectorregulatoryandinstitutionalframeworkinuganda.pdf) ([issduganda.org](https://www.issduganda.org/))

Rubyogo, J.-C., Akpo, E., Omoigui, L., Pooran, G., Chaturvedi, S. K., Fikre, A., Haile, D., Hakeem, A., Monyo, E., Nkalubo, S., Fenta, B., Binagwa, P., Kilango, M., Williams, M., Mponda, O., Okello, D., Chichaybelu, M.,

Miningou, A., Bationo, J., ... Kalempera, S. (2019). Market-led options to scale up legume seeds in developing countries: Experiences from the Tropical Legumes Project. *Plant Breeding*, 138(4), 474–486.
<https://doi.org/10.1111/PBR.12732>

Sperling, L., Birachi, E., Kalempera, S., Mutua, M., Templer, N., Mukankusi, C., Radegunda, K., et al. (2021). The Informal Seed Business: Focus on Yellow Bean in Tanzania. *Sustainability*, 13(16), 8897. MDPI AG.
Retrieved from <http://dx.doi.org/10.3390/su13168897>

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Contact:

Jean Claude Rubyogo, Paul Aseete, Sylvia Kalempera, Lucky Omoigui

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