

The Case for Iterative Design: Lessons from the Uganda Improved Legume Seed Challenge Project

AgResults' Uganda Improved Legume Seed Challenge Project employs a Pay-for-Results (PfR) prize incentive to increase private sector production and sales of quality legume seeds to Ugandan smallholder farmers. Increased access to verified, quality legume seed has many benefits, including increased smallholder farmer household income, nutritional outcomes, and better soil health. However, AgResults faced issues related to design assumptions and shifting policies that necessitated changes to the original design. The experience provided valuable insights into the importance of a comprehensive and iterative design process.

Background to the Uganda Project

In 2008, the World Bank released a report showing that improvements in agricultural yields in Sub-Saharan Africa lagged behind that of other regions, growing an average of 1.2 percent annually. One of the major factors hindering growth in Sub-Saharan Africa is the adoption of improved inputs, such as improved seed varieties. The use of improved seed varieties with high yield potential remains relatively low among smallholder farmers. Unlike hybrid seeds, which farmers must repurchase each year, the availability and use of improved open pollinated variety legume seed grew slowly due to traditional smallholder farmer seed saving practices and thus lower potential for seed company profit.

In 2014, AgResults designed the Uganda Legume Seed Challenge Project to address this market failure and promote the production and sales of quality legume seeds. AgResults selected Uganda because of the importance of legumes to the agricultural economy, the ability of local seed companies to produce and market legume seeds, and the existing donor activities that laid the foundation for the legume seed sector. In Uganda, legumes contribute roughly 25 percent of protein intake, yet legume seeds comprise less than 10 percent of the formal seed market. Legumes amount to an estimated 57 percent of

Key Lessons Learned and Recommendations

Lessons Learned

- Shifting policies and political objectives create uncertainty among competitors and key stakeholders in the legume seed sector, reducing their interest in participating in prize contests.
- Some markets are not mature enough for a private-sector focused Pay-for-Results prize to succeed.
- A nuanced understanding of the value chain and political economy through expert analysis may have reduced initial contest design challenges.

Recommendations

- Use an agriculture expert to conduct a value chain analysis to develop the initial design and determine if the market is ready for a pull initiative.
- Allow for adaptation to the prize structure based on unforeseen developments in policy or the value chain.

informal seed sales, creating a lucrative potential market opportunity for a well-designed PfR prize mechanism to incentivize formal private sector legume seed production and sales to smallholder farmers.

AgResults initially designed a prize structure that would incentivize increased quality seed supply while taking into consideration existing financial constraints that seed companies face:

- **Volume Guarantee:** Under the volume guarantee, AgResults would purchase a certain quantity of unsold seed at a portion of the wholesale market price from

each participating seed company. The volume guarantee would place a floor on seed company’s losses and decrease the risk of overproduction, increasing the appetite to produce more seed. By setting the volume guarantee price below the cost of production, AgResults would enable seed companies to participate in the market no matter what, guaranteeing market supply for smallholder farmers and acting as a sort of insurance to seed companies.

- **End-of-Project Prize:** The end-of-project prize was created to further accelerate seed company desire to increase sales and to use the volume guarantee as little as possible. This prize is a final payment based on total sales growth percentage over five years against a growth baseline of 8 percent and would be awarded to as many seed companies as were eligible. (See box below).

Implementation began in 2015. However, prior to launching full activities, AgResults’ Project Manager in Uganda and participating seed companies identified challenges that called into question the incentive structure and potential success of the prize contest.

Implementation Issues Stemming from Design Assumptions

During the first year of implementation, AgResults quickly found that some of the initial design assumptions did not hold true. Some assumptions and related challenges included the following:

- **Policies and Politics:** One big assumption in the initial design was that farmers would trust the quality of seed on the market. Prior to the 2016 elections, the Ugandan government distributed agriculture inputs through the “seed for votes” campaign to increase support for government-promoted candidates. The resulting government demand for legume seeds exceeded the

Uganda Prize Overview

AgResults’ Uganda Legume Seed Challenge Project is a six-year project that employs a PfR prize to incentivize seed companies to produce and sell quality verified bean and soybean seed varieties to smallholder farmers across Uganda. The incentive consists of two parts: 1) an annualized prize that provides a premium on seed sales growth; and 2) access to cold storage to allow companies to carry over unsold seed from one season to the next. Prizes will be distributed after an independent verifier confirms the amount of seed sales reported. The Project is managed by Lutheran World Relief.

available supply, driving up prices and motivating the private sector to mix non-seed legume grain into the seed packs to meet this artificial demand. With no sufficient seed certification system in place to verify and distinguish between quality and counterfeit seed, buyers had no choice but to buy the offered seed, leading to what is known as a lemons market¹. Seeing the poor results of the distributed seed in their fields, farmers lost faith in the quality of legume seed on the market. This reduced the overall demand for legume seed purchases and demotivated seed companies from investing in legume seed production despite the contest incentive.

- **Incipient Legume Seed Sector:** Related to the assumption that farmers would buy legume seed was an understanding that verification and anti-counterfeiting would be more mature due to ongoing donor-funded programs. In Uganda, the Bill & Melinda Gates

1. A “Market for Lemons,” first used by George Akerlof in 1970, occurs when there is asymmetrical market information. In Uganda, private sector actors were knowingly selling counterfeit seed, where farmers were under the assumption they were purchasing improved legume seeds.

Potential End-of-Project Prize: High Growth Scenario (Values in Metric Tons)							
	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Total (Years 1-5)
Actual Sales (20% annual growth)	100	120	144	173	207	249	893
Prize Threshold (8% annual growth)	100	108	117	126	136	147	634
Cumulative Sales over Threshold							259
Prize (20% of Cumulative Sales over Threshold)				259 MT x \$1,575/ MT x 20% = \$81,585			

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Foundation and the U.S. Government’s Feed the Future Initiative, in particular, have invested in improving the legume seed sector through numerous push initiatives. For example, Feed the Future funded private seed verification and worked with the Government of Uganda to harmonize its seed laws with regional standards, while the Gates Foundation has worked on anti-counterfeit seed initiatives to address the weak certification system. These crucial investments are nevertheless new and have not yet transformed the legumes market to the point at which the initially designed project would have been able to make an impact.

- **Market Distortions from the Volume Guarantee:** AgResults designed the incentive structure with the expectation that the sector was mature and seed companies would be responsive to the PfR mechanism. As soon as implementation began, AgResults learned from seed companies that the prize structure was no longer a viable incentive to motivate their participation. The volume guarantee offered companies a sense of security by covering the cost of production of any unsold seeds. Unfortunately, the design team did not look into how the volume guarantee distorted the legume seed market by buying unsold seed. Additionally, they did not consider the reputational risk to AgResults by destroying such high-demand seed. Further hurting the incentive, the price of commercial legumes surpassed the price for the volume guarantee due to low production resulting from bad quality seed. As a result, seed companies sold their unsold seed as commercial legumes, making any volume guarantee obsolete.
- **Risks of an End-of-Prize Incentive:** The initial design assumed that seed companies would be willing and able to increase production and sales over a five-year period to win a final prize. Ugandan seed companies make most of their money on hybrid maize seed sales, with only ten percent of all seeds sold being legumes. Therefore, the end-of-prize incentive structure would require seed companies to reduce the amount of money invested in maize and reallocate it to legumes. When the project was designed, seed companies expressed

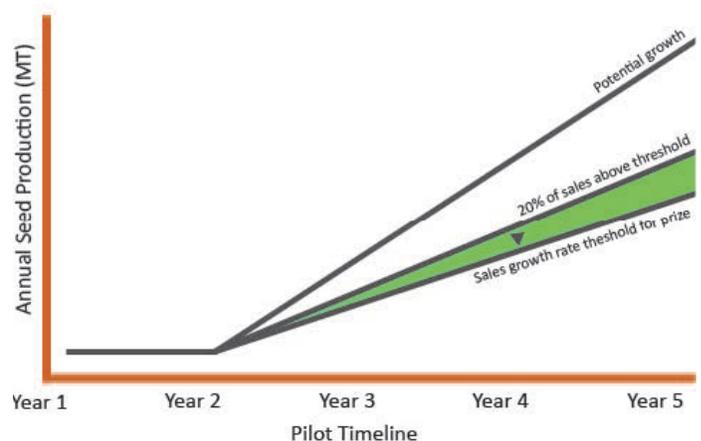
interest in the proposed prize structure. However, once launched the incentive was no longer enough motivation for seed companies, who now faced extreme and highly variable market distortions, to participate. After numerous meetings with seed companies, it became clear to AgResults that no company was willing to tie up funds in legume-focused seed production for five years for a potential legume seed prize instead of investing in already profitable seeds.

Redesign of the Uganda Improved Legume Seed Challenge Project

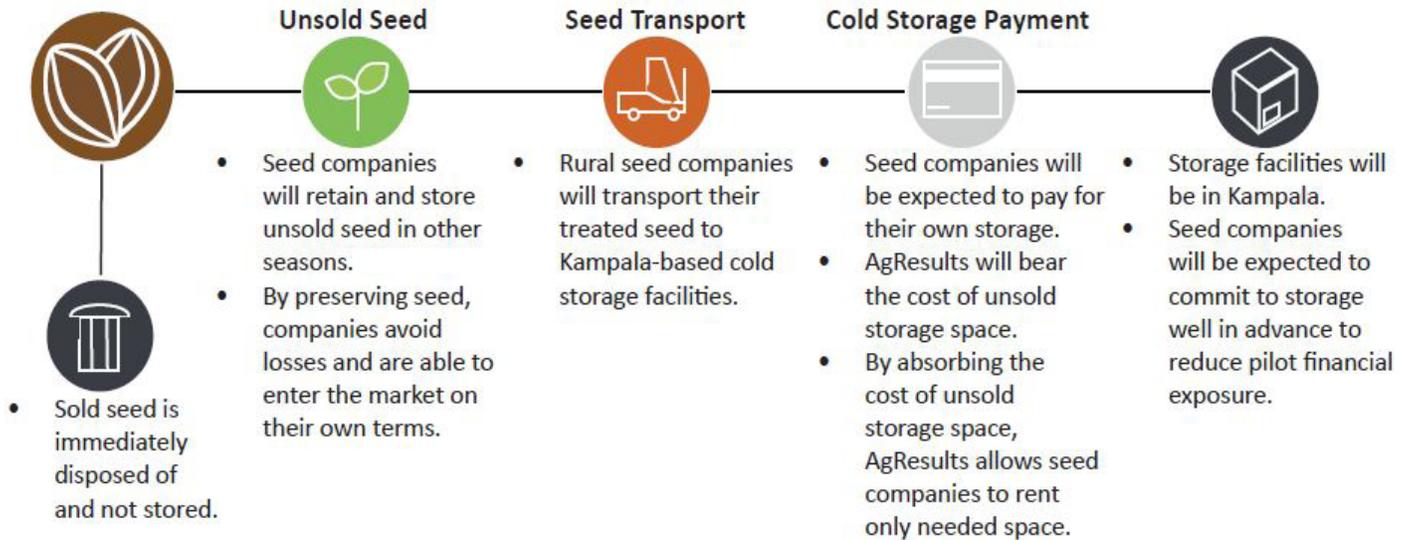
Due to the above challenges, the project was unable to launch. No private sector seed company was interested in the incentive structure, causing AgResults to re-evaluate the entire legume seed market and modify the incentive structure to provide the private sector with a prize that would motivate them to join the project. AgResults redesigned the seed companies’ prize payment structure and removed the volume guarantee. The revised prize payment structure provides seed companies with an annualized prize payment and the opportunity to reinvest their prize money to increase legume seed production and sales. Finally, AgResults removed the volume guarantee and replaced it with an option to access a cold storage facility that allows seed companies to store carryover seed instead of selling it as grain, keeping high-quality seeds on the market (see Cold Storage Option description on next page).

The lemons market proved to be the project’s biggest obstacle. Regardless of the appeal of the incentives, farmer demand for legume seeds was low and it was evident that quality assurance was essential to rebuild market trust. To

Uganda Project Annualized Prize



COLD STORAGE OPTION FOR PARTICIPATING SEED COMPANIES



address the broken seed certification system, AgResults determined it would need to partner with ongoing quality verification initiatives to certify that legume seed was of high quality. One potential partner was AgVerify, a private sector seed quality verification scheme supported by the USAID/Uganda Feed the Future Agricultural Inputs Activity. AgVerify created a private-sector run seed quality verification service using internationally recognized quality standards (including those from International Seed Trade Association and Common Market for Eastern and Southern Africa). AgVerify and AgResults entered into a formal partnership in December 2016 to create a legume seed certification scheme to which all seed companies joining the project must adhere.

Initial Response to the Redesign

AgResults redesigned the Uganda Improved Legume Seed Challenge Project and formally relaunched it in February 2017. The new design was well received by government officials, seed companies, and other stakeholders. To date, seven seed companies have joined the project and responded positively to the addition of AgVerify and the new incentive structure. The project is still in the first sales period and has yet to receive any official sales results but early signals indicate there could be a higher response rate and better outcomes.

Lessons Learned and Recommendations

The Project's original design relied on flawed or outdated assumptions about the state of the legume seed value chain and government policies. The expected impact of the push projects had not transformed the value chain to the anticipated extent: shifting government interventions exacerbated the challenges. As these discussed lessons show, a more thorough initial design process, coupled with the ongoing flexibility to monitor and adjust based on updated assumptions, are essential to give a similar agricultural PfR prize contests every chance to succeed.



Climbing beans at a Uganda government research station

Lessons Learned and Recommendations

- **It is difficult to successfully launch a PfR mechanism when the market is not ready:** The Uganda project design made assumptions about the readiness of the legume seed sector and the achievements of previous push interventions. The incipient legume seed sector delayed the launch of the AgResults project and necessitated the use of a small “push” intervention to help establish a quality seed verification scheme, AgVerify. AgResults determined that without AgVerify, the lemons market would remain unchanged or continue to worsen and as a result farmers would never purchase legume seeds.
 - **Recommendation:** When designing a PfR project, it is imperative that an agriculture expert conducts a value chain analysis to determine the readiness of the value chain for a ex post prize incentive. It is not in the private sector’s best interest to invest and take on risks in a sector where there is demand uncertainty caused by external factors. Therefore, actual results from previous donor-funded “push” initiatives must be incorporated in the design to determine if the market and the private sector will truly respond. Donors should feel comfortable adjusting or even delaying a project if the market has not fully matured.
- **Government policies and interventions affect the potential outcomes of a pull mechanism:** A common campaign strategy by an incumbent government is to provide agricultural inputs during election years. By artificially increasing demand for legume seeds, the Ugandan government created an easy opportunity for seed companies to increase incomes by taking advantage of artificially high prices. Challenges to the Project due to government interventions and weak verification systems highlighted the existence of a lemons market for legume seed and led to a loss of faith in the quality of legume seeds.
 - **Recommendation:** If a PfR prize contest focuses on a commodity, donors should understand that key assumptions can quickly change with the changing political economy. Donors should also regularly update those assumptions during implementation to be able to adjust the mechanism based on unforeseen political developments, or position the project outside the sphere of influence of these developments where possible.

About AgResults

AgResults is a \$147 million collaborative initiative between the governments of Australia, Canada, the United Kingdom, the United States, and the Bill & Melinda Gates Foundation to incentivize the private sector to overcome market barriers and develop solutions to food security and agricultural challenges that disproportionately affect people living in poverty. The initiative designs and implements agriculture-focused prize competitions, also referred to as pay-for-results or pull mechanisms, which are innovative development finance programs that engage the private sector to work towards a defined goal to receive a monetary award.

About AgResults Lessons Learned Series

One of the primary objectives of AgResults is to better understand how well pay-for-results prize competitions work to overcome market failures in agricultural development. The lessons learned series explores AgResults’ experience designing and implementing agriculture-focused pay-for-results prize competitions, with the goal of providing key lessons and recommendations that development practitioners should take into account when designing similar programs.



AgResults is a Partnership Between:

