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## Changing landscapes in Uganda's seed system: An analysis on policy and performance

Fredrick Bagamba,<sup>1</sup> Proscovia R. Ntakyo,<sup>2</sup> Geoffrey Otim,<sup>3</sup> and David J. Spielman<sup>4</sup> November 30, 2021

### 1 | Introduction

In farming, access to improved varieties and quality seed is among the more effective ways of addressing low yields and output. There is ample evidence that the adoption of better seeds and traits contributes significantly to productivity growth in developing-country agriculture (Walker and Alwang, 2015; Evenson and Gollin, 2003). Although neither should not be viewed as a panacea to all problems in agriculture and rural development, many global and national development programs rely heavily on seeds and traits as an entry point for their efforts to enhance productivity.

### 2 | Key messages from the review

- *Timely and affordable access to improved varieties and quality seed is essential for productive and remunerative farming.*
- *Improved varieties embody specific traits like yield, disease and pest resistance, and resilience to climate change factors such as drought.*
- *However, institutional and market constraints tend to limit farmers' access to quality seed and improved traits, thus limiting opportunities to improve yield, output and revenue that are hallmark of a vibrant agriculture sector.*
- *Many national governments and development organisations express impatience with the slow pace at which national seed sectors are contributing to productivity growth.*
- *Uganda is a standout on this issue for the wide range of policy innovations, regulatory reforms, and market experiments being pursued in recent years, and for the extensive documentation and analysis of its experience to date.*
- *This paper reviews the changing landscape of Uganda's seed sector and the recent policy, regulatory, and institutional changes.*
- *This analysis that while the combination of market innovations and a dramatic policy shift in 2018 may have opened new space for seed sector development, many of the political economy issues affecting the market remain unattended.*
- *The potential gains from this policy shift may remain unrealized unless sufficient attention is given to these political economy issues, ultimately affecting agricultural productivity growth and broader development outcomes.*

### 3 | Improved varieties and quality seed use in Uganda

Although subject to considerable measurement error and crop-specific variation, the use rates of improved varieties and quality seed are low in Uganda. Evidence suggests that improved access to quality seeds and traits could go a long way in increasing the social and economic returns to agriculture in Uganda (MAAIF, 2012). Average maize yields of Uganda farmers may be just 10% of what is potentially attainable (Joughin, 2014), while revenues 78% lower due to poor quality seed and fertilizer (Bold et al. (2017)). Similar yield and revenue figures are observed for many other crops cultivated in Uganda. But while many studies highlight the important role that farmer awareness and access to information plays in encouraging adoption, other studies suggest that even in the presence of information, market performance—the credible supply of quality seeds and traits to farmers—remains a significant constraint.

Still other studies highlight the importance of private investment in the seed sector. As of 2015, there were 32 registered seed companies producing an estimated 18,000 MT of seed, contributing to about 10-15 percent of certified seed planted seed in the country (MAAIF, 2018; Bonny 2015). Of this, 70 percent of the volume was accounted for by maize seed and, within this volume, about 31 percent was accounted for by hybrid maize. This indicates a gap in the availability of quality seed for crops other than maize, even despite seed offerings from these companies also cover sunflower, rice, groundnut, and beans, as well as vegetables, much of which is imported. In reality, most farmers continue to depend on own-saved seed, local seed exchanges, and positive selection practices, and participate to only a limited extent in the commercial seed market.

<sup>1</sup>Department of Agribusiness and Natural Resource Economics, School of Agricultural Sciences, College of Agricultural and Environmental Sciences, Makerere University, Kampala, Uganda

<sup>2</sup>Faculty of Agriculture and Environmental Sciences, Kabale University, Kabale, Uganda <sup>3</sup>Integrated Seed Sector Development (ISSD) Uganda, Kampala, Uganda <sup>4</sup>International Food Policy Research Institute (IFPRI), Kigali, Rwanda

## 4 | The evolution of Uganda's seed policy landscape.

Uganda has fronted several policy reforms to build a more vibrant seed sector. The seed sector's transition to a more private sector orientation that began in the 1970s has increased seed sector participants and commercial seed volumes. The introduction of a range of policies and regulatory reforms have further augmented this transition.

Subsequent efforts to strengthen Uganda's seed sector led to the National Seed Policy of 2018, which is viewed by many as the most significant policy change in Uganda's seed sector to date. The 2018 Policy is unique in that it aims to strengthen the multiple channels through which farmers can access seed, both formal and informal. Specifically, the 2018 Policy explicitly recognized the important contribution of informal seed systems on which most farmers still depend. It also established a new seed class—quality declared seed (QDS)—that enables the production and sale of quality seed for self-pollinated and vegetatively propagated crops by farmers and farmer organizations. Though similar classes exist in Ethiopia and Rwanda, neither have advanced QDS production at the same scale as Uganda in recent years.

The importance of QDS cannot be overstated. Whereas seed policy in many countries tend to focus on the creation of an enabling environment for crops with a ready path to profitable seed businesses such as hybrid maize or imported vegetables, insufficient policy attention is given to seed for many types of open-pollinated and vegetatively propagated crops. QDS offers small-scale seed producers with access to quality assurance standards that are less demanding and more

affordable than strict, formal certification standards. Crops covered by the QDS regulations include several important cereals (millet, barley, wheat), legumes (beans, cowpeas and groundnut), roots & tubers (cassava, sweet potato), and oilseed crops (soybean and sesame). Proponents of the QDS system highlight attributes such as its low startup and entry costs, decentralized inspection, and a suite of appropriate technologies that make QDS production potentially profitable for farmer entrepreneurs and farmer-based organizations serving their communities.

At the same time, other regulations and procedures in the seed sector hampered private investment in the sector. These include complicated and time-consuming variety release requirements; restrictions on multiplying and bulking seed by private companies; lengthy, expensive, and time-consuming inspections for certification; and ineffective capacity to regulate seed quality.

Other notable experiments and innovations have also emerged in Uganda during recent years. Notable examples include e-verification systems that label seed packages with scratch-off stickers to verify the product's identity and authenticity (Gilligan et al., 2019), and processors who supply specific varieties and quality seed to farmers to meet their precise market needs. As these experiments and innovations continue to emerge in Uganda, the seed policy landscape will likely continue its evolution towards greater private sector engagement, pluralism, and openness.

## 5 | Challenges

Concerns persist over several overarching challenges including:

- Insufficient state capacity to communicate and implement key components of the 2018 Policy to seed sector actors;
- Weak mechanisms to effectively incentivize public crop breeding programs to support the seed sector with improved varieties and early generation seed for use by seed producers;
- Inadequate investment in seed quality assurance services to prevent the entry of lower-quality seed producers and encourage more legitimate entrants to the market; and

- Industry structure and market power issues that may be favouring large or incumbent companies and projects over smaller, newer entrants.

In addition to these rather conventional concerns, there may also be strong political economy factors at play in Uganda. Such factors may be allowing incumbent political and economic elites and interests to leverage their considerable power to thwart substantive policy reforms and implementation process.

## 6 | Conclusions and policy recommendations

While the 2018 Policy envisions the creation of a vibrant and pluralistic seed sector for Uganda, there is still much to be done on the implementation front: creating clear procedures and guidelines for seed enterprises, developing producer and regulatory capacity, improving EGS access, expanding the boundaries on QDS, and strengthening farmer engagement in the sector itself, as both producers and consumers of seed. This needs to be accompanied by improvements in agricultural extension and advisory services which currently seem to prioritize quantitative targets for seed distribution over the development of farmers' technical capabilities.

All of these efforts will ultimately hinge on seed sector actor's willingness and ability to address the political economy aspects of the seed sector. Industry structure, market power, and elite capture all stand in the way of a reasonably competitive seed market. And without competition, seed companies are unlikely to make long-term investments in delivering improved genetics and quality seed to farmers in a timely manner.

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