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Technicians pack early generation seed at the seed production facility at Naro Holdings in Kiryadongo District. PHOTO/CAESAR ABANGIRAH

Uganda on track to build modern seed industry

A few years ago, the seed system was disjointed and hard to predict. However, it is becoming more structured, predictable and increasingly commercial, driven by partnerships between research institutions, government and the private sector.

BY CAESAR ABANGIRAH

At the National Agricultural Research Organisation (NARO) Holdings seed production facility in Kigumba, Kiryadongo District, it is harvest season.

The maize, bean and groundnut plots have already been harvested, leaving behind neat stubble that still tells a story of what was grown here weeks earlier. Inside the facility, however, the work continues.

Machines hum as seed is cleaned, graded and packaged.

Technicians move between stacks of bags, checking moisture content, purity and packaging standards.

Inside the seed production facility, processing lines and storage areas hold stacks of seed, including maize, beans, sorghum and groundnuts, which are sorted, graded and prepared for dispatch.

At Kigumba, early generation seed is produced, processed and prepared for the market. What leaves this facility will determine what farmers plant across the country in the seasons ahead.

The transformation begins with early generation seed, the foundation of the entire seed value chain. Produced by research institutions and multiplied into basic seed that is supplied to seed com-

panies such as Equator Seeds Ltd, that in turn produce certified seed.

Although the foundation seed is not planted directly by farmers, its quality determines the performance of the entire system. A few years ago, the seed system was disjointed and hard to predict. However, it is becoming more structured, predictable and increasingly commercial, driven by partnerships between research institutions, government and the private sector with support from AGRA, which is helping the industry align the system.

"The goal is to build a commercially viable system where early generation seed production is planned, coordinated and sustained to support the entire agricultural sector," says Mr Chris Muwanika, the NARO Holdings Chief Executive Officer.

Fixing what was broken

In the past, breeders released improved crop varieties, but there was no reliable system to ensure those varieties moved efficiently from research stations to farmers. Demand for early generation seed was unpredictable, with seed companies placing orders late, or not at all. As a result, production decisions were often based on estimates rather than firm commitments which often resulted in chronic short-

WHY SEED MATTERS

Everything on the farm begins with quality seed, which determines productivity. Scientific studies show that up to half of crop yield is determined by the genetic potential contained in the seed itself. Without improved seed, gains from fertiliser, irrigation and good agronomy remain limited.

Dr Jane Ininda from AGRA's Centre of Excellence for Seed Systems in Africa notes that no country has achieved agricultural transformation without investing in seed systems.

In Uganda, improved varieties, drought-tolerant, disease-resistant and higher-yielding, are now moving more steadily from research to the farm. However, adoption remains uneven, with many farmers still relying on older varieties that limit productivity gains. "When farmers have access to quality seed, then we begin to see better yields, better incomes and more resilient farming systems. It all comes down to the seed they choose to plant," says Dr Ininda.

age of quality seed in the market.

At the same time, coordination between research institutions, regulators and private companies remained weak. Without clear planning systems, even well-developed varieties failed to reach scale. That is the gap the actors in the seed value chain sought to address.

Dr Paul Mwambu, the Commissioner of Crop Inspection at the Ministry of Agriculture, says: "Unpredictable demand often disrupted planning and risked compromising the integrity of the entire seed value chain."

Building a functioning seed backbone

In Uganda, research institutions such as NARO produce breeder seed. NARO Holdings, its commercial arm, takes this a step further by multiplying it into basic seed and making it available to seed companies. NARO Holdings was established to commercialise research outputs and bring a business approach to seed production. Today, with support from AGRA, it runs a hybrid system, producing seed on its own farms while outsourcing large volumes to farmer groups, research institutes and private growers.

"We are building a system that can reliably produce, process and supply early generation seed at scale, while working with farmers and private sector actors to meet the needs of the market," says Muwanika.

Seed companies are now required to submit demand projections and place orders in advance. In many cases, they commit resources upfront which has introduced discipline into a system that previously relied on guesswork.

"Requiring companies to book seed in advance and back that with a commitment gives breeders the assurance they need to plan and produce efficiently," says Dr Mwambu.

At Kigumba, with production planned around confirmed demand, volumes tracked and scheduled deliveries, the system has moved from responding to demand to planning ahead. The private sector steps in

While public institutions anchor early generation seed, the expansion of Uganda's seed industry is being driven by private companies.

Firms like Equator Seeds Ltd have built integrated operations that cover the entire value chain, from sourcing foundation seed to producing and distributing certified seed.

They work with research institutions to access improved varieties, multiply seed through company farms and contracted growers, and distribute it through agro-dealer networks across the country.

"At Equator Seeds, we operate across the entire value chain, from sourcing early generation seed to marketing certified seed," says Dominic Kimara, the Production Manager at Equator Seed Ltd. "About 80 percent of our business is certified seed."

AGRA's support has been instrumental in strengthening such companies, financing infrastructure, building technical capacity and supporting training that cascades to farmers.

The model is to build strong seed companies, connect them to research institutions, and let them drive distribution to farmers.

Farmers such as Michael Wambuku, of Bwenkanda Oil Seed Cooperative in Bulambuli District, say connection is translating into results. "We used to harvest about 20 sacks of rice per acre, but now we get up to 50 bags, after using certified seed."

Restoring trust in seed

For farmers, it is not just about access to seed, but confidence in what they plant. Counterfeit seed has long undermined confidence in the system, leaving farmers unsure whether what they plant will perform.

Uganda is now tightening its certification processes. Through support to regulatory systems, tamper-proof labels are being introduced for pre-basic and basic seed, allowing traceability throughout the value chain. At the same time, digital systems are being integrated into national tracking platforms to monitor seed movement and authenticity.

"We designed a Seed Tracking and Tracing System (STTS) to ensure quality from the breeder all the way to the farmer, so that every stage of the seed value chain can be verified and trusted," says Dr Mwambu.

"We are moving towards an end-to-end digital system where seed can be tracked and verified, giving farmers confidence that what they are buying is genuine," says Nelson Sirikani Masereka, Executive Director of the Uganda Seed Trade Association (USTA).

"With the digital verification system, farmers can confirm the authenticity of the seed they are buying, which is critical in restoring confidence in the market," says Masereka. He says the focus is now shifting to empowering farmers themselves.

With the introduction of the Seed Tracking and Tracing System (STTS), farmers use verification numbers on labels and mobile-based tools to confirm whether the seed they are buying is genuine.

"The digital tracking system is giving farmers confidence that what they are buying is genuine and improving trust across the entire market," says Masereka.