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Seed companies will pay a fee to access security-enhanced labels that carry the verification numbers. PHOTO/COURTESY.

Digital tracking system to help farmers to identify fake seeds

The Seed Tracking and Traceability System (STTS) is an end-to-end digital platform that tracks seed quality from production to the farmer's hands.

BY PROMISE TWINAMUKYE

At Ngetta Zonal Agricultural Research and Development Institute (ZARDI) in northern Uganda, a group of farmers hunched over mobile phones, punching numbers into a USSD code with focused attention. Extension workers moved among the group, guiding them through the steps to verify the authenticity of their seeds.

For many of the farmers gathered that day, it was the first time they had ever been able to verify the authenticity of a seed before planting it. It was a field day at the research station in Lira, but with far-reaching implications.

Uganda's Seed Tracking and Traceability System (STTS), was being introduced to the small-holder farmers who have, for too long, planted on faith and sometimes harvested nothing but loss. Uganda Seed Traders Association (USTA) has been using field days to introduce the STTS to farming communities.

The sessions that day combined practical agronomy, including crop management, pest control, and variety selection, with hands-on training on STTS.

The STTS is an end-to-end digital platform that tracks seed quality from production to the farmer's hands. Every certified seed batch carries a unique verification number on its label, which is used to confirm authenticity. A farmer is required to dial a USSD short code

on any basic mobile phone, no Internet required, enter the number, and instantly receive confirmation of whether the seed is genuine and traceable within Uganda's national seed system. The seed verification platform is accessible at <https://seedtracking.net/>

The counterfeit seed problem

According to the Uganda National Bureau of Standards, an estimated 30 to 40 percent of seeds on the Ugandan market are fake. It is estimated that farmers in Africa lose about \$400m (Shs1.5 trillion) annually due to counterfeit seeds. A survey by the International Food Policy Research Institute found that 40 percent of Ugandan farmers believe the quality of most or all hybrid maize seed is compromised by adulteration or counterfeiting.

It is against this backdrop that Uganda has introduced the STTS as a line of defence against counterfeit seed.

Nelson Masereka Sirikani, the Executive Director of the Uganda Seed Trade Association (USTA), says the system represents a turning point.

"The STTS gives every farmer, even in the most remote village, the power to verify the seed they

are buying before they plant."

He adds that USTA members have fully embraced it because it protects their brands.

"Our members spend enormous resources producing certified seed. Counterfeits not only harm farmers, they harm the legitimate seed companies whose names and packaging are being abused. The STTS protects the entire chain."

The development of the STTS was led by the National Seed Certification Service (NSCS) at the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) in partnership with USTA, with support from AGRA.

The technology was built by Eight-tech Technologies, a local firm contracted to manage system roll-out. More than 270 users across the seed sector have already been trained on the system's functionality as part of a structured roll-out programme.

Seed companies will pay a fee to access security-enhanced labels that carry the verification numbers, a deliberate design choice meant to ensure the financial sustainability of the innovation beyond the life of donor funding.

Awareness and Education

Technology alone is only part of the solution. A key pillar of the broader reform programme is the strengthening of Uganda's policy and regulatory environment for seed quality management. With AGRA support, USTA is facilitating stakeholder engagements aimed at strengthening linkages between

NSCS and enforcement bodies, such as the Uganda Police Force, District Local Governments, the Judiciary, and the Office of the Director of Public Prosecutions. The engagement seeks to ensure penalties against those who distribute and sell counterfeit seeds are actually applied.

An awareness campaign is running to support the technical roll-out of the system. Radio and television talk shows, field days, seed fairs, and promotional materials in multiple local languages are all being used to support the system roll-out.

Sirikani stressed the importance of reaching farmers in their own languages.

"You cannot ask a farmer in Kase or Arua to verify a seed on their phone if they have never heard of the system or do not understand why it matters. Awareness creation is as important as the technology itself. We must meet farmers where they are."

The programme has already trained 277 individual farmers and seed companies on how to use the system.

The STTS is expected to become a permanent feature of Uganda's seed regulatory infrastructure. Sirikani says the fee-for-label model aims to make it financially self-sustaining.

"The institutional frameworks we are putting in place such as the National Seed Coordination Forum, enforcement partnerships, a trained cadre of STTS users, are designed to outlast any single programme cycle," Sirikani says.

For the farmers who gathered at Ngetta ZARDI in Lira, they hope the digital system will help them to verify the authenticity of improved seed before planting to improve harvests.

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