



Stimulating Government Investment in Digitally Enabled Farm Input Certification through Proof-of-Concept Funding

With the support of Mastercard Foundation, AGRA provided grant funds to a private sector technology company, Quincewood Group Limited, to demonstrate the viability of its digital farm input verification system.

Following a one-year pilot, in which 350,000 farmers were reached with 4.5 million certified packages of hybrid seeds, the Government of Tanzania integrated T-Hakiki into their strategy and hired Quincewood to continue delivering and expanding the service.

Importance of Quality Farm Inputs

Enhancing agricultural productivity is a major priority for African governments. Population growth, rural flight, underemployment and regional market development are rapidly increasing both the need and the opportunity for substantially greater food production. Despite a majority of Africans working in the agricultural sector, however, food production lags far behind than in other regions of the world, and the rising impact of climate change threatens to further undermine African farming over the coming years. Governments hence have a vested interest in improving agricultural production to increase domestic food supply, build rural economic activity, create new jobs throughout agricultural value chains, improve environmental resilience and increase incomes.

Improved seed is a cornerstone for agricultural production. Dependable access to quality, high-yield, weather-resistant seeds optimized for local conditions has the potential to transform farm livelihoods and production across Africa. A 2019 McKinsey study found that achieving the continent's agricultural potential will require major investment in a host of areas, including six times more improved seed, and that most growth will need to be on smallholder farms. But stimulating a functioning seed system with market actors developing, producing and distributing improved seeds—particularly for smaller farmers and across a variety of crops—depends on strong and sustained demand in a sector already rife with risks. Farmers will not invest in improved seed if they cannot be sure it is genuine, and quality seed companies go bankrupt when

¹ Goedde, Lutz, Amandla Ooko-Ombaka and Gillian Pais. Winning in Africa's Agricultural Market. McKinsey and Company: February 2019. <https://www.mckinsey.com/~/media/mckinsey/industries/agriculture/our%20insights/winning%20in%20africas%20agricultural%20market/winning-in-africas-agricultural-market.pdf?shouldIndex=false>

farmers reap dismal results from counterfeit seeds branded with their name.

An important step that governments can take to enhance production and eventually get higher quality seed into the hands of smallholder farmers is farm input certification. By monitoring and ensuring the purity and authenticity of seeds and other inputs like fertilizer and pesticide, governments can help protect farmers, bolster quality input producers, enhance food production and increase agricultural income. Many countries have farm input certification bodies, but verifying quality is only half the battle. Sensitizing farmers across expansive geographic areas and equipping them with the means to confirm authenticity entail numerous logistical and efficiency challenges. Fortunately, digital technology offers a new way to facilitate a functioning certification system—if governments agree to take the leap and invest in such innovation.

About T-Hakiki

Spearheaded by the Tanzanian technology company Quincewood Group Limited in partnership with the government telecom TTCL, Tanzania's T-Hakiki digital platform (originally called eHakiki) for agricultural input verification is an example of a promising public-private partnership stimulated by strategic donor

T-Hakiki



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investment. T-Hakiki enables farmers to verify the authenticity of their inputs by revealing a scratch code on purchased packages and dialing a toll-free USSD number by mobile phone for immediate feedback. If the code is not genuine, farmers can return the product for a refund; and the service compiles geographic and other data on counterfeit products for communication to government stakeholders. All seed companies in Tanzania are required to purchase government certification labels (per the Seeds Act of 2003), and since the government's adoption of T-Hakiki in 2021, they are now required to register on the digital platform and purchase the official labels (pesticide companies will also be required to follow suit as of June 2021).



Digital data sharing drives the system. Government agencies authenticate the inputs, while proprietary digital technology is used to create labels for them with unique USSD codes. Farmers can opt in to share their data (e.g., gender, location, farm size, crops and inputs used), which entitles them to receive agricultural recommendations and reminders as well as information on new products from certified input companies. Input companies receive basic sales data on their products, which helps them understand market uptake and plan for stocking; they can also pay a subscription fee for more comprehensive data on customers and input usage patterns. The platform plans to add agricultural insurance, and the new availability of detailed farmer data is expected to facilitate access to agricultural finance by reducing bank risk (partnership discussions are currently underway) in the near term. T-Hakiki thus aims to leverage the power of data technology not only to drive farmer uptake but also to create more value for farmers.

Establishing Proof of Concept

Managing an efficient and dependable verification system is complex, particularly in contexts like Tanzania, where 40%-50% of farm inputs are adulterated and population density is uneven across wide areas. The Ministry of Agriculture's Tanzania Official Seed Certification Institute (TOSCI) needed to see evidence that Quincewood's e-verification worked efficiently, effectively and at scale before paying for the service. Quincewood was not alone in the market, but as a Tanzanian company, they knew the market and stakeholders well. AGRA with the

support of Mastercard Foundation provided grants complemented by Quincewood's own investment to demonstrate the viability of the e-verification system.

In collaboration with TTCL, as well as TOSCI and Tropical Pesticides Research Institute (TPRI), Quincewood designed the e-verification system. During the pilot phase in 2019, Quincewood partnered with Meru Agro Seed Company in four regions of Tanzania to produce 3 million labels, and with TOSCI to produce 1.5 million labels. To sensitize farmers and promote the e-verification system, Quincewood developed instructional videos, radio spots and educational materials that support TOSCI's mission and provided technical assistance to TOSCI to disseminate them in the field. Quincewood field agents also provided (and continue to offer) direct support to farmers on using the scratch labels. The successful pilot demonstrated that Quincewood and TTCL had the capacity to supply a reliable, efficient and responsive e-verification service to TOSCI.

In August 2020, after a competitive bidding process, TOSCI selected Quincewood and TTCL's e-verification for full-scale implementation and rebranded the government-contracted service as T-Hakiki, making it the first-ever government-backed verification platform to be used nationwide and by all regulators. Asked what convinced the government of T-Hakiki's viability, Quincewood's Director of Business, Fatma Fernandes, explained: "They needed to see timeliness, quality and flexibility to adapt the system to TOSCI's needs. The labels must be durable, reliable and produced in large quantities within a very short turnaround time. The government also needed a dashboard that aligned with their objectives and operations." By leveraging digital technology and the increasing penetration of mobile phones in rural areas, the platform allows TOSCI to expand its reach and monitoring exponentially. The e-verification system complements the government's in-person inspection to decrease fraud, improve farm production, increase farmer income and reinforce trust in and sustainability of agro-input suppliers.

As of mid-2021, T-Hakiki is used nationwide by Tanzanian farmers across all mobile networks. Quincewood and TTCL were contracted to produce 3.5 million labels for the 2021 season,



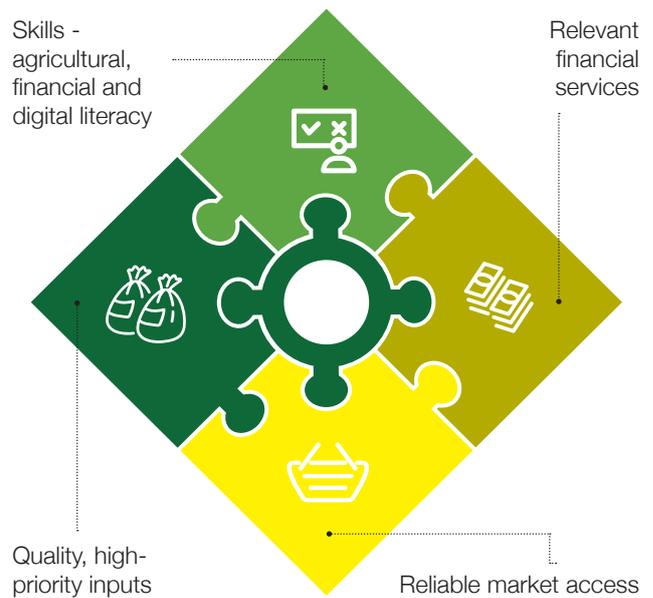
and rapid expansion of T-Hakiki is anticipated over the coming years. The production of labels and related capacity building that were originally covered by the AGRA grant are now rolled into the price paid by the government for T-Hakiki. Of the 40 seed companies in Tanzania, all are registered and 27 had used the platform as of June 2021; 10 pesticide companies have signed on, and the other 100 will be coming online in mid-2021. Though only in its first year of formal operation, T-Hakiki appears to be poised to revolutionize farm input certification in Tanzania and potentially other African countries.

Lessons Learned

Strategic grant funding can unlock bottlenecks and pave the way to critical innovation in agriculture. Input certification had long been a stubborn challenge for the government of Tanzania, and there were doubts about the private sector's ability to deliver at the scale, quality and speed needed to warrant the substantial investment in new technology. Quincewood was confident of its solution and ability to deliver but lacked sufficient capital to prove the service at sufficient scale. Fortunately, AGRA's mandate and funding from Mastercard Foundation enabled a strategic investment that led to government uptake and a promising shift in the national agro-input system.

Targeted investments that spark positive momentum in one corner of the agricultural sector can have far-reaching impacts on farm production and livelihoods. In order to increase production and improve farmer income, four interrelated needs must be united: relevant

Figure 1:
Interrelated needs of Smallholder Farmers



financial services, reliable market access, high-priority inputs, and skills in agricultural practices, financial and digital literacy (Figure 1). The direct focus of T-Hakiki is quality, high-priority inputs, but by improving the reliability and productivity of crops and increasing the availability of improved seed and other inputs, the e-verification system also has an indirect impact on farmers' access to finance, markets and skills. Hence AGRA's investment in the proof of concept of one important innovation provides an example of the strategic role that donors and investors can play in stimulating self-sustaining, public-private partnerships with potential to revolutionize conditions and opportunities for smallholder farmers.

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