



1000FARMS



Tricot accepted as on-farm testing approach for official variety release in Nigeria

Two cassava varieties released through the tricot approach

Most countries stipulate that new crop varieties need to be tested before they can be commercialized. This is a form of consumer protection for seed, as it is difficult for farmers to know if newer seeds are indeed better. Variety testing includes several steps, but testing their performance directly on farms is especially challenging. The way in which this is done is not standardized, resulting in varying degrees of effectiveness.

On-farm trials to tap into farmer knowledge

To address this issue, the 1000FARMS project worked with a range of stakeholders, led by the International Institute of Tropical Agriculture (IITA) and the National Root Crops Research Institute (NRCRI), to model the tricot approach for on-farm testing.

The journey began in 2018 with the realization that surveys with farmers and processors did not provide satisfactory information on their trait preferences. Farmers and processors find it difficult to answer direct questions about their preferences because much of their knowledge about cassava is “tacit”, experienced on a daily basis but difficult to express in words. The tricot approach also needed to be more gender-inclusive, along with a stronger emphasis on evaluating postharvest processing and food product quality. For example, how do crop varieties fare when they are processed into food products, as when *garri* (cassava flour) is used to prepare the staple food *eba*?

The IITA/NRCRI cassava breeding programs set up 40 on-farm trials, providing contrasting varieties to farmers and processors to help elicit and prioritize their trait preferences from planting to processing. An incomplete block design of three varieties per block was used, which matches the tricot approach, as well as larger fields (“mother” plots). Trials were then scaled up to 320 farmers per year.

NRCRI cassava coordinator Favour Okeakpu (on the left) next to stem cuttings and food products of the two varieties released at the National Centre for Genetic Resources and Biotechnology in Ibadan in 2024.



Paving the road to the seed market

On 12 April 2022, Nigeria's Variety Release Committee held an online workshop in collaboration with the Collaborative Seed Programme and the 1000FARMS project, to propose tricot as an improved method for on-farm testing for variety release. The workshop featured testimonies from Ghana, Rwanda, Uganda, and Nigeria on tricot implementation.

A technical 1000FARMS tricot training followed in Ibadan in December 2022, including discussions on adapting and implementing tricot, as well as metric yield measurements. From April 2023 to July 2024, tricot trials for variety release were conducted, followed by inspections by the committee. A stakeholder meeting in Abuja on 8 and 9 October then showcased tricot applications, including cases from One Acre Fund in Rwanda and Bayer in Kenya. This helped to build confidence in the approach. The discussions proposed combining tricot for breeding in the final stage with variety release, seed marketing, and community-managed seed systems.

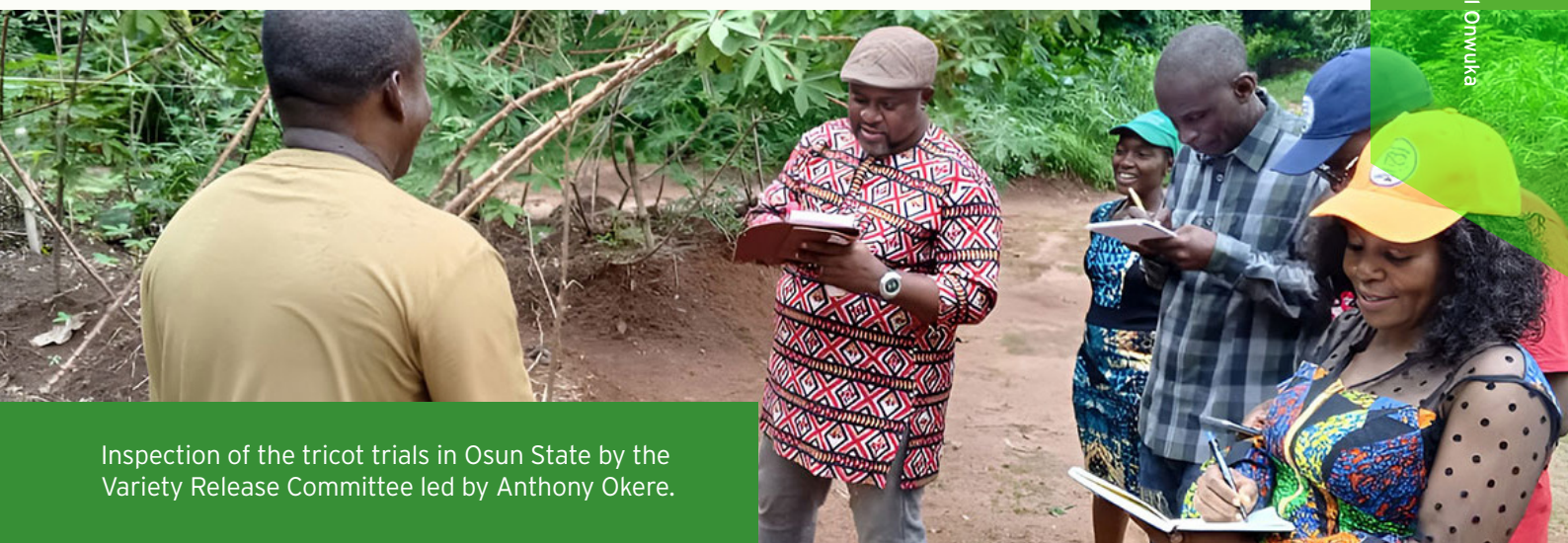
On 31 October 2024, two cassava varieties, Renewed Hope and Biggie, were officially released. The Variety Release Committee accepted the tricot approach as an innovative way to conduct on-farm testing, paving the way for other crops. The NRCRI is now applying the tricot approach to test new sweet potato varieties on farms.

Why is tricot so important? Farmers know

The adoption of tricot is contributing to a more human-centred, inclusive breeding process where farmers are seen as partners rather than just respondents. More farmers, including those with small farms, can provide insights under this approach. They thus participate as citizen scientists, which recognizes their contribution as knowledgeable professionals. Involving farmer households in the processing and evaluation stages has also yielded valuable gender insights and highlighted the importance of varietal effects on food product quality.

Tricot has already provided solid new insights that have been used to develop product and customer profiles that inform new breeding investments. Better product and customer profiles are crucial to ensure that new breeding products address the needs of future customers, that the new varieties are adopted, and that they have a beneficial social impact. Through collaboration with farmers, tricot has evolved into a versatile, transdisciplinary platform that connects breeding efforts with the socio-cultural, gender, agronomic, climatic, and economic realities of crop users. It offers diverse applications, which can foster productive collaboration between public breeders, private sector partners, and agricultural research organizations.

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Inspection of the tricot trials in Osun State by the Variety Release Committee led by Anthony Okere.

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