

CGIAR research team addresses gender dynamics in the breeding process

In product development, a gender-inclusive process can enhance equality between genders, and when women's and men's voices are heard, it effectively informs the breeding process. While there is growing recognition of women's vital role in informal/farmer-led breeding processes, knowledge on how and when to involve men and women farmers and how gender-responsive breeding can advance gender equality is limited.

Plant and animal breeding aims to improve the genetics or traits of breeding products and produce desired characteristics towards food security and better livelihoods. There is a critical need to understand women and men's priorities assigned to genetically determined traits in meeting these objectives.



Couple holding sweetpotato vines (planting material). Credit: CIP/H. Rutherford.

A recent [study](#) shows what [CGIAR](#) has done to address gender dynamics in current breeding structures and processes while ensuring breeding programs advance gender equality. The study focused on technology choices concerning the plant variety or animal/fish breed by resource-poor smallholders in low-income countries. It also explored how CGIAR and public breeding programs generate options based on user needs, preferences, and constraints and the institutional requirements needed to develop them to contribute to gender equality and women empowerment.

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Radio IITA presenter wins media award

Radio [IITA](#)'s Dajie Odok received an award for the "Best Reporter of the Year" in the Radio Category at the 5th edition of the Open Forum on Agricultural Biotechnology (OFAB) Nigeria Annual Media Awards.

The OFAB-organized event took place on 11 November in collaboration with the National Biotechnology Development Agency (NABDA) and the Agricultural Technology Foundation (AATF). The media awards recognize exemplary journalism that stimulates best practices in adopting agricultural technologies,



Dajie Odok (right) receiving the Radio Category award for the "Best Reporter of the Year".

particularly agricultural biotechnology, for sustainable development, poverty eradication, and food security.

Odok, who has been working at Radio IITA since 2020, leads a team of young, passionate, and budding broadcast journalists disseminating science-based agriculture knowledge to farmers, agribusiness entrepreneurs, value chain actors, national program partners, extension workers, and other information users.

In an exclusive interview on Radio IITA's breakfast show, Good Morning IITA with Lola Dare, Dajie said she is happy to have won the award at her first attempt, "I want to thank OFAB for the award. It was a most welcome

surprise at a very important time of my life and the radio. Even though I entered the contest to win, I had no idea I was going to be considered for this award, so it came as a complete surprise."

Since its inception in September 2016, OFAB has progressed in sharing knowledge and creating awareness on agricultural biotechnology in Africa. They facilitate quality engagement on the safety and benefits of modern agricultural biotechnology among stakeholders.

In his opening remarks, the Director-General of NABDA, Professor Abdullahi Mustapha, highlighted the importance of the award, which was established

about five years ago, stating that Nigerian journalists had made the country proud.

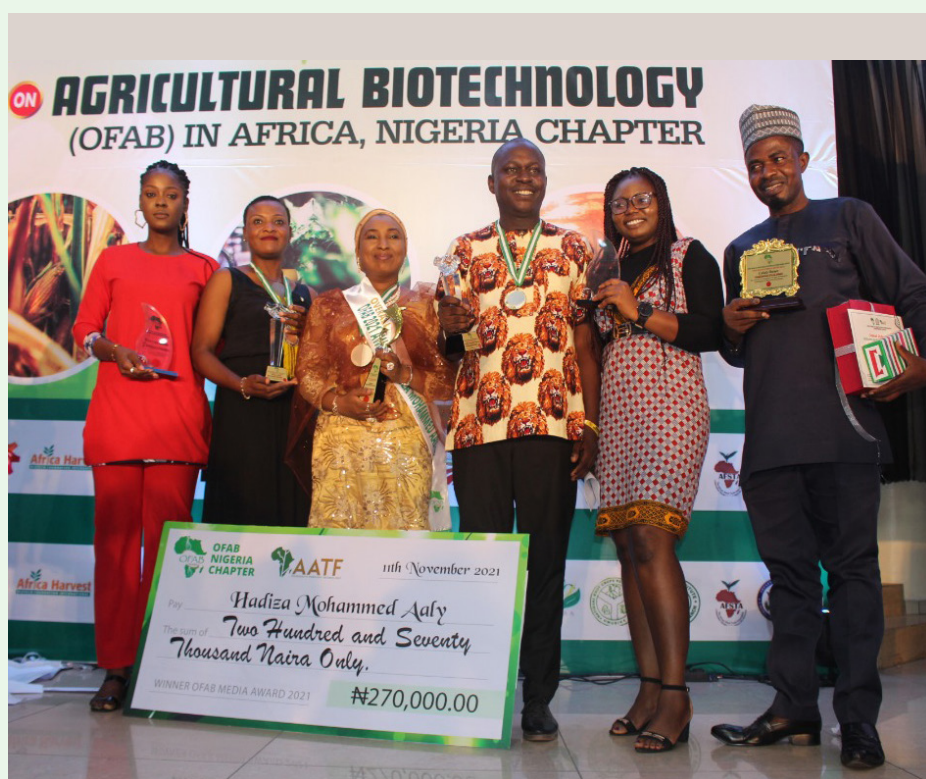
Professor Mustapha said, "So far, we have made progress with three crops: Cotton, cowpea, and maize. Cotton and cowpea are already with farmers, while maize will get to the farmers in one and a half years. It has already been deregulated by the National Biosafety Management Agency, meaning the gene inserts have been certified safe by the agency."

Mustafa urged media partners not to relent but to continue to work with scientists to keep Nigerians informed of what is happening in the various research institutes.

The OFAB Country Coordinator, Dr Rose Gidado, said the award, divided into television, radio, print, and online categories, is open to all journalists in Nigeria.

"Scientists and researchers are making steady progress in the deployment of agricultural biotechnology in the country, but some armchair critics who see nothing good in the efforts of our scientists," said Gidado. She noted that despite limited funding and vital facilities, scientists are making progress breaking new grounds and competing with their counterparts from developed countries.

"Unfortunately, some in the media have provided space to those anti-technologists who are interested in seeing Nigeria importing everything rather than supporting our scientists to produce such crops in the country," she concluded.



Radio IITA Producer Dajie Odok (second left) with the winners in the other categories.

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Please send your story with photos and captions every Tuesday to iita-news@cgiar.org or Katherine Lopez (k.lopez@cgiar.org) and Uzoma Agha (u.gha@cgiar.org) for headquarters and Western Africa, Catherine Njuguna (c.njuguna@cgiar.org) for Eastern and Southern Africa, and David Ngome (d.ngome@cgiar.org) for Central Africa.



[Béla Teeken](#), an Associate Social and Gender Scientist at [IITA](#), was part of the research team.

The study revealed that gender inequality relates directly to power, and an aspect of power is the ability to make choices. According to the study, people are not free when they cannot make choices about their lives; and individual preferences are an important aspect of choice. Women and men may not have the same possibilities to make choices; hence gender-related disparities often intensify the effects of poverty and create cycles of greater inequality.

Over the years, the formal inclusion of gender analysis in breeding has been attempted across CGIAR centers, and in several national agricultural research and extension system networks, with a specific focus on integrating gender into the biophysical sciences. In the recent study, the analysis presented highlighted four areas that need to be considered to ensure the integration of gender dimensions in decision making: Segmenting and gender targeting when breeding for the poor; understanding gender dynamics in trait preferences; changing priority-setting for breeding; and selecting and testing experimental cultivars and new animal breeds.

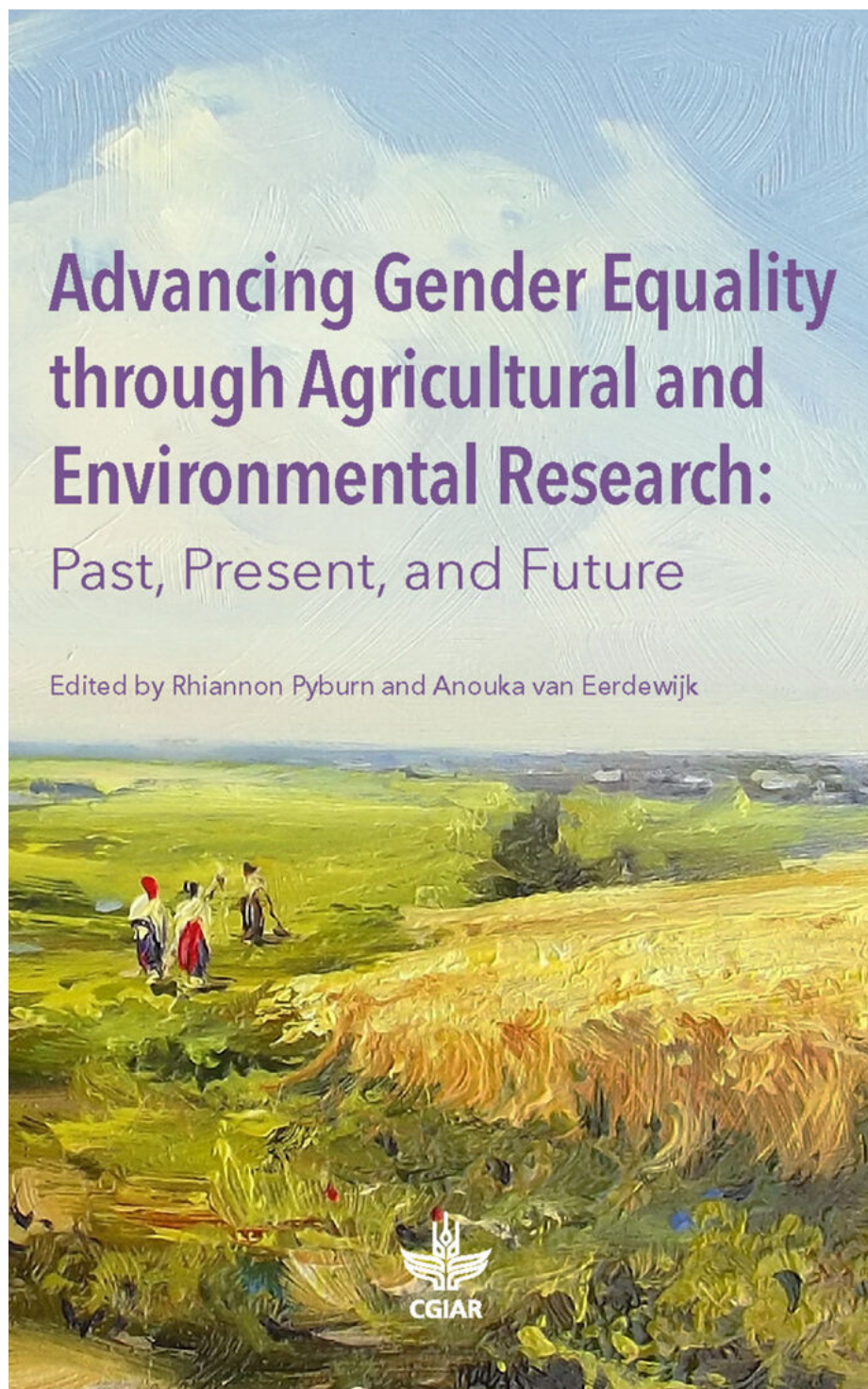
The research team concluded that deliberate actions directed at addressing gender dimensions in the development of new technologies, including new varieties and animal breeds, will level the playing field towards gender equality among women and men belonging to different age and ethnic groups. It involves providing farmers with real technology choices that better address their needs, preferences, and constraints.

The study also suggested that the gender and breeding research

agenda should carefully articulate gender objectives in breeding to advance gender equality. Vivian Polar, Gender and Innovation Senior Specialist at RTB Program in CIP and the research team lead, noted that this type of analysis would provide evidence to support further institutional innovations and structural change. “It will advance toward engendering breeding

processes that disrupt the status quo and create equal opportunities for men and women to benefit from agricultural science and technology development,” Polar said.

The study is documented in Chapter 2 of the book—[Advancing gender equality through agricultural and environmental research: Past, present, and future](#).



Cover design of “Advancing gender equality through agricultural and environmental research: Past, present, and future”.

“Disease nursery” trials established in disease hotspots to test soybean varieties for resistance

Soybean diseases such as soybean rust, red leaf blotch (RLB), and frogeye leaf spot (FELS) are major threats to the crop’s yield and production in sub-Saharan Africa (SSA).



Left: Soybean rust. Right: Monitoring plots to screen for soybean diseases under the Pan-African Soybean Variety Trials.

IITA is working with Soybean Innovation Lab (SIL) to identify the most resistant or tolerant soybean varieties to major diseases threatening production. In the 2020–2021 season, the Institute set up monitoring plots, called “disease nurseries,” at five sites in three countries—Ethiopia, Kenya,

and Uganda—to screen for rust, frogeye leaf spot, and red leaf blotch diseases as part of the Pan-African Soybean Variety Trials (PATs).

Six other nurseries will be established in three countries in southern Africa. Twenty-five soybean entries are being

evaluated at each site.

The nurseries are designed with high disease-pressure conditions to efficiently confirm the varietal resistance to the diseases. The most resistant lines from these evaluations may be recommended for national breeding programs. They may also be advanced for registration and release for farmers to use.

IITA and SIL’s Disease Management Team have also developed different resources on disease identification, impact, and management techniques, with preliminary data on the most resistant genotypes for soybean rust, red leaf blotch, and frogeye leaf spot.

The resources are available on the Tropical Soybean Information Portal—<https://www.tropicalsoybean.com>. They are also accessible in the new (Version 2.0) [Field Guide to African Soybean Diseases, Pests & Nutrient Deficiencies](#) to help growers, agronomists, seed companies, researchers, and others to diagnose soybean abnormalities in the field.

Tricot approach: Cassava and potato trials show promising results in Rwanda

IITA and partners—the Rwanda Agriculture and Animal Resources Development Board (RAB), the International Potato Center (CIP), One Acre Fund (OAF), and the Alliance of Bioversity International and CIAT (the Alliance)—are implementing the triadic comparison of technology options (tricot) methodology to help farmers identify the most suitable crop varieties for the local conditions of their farm. This approach has been used since 2020 to identify novel varieties of potato and cassava preferred by farmers for release.



Consumer analysis for the tricot potato trials.

In November 2021, the tricot partners (IITA, RAB, CIP, OAF, and the Alliance) gathered in Rwanda to present and discuss the results from the two years of trials and plan potential next steps for trials and potential mainstreaming of tricot into RAB and OAF. Both RAB and OAF demonstrated interest in a stepped adoption of tricot as part of their variety selection activities.

OAF Agricultural Research Specialist Elyse Tuyishime commented, “We have been using the Randomized Complete Block Design (RCBD) approach in our field trials, which requires all participants to have the same varieties. Alternatively, the tricot approach uses an incomplete block design, allowing participants to use different varieties. Since working on this project, I have realized that this [tricot] approach is very efficient because a researcher does not conduct the trial; farmers lead the research by planting trials under their normal practices and conditions. Moreover, for the RCBD approach, a farmer is passive; therefore, the trials inform primarily a researcher, not a farmer.”

She noted that because farmers actively conduct the trials using the tricot approach, the results inform both the farmer and researcher. Further, the tricot approach is cheaper, as field visits are not necessary, and the approach also facilitates data sharing.”

Tricot trials in Rwanda

Tricot engages farmers as “farmer researchers” in testing or validating

new crop varieties and other promising technologies. Each participating farmer executes the mini-task of evaluating only three varieties, out of a range to be tested, in their fields under their actual farm conditions and usual agricultural practices. The methodology does not specify management practices, simply requesting farmers to treat the plots as they usually do their own.

The farmer ranks their preferred variety relative to a suite of traits (e.g., yield, disease resistance, taste, marketability). The methodology works on the premise of external validity to validate varieties.

During the project, RAB, OAF, IITA, CIP, and the Alliance researchers monitored the trials using digital tools. Data collected and recorded through phone-based data collection applications are analyzed in ClimMob (tricot’s analytics application). Farmers from Gicumbi, Nyabihu, and Nyamagabe participated in the potato trials and Bugesera, Kamonyi, Nyanza, and Ruhango, in the cassava trials.

The first season of cassava trials was recently harvested, with farmers and researchers measuring the cassava yield together, thus enabling yield comparisons across varieties and agroecological zones.

“From the yield that I am seeing right now, taking into consideration that these cassava varieties have only been in the ground for 11 months (our local cassava varieties normally mature from

12 to 15 months), these varieties are very promising. I think these varieties will increase cassava production in our area. I have already prepared land to plant these cuttings in the next agricultural season,” said Daniel Habimana, one of the participating farmers from Kigoma sector, Nyanza District, who evaluated the novel cassava varieties using the tricot approach.

The simplicity of tricot allows its use across value chains, not just by producers but also by processors and consumers. More than 100 consumers across Rwanda recently shared their preferences on potato varieties using the tricot approach. Participants were invited to rank their preferred potato varieties, identifying their favorite in terms of taste, appearance, and other characteristics. The initial results from this exercise highlighted that consumers’ preferences were notably different from producers. These results reinforce the need for a full value-chain analysis of varieties before recommending them for release.

The current phase of the project will conclude in Rwanda in December 2021. Despite this, the benefits of the tricot approach are evident by both RAB and OAF showing interest in gradually adopting it for their variety selection research. Following this, the Bill & Melinda Gates Foundation recently approved a pan-African project that will see these activities continue in Rwanda.



Farmers in Ruhango District, Rwanda observing cassava root yield from tricot trials.