

Professor Hussein Shimelis

“The work has only just begun”

“Agriculture guided by market preference is now the positive driving force for rural economic revival in Africa. Where once agriculture offered only subsistence and survival, now whole markets throughout Africa are depending upon market preferences.”

“In the past, farmers essentially grew the crops they were supplied with. Breeders were given specific tasks by government breeding programs working to a directive supply approach system. But it wasn’t working as effectively as it should have been.”



Hussein Shimelis, a crop scientist with a specialization in plant breeding and Deputy Director of the African Center for Crop Improvement (ACCI), is very aware of the need for changes in plant breeding throughout Africa.

He explains that in many African countries cultivar development is conducted in government breeding programs with limited stakeholder consultations. The proposed varieties are evaluated by government testing agencies, and the seeds of the approved varieties are multiplied and distributed to growers by government seed agencies and enterprises. There tended to be practically no consultation with others in the value chain, let alone with the final customer. Often, after long research and several plantings, the variety would be rejected.

“The priorities of the supply model tend to exclude market preferences in favour of government-directed operations. So there is plenty of push, but very little pull”. Says Shimelis, “It explains why adoption rates of modern cultivars by farmers have been perilously low - around 35% for new crop varieties. This just isn’t sustainable”

Real demand is created not by governments but by markets and those who compose them. This is why the incorporation of the value chain into plant breeding practice is critical. It’s like being in a restaurant: customer satisfaction is more often obtained by providing customers directly with what they have asked for. These basic principles need to be applied to plant breeding.

The inclusion of market influences represents a huge change in African plant breeding and in the dynamic of the agriculture value chain. In effect, the links of the chain are being reversed, flipped back from a command supply basis to the more natural flow of ideas and innovation being generated freely between customers, processors, retailers, farmers, seed companies and plant breeders.

Shimelis agrees that there are plant breeding gaps in Africa. But how big are they and where are they? Most of the more technically advanced agriculture and commercially driven breeding is located in Southern Africa, which benefits from its market-based and regulated

seed production system, but in Central, East and West Africa many breeding projects have created and distributed plant varieties not chosen by farmers and eschewed by customers.

The flagship plant breeding centres of the African Center for Crop Improvement (ACCI) and the West African Centre for Crop Improvement (WACCI) are addressing the lack of skills in African breeding with tailored educational programmes. ACCI graduates 8-10 plant breeders per year in a programme that began in 2002. There are already 89 PhD graduates at work in their countries - a new generation of plant breeders.

WACCI has been producing PhD graduates since 2007, with breeding programs based on the appropriate agro-ecologies of the countries concerned. Furthermore, successful plant breeding is about creating and maintaining a momentum, creating rising standards in education and new varieties, skills and technologies.

The approach is working, and the momentum is building. The challenge is that there needs to be successive generations of breeders producing new varieties. Graduates are no longer tempted away from the countries that need them most. But to maintain the momentum they need the support and the continuity that is vital in plant breeding. For hundreds, perhaps even thousands more plant breeders, are needed throughout Africa over the next generation.

The brain drain of the past has slowed and the educational model is changing as ownership becomes more African and tailored to African requirements. The training is different and the research starts (and finishes) in the appropriate countries. Shimelis says that ACCI is particularly concerned with producing breeders who will know how to create, improve and disseminate the right varieties in the right countries.

Shimelis played a major role in the demand-led training manual, and leading the work on the key unit on variety design and standards. The manual, says Shimelis, *"needs to be updated regularly to continue to be a vital tool in the long term"*. He elaborates, *"Launch of the manual represents the start of the work and not the end"*.

As with the manual so with the demand-led programme. The initiative needs commitment, imagination and passion to keep the momentum and continuity going, to deliver the objectives. The work has only just begun.