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Plotting a roadmap towards molecular breeding in the developing world

MONTPELLIER, FRANCE – A workshop was held in Montpellier, France on March 5–7 2009 to discuss the concept and design of a user-sensitive Molecular Breeding Platform (MBP) with the potential users (breeders); to share plans between users, developers potential service providers for breeding; and to obtain breeder insights and input on how to design this platform to best fit and meet their needs.

The idea of the MBP has been conceived by the Generation Challenge Programme (GCP) of the Consultative Group on International Agricultural Research (CGIAR) and partners. GCP's MBP will address this problem by providing a one-stop-shop with centralised and functional access to modern breeding technologies, data management and analysis tools, and valuable breeding material. Related information, as well as comprehensive tools and services, will be accessible through an Internet portal and helpdesk, which will in turn promote the building of breeding communities, particularly for developing countries, irrespective of their geographical location or institutional affiliation.

Niaba Teme, a sorghum breeder at the L'Institut d'économie rurale, Mali, plans to use molecular markers and marker-assisted selection to identify traits and expand the base of local germplasm. "This project will speed up my work," he remarks. "With conventional breeding and biparental breeding, I can observe the plant phenotype without however knowing its genetic makeup. But with molecular breeding, I can now start with the genetic makeup to identify the desired crop trait, and then conduct crosses for traits such as yield, grain quality, aluminium tolerance or rapid maturity. Plus, there is no risk of error of judgement. With observation, it is sometimes difficult to distinguish genetic and environmental influences. Molecular breeding can greatly enhance and accelerate conventional breeding."

Paul Kimurto of the Department of Crops and Soil Science, Egerton University, Kenya, concurs on the speed and efficiency of molecular breeding. He adds, "The services aspects of the platform are very attractive. Access to markers, germplasm and molecular analysis germplasm systems is a constraint for most breeding programmes. Therefore, standardised technology and specialised services through contracted labs, where all the administrative and logistic details as well as negotiations with suppliers are all taken care of would be a big step ahead. It is a brilliant concept whose time has come. But the service team must be top-notch and truly perform. A breeder's calendar is controlled by time and tide and they cannot afford to miss a cropping season."

Commenting on the goal of food security, Dr Vanessa Cook, a plant breeder and project leader at Monsanto says, “There is no single solution to achieve food security. It requires more tools and more people working together across the public and the private sector.”

No doubt, the scope of this project, its broad partnerships and its goals are ambitious, but not impossible. It is for this reason that Dr Cook observes, “There are some tough conversations ahead!”

- MBP Planning workshop [summary report](#)
- For more information on the Molecular Breeding Platform, please contact Dr Graham McLaren, the MBP coordinator (g.mclaren@cgiar.org).
- For more on the CGIAR Generation Challenge Programme, please visit our website www.generationcp.org