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GCP launches a public platform for plant molecular breeding in the developing world

TEXCOCO, MEXICO – The Generation Challenge Programme (GCP) of the Consultative Group on International Agricultural Research (CGIAR) is pleased to announce the launch of a new, five-year, multi-partner project to deploy a Molecular Breeding Platform (MBP). The MBP aims to pull together existing, disparate molecular breeding efforts and provide tools and technical support to enhance plant breeding efficiency in the developing world and beyond.

Molecular breeding – an advanced approach that employs molecular markers to select plants with desirable traits – is a more precise, rapid and cost-effective method of plant breeding, in comparison to its phenotypic counterpart. It has already proven to be of great benefit to the private sector, by improving the efficiency of the breeding process and by reducing the time taken to develop new varieties. However, plant breeders in the public sector and small private enterprises, particularly in developing countries, have had limited access to these tools and methods. This has slowed development of new cultivars and compromised effectiveness in attaining or maintaining food security. There are genes affecting important traits which are already tagged, as well as new technologies for rapid improvement of cultivars that could be effectively deployed in developing countries, if researchers there could have access to the technology. The MBP aims to ensure that the fruits of the investments made in developing these tools are also available to the developing world.

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.

Dr Paul Kimurto of Egerton University, Kenya, notes, “The services aspects of the platform are very attractive. Access to markers, germplasm and molecular analysis systems is a constraint for most breeding programmes. Therefore, standardised technology and specialised services through contracted laboratories, where all the

administrative and logistic details as well as negotiations with suppliers are taken care of, would be a big step ahead. It is a brilliant concept whose time has come.”

The platform will pilot 10 pre-existing projects on molecular-assisted breeding covering seven crops across 15 countries in sub-Saharan Africa and South Asia – Angola, Burkina Faso, Ethiopia, Kenya, Tanzania, Malawi, Mali, Mozambique, Senegal, Uganda, Zambia and Zimbabwe in Africa; and China, India and Thailand in Asia. However, the platform is intended to be an open facility, offering technologies and services to any institutions working in crop breeding to meet development goals. In selected cases, specialised support will be provided to research institutes to facilitate their use of molecular breeding.

Through continuous interactions between users, developers and service providers, it is anticipated that there will be a healthy balance of a user-driven platform tempered with a degree of ‘technology push’ to ensure that users are kept abreast of the latest methodologies to facilitate or advance their breeding work.

GCP’s Dr Graham McLaren, who will coordinate the platform, observes, “Great discoveries in molecular biology and information technology are having an important impact on plant breeding in large private companies because they can invest in infrastructure and capacity.” He adds, “This project will tap into the economies of scale afforded by collective access to make these technologies available to breeders at large, particularly in developing countries.”

“This project is uniquely positioned to promote research collaboration and increase the number of plant varieties available to small farmers in the developing world,” says David Bergvinson, senior program officer with the Agricultural Development initiative of the Bill & Melinda Gates Foundation. “Bringing together international research to improve farmers’ productivity will ultimately help small farmers lift themselves out of hunger and poverty.”

The MBP project team is comprised of well-respected public research groups from the CGIAR, universities and advanced research laboratories around the world. This seasoned team will be further fortified by the experience and contributions of researchers in the private sector, who have already provided advice and guidance. The broad consultation will help ensure efficiency in the project’s breeding activities and also avoid repeating the mistakes of previous research.

This project is funded by the Bill & Melinda Gates Foundation, with additional financial support from the UK Department for International Development and the European Commission.

- For more information on the Molecular Breeding Platform, please contact Dr Graham McLaren, the MBP Coordinator, at g.mclaren@cgiar.org
- For more on the CGIAR Generation Challenge Programme, please visit our website: www.generationcp.org