## Global demand for food will nearly double by 2050

According to the Food and Agriculture Organization (FAO) of the United Nations, new and traditional demand for agricultural produce will put growing pressure on already scarce agricultural resources, with the future of agriculture and food security ever more closely linked to climate change:

Food production will have to increase by **70 percent.**

Producing more food will largely depend on **increasing crop resilience,** *not farming more land.*

Fewer people will be living in rural areas and **still fewer will be farmers.**
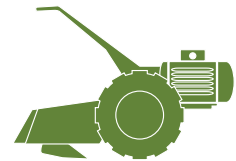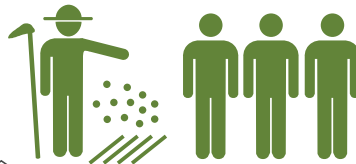
They will need **new technologies** *to grow more with fewer hands.*

Net investments of **US $83 billion** *a year must be made in agriculture in developing countries if there is to be enough food for* **9.1 billion people in 2050.** *(source: How to feed the World, FAO)*

Technological and scientific gaps hinder progress towards greater plant diversity and food security
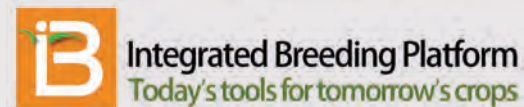
The public sector and small-scale breeding operations in general, and developing countries in particular, are struggling to keep up with the pace of the advances being made in the private sector. Limited human resources, access to germplasm, crop information and robust analytical and data management tools, as well as inadequate field infrastructure remain major challenges for integrated breeding in developing countries.

Modified from Neil Palmer/CIAT

Integrated Breeding Platform
Today's tools for tomorrow's crops

Register on the Integrated Breeding Platform today!
www.integratedbreeding.net

Hosted by CIMMYT, Int
Apdo Postal 6-641
06600, Mexico, DF, Mexico
Phone: +52 55 5804 2004
Fax: +52 55 5804 7558
General enquiries: ibp@cgiar.org

Facebook: /IntegratedBreedingPlatform

Twitter: @IBPlatform

Youtube: /IBPlatform

Podcast: www.podomatic.com/ibp

Farm families around the world need plant breeders to accelerate the creation and delivery of new crop varieties to address the increasing global demand for food.

Let's step up to the challenge

Integrated Breeding Platform
Today's tools for tomorrow's crops

Integrated plant breeding is the foundation for 21st century crop improvement

While phenotypic selection has delivered tremendous genetic gains in most crops, this approach can be greatly enhanced by the use of molecular markers, especially for complex traits easily affected by the environment, such as excessive drought or heat. Molecular breeding and conventional selection are in fact quite complementary under most breeding schemes and their integration maximises net value, making for an increasingly attractive economic perspective:

Impact of the submergence gene for rice in Asia: Marker-assisted back-crossing (MABC) is estimated to save at least two to three years, resulting in significant incremental benefits in the range of US $300-800 million (depending on the country, abiotic stress and lag for conventional breeding).

Developing cassava varieties resistant to cassava mosaic disease, green mite, whitefly and post-harvest physiological deterioration in Nigeria, Ghana and Uganda: Marker-assisted breeding is estimated to save at least four years in the breeding cycle for varieties resistant to the pests and to result in incremental net benefits over 25 years in the range of US $34-800 million (depending on the country, the particular constraint and various assumptions).

(source: Fostering molecular breeding in developing countries; Xavier Delannay, Graham McLaren, Jean-Marcel Ribaut).

The Integrated Breeding Platform (IBP) seeks to facilitate the use of state-of-the-art, modern breeding tools and management to increase agricultural productivity, especially in the developing world

The IBP is not a simple software or service provider. We are firmly committed to democratising the adoption of **today's tools for tomorrow's** crops by plant breeders across world regions and economies, anywhere from emerging national programmes to small and medium enterprises (SMEs). Indeed, we are convinced that breeders will be able to make the most of their breeding programmes by integrating better practices, such as electronic data capture and centralised data management.

The IBP provides essential resources to optimise your plant breeding programme:

Technology

The IBP's Breeding Management System (BMS) is a suite of interconnected software tools and applications specifically designed to help breeders manage their day-to-day activities:

- Prepare your trials and nurseries, manage seed inventories and keep continuous genealogy records season after season.
- Analyse your field and lab data with powerful statistics and mixed model comparisons of locations and genotypes.
- Select germplasm and design crosses by complementing phenotypic selection with marker technology, for integrated breeding decisions.

Breeding services

Tap into a vast network of partners and providers to access quality breeding services at concessionary rates, including:

- Genotyping services at renowned laboratories.
- Trait and metabolite, drought phenotyping and other phenotyping services.
- Location analysis and climate resources online.

Products and resources

Find knowledge and specialised information in our online library:

- Crop databases (phenotypic and genotypic) and query tools that can be linked to other specialised data sources, with standardised trait dictionaries for nine crops.
- Catalogue of diagnosis markers validated for target traits, germplasm and other genetic resources.
- A complete repertoire of publications of prominent scientists, researchers and breeders from around the world.

Communities & support

We believe that the dissemination of best practices in plant breeding is facilitated by bringing the right people together at the right time:

- Educational material and a listing of educational activities are put at your disposition to enrich your professional development.
- Our team remains available for initial deployment assistance and continued technical support to help you take on the Breeding Management System.
- Enlist in one of our online communities and connect with your peers – mainly crop researchers and breeders – to find assistance and share experiences.

Get local support

Institutions or programmes hosting Regional Hubs are privileged partners of the IBP who are working together as part of dynamic regional networks. They provide support in the use of modern BMS software tools and services, mainly through capacity building, technical support and crop-specific expertise. Their role is to champion IBP tools and services in their region and to facilitate adoption by new users, having themselves integrated its methods into their day-to-day activities. Hubs also play a key role in interacting directly with local users to inform the development of new BMS functionality and usability features consistent with their expressed needs.

Europe
China
India
North America
Senegal
Nigeria
Benin
Kenya
Philippines
Thailand
MEXICO
Colombia
Zimbabwe
Brazil
South Africa

B IBP Central Team
H Hubs
H Hubs (coming soon)

Hub services:
- BMS deployment assistance
- Continued technical support

- Training material and activities
- Regional consolidation and networking
- Crop-specific expertise