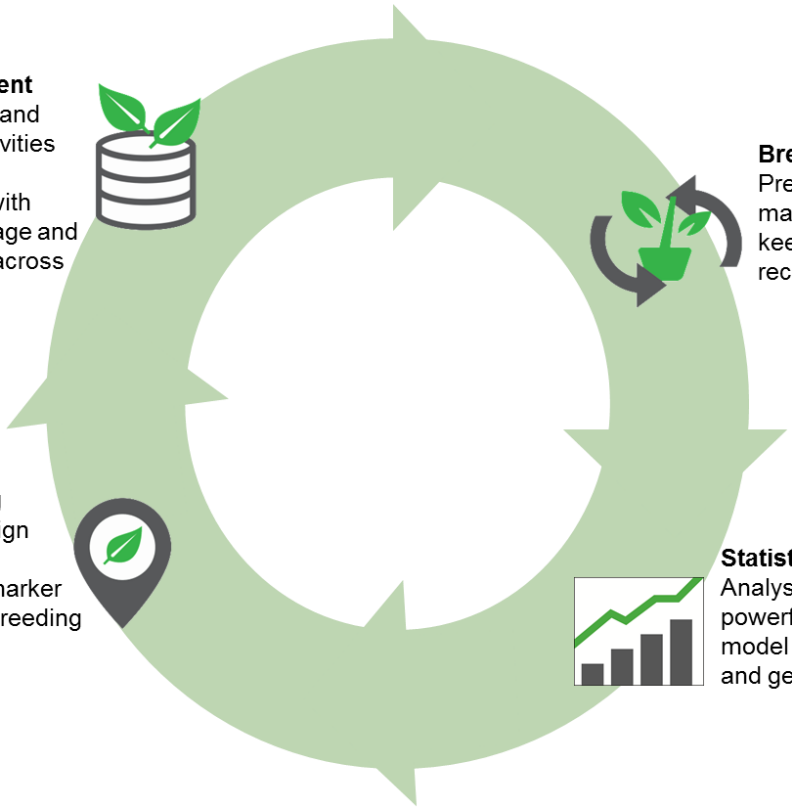
Breeding Management System (BMS Pro)

Fact Sheet

From the Integrated Breeding Platform suite of tools and services

The Breeding Management System (BMS Pro) is a comprehensive suite of mutually compatible software applications that work together to help breeders and researchers manage their projects and collect, store and analyse their research data, in order to facilitate more economic and accelerated cultivar development. These tools accommodate common breeding schemes, from conventional breeding through increasing levels of marker use, and are available as standalone applications or as a single consolidated system for greater breeding efficiency:

Programme management
Customise preferences and monitor programme activities from the Workbench, a dashboard application with integrated tools to manage and query crop information across the system



Breeding activities
Prepare trials and nurseries, manage seed inventories and keep continuous genealogy records season after season

Marker-assisted breeding
Select germplasm and design crosses by complementing phenotypic selection with marker technology, for integrated breeding decisions

Statistical analysis
Analyse field and lab data with powerful statistics and mixed model comparisons of locations and genotypes

System requirements

Minimum set-up:

- Windows 10 or Linux Ubuntu OS
- 8-16GB of Ram
- General purpose SSD
- Firefox 20+ (recommended) or Google Chrome 27+

Optimal:

- 16GB of Ram
- 4 cores
- SSD, High (I/O)

Support services and resources

IBP experts support clients at every step of the implementation process to facilitate adoption:

→ Collaborative needs assessment, customisation and implementation planning

→ Installation, data migration and continuing technical support

→ Training activities and material

→ Professional support for breeding plan development, data analysis, genotyping and breeding decision support

→ Access to other useful products online: interactive maps, diagnostic markers and germplasm, trait dictionaries and genotyping service providers

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Breeding Management System (BMS Pro)

Key components

Programme and information management

- Workbench: a dashboard view to get a complete picture of your projects and access all system tools.
- Study browser, breeder queries, ontology manager, germplasm and data import modules: tools for overall information management, data searches and quality control throughout the system.

Breeding activities—Interconnected fieldbook applications to:

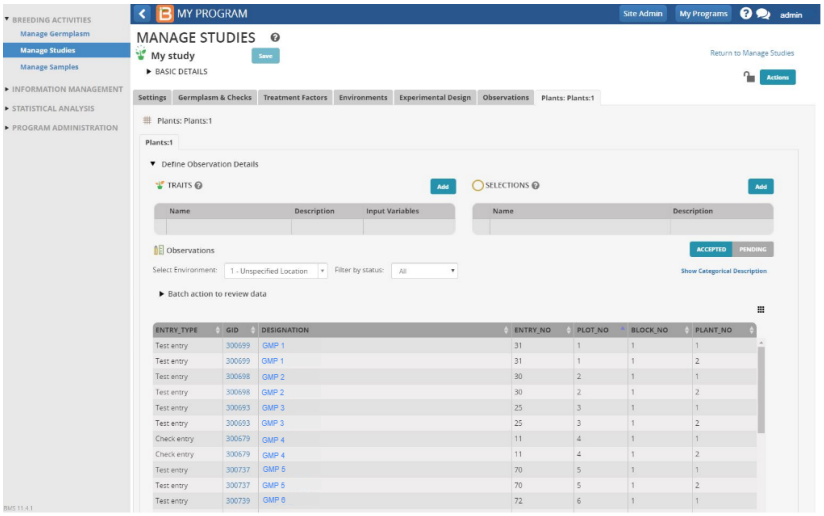
- design and manage germplasm lists, crosses, nurseries, and trials;
- manage seed storage, distribution, planting and harvesting;
- develop field maps, labels and barcodes to assist planting.

Statistical analysis

- Breeding View: select from various analytical workflows to analyse multiple phenotypic datasets in one run: single-site analysis; multi-site analysis; multi-year multi-site analysis. It can also be used as a standalone tool for QTL analysis.

Marker-assisted breeding

- Breeding Planner: to identify the most suitable breeding strategy for specific breeding objectives.
- GDMS: a genotyping data management module to support use of molecular markers and genetic diversity.
- OptiMAS: a decision tool to support selection of genotypes to be crossed or advanced.
- ISMU: an Integrated SNP Mining and Utilization Pipeline for next generation sequencing data.
- MBDT: a Molecular Breeding Design Tool to introgress known QTLs across generations.



Quick View of the Study Manager

> "It used to take me up to 3 months before I could analyse the data I had collected in the field. Now that I am collecting it electronically on a tablet, and able to transfer it directly into the BMS without formatting, I have cut this waiting time down to two hours."
>
> – Cyril Diatta, Sorghum breeder and research assistant, Institut Sénégalais de recherches agricoles (ISRA)

Please visit the IBP website for the latest information about functionality and version release: www.integratedbreeding.net

Feedback and enquiries:

About the product:
deployement@integratedbreeding.net

About tutorials and support material:
learning@integratedbreeding.net

About the IBP and other services:
pr@integratedbreeding.net

Technical support:

www.ibplatform.atlassian.net/servicedesk

Integrated Breeding Platform (IBP)

Plant breeders are at the forefront of the next food revolution, particularly in developing countries. The Integrated Breeding Platform (IBP) provides the tools and knowledge they need to rise to a new level of breeding innovation. It offers a suite of integrated software solutions; breeding services such as genotyping; and breeding materials for a broad range of crops, including germplasm, trait dictionaries and trait-linked markers. The IBP empowers plant breeders through training, dedicated support and community spaces, making it the most comprehensive source for best practices in plant breeding. www.integratedbreeding.net

Breeding Management System (BMS)

The IBP's Breeding Management System (BMS) is a comprehensive and easy-to-use software suite designed to help breeders conduct their routine activities with more efficiency, so that they may develop improved cultivars faster and at lower cost. It combines information management, data analysis and decision-support tools that accommodate common breeding schemes, from conventional breeding through increasing levels of marker use, providing all the tools they need in just one place. www.bmspro.io