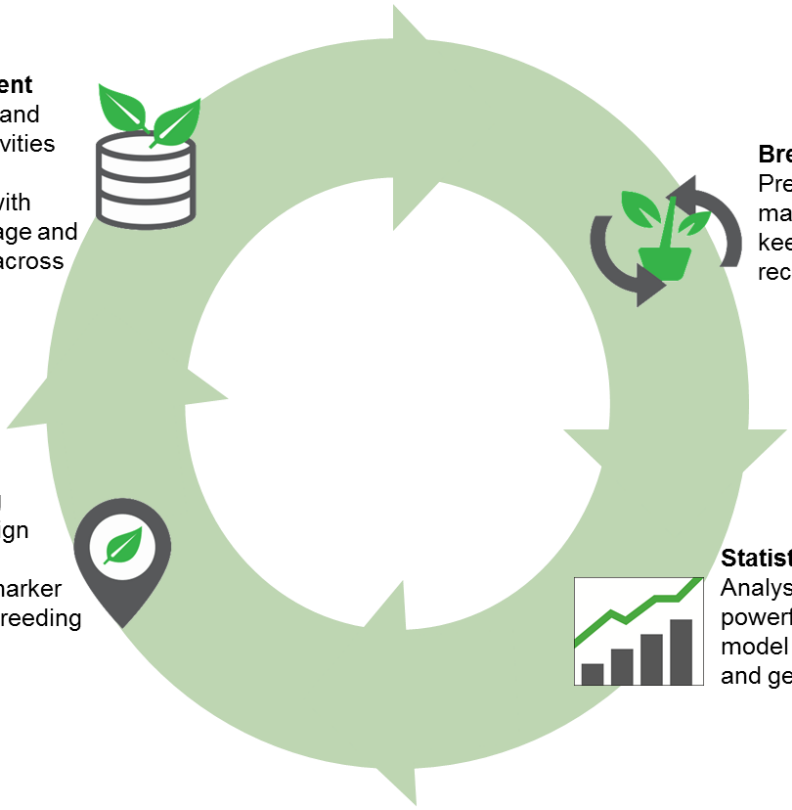
Breeding Management System (BMS)

Fact Sheet

From the Integrated Breeding Platform suite of tools and services

The Breeding Management System (BMS) 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

The BMS is compatible with MS Windows

Hardware
4GB RAM
1Ghz Dual-core Processor
250GB Hard Drive

Software
Windows XP SP3 or newer
Browsers Supported: IE v. 9, 10, 11; Chrome (latest), Firefox (latest)

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

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

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Breeding Management System (BMS)

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:

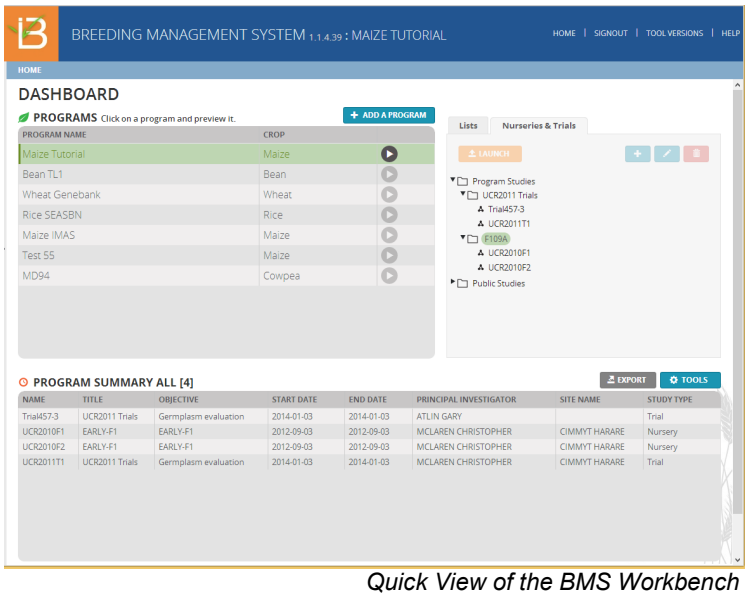
- design and manage germplasm lists, crosses, nurseries, and trials;
- manage seed storage, distribution, planting and harvesting;
- develop field maps, labels and barcodes to assist planting.

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 BMS Workbench

> The new BMS upgrade is great; it will all have a great impact on our work. Personally, I have gained a new understanding of modern breeding... This knowledge and these tools should be integrated across national programmes. It will simplify our job and day-to-day work. – Abraham Attah Shaibu, PhD Student and Rice Breeder, National Cereals Research Institute Badeggi, Nigeria

Integrated Breeding Platform (IBP)

The Integrated Breeding Platform (IBP) improves the capacity of plant breeders for innovation, primarily in developing countries, by providing them complete software solutions, breeding services, genetic materials and related crop information, making it the most comprehensive source for best practices in plant breeding. IBP professionals are also available to provide training and technical support.

Breeding Management System (BMS)

The IBP Breeding Management System (BMS) is a complete software suite designed to boost plant breeding efficiency. It combines crop information management, data analysis and decision-support tools to conduct most routine breeding activities, including the integration of different levels of marker use.

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