

# BMS Pro

## Custom-built software for plant breeders

## Fact Sheet

Products and services of the  
Integrated Breeding Platform

The Breeding Management System (BMS Pro) is a comprehensive and easy-to-use software designed specifically with breeders in mind, to help them 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. BMS Pro is optimized for Server use (LAN or cloud), to facilitate collaboration within multi-user networks and teams.

### Why use an integrated breeding suite?

The BMS aggregates all the tools a breeder needs to conduct their day-to-day operations, making more efficient use of their time to reap the benefits of enhanced data management such as better decision-making. It allows breeder to better process the increasing amount of data produced every crop season, and speed the selection process in a shorter turnaround time between generations.

### Accessing BMS Pro

BMS Pro is available for crop breeding programs looking to deploy a collaborative solution across their institute, or between partner organizations. Installed on a local area network (LAN) or a cloud server, it allows multi-user teams and networks to centralize, standardize, control and exchange data around shared breeding objectives, on the basis of a solid permissions & restrictions scheme. The BMS Pro package comes with technical assistance from the IBP team for installation. Interested institutions should contact our deployment team to enquire about the feasibility and procedure for installation at: [deployment@integratedbreeding.net](mailto:deployment@integratedbreeding.net).

### A commitment to the developing world

The IBP is much more than a software provider. We are firmly committed in democratizing and facilitating the adoption of **today's tools for tomorrow's crops** by plant breeders across world regions and economies.

To that end, BMS Pro was conceived to expose breeders of all backgrounds to the latest technologies for quality data management, and allow them to introduce modern practices into their routine activities. All our revenues and funds are reinvested in the continued development and maintenance of the product, and in training activities and free licences for users in the developing world. Public and academic institutions in developing countries are welcome to contact us to explore ways of financing BMS Pro deployment within the framework of their projects.

### Benefits

#### All in one:

- Study Manager: manage germplasm, nurseries and trials
- FieldBook: create and print field maps, labels and barcodes
- Seed Inventory
- Integrated statistical analysis and experimental design
- Genotyping Data Manager (Beta)

#### A unique user experience:

- Control multi-user permissions and restrictions
- Configure and manage your breeding program(s)
- Specify favorite locations and breeding methods
- Customize your crop ontologies and trait dictionaries
- Conveniently import, export and back-up data
- Generate reports and queries
- Easily track the advancement of activities

#### Extended benefits:

- Facilitate electronic data capture
- Connect to other applications through the Breeding API (BrAPI)
- Community licensing available for Educators, and institutions in developing countries
- Strong user support, documentation, help desk and support package
- Free complementary resources online for users registered on the IBP website

*Design, randomization, pedigree selection, planning, data capture and analysis... the system has an application to support me at all steps of the plant breeding process." — Ibrahima Sissoko, Senior Scientific Officer, ICRISAT Mali*

## System Requirements

The BMS is compatible with Microsoft Windows. You will need these minimal specifications – a fairly standard configuration – to run it:

Minimum requirements	Optimal set-up	Supported browsers
<ul style="list-style-type: none"> <li>64-bit Windows 10 (desktop)</li> <li>8-16GB of Ram</li> <li>2.4 Mhz dual core processor</li> <li>General purpose SSD</li> </ul>	<ul style="list-style-type: none"> <li>Windows Server Machine</li> <li>16GB of Ram</li> <li>4 cores</li> <li>High (I/O)</li> </ul>	<ul style="list-style-type: none"> <li>General purpose SSD</li> <li>500G of storage</li> </ul>
		<ul style="list-style-type: none"> <li>Firefox 20+ (recommended)</li> <li>Google Chrome 27+</li> </ul>

*\*in some cases IBP will be able to provide a cloud installation on its Amazon or Alyun servers. Contact the deployment team for enquiries.*

## Key Features

### Architecture

- Robust web-based system
- Single database
- Multi-user concurrency support ensures integrity and privacy of data in a multi-user environment
- Transaction processing allows process rollback and data integrity
- Application Programming Interface (API) to plug with external tools

### Site Administration and User Management

- User authentication and role management to set access permissions and restrictions
  - Study owners can lock their studies and prevent data from being modified
  - Logo customization on institutional login page and dashboard
  - Help widget to connect directly with IBP support channels for contextual assistance
  - View all the programs that you have created, or have been assigned to as a collaborator, from the landing page.
- Administrators will see the complete view of all available programs.

### Managing germplasm

- Germplasm import template allows for import of inventory, attributes, and alternative names
- Stock codes to help users track and label inventory
- Ability to code and manage groupings of fixed lines
- Ability to import inventory details for stock lists created from advancement processes

### Managing Studies

- Import crossing diary to record opportunistic crosses in the field or greenhouse
- Flexible support for all trial designs by allowing the import of externally generated designs
- Embedded seed inventory management
- Compatibility with data capture applications: DIB data collector, KSU Field Book
- Validation of out-of-bounds measurement data
- Sub observations: subdivide plots into quadrants, plants, time or any sublevel, and take measurements for these new datasets

### Ontology Management

- Ontology data model with easy search and selection of traits, and addition of new traits and valid values

### Breeding View

- Ability to analyse augmented and p-rep designs
- Ability to analyse line by tester designs
- Single and multi-site analyses

### Genotyping

- Record genotyping samples taken from plants.
- Support for SNP marker datasets upload and retrieval
- Integration of molecular markers in the selection

Please visit the IBP website for the latest information about functionality and version release: [www.integratedbreeding.net](http://www.integratedbreeding.net)

### Feedback and enquiries:

About the product:

[deployment@integratedbreeding.net](mailto:deployment@integratedbreeding.net)

About tutorials and support material:

[learning@integratedbreeding.net](mailto:learning@integratedbreeding.net)

About the IBP and other services:

[pr@integratedbreeding.net](mailto:pr@integratedbreeding.net)

### Technical support:

[www.ibplatform.atlassian.net/servicedesk](http://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.

### 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. Download the Desktop Edition from the IBP website: [www.integratedbreeding.net](http://www.integratedbreeding.net)