



Integrated Breeding Platform (IBP)

Your partner for enhanced breeding

General Overview



About us

Our mission is to **accelerate the delivery of new crop varieties** in the context of an increasing demand for food, and unprecedented environmental challenges, on the basis of a **demand-driven** crop variety approach.

We are more than a simple software provider. **We are a partner** ready to lend **expert assistance** to have you rise to a **new level of breeding innovation**.

We have an **educational mandate**, working in close collaboration with universities, and building internal capacity at partner Institutions, for the **sustainable adoption** of modern breeding approaches.



About us

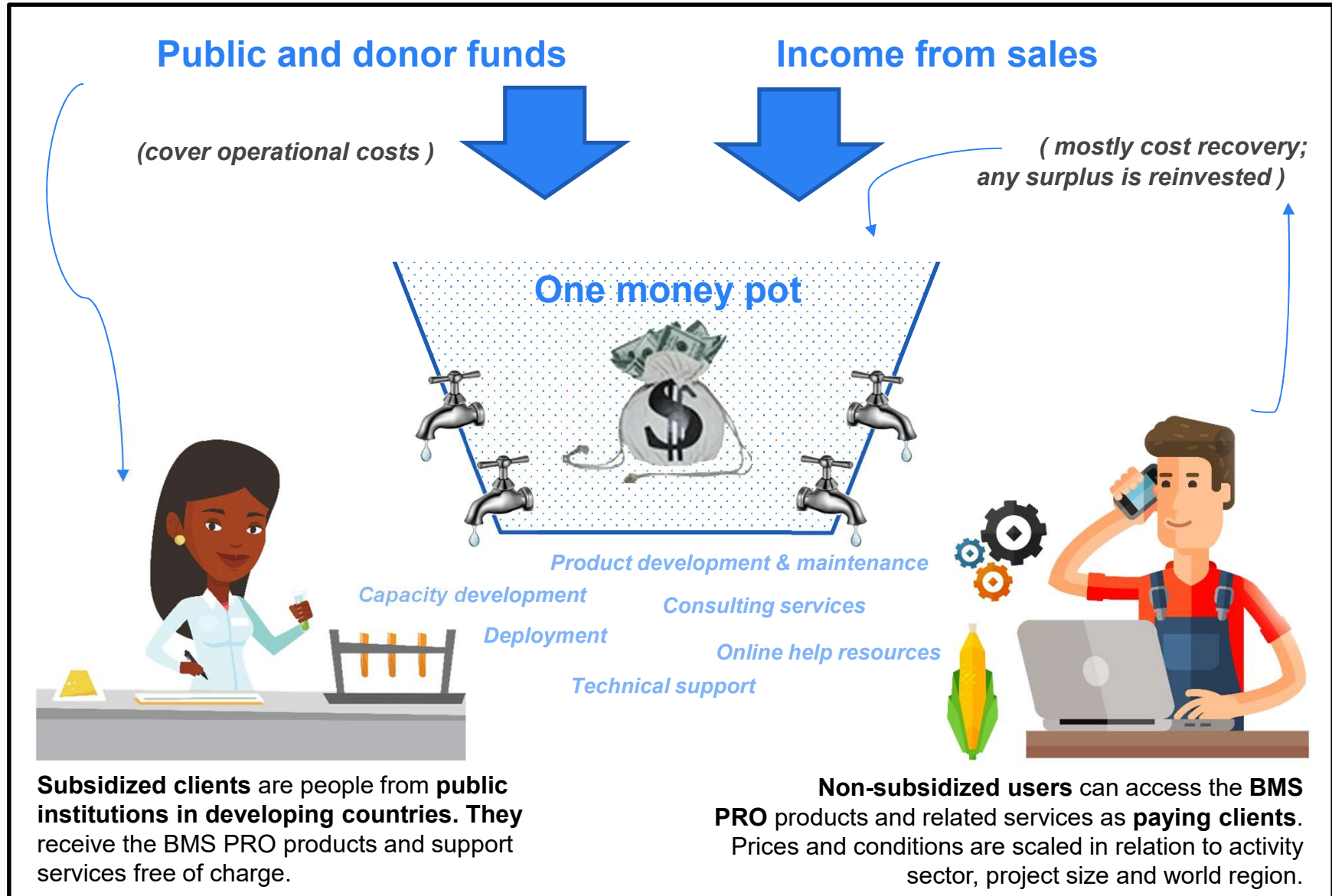
The IBP is a **not-for-profit** entity, with a dual funding model (public and donor funds, and income from paying users) to support implementation at no cost for the partners we subsidize in Africa.

We offer growing organizations their first car, driving lessons, and some insurance coverage to palliate their first crashes



"MR. SMITH, CARS USED TO HAVE STEERING WHEELS, RIGHT?!"

A dual funding model



A dual funding model

Income derived from sales is reinvested in:

- providing the appropriate service level at client sites for successful implementation
- ongoing product development and maintenance
- deployment and support at breeding institutions in developing countries

Our paying users are an essential part of the equation:

- they take part in the larger mission of closing the gap to improve breeding capacity around the world
- they usually spearhead the adoption of better technologies and practices, pulling up other sectors in their wake
- they help us ensure sustainability for our products and activities

Sales complement public funding to:

- ensure the products can be improved and sustained over time
- give access to the same level of technology and services to all our users across the world
- contribute to the education of the next generation of breeders
- fully join in the global effort towards food security



Partnerships at the heart of our success

- **A bigger reach with IBP Regional Hubs**
- **Ensuring more reliability with our private partners**
 - Leafnode: software development; code maintenance; data management
 - VSNi: sales team; promotion, awareness campaigns
 - DataLive: a consortium for product and market development in Asia
- **Linking to other plant breeding systems and initiatives (BrAPI GOBII, CassavaBase, etc.)**
- **Networking with service partners**
 - Genotyping laboratories
 - Phenotyping
 - Location analysis and climate maps
 - Breeding informatics
- **Bringing breeders together through Communities of Practice**

Enabling breeders

- **Access to IBP products, primarily in **Sub-Saharan Africa and South and South-East Asia**, will enable breeders to modernize their breeding programs:**
 - more effective and efficient selection, saving them time and money;
 - improved data management by moving into the digital era;
 - the adoption of best practices and quality certifications;
 - access to service providers (e.g. genotyping laboratories), reducing the need for in-house investment.



Enabling breeders (cont'd)

- **... to play an impactful role in Research for Development (R4D):**
 - showcasing local competence to secure international funds;
 - defining market-driven breeding priorities as central decision makers;
 - accessing international networks and sources of expertise;
 - providing their own expertise and support in disseminating knowledge to partners.

“

We cannot wait 10 to 15 years to deliver varieties anymore! Both disciplines of breeding and bio-technology need to go hand in hand if we want a faster generation of high-powered material. The IBP allows us to federate all our efforts nationally and across the West African sub-region, and thus shorten delays, have more efficient breeding processes and avoid losing money researching things that already exist. We want to see new varieties come out of our laboratories in shorter times, so that African producers may multiply their outputs, and work toward productivities that will let us feed Africa.”



Dr Alioune Fall, General Director,
Senegalese Institute of Agricultural Research (ISRA)



Key drivers:



- **Data Management**

***80% of a scientist's effort** is spent discovering, acquiring, documenting, transforming, and integrating data, whereas only 20% of the effort is devoted to more intellectually stimulating pursuits such as analysis, visualization, and making new discoveries.*

*The business **cost of poor quality data** may be as high as **15-25% of an organization's revenue**, and as much as 50% of the typical IT budget may be spent in "information scrap and rework".*

- **Better data quality and cost reduction at the source, thanks to better performing tools and processes, will boost breeding programs' efficiency in their capacity to deliver more crop varieties to farmers locally.**

Key drivers:



- **Networks and local services**

*An astounding **66% of information system projects fail**, are cancelled or a challenged due to failure of most IS/IT interventions to effectively integrate employee adoption issues.*

*When leaders ensure that frontline staff members feel a sense of ownership, the results show a **70% success rate for transformations**. Furthermore, 60% of the extremely successful change initiatives focus mostly on **changing mind-sets**.*

- **Developing technology is the easy part... we have to find efficient and scalable ways to make sure that would-be users are supported in taking it up. Engaging employees by focusing on their mind-sets and behavior is the primary success factor for growth and widespread adoption of new platforms.**

Key drivers:



- **Molecular breeding**

*MABC is estimated to **have saved at least 2-3 years** in the development of the submergence gene for rice in Asia, resulting in significant incremental benefits in the range of **USD 300 to 800 million**.*

*In Nigeria, Ghana and Uganda, marker-assisted breeding is estimated to **have saved at least 4 years** in the breeding cycle for cassava varieties resistant to pests, which will result in incremental net benefits over 25 years in the range of **USD 34 to 800 million***

- **Phenotypic selection can be greatly enhanced by the use of markers, especially for complex traits easily affected by the environment. Their integration maximizes net value, making for an increasingly attractive economic proposition.**

Products & Services



Our core offer

www.integratedbreeding.net

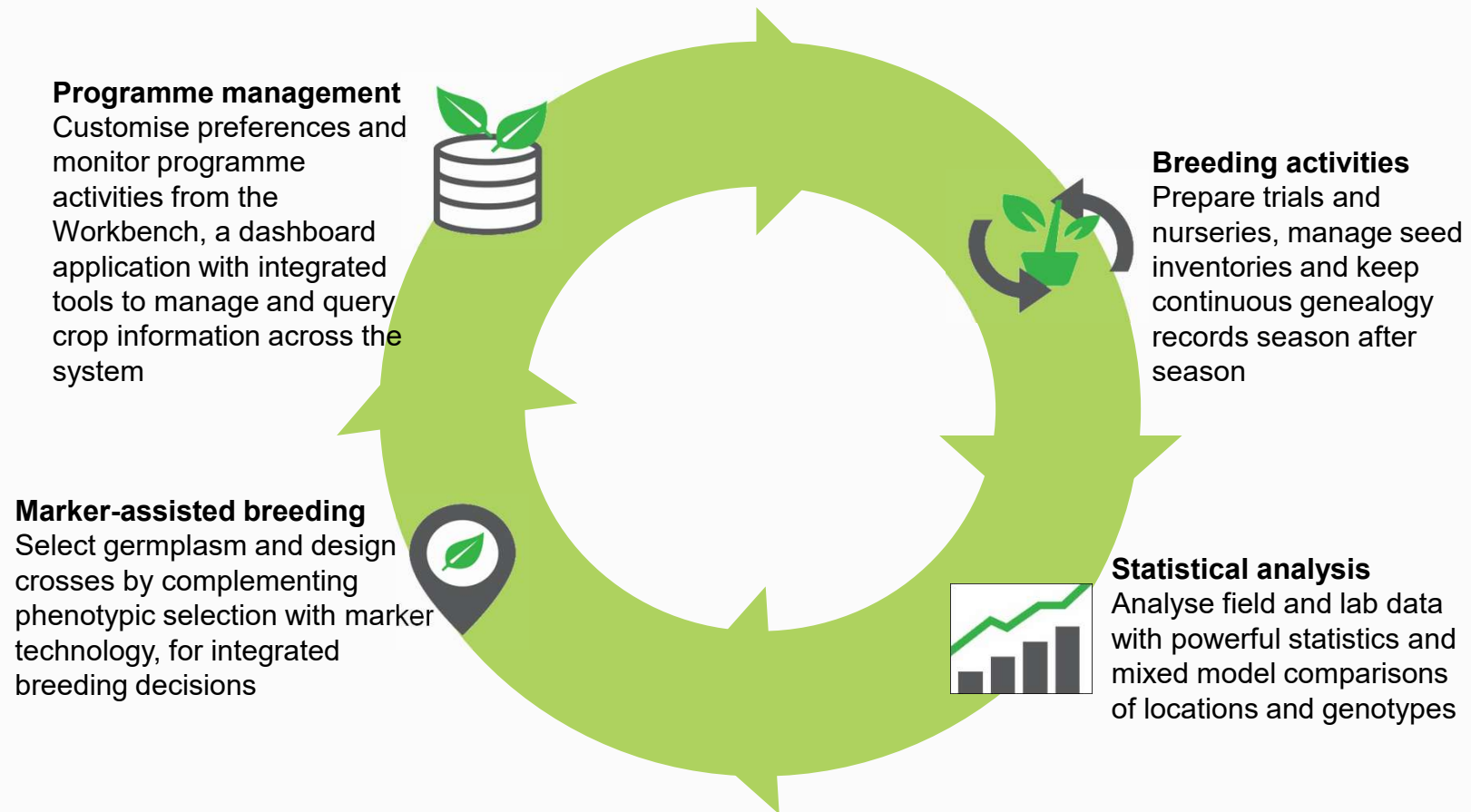
- **SOFTWARE:** a suite of integrated applications – the Breeding Management System (BMS) – partner plugins, and a directory of third-party solutions
- **SUPPORT:** breeding and technical support, social networks and community spaces
- **SERVICES:** a network of service providers for genotyping, phenotyping, location analysis, climate maps and more
- **PRODUCTS:** breeding materials and related information for a broad range of crops, including germplasm, trait dictionaries and predictive markers
- **KNOWLEDGE:** training courses & workshops
e-modules, technical documentation
and tutorials, and online resources



Credit (photo in tablet): N.Palmer/CIAT

Breeding Management System (BMS)

A suite of interconnected software applications specifically designed to help breeders manage their day-to-day activities:



“It used to take me up to three months before I could analyse the data I had collected in the field. Thanks to electronic data capture, I can now proceed with my analysis on the same day .

— Cyril Diatta, sorghum breeder and research assistant, ISRA, Senegal



BMS as a support tool for education

- **Specific BMS training version**

- Installation on a local or web server
- Concomitant use by multiple users
- Backup and restore
- Training data sets

- **Implementation of academic learning**

- Tutorials and practical exercises available
- Test and compare different breeding approaches
- Simulate breeding programme activities
- BMS course can be part of the student accreditation

- **Added value to students an Universities:**

- Exposure to modern and comprehensive analytical pipeline
- Facilitate integration into private companies
- Same installation can include a production version for **student practical work** and/or **teacher breeding activities**.

“Training will prove very useful for young breeders to help them go digital in starting up their breeding programs. IBP tools makes the breeding process a shorter one. It helps us become all-round breeders and more efficient in bringing products to end-users, i.e. families and farmers.

— Lilian Njeri Gichuru,
maize breeder, Kenya
Agricultural Research
Institute



Professional services



■ Installation & technical support

- BMS installation and configuration
- Quality assurance (testing)
- Data migration
- Ontology setup and updates
- Training on the BMS usage (users, system administrators, data managers)
- Support & maintenance package

■ Specialized:

- Functional requests: evaluated on a case-by-case basis and in function of our development cycles.
- Professional courses: includes courses on breeding, molecular breeding, data management, advanced statistical techniques; phenotyping and experimental station management.
- Consultancy & mentorship: for added expertise on agronomy, phenotyping, molecular breeding or breeding methods.
- Associated peripherals: hand-held devices, bar code readers, weighing scales, printers and other associated equipment for modernized plant breeding programs.

Genotyping

- **A fruitful partnership with LGC**
 - Over 33 million data points generated for our partners
 - Preferential rates for IBP members
 - 2 dedicated LGC project managers to manage IBP work orders.
 - Expedited timelines can be arranged for individual projects
- **All accessible through the IBP website:**
 - Estimating a project with the Cost Calculator
 - Getting a quotation and/or submit a work order
 - Requesting a plant collection kit – free of charge with the purchase of LGC services.
 - Accessing 1000-2000 KASP™ validated SNP markers for 11 key crops



Breeding products

- **Compilation of products derived from tangible outputs of research: germplasm, markers, genomics resources and informatics**
 - Crop information & genomics
 - research results directly applicable to plant breeding, and high-quality germplasm and evaluation data
 - Trait-linked markers & germplasm resources
 - Public & validated for traits such as drought, pest, disease, etc. for over 10 crops, and directly available to use in your breeding program





“What we’re seeing is a paradigm shift. Now, the developing-country programmes have the boldness and capacity to do molecular breeding and accurate phenotyping for themselves. We built an image for ourselves in Nigeria and in Africa (...) and other global actors, on seeing our ability to deliver results, are now choosing to invest in us.” — Chiedozie Egesi, molecular plant breeder, National Root Crops Research Institute (NRCRI), Nigeria



Online resources

Helpdesk

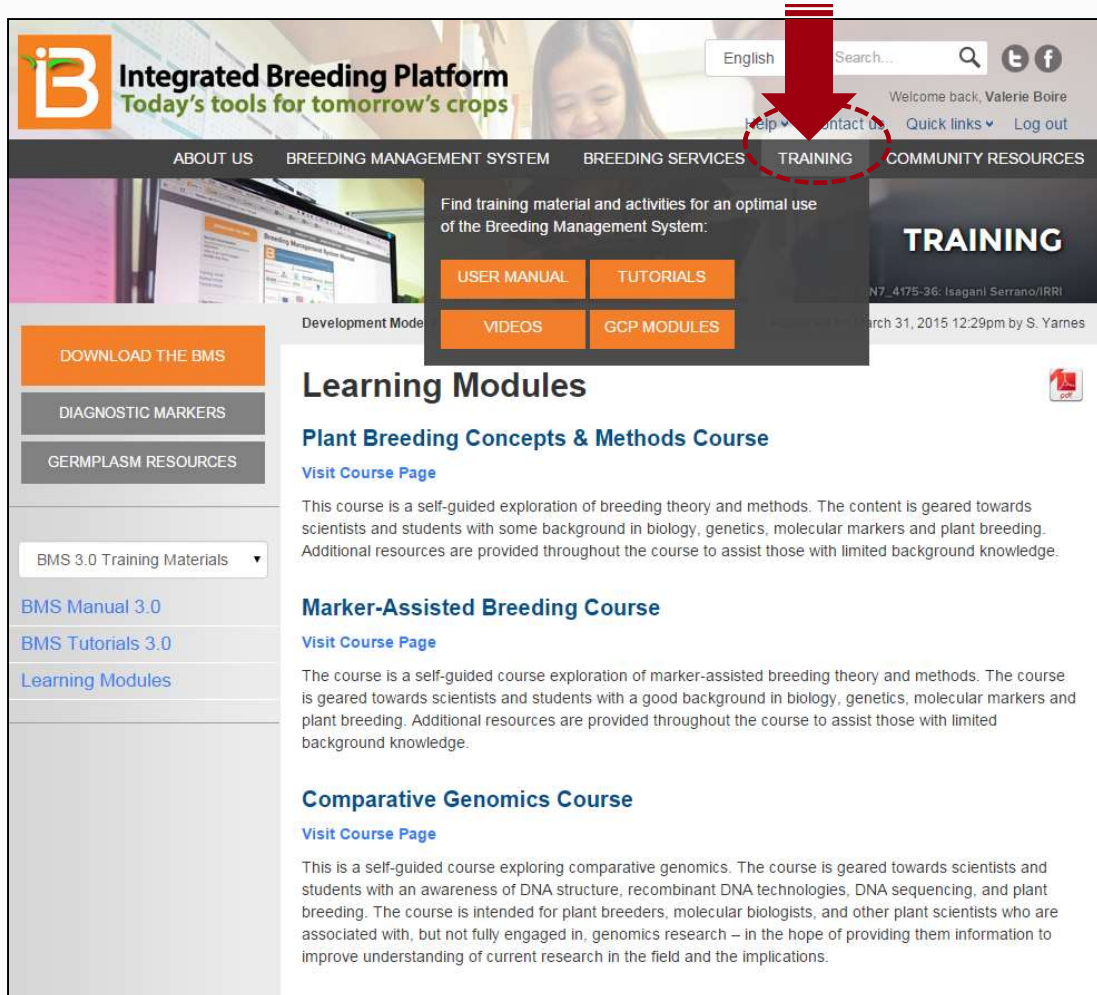
The screenshot shows the 'IBP Support Integrated Breeding Platform' helpdesk. It features a search bar at the top with the text 'What do you need help with?'. Below the search bar, there are several categories of support: 'BMS Support' (with a sub-link for 'Feedback & Other enquiries'), 'Download and Installation', 'Report a Bug', 'Breeding Functionalities', 'Data Management', 'Manuals, Tutorials & Capacity Development', 'Technical Documentation', and 'Suggest Improvements'. Each category has a brief description of the support provided.

The screenshot shows the 'IBP Support Knowledge Base' interface. It features a search bar at the top with the text 'Browse our knowledge base to find answers to known issues:'. Below the search bar, there are several sections: 'Frequently asked questions', 'Online resources', 'Need more help?', and 'Browse by topic'. The 'Browse by topic' section is a grid of links organized by letter (A, B, C, D-F, G-H). The 'Recently updated articles' section lists several articles with their titles, dates, and authors.

A	B	C	D-F	G-H
admin	backup	cannot	data	germplasm
amazon	barcodes	centos7	database	github
amazonwebservices	block	checks	datapm	gms
android	blog	communities	delete	groovy
antivirus	blogpost	configuration	design	historical
automatic	bms	connection	dmz	how-to
	bms5	convention	download	hybrid
	bms6	create	error	
		crop	file-list	
		crossing	firewall	
		customization		
		criteria		

Online resources

Documentation & tutorials



The screenshot displays the Integrated Breeding Platform (iB) website. The header features the iB logo and the tagline "Today's tools for tomorrow's crops". A red arrow points to the "TRAINING" link in the navigation menu. The main content area is titled "TRAINING" and includes a sub-header "Find training material and activities for an optimal use of the Breeding Management System:". Below this, there are four orange buttons: "USER MANUAL", "TUTORIALS", "VIDEOS", and "GCP MODULES". The left sidebar contains links for "DOWNLOAD THE BMS", "DIAGNOSTIC MARKERS", "GERMPLASM RESOURCES", and a dropdown menu for "BMS 3.0 Training Materials". The main content area lists three learning modules: "Plant Breeding Concepts & Methods Course", "Marker-Assisted Breeding Course", and "Comparative Genomics Course", each with a "Visit Course Page" link and a brief description.

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

English Search... Welcome back, Valerie Boire
Help Contact us Quick links Log out

ABOUT US BREEDING MANAGEMENT SYSTEM BREEDING SERVICES **TRAINING** COMMUNITY RESOURCES

Find training material and activities for an optimal use of the Breeding Management System:

USER MANUAL TUTORIALS
VIDEOS GCP MODULES

Development Mode

TRAINING

Download the BMS
Diagnostic Markers
Germplasm Resources

BMS 3.0 Training Materials

BMS Manual 3.0
BMS Tutorials 3.0
Learning Modules

Learning Modules

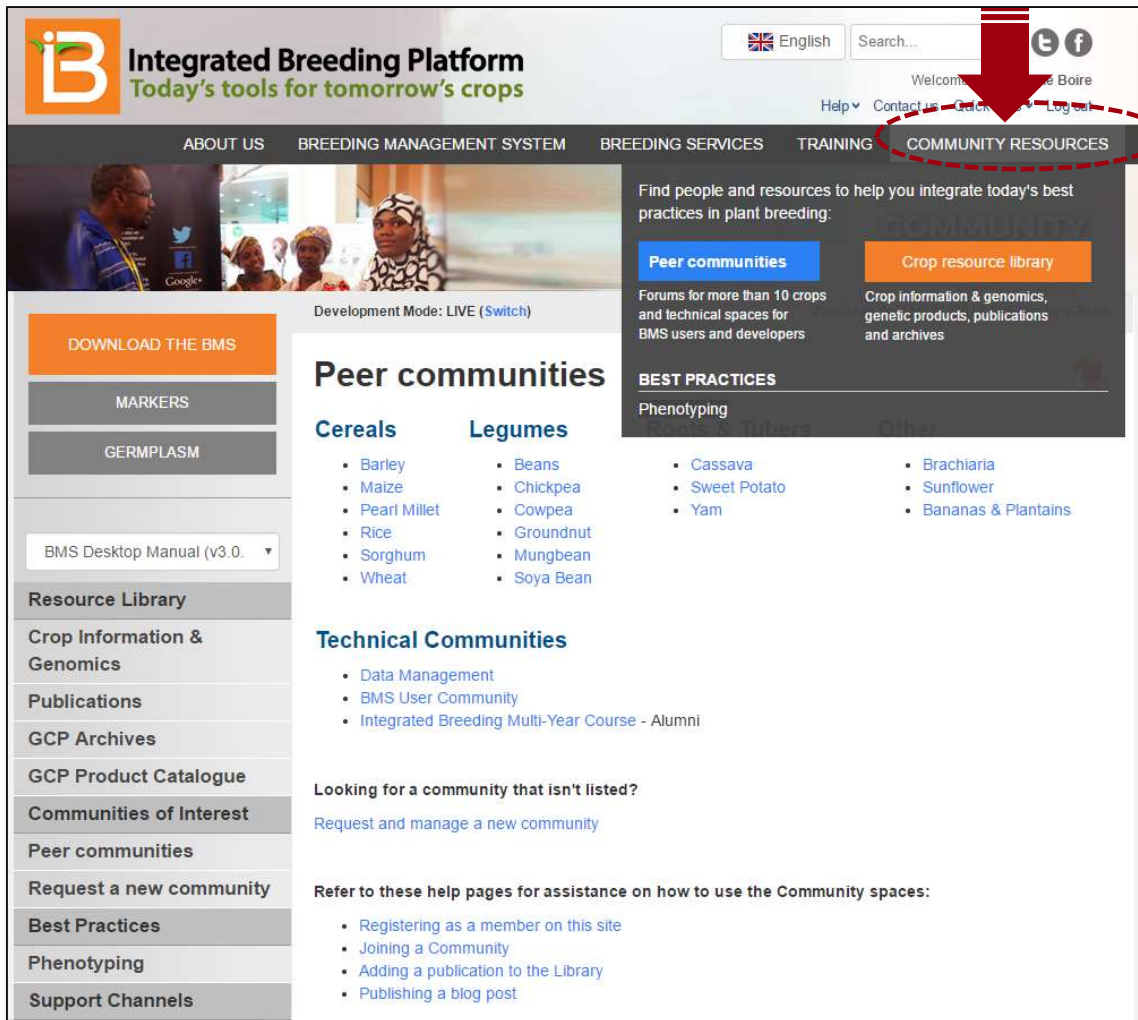
Plant Breeding Concepts & Methods Course
[Visit Course Page](#)
This course is a self-guided exploration of breeding theory and methods. The content is geared towards scientists and students with some background in biology, genetics, molecular markers and plant breeding. Additional resources are provided throughout the course to assist those with limited background knowledge.

Marker-Assisted Breeding Course
[Visit Course Page](#)
The course is a self-guided course exploration of marker-assisted breeding theory and methods. The course is geared towards scientists and students with a good background in biology, genetics, molecular markers and plant breeding. Additional resources are provided throughout the course to assist those with limited background knowledge.

Comparative Genomics Course
[Visit Course Page](#)
This is a self-guided course exploring comparative genomics. The course is geared towards scientists and students with an awareness of DNA structure, recombinant DNA technologies, DNA sequencing, and plant breeding. The course is intended for plant breeders, molecular biologists, and other plant scientists who are associated with, but not fully engaged in, genomics research – in the hope of providing them information to improve understanding of current research in the field and the implications.

Online resources

Peer communities



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

English Search... Welcome to the Boire
Help Contact us Click Log out

ABOUT US BREEDING MANAGEMENT SYSTEM BREEDING SERVICES TRAINING **COMMUNITY RESOURCES**

Find people and resources to help you integrate today's best practices in plant breeding:

Peer communities **Crop resource library**

Forums for more than 10 crops and technical spaces for BMS users and developers

Crop information & genomics, genetic products, publications and archives

BEST PRACTICES
Phenotyping

Development Mode: LIVE (Switch)

Peer communities

Cereals **Legumes**

- Barley
- Maize
- Pearl Millet
- Rice
- Sorghum
- Wheat
- Beans
- Chickpea
- Cowpea
- Groundnut
- Mungbean
- Soya Bean

Technical Communities

- Data Management
- BMS User Community
- Integrated Breeding Multi-Year Course - Alumni

Looking for a community that isn't listed?
[Request and manage a new community](#)

Refer to these help pages for assistance on how to use the Community spaces:

- Registering as a member on this site
- Joining a Community
- Adding a publication to the Library
- Publishing a blog post

DOWNLOAD THE BMS

MARKERS

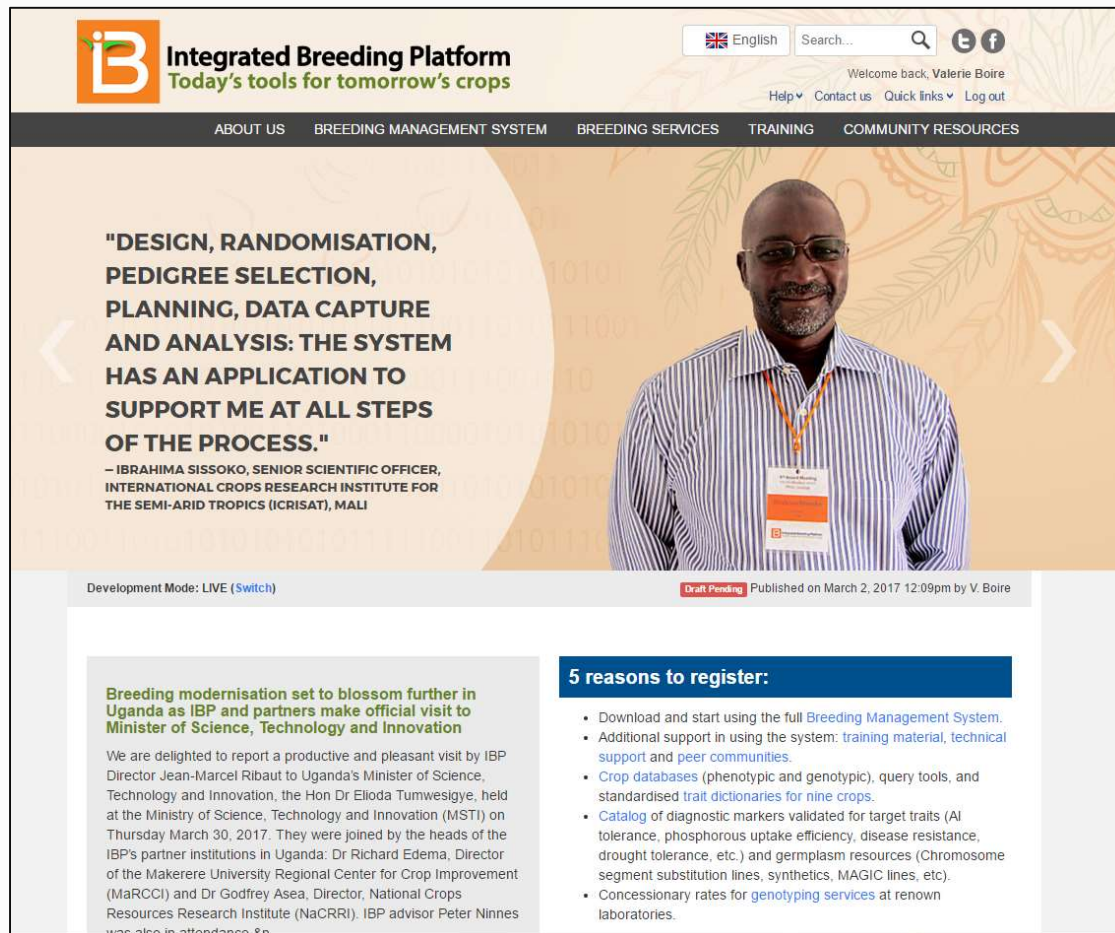
GERMPLASM

BMS Desktop Manual (v3.0.)

Resource Library

- Crop Information & Genomics
- Publications
- GCP Archives
- GCP Product Catalogue
- Communities of Interest
- Peer communities
- Request a new community
- Best Practices
- Phenotyping
- Support Channels

Online resources: More on the IBP Website



The screenshot shows the homepage of the Integrated Breeding Platform (IBP) website. The header features the IBP logo with the tagline "Today's tools for tomorrow's crops", a language selector set to "English", a search bar, and social media icons for Twitter and Facebook. A user greeting "Welcome back, Valerie Boire" and navigation links for "Help", "Contact us", "Quick links", and "Log out" are also present. A main navigation bar includes links for "ABOUT US", "BREEDING MANAGEMENT SYSTEM", "BREEDING SERVICES", "TRAINING", and "COMMUNITY RESOURCES". The main content area features a large banner with a quote from Ibrahim Sissoko, Senior Scientific Officer at ICRIAT, Mali, about the application of the breeding system. Below the banner, there is a status bar indicating "Development Mode: LIVE" and a "Draft Pending" notice. The page is divided into two columns: the left column contains a news article titled "Breeding modernisation set to blossom further in Uganda as IBP and partners make official visit to Minister of Science, Technology and Innovation", and the right column lists "5 reasons to register:" with bullet points detailing the platform's features and services.

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

English Search... Welcome back, Valerie Boire
Help Contact us Quick links Log out

ABOUT US BREEDING MANAGEMENT SYSTEM BREEDING SERVICES TRAINING COMMUNITY RESOURCES

"DESIGN, RANDOMISATION, PEDIGREE SELECTION, PLANNING, DATA CAPTURE AND ANALYSIS: THE SYSTEM HAS AN APPLICATION TO SUPPORT ME AT ALL STEPS OF THE PROCESS."

— IBRAHIMA SISSOKO, SENIOR SCIENTIFIC OFFICER, INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS (ICRIAT), MALI

Development Mode: LIVE (Switch) Draft Pending Published on March 2, 2017 12:09pm by V. Boire

Breeding modernisation set to blossom further in Uganda as IBP and partners make official visit to Minister of Science, Technology and Innovation

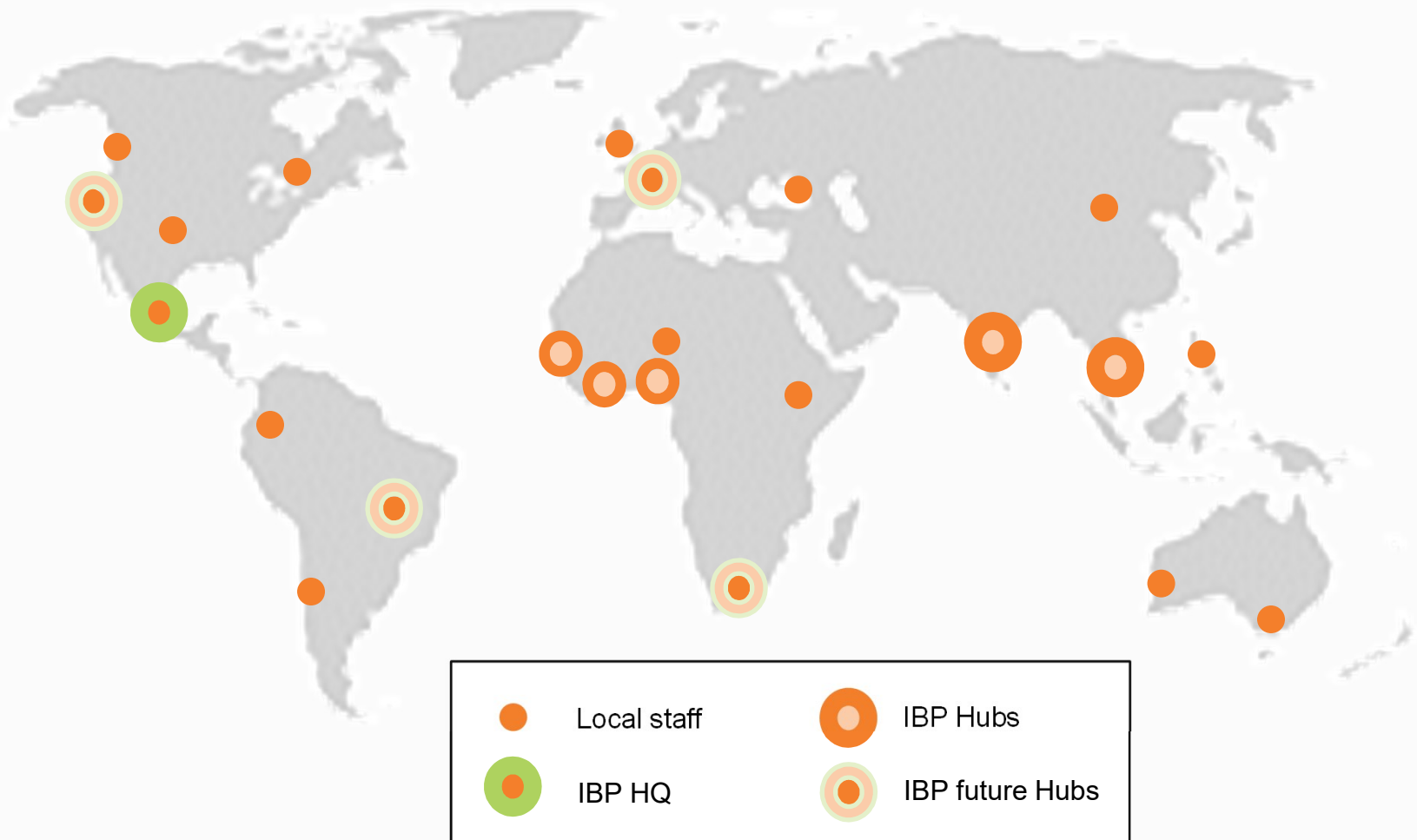
We are delighted to report a productive and pleasant visit by IBP Director Jean-Marcel Ribaut to Uganda's Minister of Science, Technology and Innovation, the Hon Dr Elioda Tumwesigye, held at the Ministry of Science, Technology and Innovation (MSTI) on Thursday March 30, 2017. They were joined by the heads of the IBP's partner institutions in Uganda: Dr Richard Edema, Director of the Makerere University Regional Center for Crop Improvement (MaRCGI) and Dr Godfrey Asea, Director, National Crops Resources Research Institute (NaCRRI). IBP advisor Peter Ninnies was also in attendance. &#p

5 reasons to register:

- Download and start using the full [Breeding Management System](#).
- Additional support in using the system: [training material](#), [technical support](#) and [peer communities](#).
- [Crop databases](#) (phenotypic and genotypic), query tools, and standardised [trait dictionaries for nine crops](#).
- [Catalog](#) of diagnostic markers validated for target traits (AI tolerance, phosphorous uptake efficiency, disease resistance, drought tolerance, etc.) and germplasm resources (Chromosome segment substitution lines, synthetics, MAGIC lines, etc.).
- Concessionary rates for [genotyping services](#) at renowned laboratories.

www.integratedbreeding.net

Local support teams: providing assistance where you need it



Value proposition



Clear benefits

A comprehensive suite

- Flexible standalone or LAN solution for a decentralized organizations (cloud solution also coming soon)
- Manages breeding information as well as workflow
- Support multiple crops within one system
- Statistical tools for data analysis and quantitative genetics
- Applications for a gradual transition into integrating genotypic data
- Data visualization tools, and advanced analytics and decision support tools for better breeding outcomes
- Easily integrates with external technologies

Meeting educational and research objectives

- Online educational resources to help integrate breeding theory with cutting-edge breeding technologies
- Customizable educational materials to integrate into a plant breeding curriculum
- IBP staff to assist with structuring workshops and curricula

Improved data management

- More security and preservation / legacy
- Standardized documentation and quality control
- Easier and faster retrieval and sharing
- All in one place, from the field to the lab, thanks to electronic data capture capabilities

Dedicated support

- Adapted, from small workgroups to big scale breeding programs
- Affordable professional support and training for change management and to ensure success in implementing new technology
- Collaboration with international institutions, professionals and academics in extended communities and networks
- Dedicated relationship: we know your business and understand your local needs

Tangible impact

- Crop research data management
- Breeding programme efficiency
- Crop improvement practices and outputs
- Ultimately, on regional economies and food security

Tangible impact at all levels

■ **Breeders:**

- Increase data quality, documentation and exchange
- Savings in time and cost to run breeding activities and to bring new crop varieties
- Increased genetic gain at each crop cycle
- Enhanced certainty in crop breeding outcomes
- Students: learning now how to use breeding software now is added value for prospective employers

■ **Institutions:**

- Improved institutional data management
- Better product at a lower price (efficiency and effectiveness)
- Improve the value proposition to attract funding (public) / further Corporate Social Responsibility (CSR) objectives (private)

■ **Society:**

- Improved crops (quality and yield) in farmers' fields
- More income for smallholder farmers, contributing to a larger-scale impact on regional economy
- More and better food to feed the world



Share our vision:

Help us ignite a crop breeding revolution in developing countries, where people drive change through solid and vibrant breeding communities. We want to provide concrete solutions for a new, sustainable operational model in R4D, that will have a huge impact on crop research data management, breeding program efficiency, crop improvement practices and outputs and, ultimately, on regional economies and food security.



Next steps:

- Register on our website: www.integratedbreeding.net
 - Download the BMS (free trial of PRO functionality)
 - Access tutorials, videos, publications and more
 - View other presentations, fact sheets and case studies
 - Join a Peer Community
 - Get special rates on breeding services through our network of providers
- Request a personalized demo of the BMS:
deployment@integratedbreeding.net



Our team will be happy to answer your questions!



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

www.integratedbreeding.net

@IBPlatform • /IntegratedBreedingPlatform

