BIMS (Breeding Information Management System) for efficient management and analysis of breeding data

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GENOME DATABASE FOR ROSACEAE
Resources for Rosaceae Research Discovery and Crop Improvement

BREEDING **I**NFORMATION **M**ANAGEMENT **S**YSTEM

GENOME DATABASE FOR VACCINIUM
Genomics, genetics, and breeding resources for blueberry, cranberry, bilberry, and lingonberry research

COTTONGEN
COTTON DATABASE RESOURCES

CITRUS GENOME DATABASE
Resources for citrus genomics, genetics, breeding and disease research

PULSE CROP DATABASE
Genomic, Genetic, and Breeding Resources for Pulse Crop Improvement

Abstract

Breeding programs produce a large amount of data that require efficient management systems to keep track of performance, pedigree, geographical and image-based data as well as genotyping data. The integration of breeding data with publicly available genomic and genetic data, as well as the integration of each breeder's own genotypic and phenotypic data in a database enhances genetic understanding of important traits and maximizes the marker-assisted breeding utility by breeders and allied scientists. We report the progress on BIMS which we have implemented in the Genome Database for Rosaceae, CottonGEN Citrus Genome Database, Pulse Crop Database and the Genome Database for Vaccinium. BIMS allows individual breeders to integrate their phenotypic and genotypic data with public genomic and genetic data and at the same time have complete control of their own breeding data and access to tools such as data import/export, data analysis and data archive. BIMS incorporates the use of the Android App Field Book, an open-source software for phones and tablets which allows breeders to replace hard-copy field books, thus alleviating the possibility of transcription errors while providing faster access to the collected data. The use of Field Book and BIMS promotes the use and development of standard trait descriptors and metadata as well. New functionality includes searching/loading SNP genotype data and haplotype data, cross search and bulk data editing.

Create program and manage members

Data import for data in templates or Field Book App output

BIMS Vision

Provide individual breeders with a secure and comprehensive online breeding management system to:

- Store, manage, archive and analyze their private breeding program data
- Fully integrate their data with publicly available genomic, genetic and breeding data in the community database
- Manage data from the Field Book App, an android app for collecting phenotype data in the field
- BrAPI compatible
- Available for any Tripal-based database to implement

BIMS Component

- Archive
- Manage Breeding
- Data Import
- Search and Download
- Field Book App Management
- Data Analysis Tools

Filter to build a dataset, view the stats and download

Generate an input file for Field Book App

Compare trait values of multiple datasets

Thanks to

Tripal