



# GRIN-Global: An International Project To Develop A Global Plant Genebank and Information Management System



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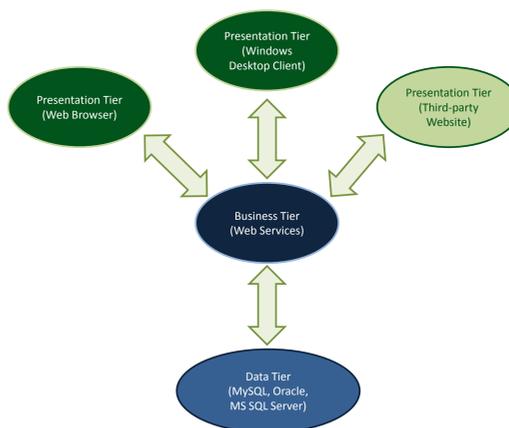
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## Background: GRIN and the Need for GRIN-Global (G-G)

Many of the world's national genebanks, responsible for the safeguarding and availability of their country's Plant Genetic Resource (PGR) collections, have lacked access to high quality information technology needed to document and manage their collections electronically. The Trust recognized the common needs of the world's genebanks and the resources being expended by many genebanks or consortia independently (see <http://www.croptrust.org/main/>) and, consequently, initiated the G-G project.

The Germplasm Resources Information Network (GRIN) developed by the USDA-ARS National Plant Germplasm System (NPGS) is widely recognized as a superior genebank management system, largely because it has been continuously developed and enhanced during the past 22 years. Its system complexity has grown, as has the importance of its information content and delivery systems to researchers and genebank personnel. But international genebanks interested in adopting GRIN were challenged by technology licensing fees and GRIN's inherent complexity.

New tools such as Microsoft .Net technology make it possible to construct a system architecture so that the database, business, and presentation tiers can be developed and then continuously maintained or modified independently. Interoperability with other databases is facilitated by the design of the business tier; essentially, calls from the presentation tier(s) are for data only. By supporting use of PostgreSQL, MySQL, MS SQL, or Oracle, and by providing all source code for system components, G-G enables genebanks to tailor information management decisions to their specific circumstances.



## Design of the GRIN-Global System

The GRIN-Global Application Program Interface (API) will provide fully featured **web services** – software modules that are accessible over the internet via standard messaging protocols. These protocols describe the GRIN-Global system in a way that facilitates direct communication between GRIN-Global and other systems.

Accessing data through the Presentation Layer is very easy – via either the provided web interface, the desktop client, or another third-party system that uses the web services.

The web services allow the data to be retrieved in various formats – XML, CSV, TXT – making it platform independent. Any language that can make HTTP requests can use the GRIN-Global API.

## GRIN-Global Public Interface – Why You Should Care

Plant researchers can obtain phenotypic trait and other information that enables utilization of plant genetic resources to meet a wide array of objectives and applications. Germplasm and information users, as well as genebank personnel responsible for conserving and providing these resources, require improved information systems with flexible query and reporting capabilities. The GRIN-Global System will support interoperability with databases that provide genomic, ecogeographic, and many other types of information needed for multidisciplinary research objectives.

### Search Engine

The search engine provides an easy-to-use interface. Simply type in a term or phrase, and the search engine will parse through all aspects of the data to determine the most relevant results based on your search terms.

### Search Results

The results returned by the search engine have been formatted to provide the most useful information immediately. Users can modify their preferences to meet their specific needs.

### Data Features

The Grin-Global system will provide Plant Name, Taxonomy, Origin (Passport and Provenance), Material Type, Maintained By, Availability, Group by (Plant ID, Plant Name, Taxonomy, Origin, Maintained by, Availability, Material), Phenotypic and Genetic Marker Observation Data, Intellectual Property and Material Transfer Agreement Status, and much more.

### Functional Features

New features that will be available include Highlight, Select (based on click or status), Actions, Page Size, (# of items displayed), Paging w/ quick jump, Export (csv/tab delimited file, drag & drop to Excel), and Column and Grid Preferences (Rearrange, Sort, Filter, Hide).

### Accession Detail

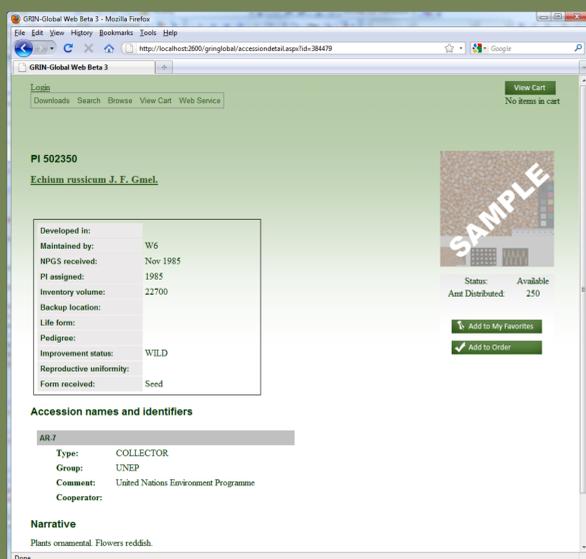
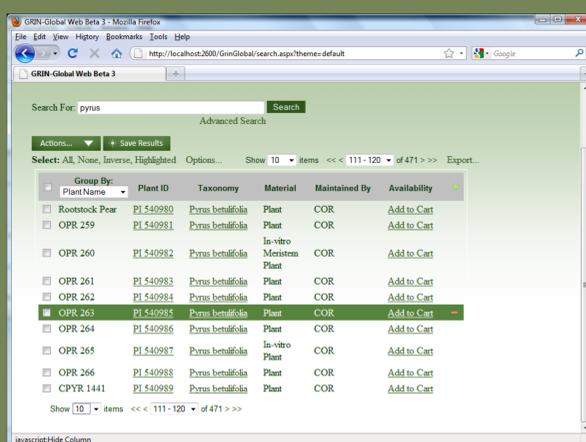
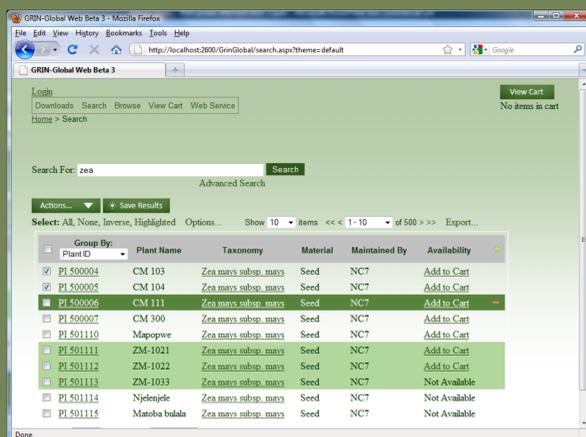
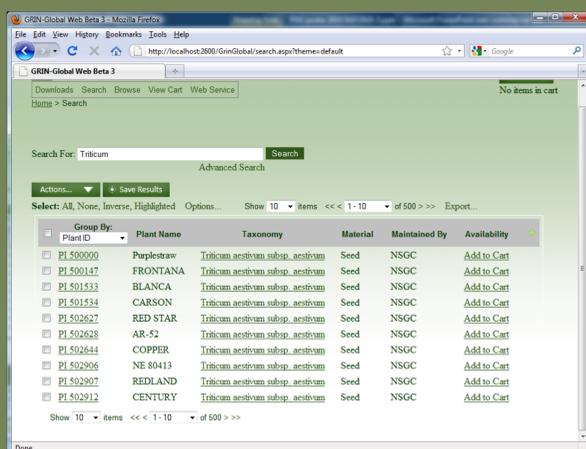
GRIN's general format has been retained, with additional improvements including prominent photo browsing and enhanced mapping capabilities.

### Taxonomy

Many of the extensive features available in current GRIN will be incorporated into the new GRIN-Global web infrastructure; new features will be added.

### Shopping Cart

Users will be able to add items to the Cart directly from the search results or from the Accession Detail page. User can view the Cart and easily jump back to the Accession Detail or Taxonomy Overview pages to view item information. Cart can easily be reviewed; items can be individually removed or the entire cart emptied.



You can obtain more Information at this site: <http://www.grin-global.org>

Please provide input at this forum! <http://www.grin-global.org/gringlobal/forums/>