Agricultural Research Services
United States Department of Agriculture

Genetic Stocks-*Oryza* (GSOR) Collection
2015 Update

Rice Genetic Stocks Collection

The USDA Genetic Stocks – *Oryza* (GSOR) Collection at DBNRRC serves as distribution center for genetic mutants and molecularly characterized genetic resources that are important to the rice research community. These genetic stocks have been created using specialized techniques such as induced mutation and cross-breeding. The GSOR program is responsible for storing, maintaining, documenting, and distributing (free of charge) these materials to the scientific community for use in genetic and genomic research. Ultimately these materials will aid in the understanding of the genetic control of traits that can be used to enhance the development of new cultivars that meet the needs of the U.S. rice industry.

Growth of GSOR Collection

YEAR REC'D	TYPE OF ENTRY	NUMBER OF LINES
2003	Individual mutants	19
2004	Individual mutant	1
2005	Katy/Zhe 733 Mapping population	355
	Nipponbare	1
2006	Cocodrie/MCR01-0277 Mapping population	327
	Individual mutants	8
	Kinoshita Mutant Collection	192
2007	Jodon Mutant Collection	38
	California Mutant Collection	12
	Early/Katy Mapping Population	240
	USDA Core Collection	1,794
2008	Katy Deletion (Putative) Mutants	22,842
	Nipponbare TILLING Mutants	6,397
2009	Cybonnet x C101A51 Mapping population*	183
	RiceCAP Association Mapping population*	462
	RiceCAP MY1 Mapping population	219
	RiceCAP MY2 Mapping population	300
	RiceCAP SB5 Mapping population	574
2010	OryzaSNP Set	20
2011	TeQing-into-Lemont (TILs) mapping population	125
	Rice Diversity Panel 1	404
2012	BC5F3 Backcrossing Population	44
2013	Rice Diversity Panel 2*	1,333
	Jefferson Near Isogenic Lines (NILs)	14
	Cytoplasmic male sterile and maintainer line (transfer from NSGC)	2
2014	mPing Mapping population*	277

***Not yet publicly available.** **Grand Total Lines** **36,181**

Types of Entries Within the GSOR Collection

Collections within the GSOR are unique sets of material that have been described/donated by an individual researcher.

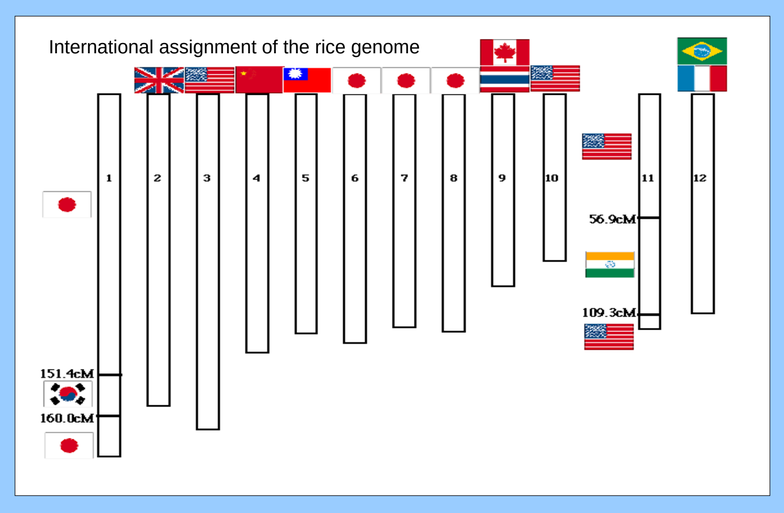
A deletion is defined as a fragment of DNA that was deleted from the rice genome. A **deletion mutant** is a rice line that carries this altered genome. These are useful to study the function of DNA sequences by evaluating how traits are impacted when a gene is "knocked-out" or deleted.

Individual mutants are lines that have been purposely mutated using chemicals and have novel characteristics such as male sterile (used to make hybrids), lesion mimic (used to study disease response), early flowering, double dwarf, colored hulls, and giant embryo.

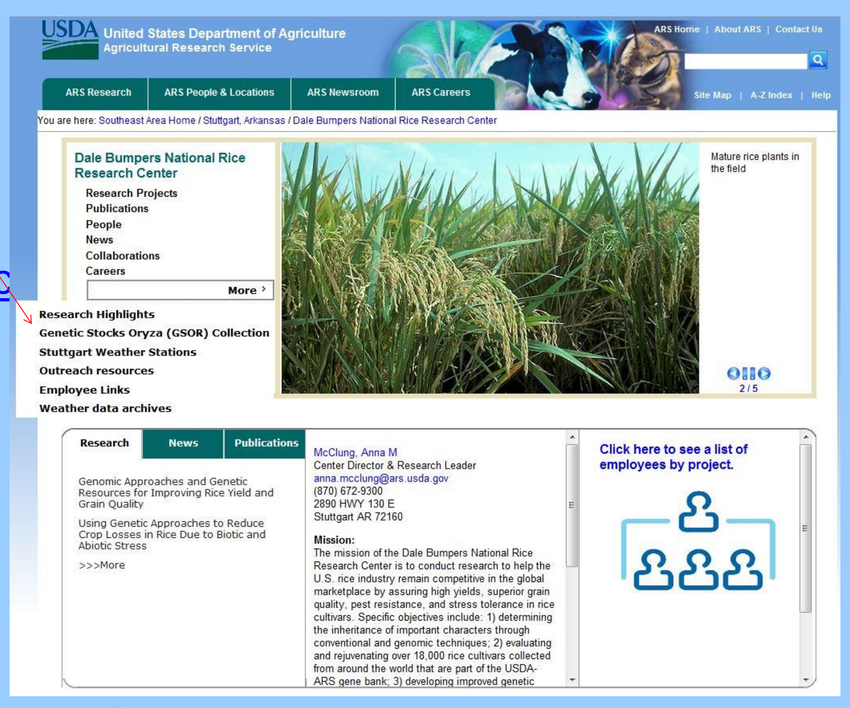
Mapping populations are used to study the genetic variation which occurs as a result of recombination of genes from two differing parental lines. The mapping populations in the collection are segregating for agronomic traits, disease resistance, maturity, yield, milling quality, and cooking quality.

TILLING (Targeting Induced Local Lesions In Genomes) is a reverse genetics technique that uses traditional chemical mutagenesis to create libraries of individual rice plants can be evaluated using high throughput screens for the discovery of mutations. (Source: http://tilling.ucdavis.edu/index.php/Main_Page)

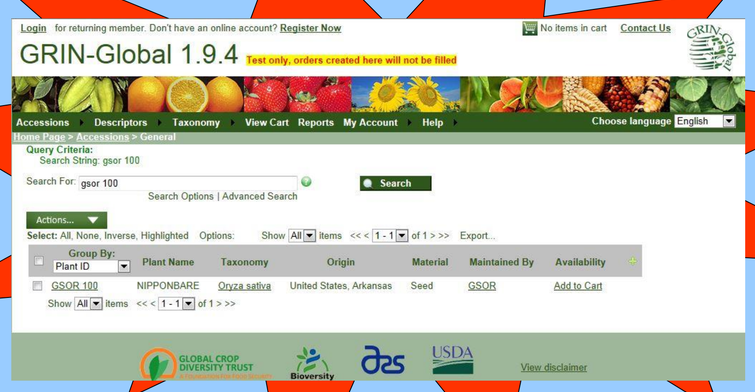
The graphic at the right shows the assignment of the 12 chromosomes of rice to 10 different nations that participated in the International Rice Genome Sequencing Project. In 2005, this international consortium produced the complete genetic sequence of the Japanese cultivar, ***Nipponbare***. This sequence information will serve as the baseline for comparison with other rice varieties to identify genes that control economically important traits. GSOR serves as an international distributor of the exact source of Nipponbare that was sequenced for use in genomic research.



Our website has been updated! Choose GSOR Collection on the Dale Bumpers main page at www.ars.usda.gov/main/dbnrrc Resources available on the website include a collection catalog, photo archive, search tool and germination procedures for hard-to-grow rice germplasm.



Inventory codes indicate source of GSOR seeds. The six-digit code shows the location, year, season, and purity of seed. 1 2 3 4 5 6: 1 = location (A-Arkansas, T-Texas, P-Puerto Rico, G-Greenhouse in Arkansas), 2-3= Year (last 2 digits of production year(s), 4-5 = Season (Fall, Spring, Summer, Winter), and 6=Purity (1=panicle, 2=plant, 3=bulk). Example: A11FA3 = Arkansas, 2011, Fall, Bulk harvest.



The GRIN website is going to change! Soon you will be able to search for germplasm through GRIN-Global. You may visit the test site now and check it out: http://npgsweb.ars-grin.gov/gringlobal/search.aspx

Distribution Activity to U.S. and International Researchers

40,410 genetic stocks were distributed during the years 2004 through 2013 (combined). 11,776 genetic stocks were distributed during 2014.

For further information contact
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