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Rice Germplasm Research and Service Accomplishments (2002-2006)

Rejuvenation, Evaluation and Enhancement:

1. Rejuvenated 3,446 and rescued 470 accessions of rice germplasm, and collected six agronomic descriptors and 10 grain morphological descriptors for 1,179 new accessions released from the National Quarantine Program.
2. From recent introductions worldwide, identified elite accessions having high-yield potential, resistance to straighthead and sheath blight diseases, and possessing novel resistance to blast disease.
3. Developed germplasm and enhanced foreign germplasm for nutritional values, yield potentials, grain cooking qualities, and environment adaptations.
4. Distributed 907 accessions of elite or enhanced germplasm in 68 separate requests with 152 kg seed in total.
5. Developed and released 9 improved long grain rice cultivars for use in conventional and specialty markets, and 17 accessions of new germplasm accessions.

Rice Core Collection:

1. Developed the core containing 1,790 or 10% of accessions in the National Small Grains Collection (NSGC) using a stratified (by country of origin) random sampling method.
2. Distributed 20,286 accessions with 307 kg of seeds or samples to 30 evaluators including state and federal agencies and international cooperators.
3. Evaluated 21 out of 28 descriptors identified as high priority by Rice Crop Germplasm Committee (RCGC). Collected data on resistances to blast and sheath blight diseases that have been rarely evaluated in the whole collection due to the expense and labor required to analyze these traits. Studied micro-nutrient contents in the core collection. Genotypically and phenotypically evaluated the core for cold tolerance, blast resistance, and cooking quality.
4. Development of a purified core is underway for use in molecular marker analysis associated with targeted genes and with 50 random markers for use in association studies. Ultimately a “Nano-Core” will be developed containing 10% of the purified core that will be developed for genotyping with 200 molecular markers evenly distributed over 12 chromosomes.

Rice Genetic Stock Oryza (GSOR):

1. GSOR distributed seed for 35 requests, 8 genetic stocks, and 27 requests for Nipponbare in 100 g lots. Nipponbare is considered a reference material for use in rice genomic research because it was used to sequence the rice genome. In addition, 2 foreign and 33 domestic requests.
2. Entered and documented two mapping populations in the collection, one segregating for low phytic acid content and another for sheath blight disease.
3. Completely documented and entered 4 genetic stocks developed in the DB NRRC.
4. Entered and documented a set of 191 mutants received from Japan.