

STATE OF COLORADO
Annual Report for Calendar Year 2005
to the W-6 Technical Committee
Compiled by Mark A. Brick
June 2, 2006

Orders for germplasm from the NPGS constituted delivery of accessions from both clonal repositories and Plant Introduction Stations. Eighty six requests were filled for 44 individuals which constitute approximately the same level as the previous year. Orders were made from the following locations: COR, NSGC, NC-7, W-6, S-9, NSGC, GEN, MIA, NE-9, and NR-6, RIV, NR6, PARL, GSHO, and the NCGRP.

The following is a report of germplasm activities in Colorado during the 2003 calendar year from scientists that responded to a request for information.

1. Walter Messier, Chief Technical Officer at Evolutionary Genomics, LLC, Aurora, CO ordered accessions to extract genomic DNA for genomics research (2 *Hordeum vulgare* subsp. *Vulgare*, 3 *Pennisetum glaucum*, 6 *Panicum miliaceum* subsp. *Miliaceum*, 1 *Setaria italica* subsp. *italica*, 2 *Avena fatua*, 10 *Avena sativa*, 6 *Sorghum bicolor*, 2 *Hordeum vulgare* subsp. *Spontaneum*, 22 *Hordeum vulgare* subsp. *vulgare*, 1 *Oryza nivara*, 3 *Oryza rufipogon*, 1 *Triticum aestivum* subsp. *Aestivum*, and 1 *Triticum aestivum* subsp. *Macha*).

The seeds and germplasm we used to extract nucleic acids (a destructive process that consumed all available material during extraction of nucleic acids). The nucleic acids were then analyzed for subsequent sequencing of genes-of-interest in our genomics project. No plant material was released to the public that was derived from any NPGS germplasm we received. To date, no publications have resulted that present information about the germplasm received (although we anticipate several publications in the next 12-18 months).

2. Personell at the USDA, ARS National Center for Genetic Resources Preservation, Fort Collins, Colorado ordered numerous accessions. Most of their work is reported elsewhere in the NPGS system and is not repeated herein.
3. Dr. Jungua Peng, Dep. Soil and Crop Sciences, Colorado State University received *Triticum* accessions, to evaluate for resistance genes for Russian wheat aphid. The material will be used to identify and transfer useful genes to commercial wheat cultivars and molecular mapping.
4. Dr. Linda Hansen and Lee Panella, USDA/ARS, Fort Collins CO ordered *Beta* accessions from W6. They filed the following report:
Beta vulgaris accessions were tested for resistance to one or more of three diseases of sugar beet, *Cercospora* leaf spot (caused by the fungus *Cercospora beticola*), *Rhizoctonia* root rot (caused by *Rhizoctonia solani* AG-2-2) and beet curly top (caused by *Beet curly top virus*). Tests were conducted in field nurseries under field conditions.

5. Dr. Linneau Skoglund, Busch Agricultural Resources Inc. received *Hordeum vulgare* accession for rust inoculum production. No publications were reported.
6. Dr. James Quick., Dep. Soil and Crop Sciences, Colorado State University received *Triticum turgidum* subsp. *durum* accessions, to evaluate for resistance to foliar head blight. All were found to be susceptible. No germplasms or releases were made.
7. Dr. Scott Haley, Dep. Soil and Crop Sciences, Colorado State University received accessions of *Triticum aestivum* subsp. *aestivum* and *Triticum turgidum* subsp. *durum* to screen for resistance to a new biotype of Russian wheat aphid that was found in Colorado and neighboring states in May 2003. No germplasm was released to the public. No publications have yet resulted from screening these materials. One publication, documenting screening of various germplasm resources with the new biotype was reported.
8. Dr. Gordon Cisar, Carrigill Inc., Ft. Collins, CO, received 1284 *Triticum aestivum* subsp. *spelta*. to evaluate agronomic and adaptation to the Corn Belt, the accessions were evaluated for leaf rust and other pathogen resistance genes. Selected material will be used for a Goertzen soft wheat breeding program. No publications or germplasm releases occurred.

Germplasm registrations and publications:

Brick, M.A., J.B. Ogg, and J.J. Johnson, H.F. Schwartz, and F. Judson. 2005. Registration of Grand Mesa Pinto Bean. *Crop Sci.* 45:413.

Volk, G.M., Richards, C.M., Reilley A.A., Henk, A.D., Forsline, P.L., Aldwinckle, H.S. 2005. Ex situ conservation of vegetatively-propagated species: Development of a seed-based core collection for *Malus sieversii*. *J Am Soc Hort Sci.* 130: 203-210.