2007 NATIONAL PROGRAM STAFF REPORT

FOR THE U. S. NATIONAL PLANT GERMPLASM SYSTEM
NATIONAL PROGRAM STAFF, NATIONAL PROGRAM 301: PLANT, MICROBIAL, AND INSECT GENETIC RESOURCES, GENOMICS, AND GENETIC IMPROVEMENT
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1 **Personnel changes:**

1.1 Farewell and best wishes to Rich Wilson, (National Program Staff), Henry Shands (Ft. Collins), Jim Mowder (Beltsville), Rich Hannan (Pullman), and Graves Gillaspie (Griffin) on their retirements, and to David Tay (Ornamental Plant Germplasm Center), who has moved to the International Potato Center (Peru).

1.2 John Radin (National Program Staff) passed away on 24 Jan. 2007 following a brief battle with leukemia. We will miss his wise counsel and gentle humor.

1.3 Congratulations to Phil Forsline on becoming Research Leader, Plant Genetic Resources Unit, Geneva, and to Joseph Postman (Corvallis) and Clare Coyne (Pullman) on their promotions. Congratulations to Maria Jenderek, who moved from Parlier to Ft. Collins.

1.4 Welcome to James Frelichowski (College Station), Anna McClung (Stuttgart), Allan Brown (on a two year assignment from Pullman to Parlier), and two new Horticulture NPLs, Sally Schneider and Gail Wisler.

2 **Site developments and changes:**

2.1 During 2006, the NPGS distributed 159,266 accessions, which was by far an annual record. Notable contributors to this accomplishment include the Griffin genebank (18,900 accessions distributed), Ames genebank (13,790 accessions distributed), the Riverside genebank, where distributions (1243 accessions) were more than 50% higher than 2005, and the Davis genebank, with the most (4190) of accessions distributed in its history, a 36% increase from 2005.

2.2 In December 2006, the number of plant inventories stored at NCGRP in Ft. Collins exceeded 700,000.

2.3 ARS researchers at the pecan genebank in College Station, TX and their collaborators applied microsatellite profiles from eight SSRs to verify the parentage of controlled cross cultivars in the pecan germplasm collection and to confirm the identity of disputed cultivars being propagated by commercial nurseries. Reliable molecular genetic techniques were applied to definitively answer practical questions of cultivar identification and parental verification being generated by the nursery industry and the ARS Pecan Breeding Program.

2.4 Ninety-two rice germplasm accessions recently introduced from seven geographic regions were evaluated by ARS genebank staff at

Stuttgart, AK for yield and associated characteristics, and genotyped with 123 highly polymorphic SSR markers. Eight main clusters for the accessions corresponded to the major geographic regions and sub-species. Many of the associated markers were located in chromosomal regions where QTL had been previously identified, which demonstrated that association mapping in rice is a viable alternative to QTL mapping using crosses between different lines.

2.5 The woody landscape plant genebank at Beltsville, MD expanded significantly in 2006, incorporating 450 new accessions, most of them acquired from plant explorations conducted by the genebank staff in the southeastern U. S., Russia, China, Georgia, and Azerbaijan.

2.6 Researchers at the Urbana, IL soybean genebank and their cooperators showed that, although soybean has lost many rare sequence variants and had many allele frequencies changed throughout its history, modern soybean varieties have retained 72% of the diversity present in Asian soybean landraces. The largest effect on genetic diversity in soybean occurred when the crop was domesticated, when half of the limited diversity present in the wild progenitor of soybeans was lost.

2.7 Staff at the Mayagüez, PR genebank and collaborators from the ARS USHR Lab at Ft. Pierce, FL determined the genomic composition all plants in the banana and plantain (*Musa* sp.) germplasm collection via PCR-RFLP and flow cytometry.

3 Budgets:

3.1 Despite recent increases, the budgets of some NPGS sites are still strained at present. Continual increases in labor and operating costs may further reduce their effective operating budgets in the future.

3.2 The FY06 USDA budget restored proposed cuts to Congressional "add-ons," and increased the genetic resources budget by ca. $750,000. The ARS budget as a whole was reduced by a 1% government-wide budget rescission focused on reducing budget deficits. For FY07, the NPGS operated under a continuing resolution, at essentially the FY06 budget level.

3.3 The Administration's FY 08 budget proposed increases of $3 million for Plant Introduction Stations and the NPGS, $2 million for Specialty Crop Genetic Resources, and $8 million for Applied Crop Genomics. The House and Senate Appropriations Reports do not include the preceding proposed increases, with the exception of $1.75 million for Specialty Crop Genetic Resources in the House Report. The House would reduce ARS's total budget by about $52 million from FY07, whereas the Senate would increase ARS's total budget by about $25 million. These bills must be reconciled by the Conference Committee, which has not yet met. At

present, ARS is operating under a continuing resolution for FY08, with a budget at the FY07 level.

3.4 With the post-9/11 increased costs for national defense, ongoing military actions in Iraq and Afghanistan, homeland security, the tax cuts, and increased budget deficits, the future status of ARS budgets is uncertain. "Discretionary dollars" (includes ARS's budget) may be squeezed particularly hard, especially in FY08 and later budgets.

4 National Programs:

ARS's research portfolio is organized as a series of 22 national programs. Plant and microbial genetic resource management, genetic improvement, genomics, bioinformatics, and genomic database management are incorporated into National Program 301 (see the WWW at: http://www.nps.ars.usda.gov/programs/programs.htm?NPNUMBER=301).

4.1 The retrospective programmatic assessment for NP301's first five-year cycle (2000-2005) occurred in September, 2005. Scientists for the ca. 140 projects associated with NP301 documented the major accomplishments for this period; see the NP301 Accomplishment Report at: http://www.ars.usda.gov/research/programs/programs.htm?np_code=301&docid=11885 The preceding report served as the basis for a retrospective assessment of NP301 conducted in September 2005 by an anonymous external review panel, composed of distinguished non-ARS experts. The panel found that, on the whole, during 2000-2005 NP301 accomplished what it had planned to do. The panel also identified areas for improvement and added emphasis: their report is summarized at the URL below. Click on "2005 NP301 External Assessment Report". http://www.ars.usda.gov/research/programs/programs.htm?np_code=301&docid=11693

4.2 The 2nd NP301 Customer-Stakeholder Workshop on 31 October -2 November 2005 included more than 60 customer/stakeholders and an approximately equal number of ARS scientists and administrators. The customer/stakeholders furnished much valuable input about future directions for NP301. A team of ARS scientists and National Program Leaders incorporated this input into a Action Plan for NP301 for 2005-2010, which is posted on the web at http://www.ars.usda.gov/research/programs/programs.htm?np_code=301&docid=13280

4.3 On 19-20 September 2006, NP301 scientists for projects which will contribute to attaining the 2005-2010 NP301 Action Plan goals convened for a planning workshop in St. Louis, MO. The workshop facilitated planning individual NP301-associated projects with coordinated, complementary, and mutually supportive research and/or service-infrastructure objectives.

4.4 During late 2006 and spring 2007, Program Direction and Resource Allocation Memoranda (PDRAMs) and Project Plant Outlines (PPOs) were developed for NP301 projects by National Program Leaders and scientists. Next, scientists will write Project Plans which, after Area

Office review, will be transmitted to OSQR by September 2007. During late 2007-early 2008, thirteen peer review panels will review NP301 Project Plans.

5 National Plant Germplasm Coordination Committee (NPGCC):

The NPGCC seeks to promote a stronger, more efficient, more widely-recognized and better utilized NPGS. Its goals are to facilitate the coordination of ARS, CSREES and SAES planning and assessment mechanisms for NPGS policy, organization, operations and support; promote awareness and understanding of the NPGS across ARS, CSREES, and SAES and more broadly to the scientific community; and serve as a vehicle for improving communications and discussions about issues impacting the NPGS with ARS, SAES, and CSREES. It will assess, develop and recommend to the SAES, ARS and CSREES strategies for improved coordination of NPGS activities; develop and recommend a process for improved communication of the value of the NPGS; initiate a strategic planning effort for the NPGS to better define and communicate the vision, mission and short- and long-term goals; and to evaluate the current funding models for the NPGS and report findings to the SAES directors, ARS and CSREES.

The current members of the NPGCC are L. Sommers (Colorado State-SAES), Chair; E. Young (Executive Director, Southern Region); K. Grafton (North Dakota State- SAES), G. Arkin (University of Georgia-SAES), A. M. Thro (CSREES), E. Kaleikau (CSREES), B. S. Benepal (CSREES), P. Bretting (ARS-National Program Staff), D. Buxton (ARS-Pacific West Area), and C. Gardner (ARS – Ames).

NPGCC members made a joint presentation on the NPGS to the 2006 Experiment Station Section/State Agricultural Experiment Station/Agricultural Research Directors Workshop September 24-27, 2006. That presentation, plus testimonials from key Directors about the NPGS's value, increased the NPGS's visibility to this important group. In May 2007, the NPGCC recommended to the National Research Support Project Review Committee that it recommend restoring off-the-top funds designated for NRSP-5 (the Prosser, WA virus-free pome and stone fruit project) and NRSP-6 (the potato genebank project at Sturgeon Bay, WI) to their FY 06 levels to sustain these valuable efforts.

6 International germplasm items:

Negotiations on the Revision of the International Undertaking on Plant Genetic Resources for Food and Agriculture concluded in November 2001, with 113 nations adopting the text of the International Treaty (IT) for Plant Genetic Resources for Food and Agriculture. Despite its abstention from voting for the IT text, the US on 1 Nov. 2002 signed the IT, joining more than 100 other nations which have already done so. The IT came into force on 29 June 2004. Signing the IT was strongly supported by the US agricultural community, who wanted to enable the US to participate actively in developing the standard material transfer agreement (MTA) for plant genetic resource exchange. The standard MTA was completed immediately prior to the first meeting of the IT Governing Body in Madrid, Spain in mid-June 2006. Beginning in 2007, the standard MTA was adopted by Parties to the IT and the CGIAR Centers for use in

distributing plant genetic resources for food and agriculture. The U. S. government is currently soliciting input regarding whether the U. S. should ratify and become a Party to the IT, which held the second meeting of its Governing Body in October 2007.

Concurrently, the Convention on Biodiversity (CBD) adopted the voluntary, non-binding Bonn Guidelines on Access and Benefit-Sharing during the sixth Conference of Parties (COP-6) of the CBD at The Hague in April 2002. The Ad Hoc Open-Ended Working Group for Access and Benefit Sharing (ABS), which developed the Bonn Guidelines mentioned above, held its second meeting in Montréal on 1-6 December 2003. This meeting followed the World Summit on Sustainable Development, in Johannesburg during the summer of 2002, which endorsed an effort by "biodiversity-rich nations" (led by Mexico) to establish a separate international regime for benefit-sharing, under the auspices of the CBD. The CBD Conference of the Parties (COP-7), at its meeting in Malaysia in February 2004, authorized the ABS to begin negotiating during its February 2005 meeting in Bangkok elements of an international regime for benefit-sharing associated with access and sustainable use of genetic resources. The negotiations in Bangkok took some preliminary steps to define the primary elements for such a regime, and set the stage for more detailed discussions during the fourth ABS meeting held in Granada, Spain in January 2006. The recommendations from that negotiation were carried to the COP-9 in Brazil in April, 2006. At that COP, it was decided to continue the ABS negotiations, with a deadline for completion of 2010. The ABS met for a fifth time in October 2007 in Montréal, and will continue negotiations in Geneva, Switzerland during January 2008.

The preceding developments at FAO and with the CBD will substantially affect international exchange of plant genetic resources, and the NPGS, whether or not the U. S. is ultimately a Party to either or both treaties. Precisely how they will affect U. S. users of germplasm is uncertain at present, but some of the most important questions bearing on the IT are beginning to be resolved.