The National Plant Germplasm System: 2013 Status and Prospects

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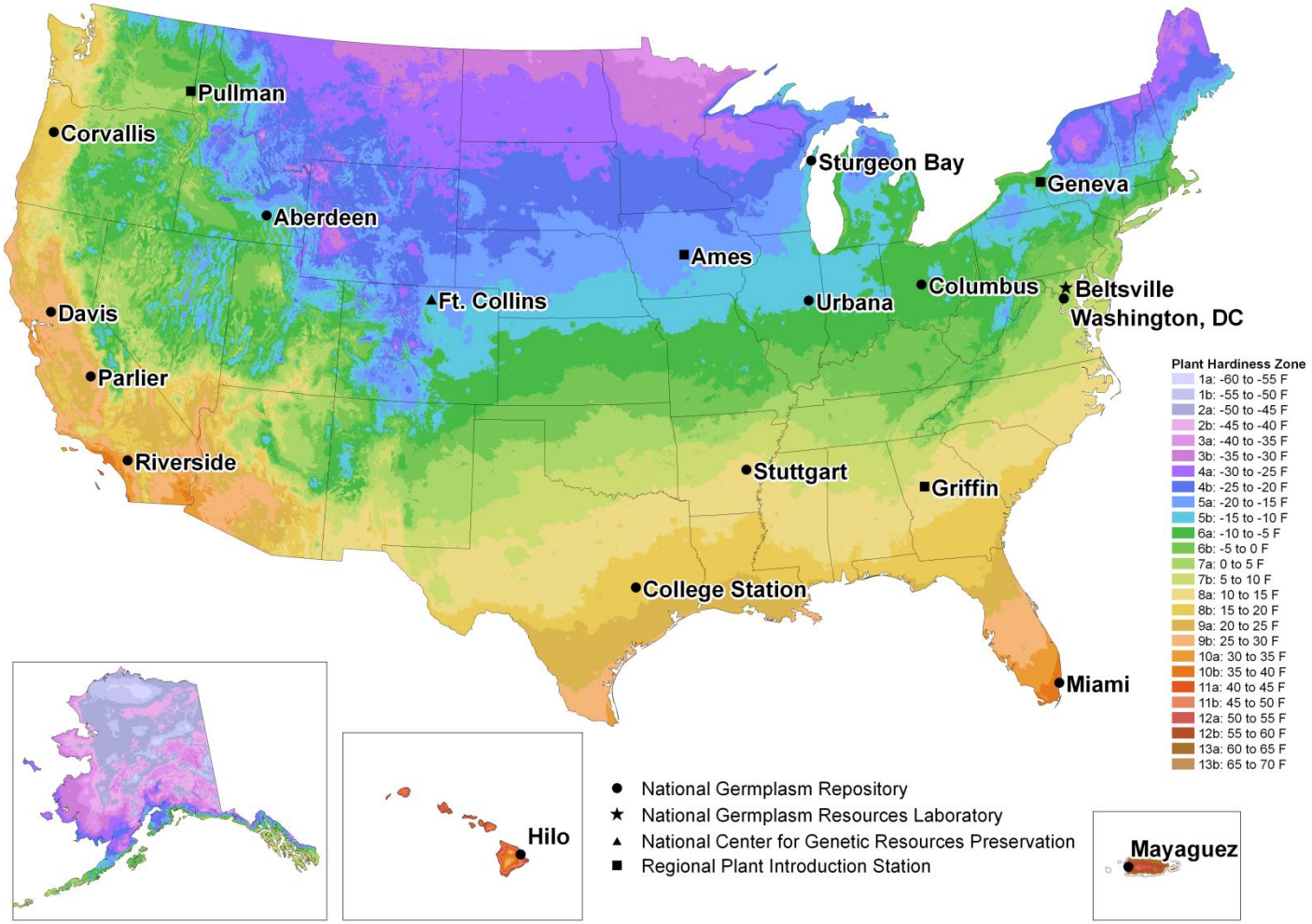
The USDA/ARS National Plant Germplasm System (NPGS)

- One of the largest national genebank systems.
- More than 560,000 samples of more than 14,700 plant species.
- Large collections of the major staple crops important to U. S. and world agriculture.
- Large holdings of crops without major collections at international agricultural research centers, e.g., cotton, soybean, various horticultural and “specialty” crops.
- Germplasm Resources Information Network (GRIN): an international standard.

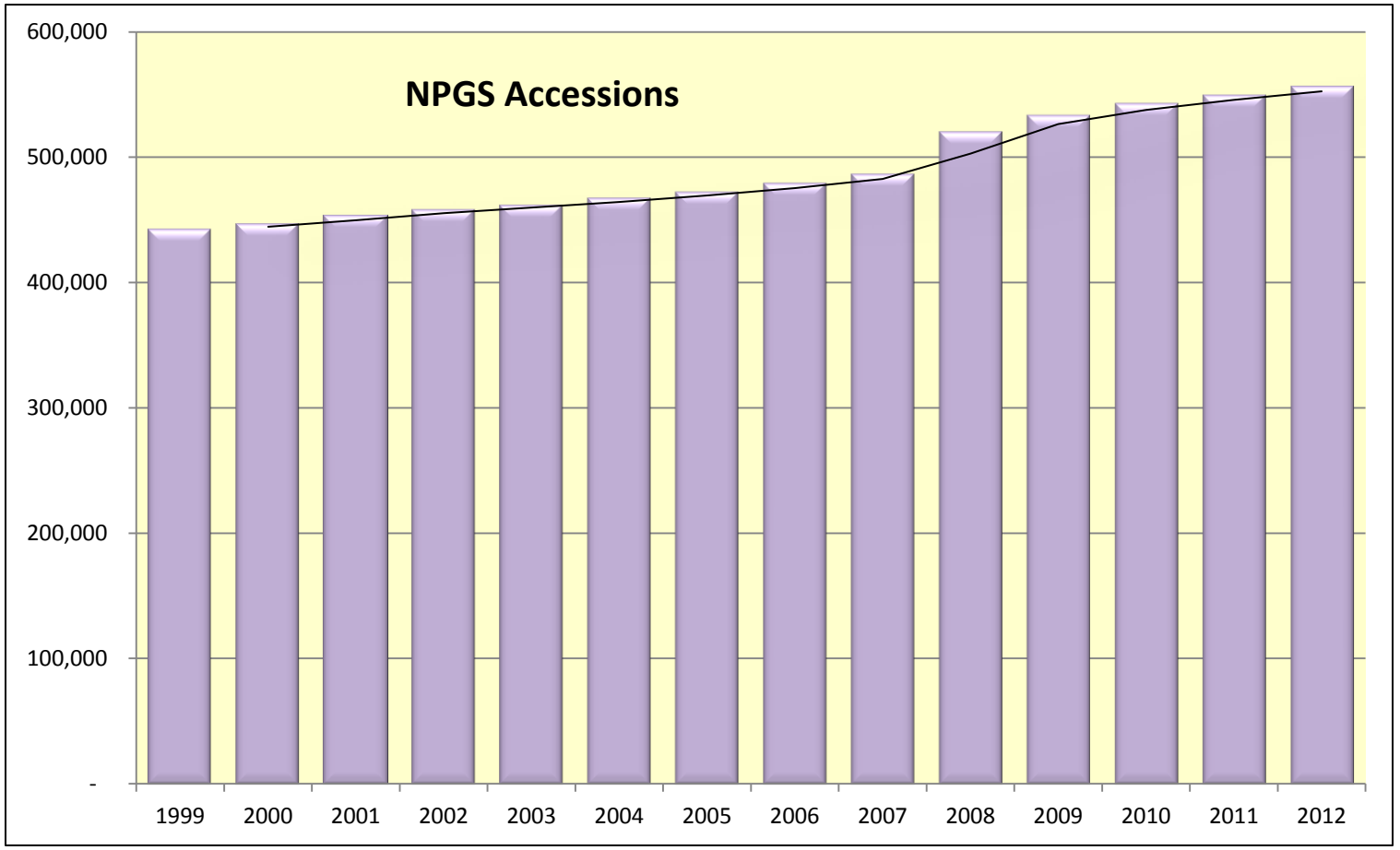
USDA National Plant Germplasm System (NPGS)



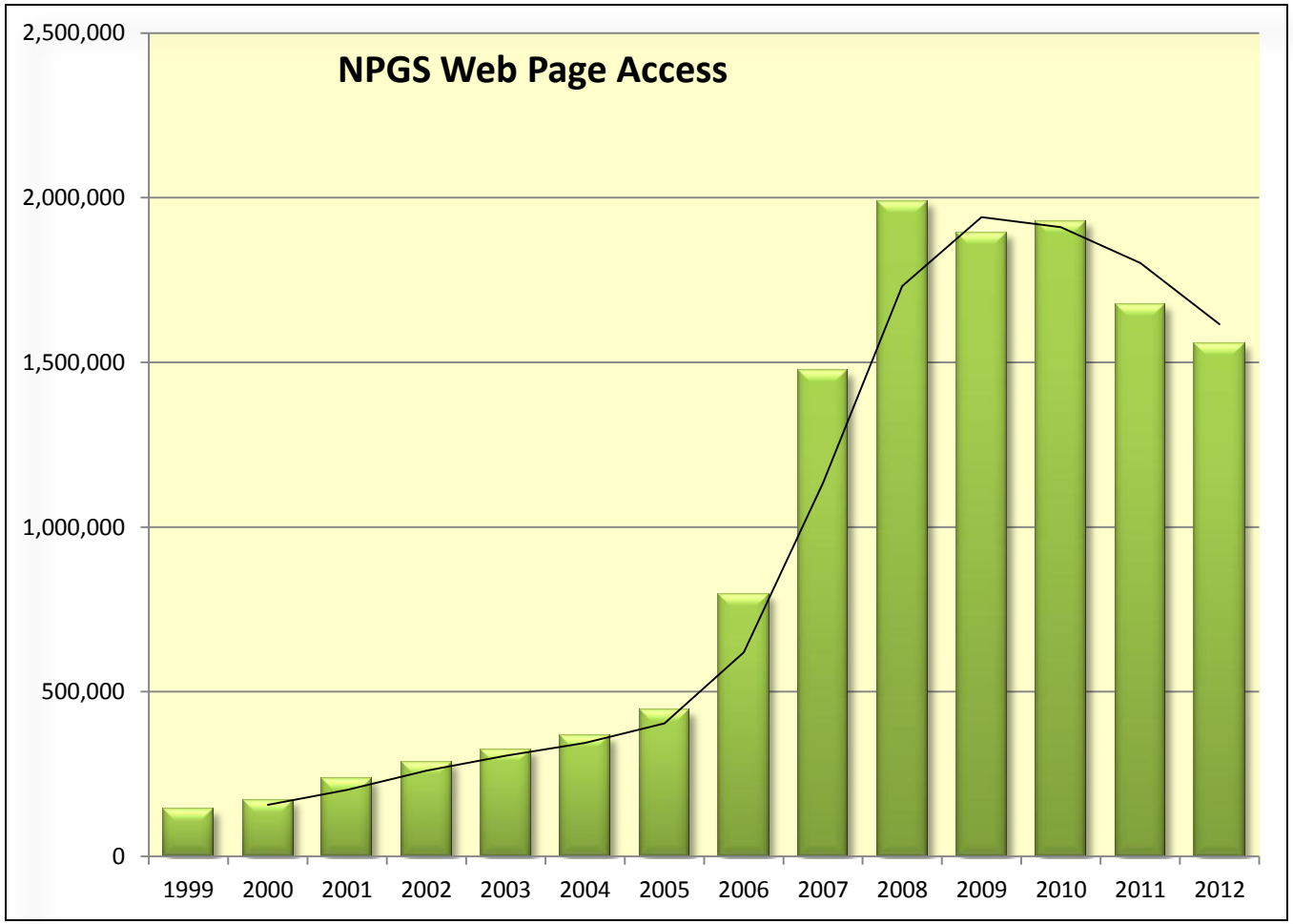
Genetic Resource Management Priorities

- Acquisition
- Maintenance
- Regeneration
- Documentation and Data Management
- Distribution
- Characterization
- Evaluation
- Enhancement
- Research in support of the preceding priorities

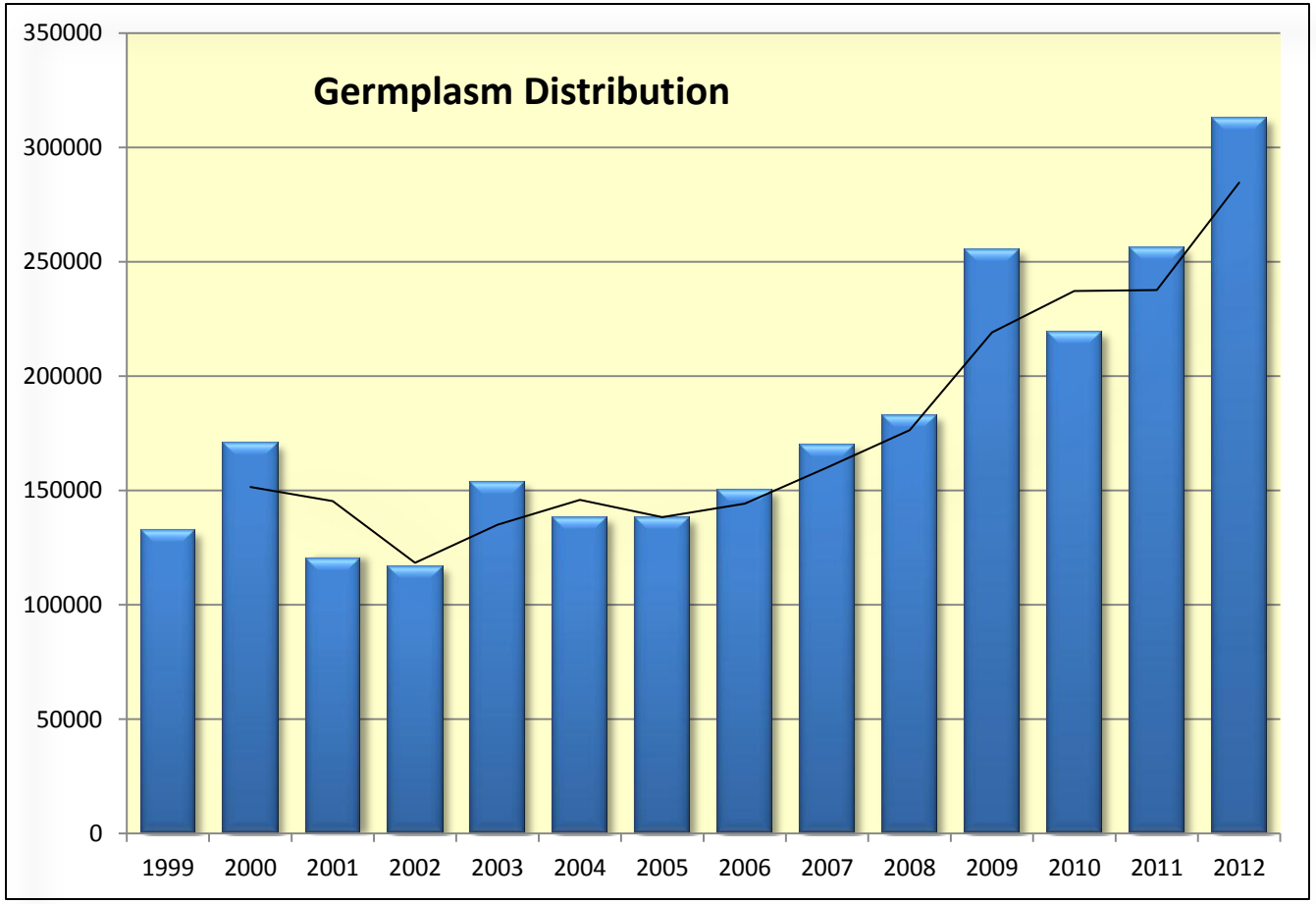
NUMBER OF NPGS ACCESSIONS 1999-2012



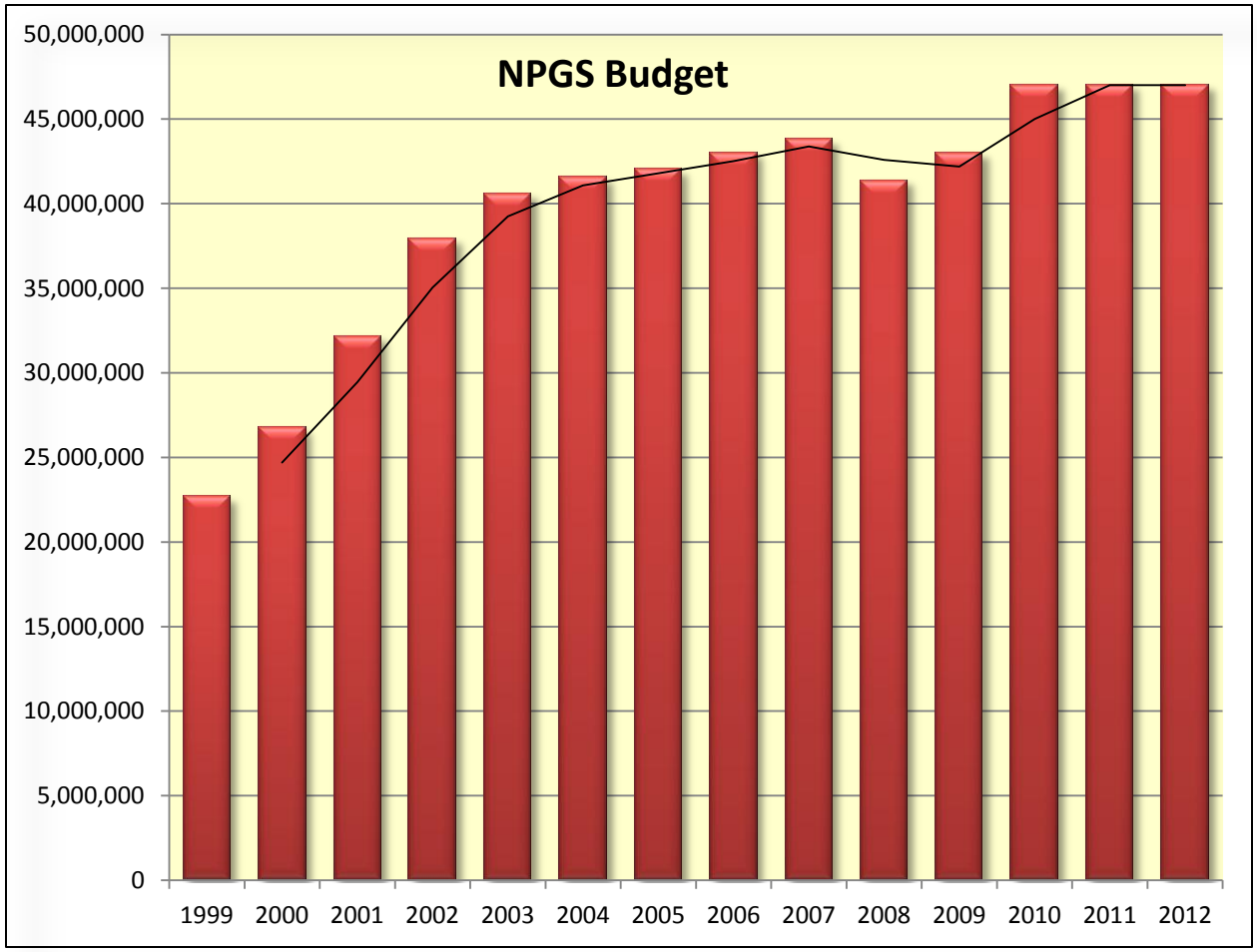
DEMAND FOR NPGS INFORMATION 1999-2012



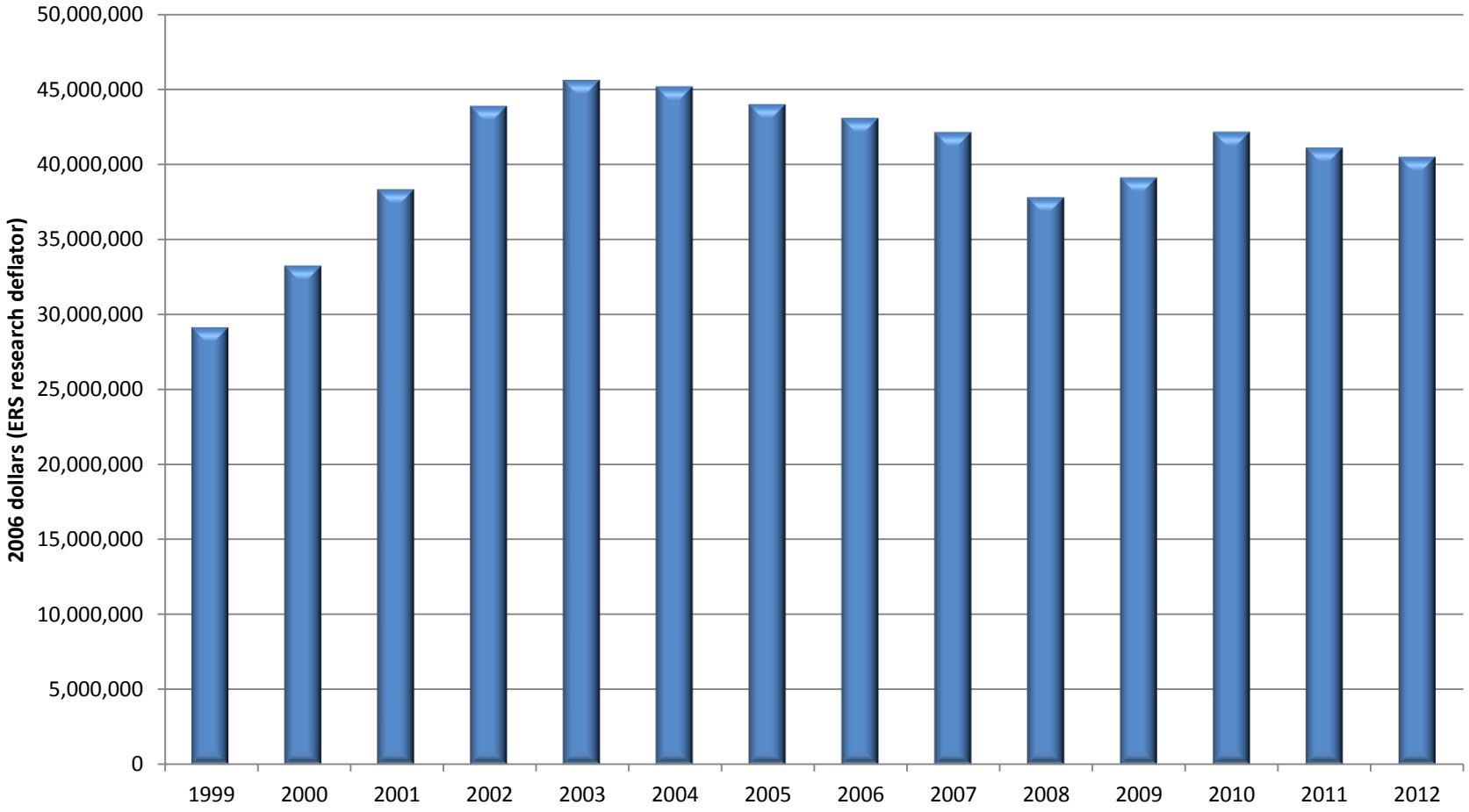
Demand for NPGS Germplasm 1999-2012



ARS National Plant Germplasm System budget 1999-2012



ARS National Plant Germplasm System Budget, Real, 1999-2012



FY 2013 and FY 2014 Budgets

- **The Consolidated and Further Continuing Appropriations Act, 2013 (FY 2013 appropriations) included rescissions and other reductions to the ARS's budget due to sequestration.**
- **The President's FY 2014 budget proposal would increase ARS's funding by about 2%, and specifically would increase the NPGS's budget by $581,000.**
- **The House Agriculture Appropriations Subcommittee "mark-up" the FY 2014 budget would provide a 5.6% increase above the current FY 2013 operating level.**

Prospective reviews of USDA/ARS National Program 301: Plant Genetic Resources, Genomics, and Genetic Improvement Project Plans

- **The NPGS is part of National Program 301. In late 2011 and early 2012, this National Program underwent a Retrospective Review, conducted an "in-person" customer-stakeholder workshop , and drafted a new Action Plan for 2013-2017 .**
- **NP 301 researchers then wrote Project Plans for each of the ca. 155 projects that comprise NP 301.**
- **The Project Plans were reviewed by anonymous external panels. More than 92% of the NP 301 Project Plans passed review , including all of those in the NPGS.**

New National Program 301 Action Plan

- **Describes the overall research goals, needs, anticipated products, and potential benefits generated by this, ARS' largest National Research Program.**
- **Provides overall guidance and direction for the individual Research Projects that are aligned with and contribute to NP 301 goals.**
- **Its Anticipated Products serve as benchmarks for subsequent retrospective assessments of programmatic achievements.**
- **Available at http://www.ars.usda.gov/research/programs/programs.htm?np_code=301&docid=22479**

Costs for phytosanitary certificates

- **Required by some nations for importing germplasm of some crops. To date, the NPGS has paid APHIS directly for issuing such certificates.**
- **APHIS has increased the price of issuing certificates substantially from $23 three years ago to $61 now.**
- **NPGS is developing the means to request international recipients to voluntarily reimburse APHIS (via an on-line site) directly. Ultimately, this might become mandatory, with waivers from the NPGS for requests from the poorest nations.**

International Treaties

- **On 30 November 2010, during its last Business Meeting of the 111th Congress, the Senate Foreign Relations Committee (SFRC) voted the FAO International Treaty out of committee for consideration by the full Senate. The full Senate adjourned without voting on it. The next step would be for the 113th Congress or future Congresses to consider it.**
- **On 29 October 2010, the Convention on Biological Diversity (CBD) adopted the Nagoya Protocol on Access and Benefit-Sharing of Genetic Resources. It is uncertain how this new protocol will affect ABS for plant genetic resources.**

Likely Trends for Crop Germplasm and its Management

- **Budgets will likely not increase**
- **Increasing costs for managing germplasm**
- **Larger germplasm collections**
- **Increasing demand for germplasm**

Some (but not all!) Key Challenges for the NPGS

- **Managing and expanding NPGS operational capacity and infrastructure**
- **Fulfilling the demand for additional germplasm characterizations/evaluations**
- **Acquiring and conserving germplasm of wild crop relatives**
- **Managing genetic/genomic seed stocks**
- **Conserving germplasm of crop-associated microbes**

Template for revising NPGS Crop Vulnerability Statements

- **Ever since their inception in the late 1980s, the Crop Germplasm Committees (now numbering 42) have been assigned the responsibility of compiling "Crop Vulnerability Statements." These provide important input and guidance for priorities, emerging issues, etc.**
- **The quality, timeliness, and coverage of these statements have been highly variable across CGCs.**

Template for revising NPGS Crop Vulnerability Statements

- **A standard template was developed for updating and revising the Crop Vulnerability Statements so that these reports will capture and communicate timely information more effectively.**

Revised Manual of Procedures for the NPGS

- **Each NPGS genebank has or should have a Manual of Procedures or Operation Manual that documents the site's managerial practices.**
- **The overall NPGS Manual of Procedures has been in place since the mid-1990s, with periodic minor updates.**
- **The NPGS Manual of Procedures is currently undergoing a major overhaul, and transformation into a web-format, hyperlinked document.**

FAO Commission of Genetic Resources for Food and Agriculture Plant Genebank Standards

- **A few months ago, the FAO Commission of Genetic Resources for Food and Agriculture endorsed a new set of Genebank Standards for Plant Genetic Resources for Food and Agriculture.**
- **The document (109 pp.) is accessible on the web at http://www.fao.org/docrep/meeting/027/mf804e.pdf**

FAO Commission of Genetic Resources for Food and Agriculture Plant Genebank Standards

- **Several NPGS staff contributed extensively to drafting, reviewing, and editing these standards.**
- **The updated NPGS Manual of Procedures will be consistent with the major elements of the international standards.**

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