

The National Plant Germplasm System: 2020 Status, Prospects, and Challenges

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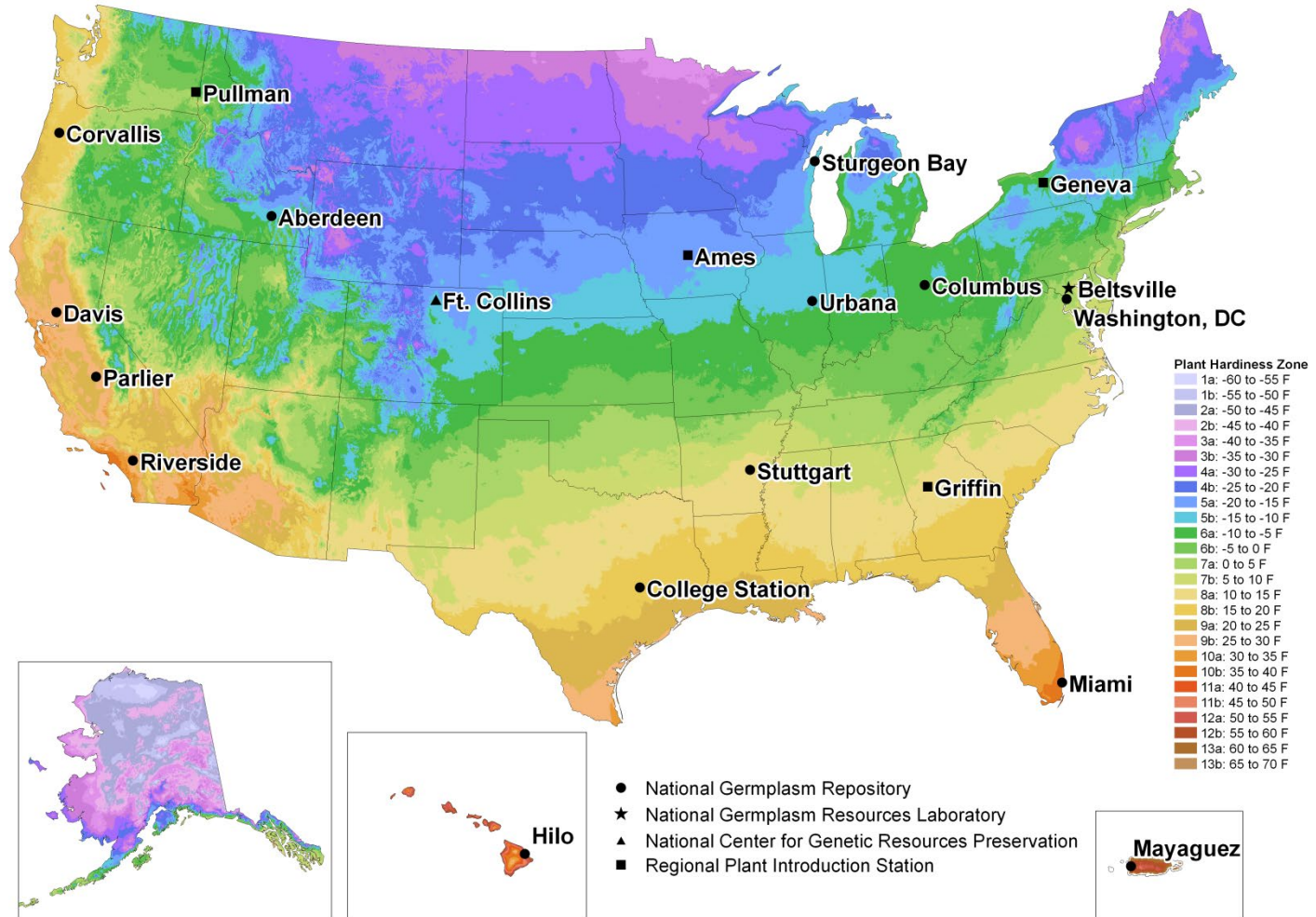
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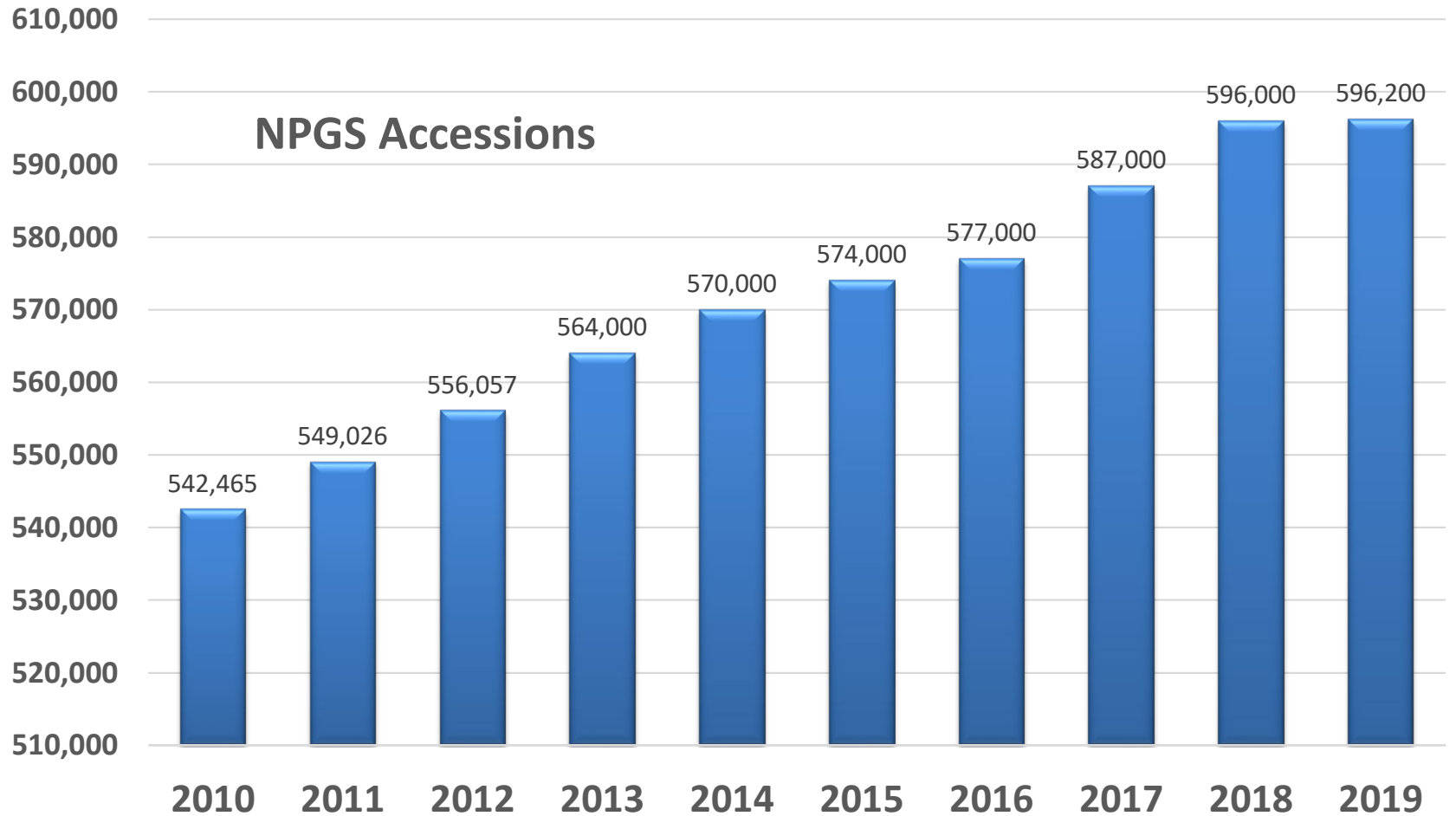
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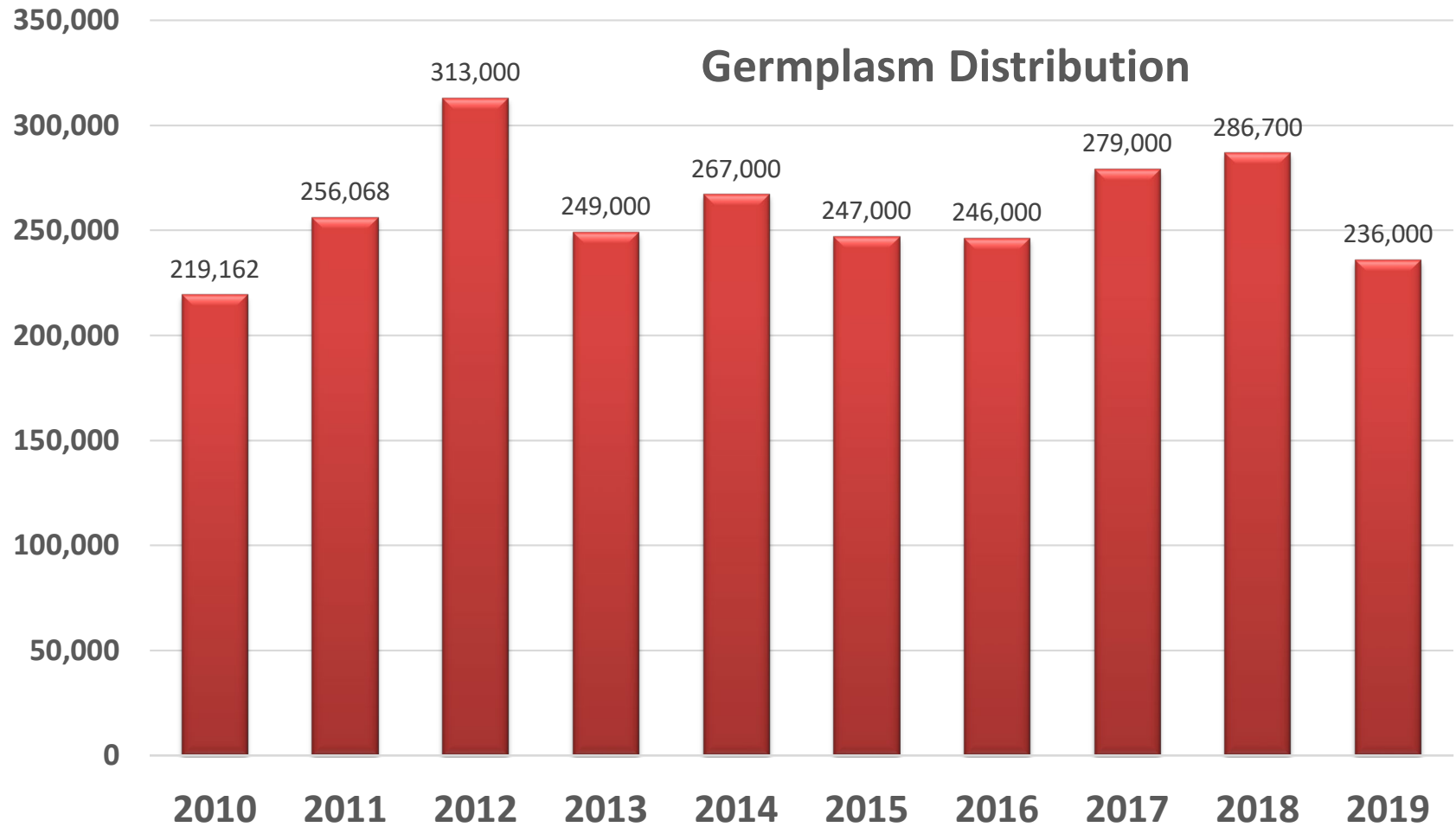
USDA National Plant Germplasm System (NPGS)



NUMBER OF NPGS ACCESSIONS 2010-2019



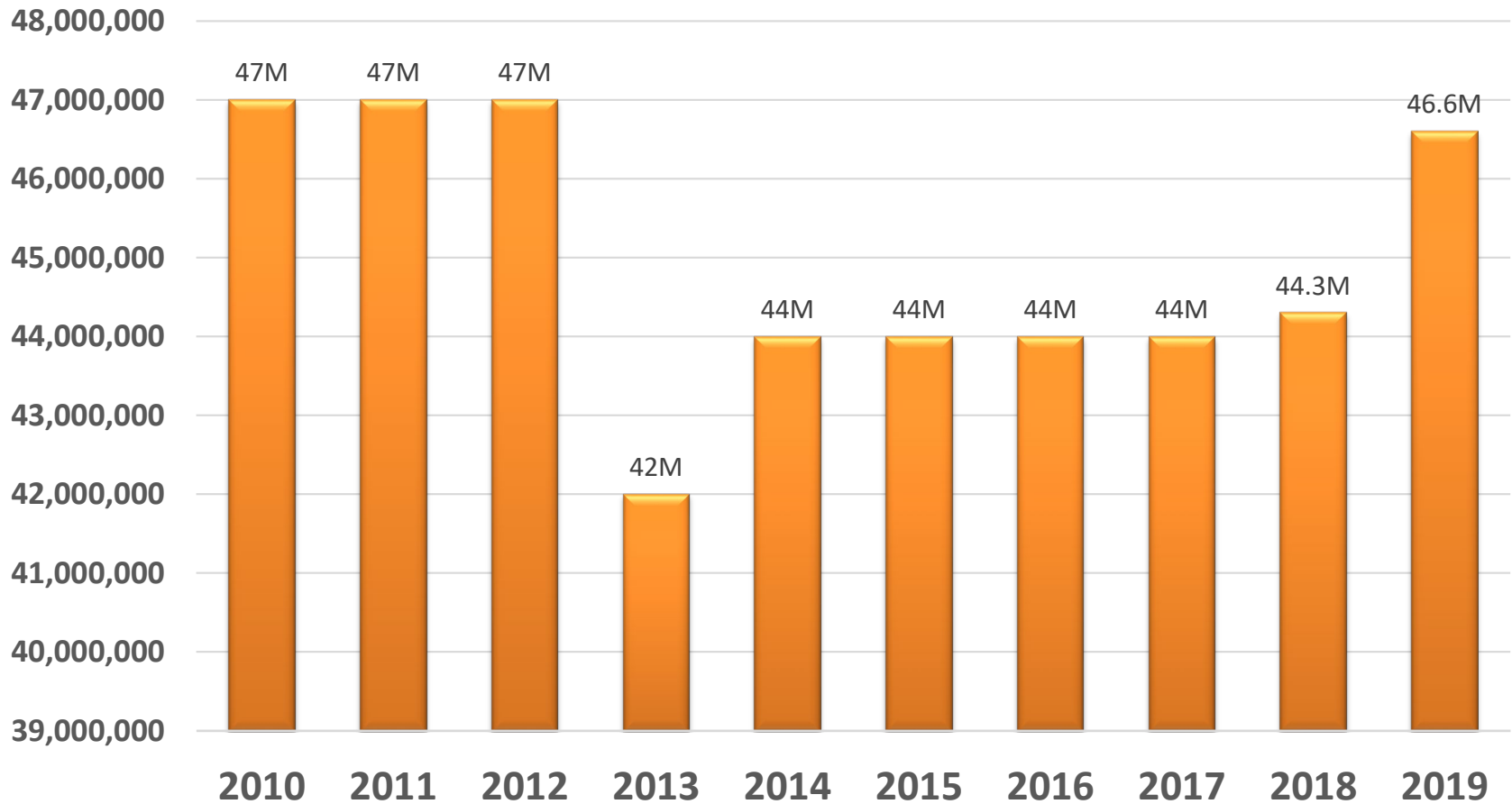
DEMAND FOR NPGS GERMPLASM 2010-2019



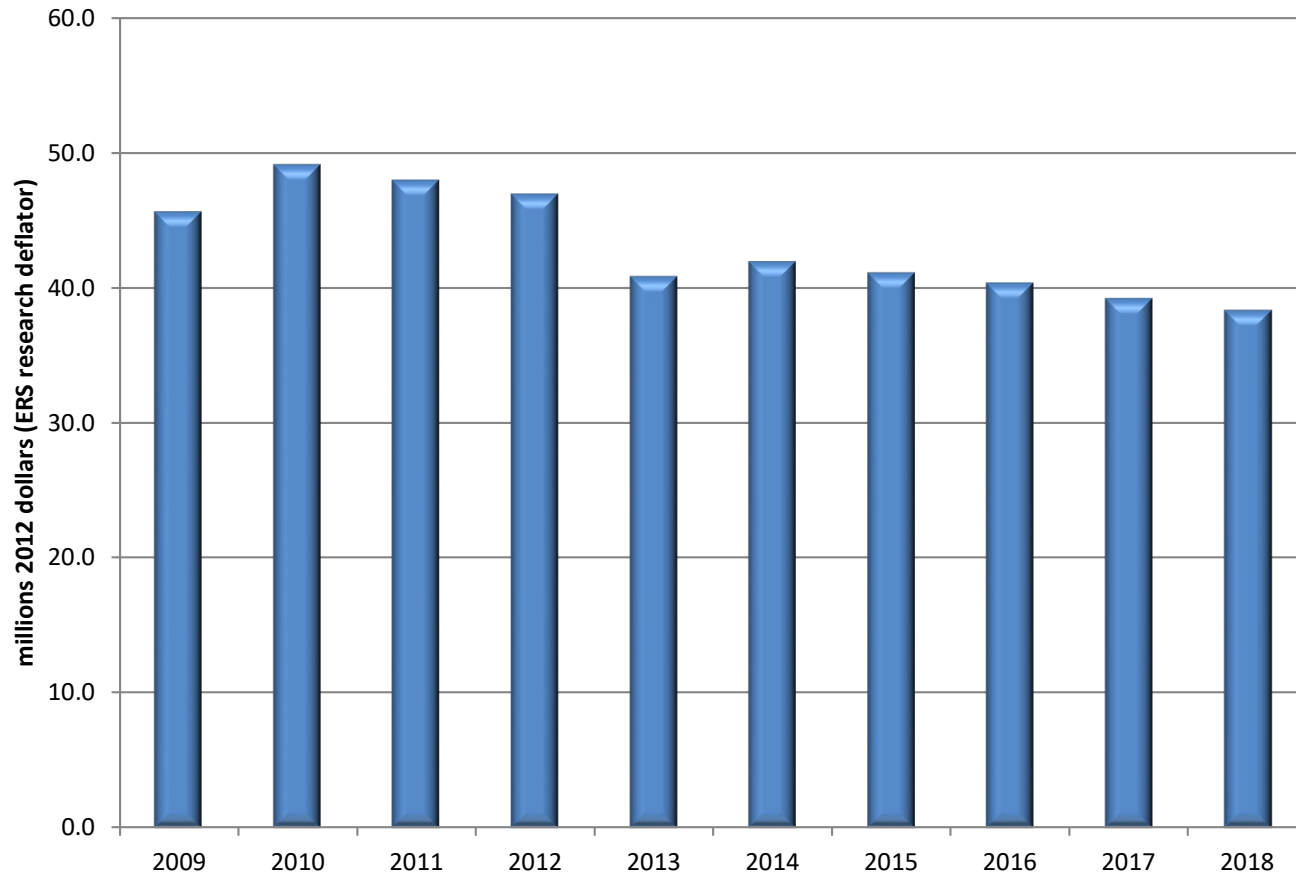
Effects of CoVID-19 as of 29 May 20

- **Many international germplasm shipments have been ceased because of suspended service and uncertain delivery conditions.**
- **Many NPGS genebanks have ceased all germplasm shipments because of Federal, State, and local (university) directives for social distancing, stay-at-home, etc. But Aberdeen, Ames, Corvallis, Davis, Mayagüez, Pullman, Riverside and Sturgeon Bay are still shipping some germplasm.**
- **GRIN-Global is functioning normally.**

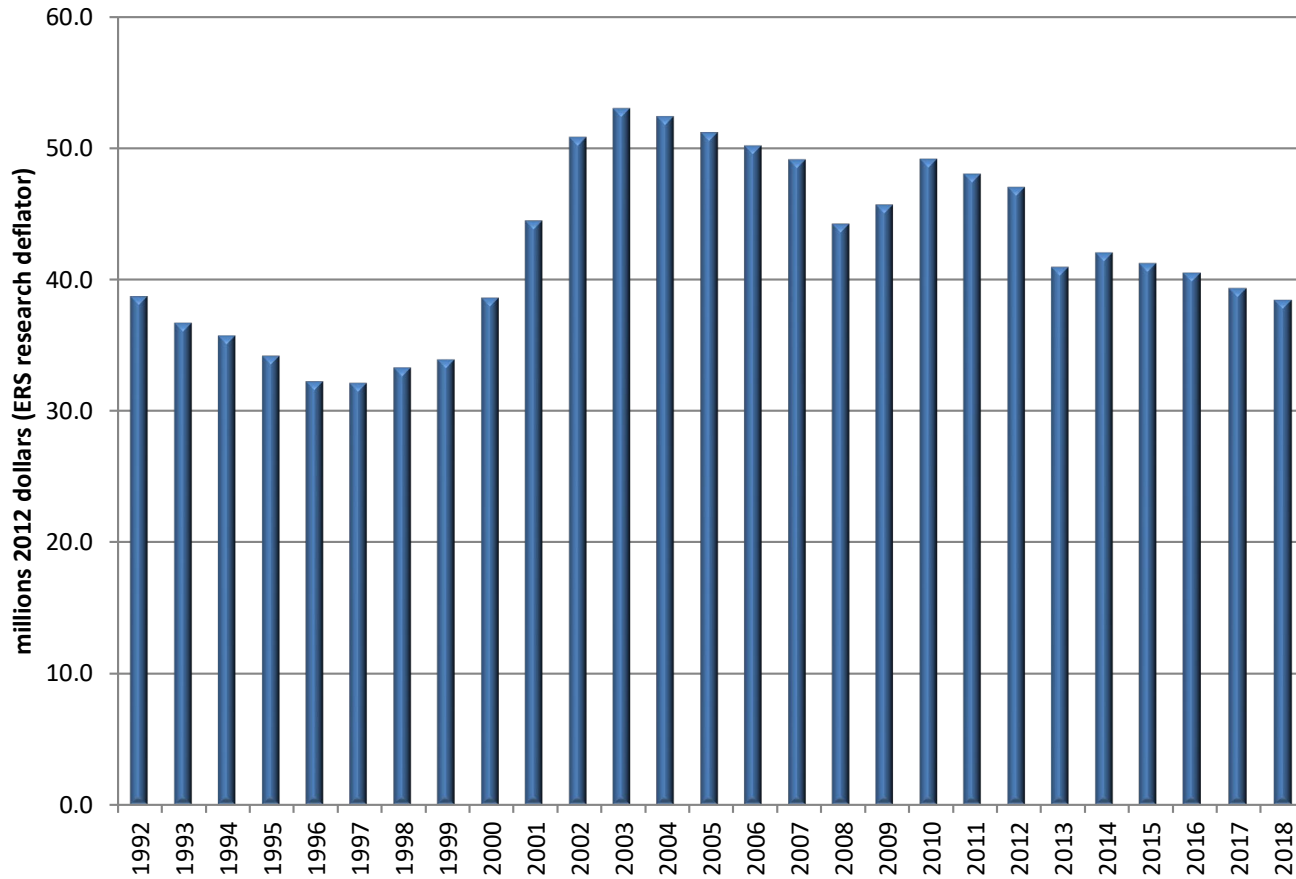
ARS NATIONAL PLANT GERMPLASM SYSTEM BUDGET 2010-2019



ARS NPGS real (deflated) budget, 2009-2018



ARS NPGS real (deflated) budget, 1992-2018



Some key challenges for the NPGS

- **Managing and expanding the NPGS operational capacity and infrastructure to meet the increased demand for germplasm and associated information.**
- **Recent and upcoming NPGS personnel retirements; hiring and training new staff.**
- **Developing and applying cryopreservation and/or in vitro conservation methods for clonal germplasm.**
- **BMPs and procedures for managing accessions (and breeding stocks) with GE traits and the occurrence of adventitious presence (AP).**
- **Acquiring and conserving additional germplasm, especially of crop wild relatives.**

Genetic Resource Management Priorities: Foundations for Crop Innovation

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

Personnel Changes

- **Farewell and best wishes to Jinguo Hu, RL (ARS-Pullman).**
- **Welcome and best wishes to Adam Mahan, Soybean Curator at ARS-Urbana; Todd Rounsaville, Woody Landscape Plant Geneticist at ARS-USNA, Washington, DC; Cullen McGovern, IT specialist at ARS-NLGRP, Ft. Collins, and Alex Sanchez, who moved from ARS-SHRS Miami to become nursery manager at ARS-NCGR, Davis.**
- **With the hiring freeze lifted, we hope to hire curatorial staff in the near future at Hilo, HI; Pullman, WA; Corvallis, OR; Geneva, NY; and Miami, FL.**

Plant Genetic Resource (PGR) Management Training Initiative

- At least 1/3 of NPGS PGR managers could retire within 5 years.
- Currently, no formal, comprehensive program exists for training new PGR managers.
- G. Volk (ARS-Ft. Collins) and P. Byrne (CSU-Ft. C.) secured a USDA/NIFA grant for a workshop at Ft. C. 24-26 April 2018 that discussed designing & developing a training program for PGR management to be delivered primarily through distance-learning.
- The workshop generated numerous insights; workshop participants submitted a NIFA Higher Education Challenge grant proposal that awaits funding. An extensive survey for PGR training/learning needs was conducted and published in *Crop Sci.* 59:2308–2316 (2019). doi: 10.2135/cropsci2019.05.0324
- Instructional e-books under development--see <https://colostate.pressbooks.pub/cropwildrelatives/> for an e-book about conserving crop wild relatives.

FY 19 ARS NPGS Budgetary Increases

- **Coffee genetic resources (\$1.9 million): Hilo, HI; Mayagüez, PR; Ft. Collins, CO; Beltsville, MD.**
- **Citrus genetic resources (\$1 million): Riverside, CA; Ft. Collins, CO.**
- **Industrial hemp genetic resources (\$500,000): Geneva, NY.**

NPGS Video

- Pullman, Griffin, Ames, Corvallis, and Geneva staff developed a new tactic for discouraging “non-research requests” for germplasm by communicating that the NPGS benefits everyone by ensuring global food security through research and breeding, not by providing seeds for home gardens.
- Led by Barbara Hellier at Pullman, the NPGS genebanks and USDA Communications filmed a video of NPGS operations accessible from the ARS YouTube site at: <https://youtu.be/uHOclGNEluw>
- Feel free to post this link on your websites, and share it with customers/stakeholders, colleagues, family, and friends.