U.S. DEPARTMENT OF AGRICULTURE

Welcome to the 2024 CGC Chairs Annual Meeting

It takes too long for everyone to introduce themselves audibly.
We invite you to use the chat feature to share
your name, CGC, and affiliation.

CGC Business Reminders

How do I update CGC minutes, Crop Vulnerability Statements, etc. on the CGC page of GRIN?

- Send updates to Gary Kinard, who will post them to the site.

How do I update CGC membership rosters?

- Two options:
  - We can give you permission to update them real-time on the CGC page (Google spreadsheet). This is the preferred method.
  - If it's a minor update, Gary can make it for you.
  - Note: Feel free to delete or omit detailed information such as mailing address and phone numbers if you choose. We recognize there is more sensitivity to public access to this information than in prior times. ARS would primarily like to know the names and affiliations of CGC members. As chairs, you might find the rosters a convenient and continuous way to maintain an email group for your committee.

Who should be notified when there is a new CGC Chair?

- Please notify Gary Kinard, who will update the ARS-GRIN-CGC Outlook group. It's a good idea to also notify the PGR NPL, currently Gayle Volk.

How can I submit content that you may want to add to GRIN-U?

- Send it to Gary Kinard and/or Gayle Volk.

Thank you for serving as a CGC Chair!

The National Plant Germplasm System: 2024 Status, Prospects, and Challenges

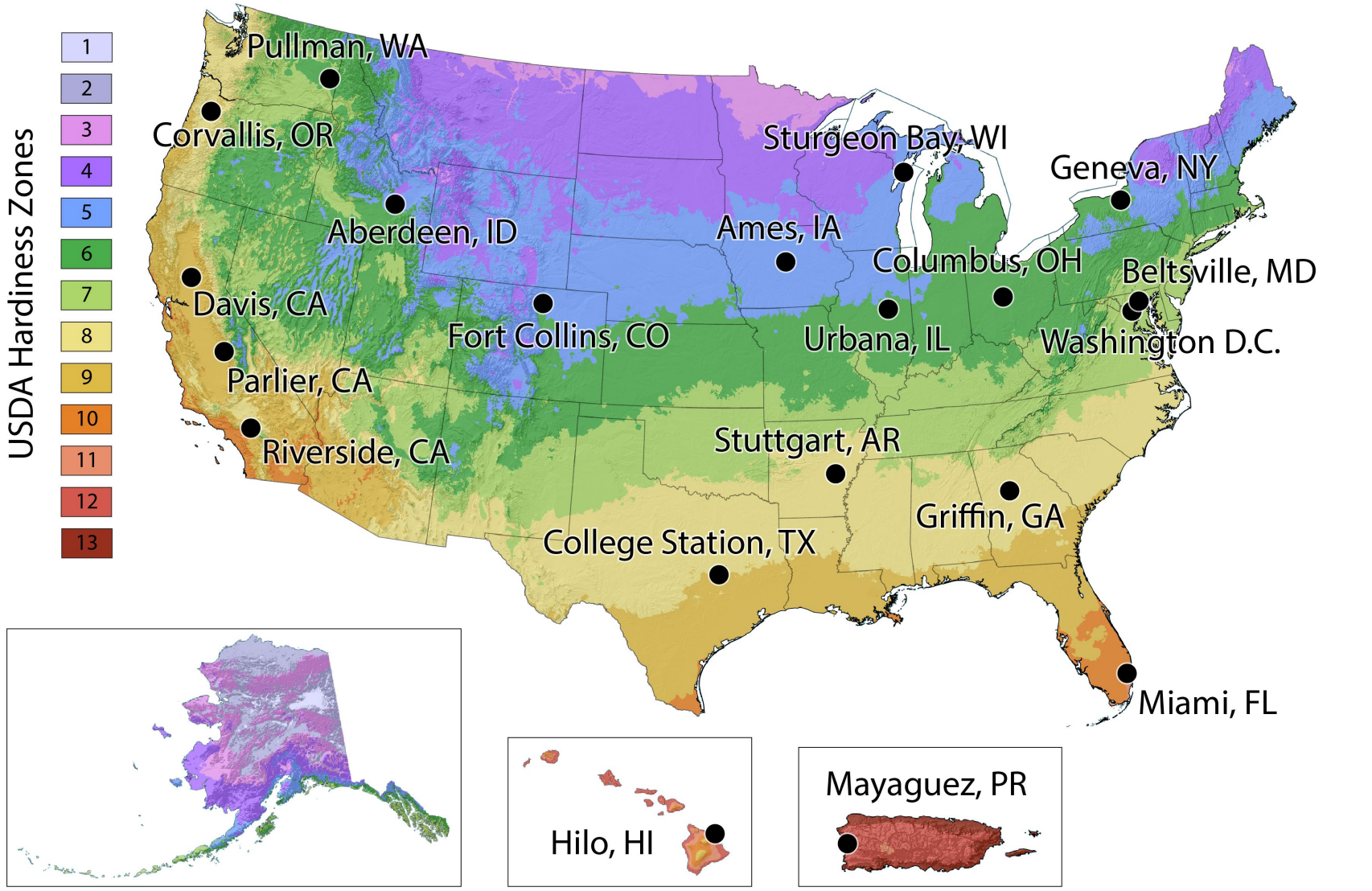
Gayle Volk, Ph.D.

Office of National Programs (detail)

National Laboratory for Genetic Resources Preservation, Fort Collins, Colorado

Gayle.Volk@usda.gov

USDA National Plant Germplasm System (NPGS)

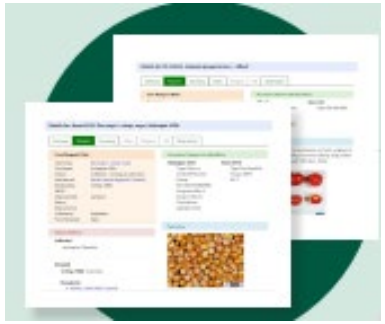


New Plant Hardiness Zone Map released 11/2023

USDA National Plant Germplasm System

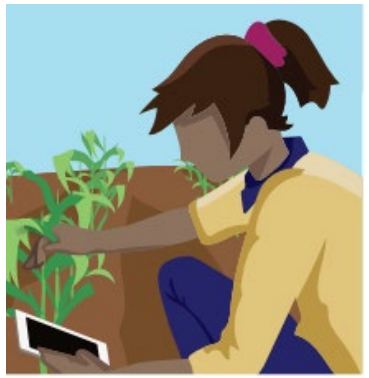
Acquire

Maintain



Document

Characterize & Evaluate

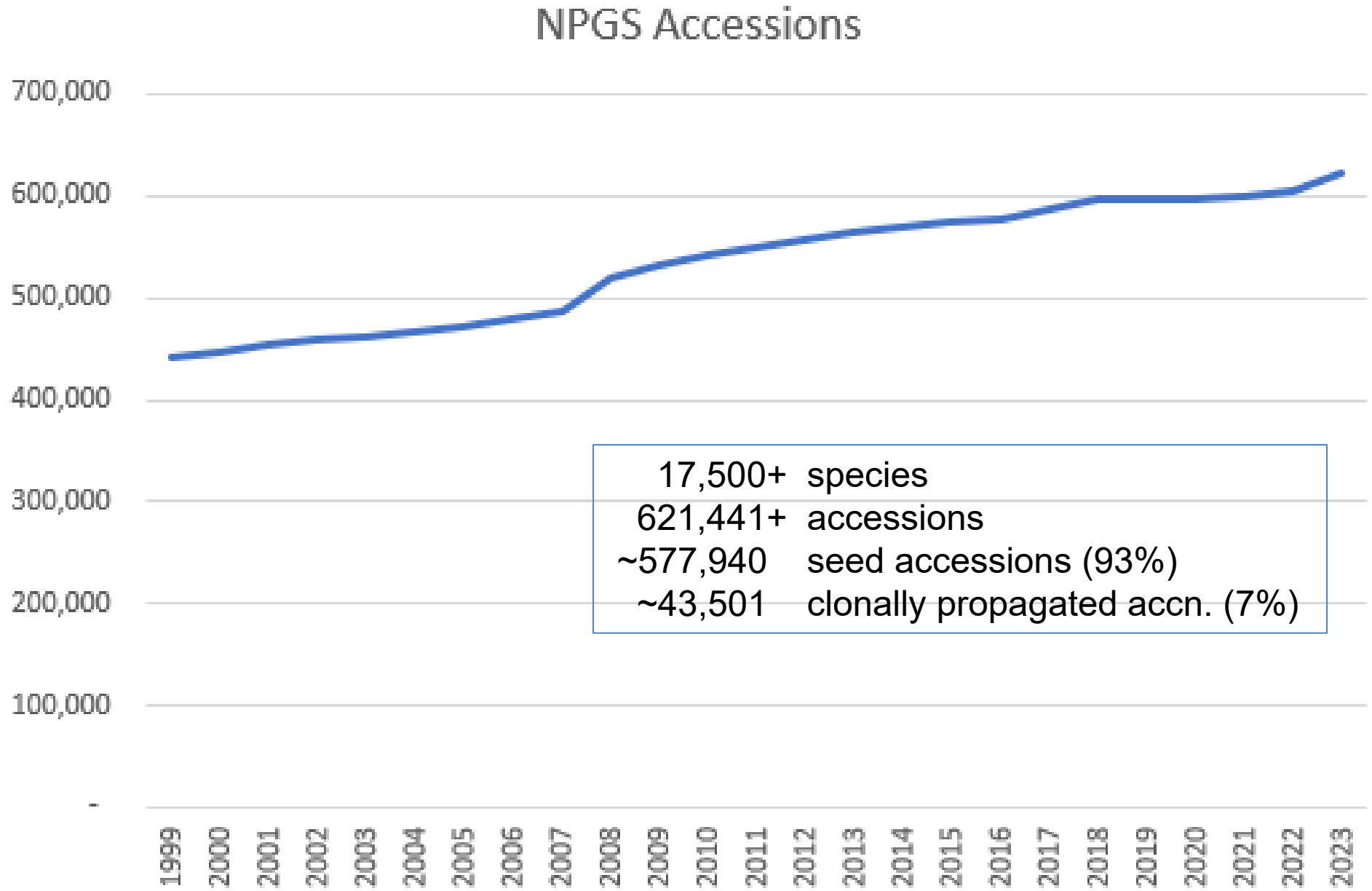


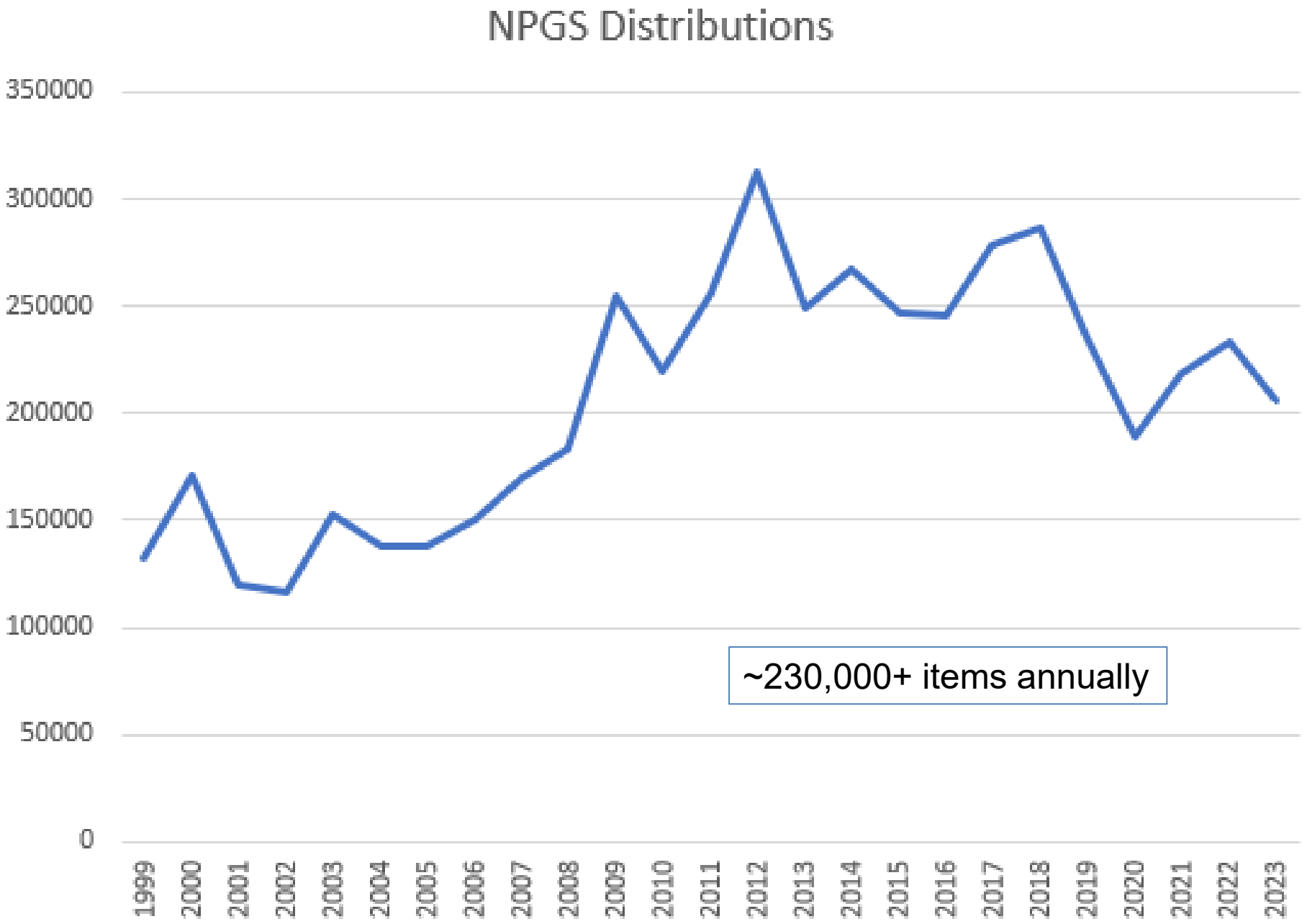
Regenerate

Secure

Distribute

Communicate with Customers and Stakeholders


NPGS Accessions
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
17,500+ species
621,441+ accessions
~577,940 seed accessions (93%)
~43,501 clonally propagated accn. (7%)


NPGS Distributions
350000
300000
250000
200000
150000
100000
50000
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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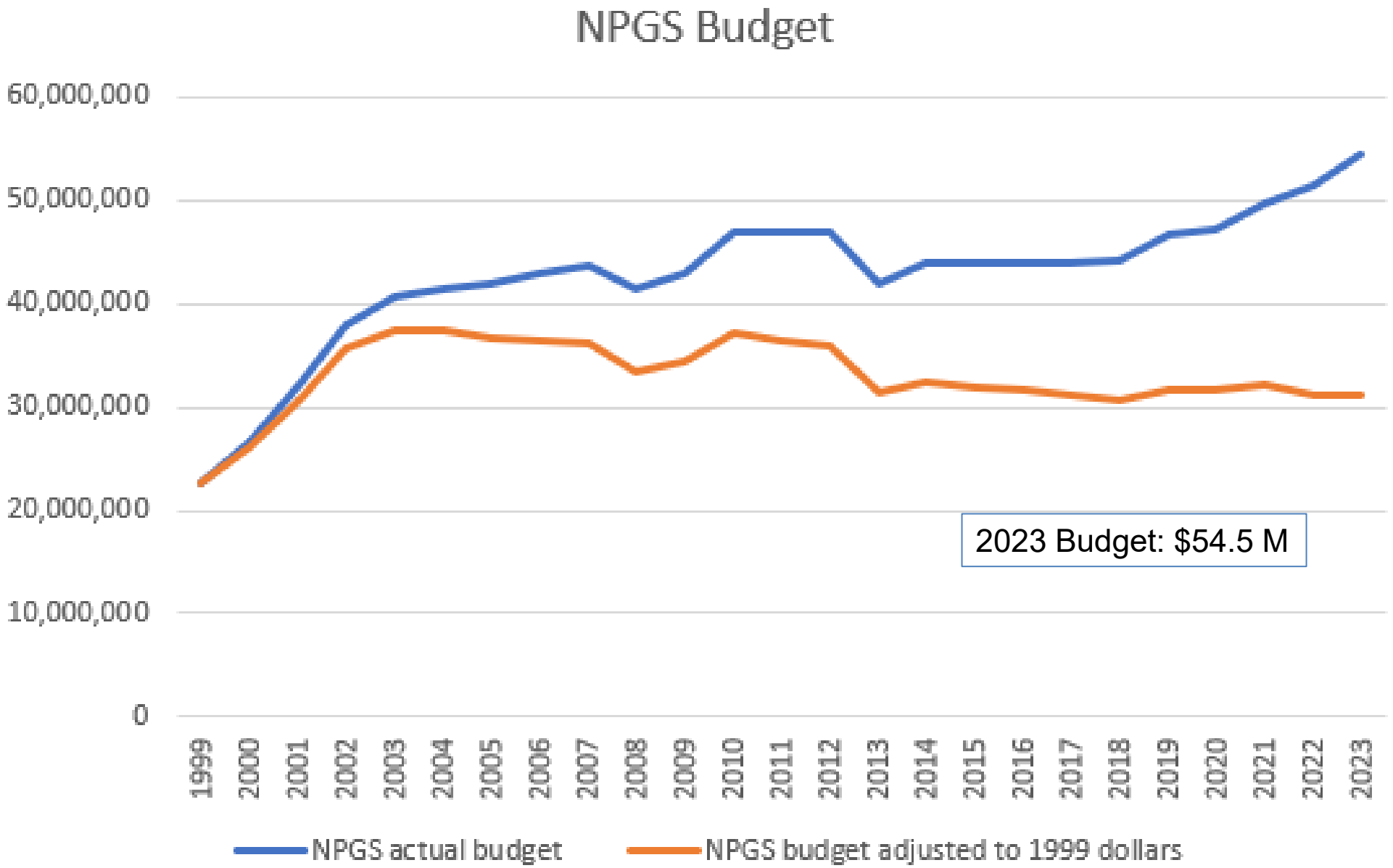
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
~230,000+ items annually


NPGS Budget
60,000,000
50,000,000
40,000,000
30,000,000
20,000,000
10,000,000
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2023 Budget: $54.5 M
NPGS actual budget
NPGS budget adjusted to 1999 dollars

FY 23 ARS NPGS Budgetary Increases

- National Arboretum (ca. $138,000) Washington, D.C.
- Sugarcane Variety Development (ca. $166,667) Miami, FL
- Small Fruits PGR (ca. $500,000) Corvallis, OR
- Pecan Genetic Research (ca. $500,000) College Station, TX

NPGS Personnel Transitions

- Farewell and best wishes to Peter Bretting (NPL), Tomas Ayala-Silva (Mayaguez), Harold Bockelman (Aberdeen), Kevin Conrad (National Arboretum), Kurt Endress & Matthew Riggs (DBMU), Barbara Hellier (Pullman), David Peters (Ames)

- Welcome to Noelle Anglin (Aberdeen), Alex Cornwall (Pullman), Yu Ma (Ohio State), Rebecca Povilus (Geneva); Carolyn Scagel (Corvallis), Singh Sukhwinder (Miami)

NPGS Strategic Plan

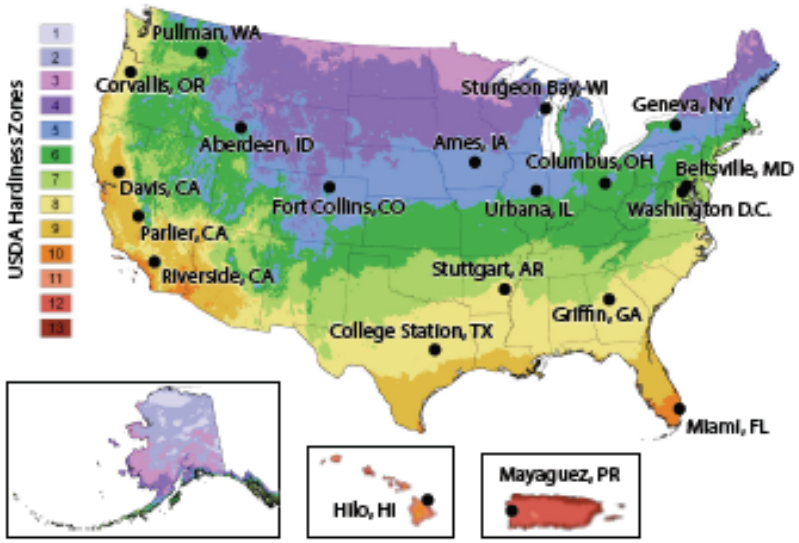
2018 Farm Bill directed USDA to develop and implement an assessment to address the significant backlogs in the NPGS. The NPGS Plan was released in 2023 and is available at https://www.ars-grin.gov/Pages/NPGS

- NPGS Plan Infographic
- NPGS Plan Synopsis of the National Strategic Germplasm and Cultivar Collection Assessment and Utilization Plan
- NPGS Plan Technical Details, Analyses, and Approaches
- Crop and Crop Wild Relative Collections Data

NPGS Plan Infographic (front)

Strengthening the USDA/ARS National Plant Germplasm System to Conserve and Utilize Crop Germplasm That Sustains Us

The U.S. National Plant Germplasm System (NPGS) is Crucial to Global Food Security



NPGS safeguards and delivers plant germplasm for food, fiber, animal feed, industrial, medicinal, and ornamental crops. Plant breeders utilize that plant germplasm to develop new crop varieties that are more nutritious, with higher yields, resilience to extreme weather, and resistance to diseases and pests.

NPGS has **22** genebanks that...

- manage **200+** crops
- maintain **600,000+** unique kinds of plant germplasm
- distribute **200,000+** research samples each year

The NPGS Faces Daunting Challenges

Inadequate NPGS genebank operational capacity results in losses and deteriorating germplasm quality.

NPGS collections have critical backlogs in:

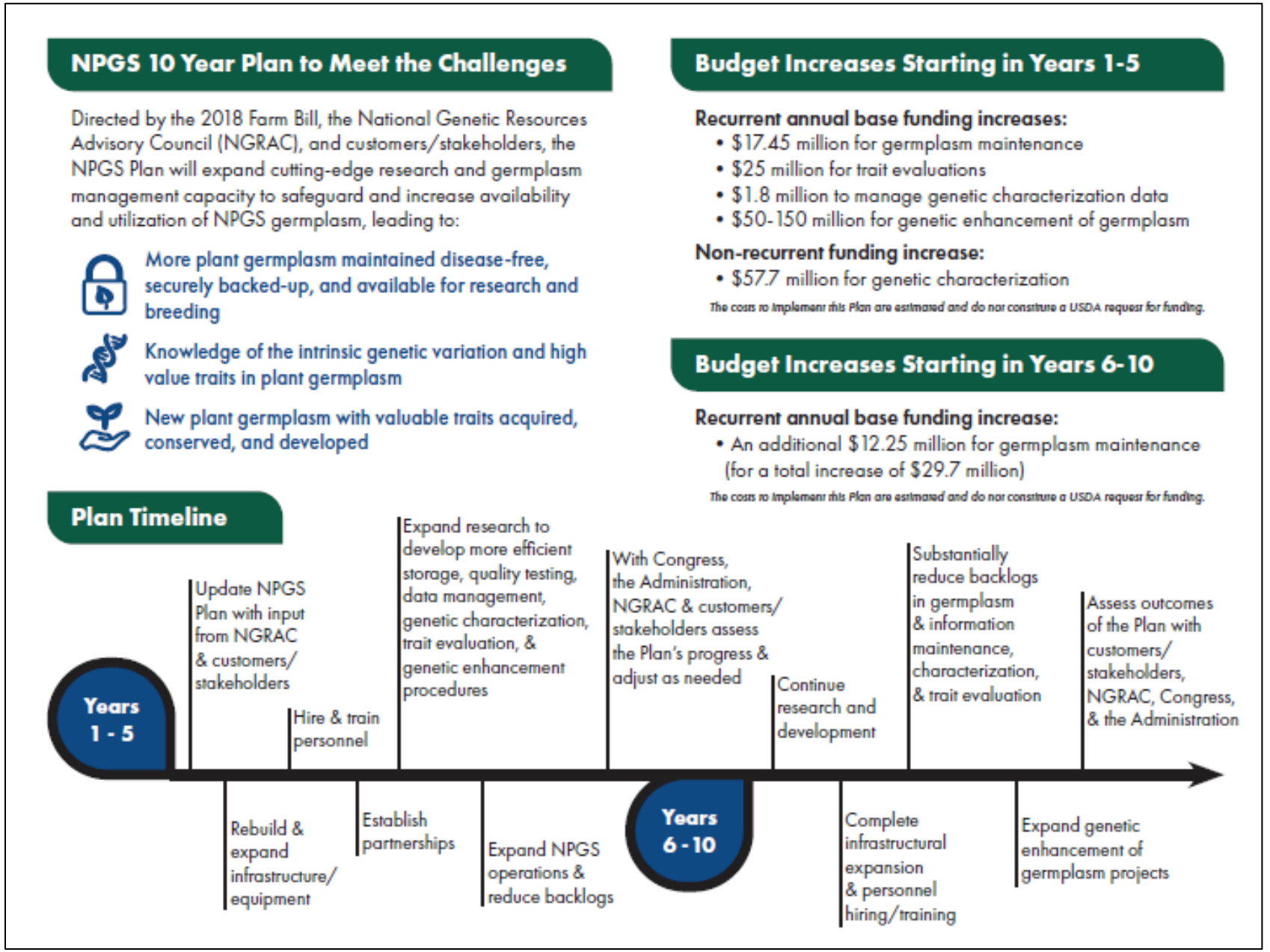
- securing plant germplasm in long-term storage
- testing plant germplasm quality and health
- regenerating plant germplasm
- characterization, trait evaluations, and genetic enhancement of germplasm

Lack of technical knowledge for conserving some plant germplasm, particularly wild species, limits the scope of germplasm the NPGS can effectively safeguard.

Contact: Peter.Bretting@usda.gov
Designed by: Katheryn Chen & Gayle Volk

USDA

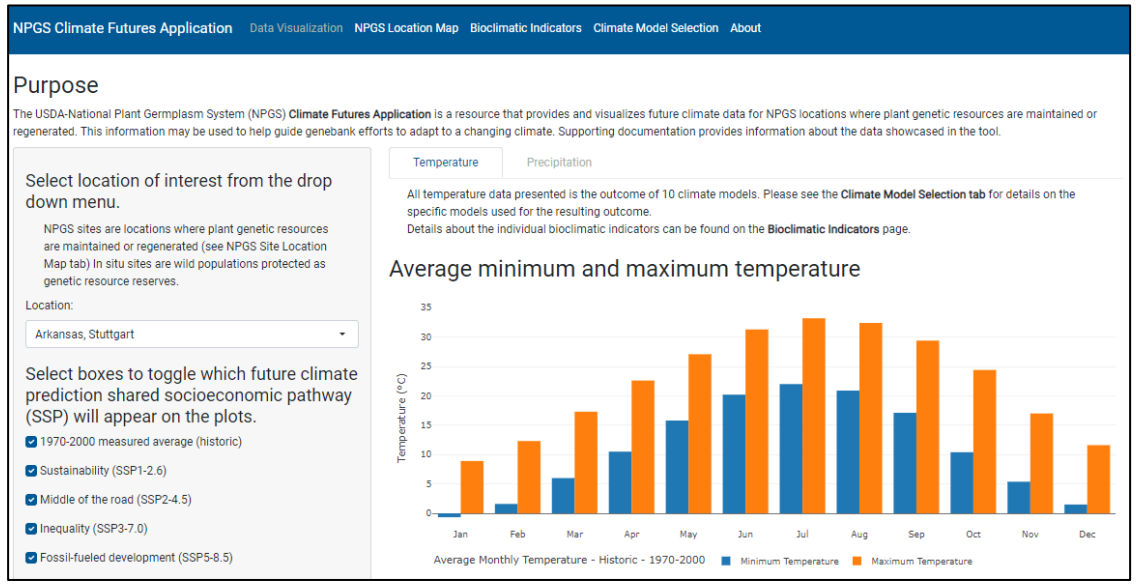
NPGS Plan Infographic (back)



Adapting the NPGS to rapid global warming

- Safeguarding plant genetic resources in the United States during global climate change. 2023. *Crop Science*. https://doi.org/10.1002/csc2.21003

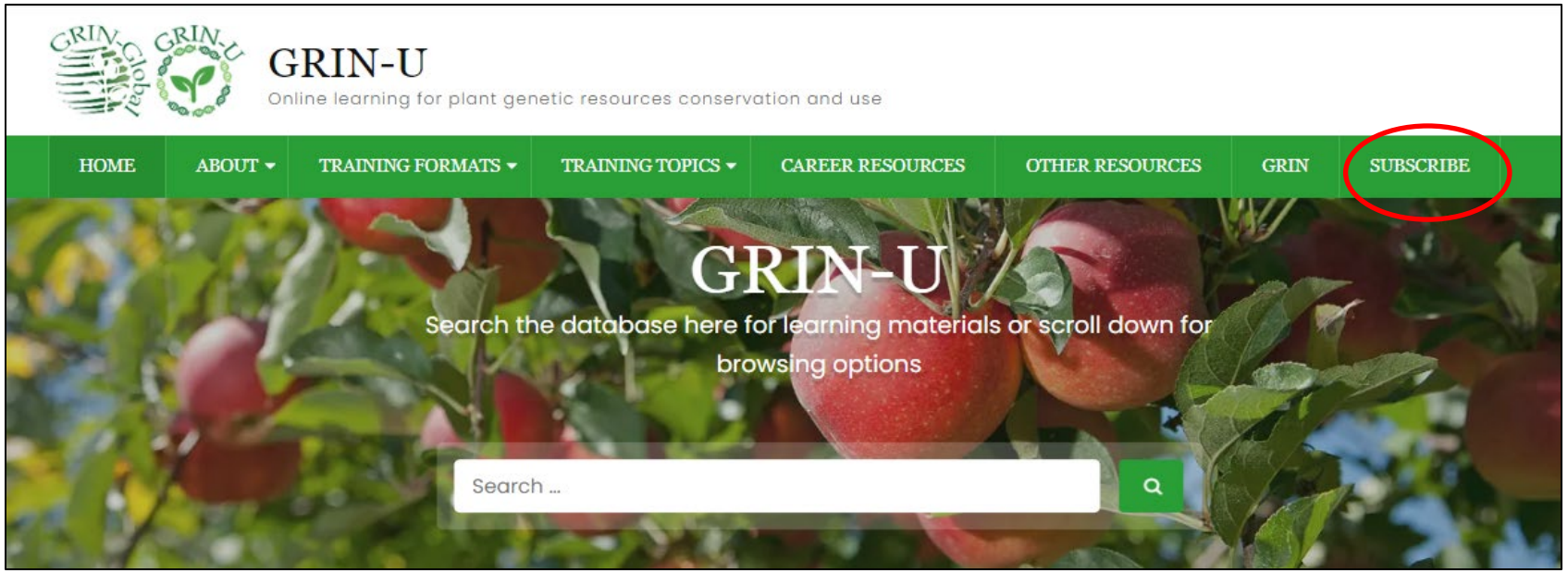
- Includes case studies, an application for estimating future conditions at NPGS sites, potential adaptive strategies and actions.



Some key challenges for the NPGS

- Increased operational costs (labor, inputs, overall inflation).
- NPGS personnel transitions—hiring, training, etc.
- Backlogs for regenerations and viability testing.
- Developing and applying cryopreservation and/or in vitro conservation methods for clonal and some seed PGR.
- BMPs and procedures for managing accessions with GE traits in more crops, the occurrence of adventitious presence (AP), and the products of gene editing.
- Acquiring and conserving additional PGR, especially of crop wild relatives.

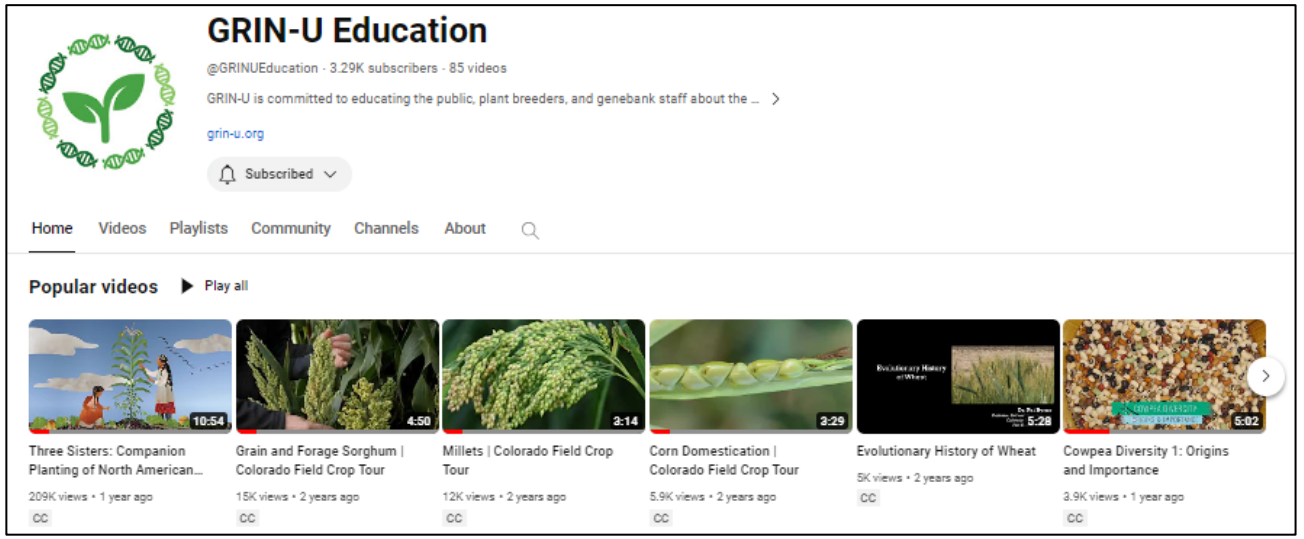
Educational Resources for PGR Conservation and Use



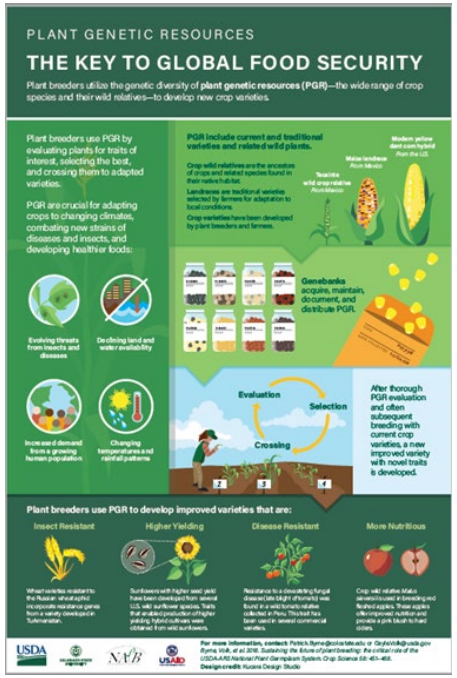
GRIN-U.org

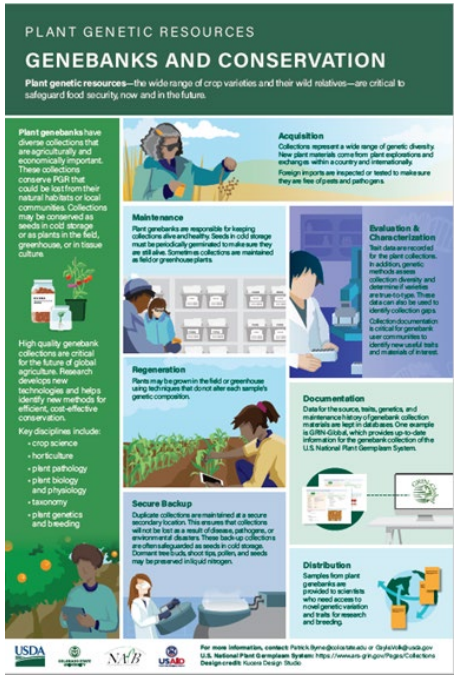
eBooks
Videos
Infographics
Webinars
Links to other resources

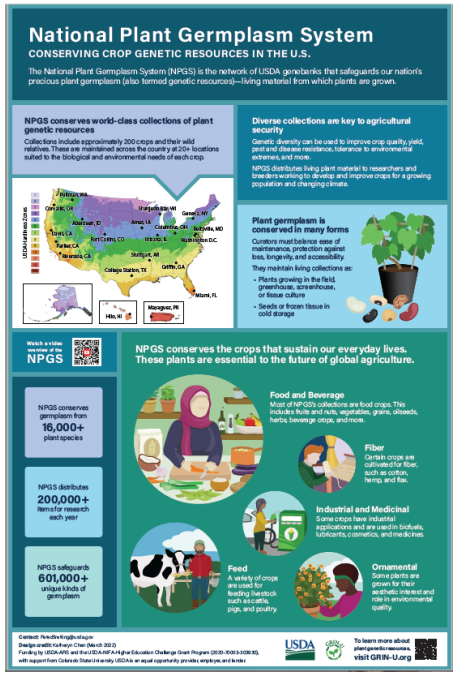
GRIN-U Education YouTube



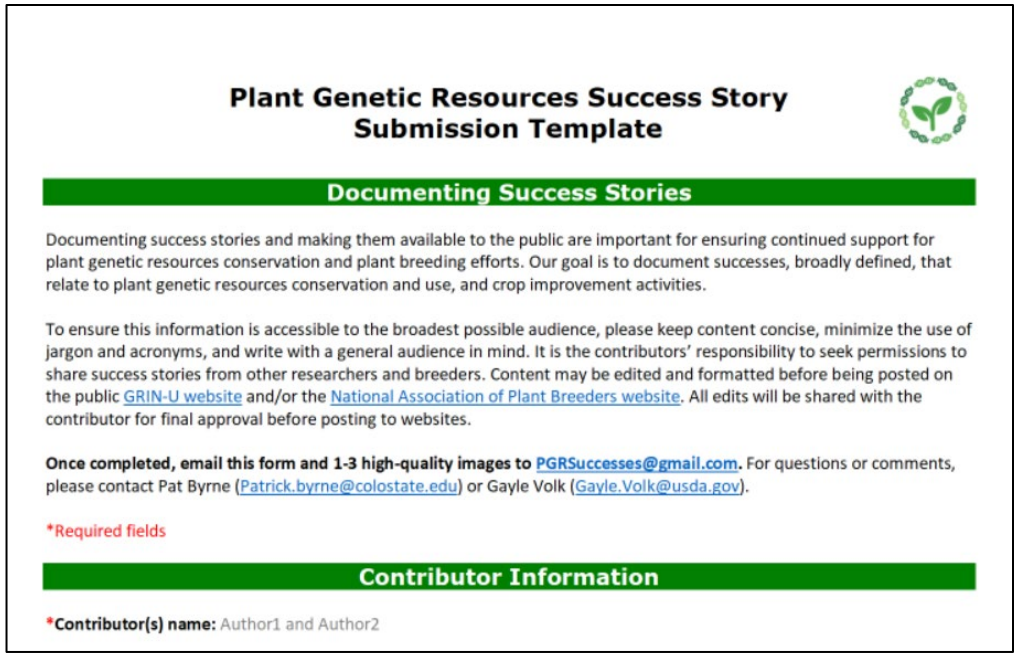
Infographics







Submit PGR Success Stories!



Plant Genetic Resources Success Story Submission Template

Documenting Success Stories

Documenting success stories and making them available to the public are important for ensuring continued support for plant genetic resources conservation and plant breeding efforts. Our goal is to document successes, broadly defined, that relate to plant genetic resources conservation and use, and crop improvement activities.

To ensure this information is accessible to the broadest possible audience, please keep content concise, minimize the use of jargon and acronyms, and write with a general audience in mind. It is the contributors' responsibility to seek permissions to share success stories from other researchers and breeders. Content may be edited and formatted before being posted on the public GRIN-U website and/or the National Association of Plant Breeders website. All edits will be shared with the contributor for final approval before posting to websites.

Once completed, email this form and 1-3 high-quality images to PGRSuccesses@gmail.com. For questions or comments, please contact Pat Byrne (Patrick.byrne@colostate.edu) or Gayle Volk (Gayle.Volk@usda.gov).

*Required fields

Contributor Information

***Contributor(s) name:** Author1 and Author2

National Laboratory for Genetic Resources Preservation
Fort Collins, CO

Daren Harmel: Research Leader

Christina Walters: Seed Research & Viability, Lead Scientist
Vacant, Seed Curation & Microbes
Chris Richards: Population Genetics
Maria Jenderek: Clonal Curation
Gayle Volk: Clonal Research & Implementation, GRIN-U Training

Harvey Blackburn: Animal Geneticist, Lead Scientist
Phil Purdy: Animal Physiologist

NPGS Collections

82% of the NPGS seed accessions are secured (~ 500,000 accn)

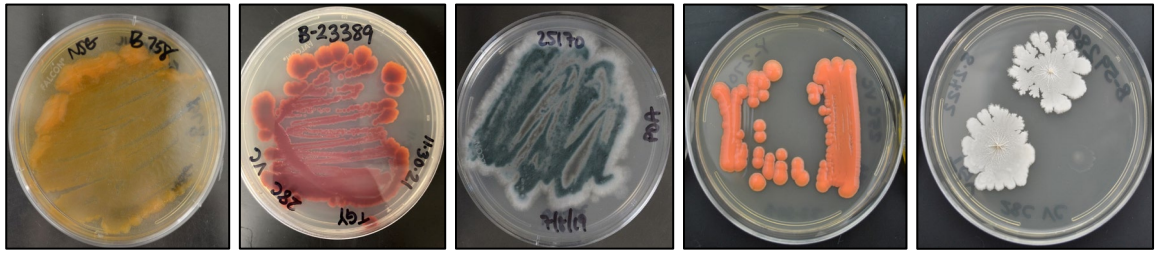
15% of the NPGS clonal accessions are secured (~5000 accn)

-18°C Freezers
seed storage

LN & LNV (-150 to -196°C)
Clonal shoot tips &
dormant buds, as well as
embryonic axes, some
seeds, and pollen

Additional NLGRP Collections

- >90,000 microbe accessions from the USDA-ARS Culture Collection (microbes) in Peoria, IL



- 65,000 animals representing 170 breeds

- 60 Black Box collections for seeds: Botanic Gardens, National Genebank collections, International Centers

- 1094 Journal of Plant Registrations & 8456 Plant Variety Protection Voucher Specimens

NLGRP Data Management

- ✓GRIN-Data integration for seed check-in process (weights, labels)
- ✓Reviewing and standardizing all NLGRP clonal data in GRIN-Global
- Standardizing seed and clonal documentation processes
- Reviewing Black box storage agreements
- Improving workflows for PVPs→sites
- Improving reporting features for NLGRP

Cullen McGovern and the NLGRP Data Management Team

Thank you!

- Serving as customer and Stakeholder resources for the NPGS
- Submit Success Stories
- Update Crop Vulnerability Statements & Quad Charts
- Work with us to contribute GRIN-U content
- Evaluation and Exploration Proposals

National Germplasm Resources Laboratory

Plant Exchange Office

Anne Frances
Melanie Schori
Jennifer Friedman
Karen Williams (Contractor)

Crop Germplasm Committee Chairs Meeting
March 4, 2024

Plant Exchange Office Updates

- Plant Exploration & Exchange Program
- Crop Wild Relatives
- International Distributions (with USDA-APHIS)
- GRIN Taxonomy

Vitis ripara, Hedrick and Booth 1908

NPGS Plant Exploration & Exchange Program


Carya illinoiensis

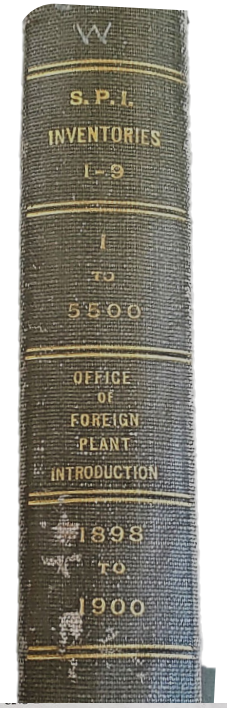

Helianthus mollis


Asimina triloba

Anne Frances
Plant Exchange Office
National Germplasm Resources Laboratory
Beltsville, Maryland
anne.frances@usda.gov

NPGS Plant Exploration & Exchange Program

- Fills gaps in the NPGS
- Proposal guidelines on SharePoint
- Proposals accepted yearly (due July 31)
- CGCs and curators must endorse proposals
- Crop Vulnerability Statements help identify priorities
- International explorations require prior informed consent



O. F. Cook,
Special Agent in Charge of Seed and Plant Introduction.

INVENTORY.

OLERACEA. **Cabbage.**

w, Russia. Received through Prof. N. E. Hansen, February, 1898.
ges.) "Bronka;" early variety.

Access and Benefit Sharing for International Explorations

- NPGS explorations abide by the CBD* principle of national sovereignty over genetic resources
- Prior informed consent (PIC) obtained from national authority (form of a letter, permit, MTA, etc.) via PEO
- Includes agreement on benefit sharing
- Acceptable benefits are “in-kind” (training, equipment purchase, increase projects, etc.)
- SMTA provides terms for some explorations

*Convention on Biological Diversity https://www.cbd.int/convention/

NPGS Plant Explorations FY 2023

Citrus spp.	Vietnam
Grindelia squarrosa	US: western states
Monarda sp. nov.	US: Kentucky
Chionanthus virginicus	US: Missouri, Arkansas
Phaseolus spp.	US: New Mexico

Grindelia squarrosa

Crop Wild Relative Conservation

Continued collaborations: Forest Service, US Botanic Garden, Botanic Gardens Conservation International, NatureServe, etc.

- Crop Wild Relative Conference, Denver, September 2024
  https://www.bgci.org/news-events/cwr2024/

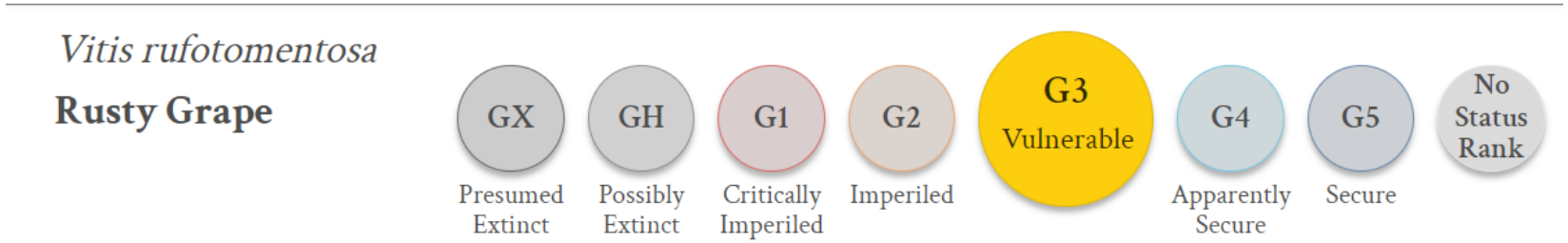
- NAFANT gap analysis North American Fruit and Nut Tree group
  https://northamericanfruitnuttreecwr.github.io/

- Small grants for CWR collection and maintenance (BGCI-US and USBG)

Crop Wild Relative Conservation

Vitis conservation

- Special Issue in Plants, People, Planet open call for papers
- County level maps are being developed
- Symposium at the International Botanical Congress, Madrid 2024
- Conservation status assessments on NatureServe Explorer



NPGS International Distributions
(Jennifer Friedman)

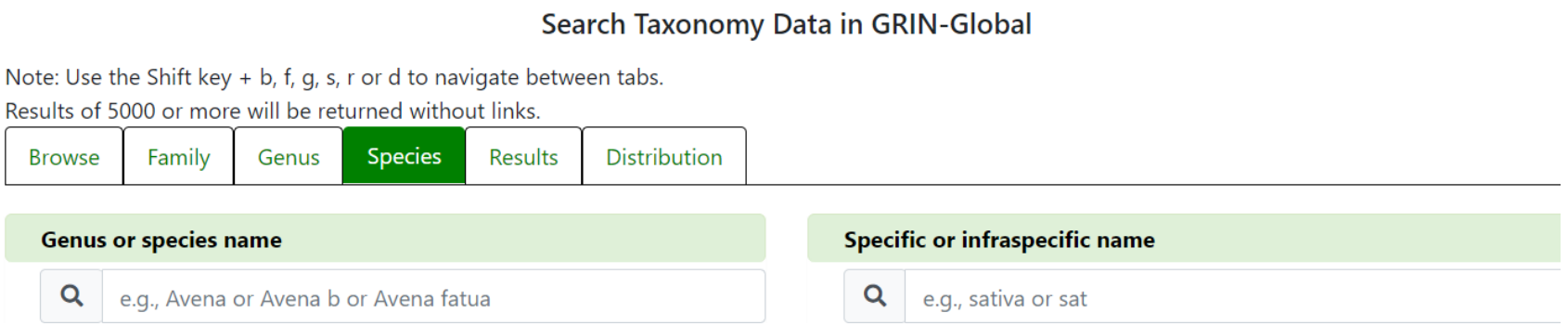
National Cotton Germplasm Collection (COT)	Woody Landscape Repository (NA)
Griffin Plant Introduction Station (S9)	Potato Germplasm Introduction Station (NR6)
National Small Grains Collection (NSGC)	Ornamental Plant Germplasm Center (OPGC)
Western Regional Plant Introduction Station (W6)	Desert Legume Program (DLEG)
National Arid Land Plant Genetic Resources Unit (Parlier)	North Central Regional Plant Introduction Station (NC7)
U.S. Nicotiana Germplasm Collection (TOB)	Soybean/Maize Germplasm, Pathology, & Genetics Research Unit (SOY)
Plant Genetic Resources Unit, Geneva*	National Laboratory for Genetic Resources Preservation*

*Occasional

FY23: 45,909 samples to 62 countries

Contact: jennifer.friedman@usda.gov

GRIN Taxonomy Search Refresher



Melanie Schori
Plant Exchange Office
National Germplasm Resources Laboratory
Beltsville, Maryland
Melanie.Schori@usda.gov

Taxonomy search page

Search Taxonomy Data in GRIN-Global

Note: Use the Shift key + b, f, g, s, r or d to navigate between tabs.
Results of 5000 or more will be returned without links.

Browse | Family | Genus | Species | Results | Distribution

Genus or species name

e.g., Avena or Avena b or Avena fatua

Specific or infraspecific name

e.g., sativa or sat

Common name

e.g., wheat or amar

☐ Exact match

Hybrid parentage

e.g., quercus suber

Exact search results

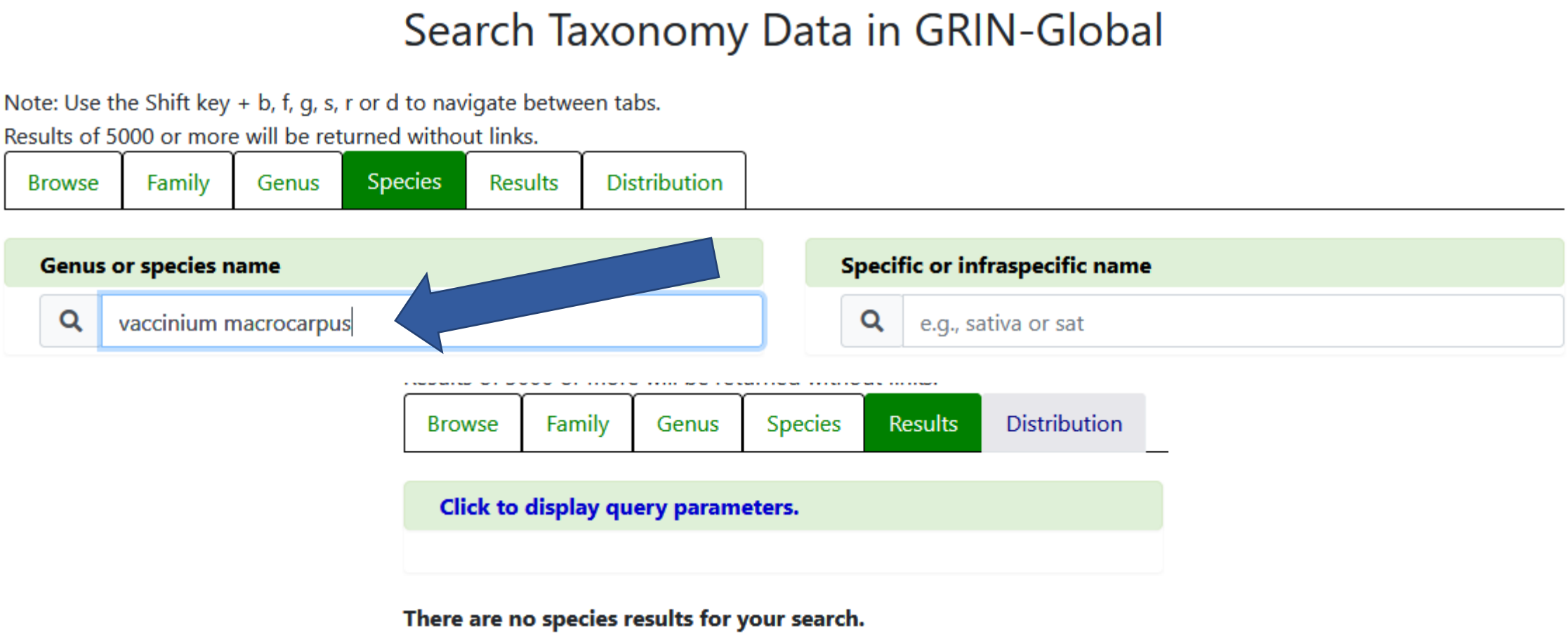
Show 100 rows | Excel | CSV

Showing 1 to 18 of 18 entries

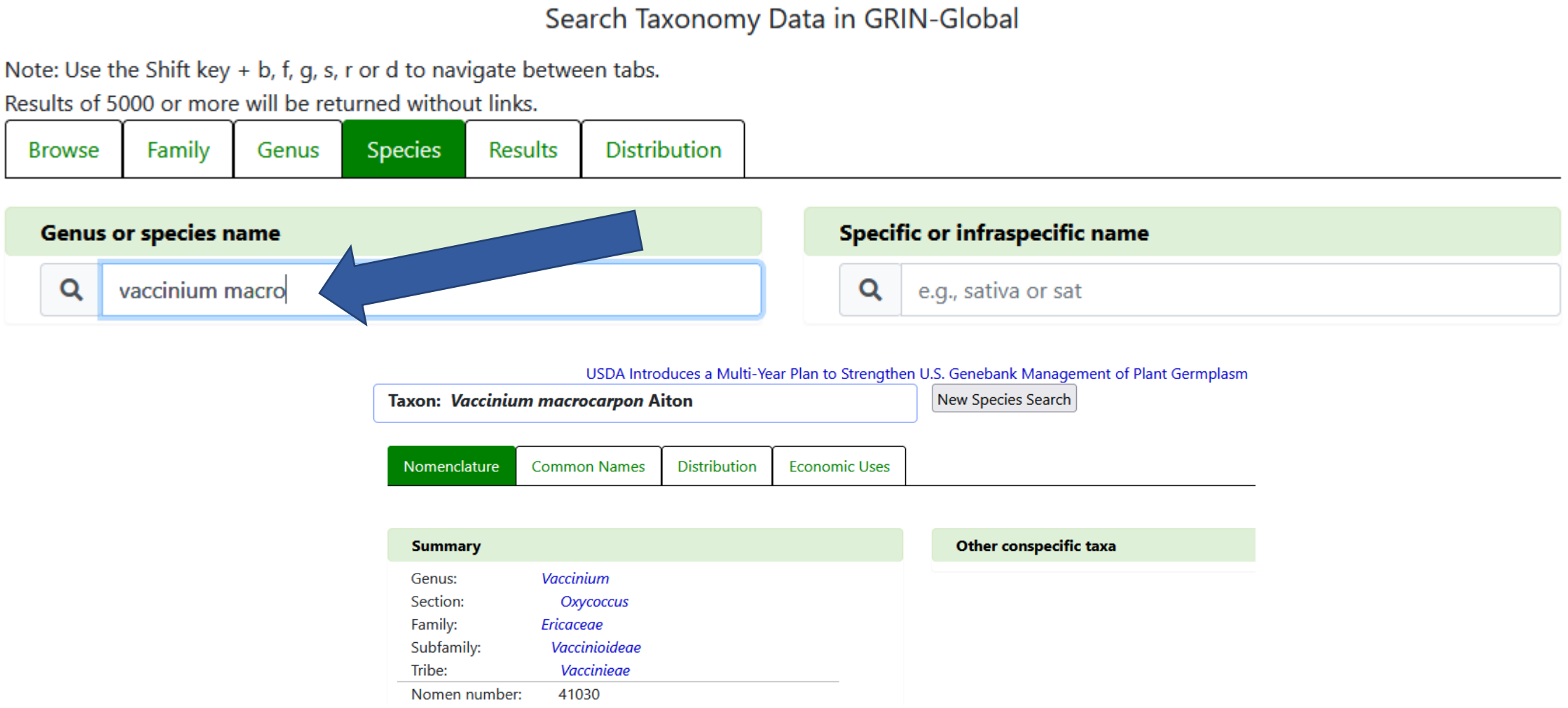
Search:

Name	Synonym of	Taxon Family
***Avena fatua* L.**		Poaceae
Avena fatua L. subsp. *cultiformis* Malzev	***Avena fatua* L.**	Poaceae
Avena fatua L. subsp. *fatua*	***Avena fatua* L.**	Poaceae
Avena fatua L. subsp. *meridionalis* Malzev	***Avena hybrida* Peterm.**	Poaceae

Full name search



Partial name search



Habitat for *Fraxinus anomala*, Ames 35908, Andy Sherwood

Thank you!

Questions?

Anne Frances
anne.frances@usda.gov

Melanie Schori
Melanie.Schori@usda.gov

Jennifer Friedman
jennifer.friedman@usda.gov

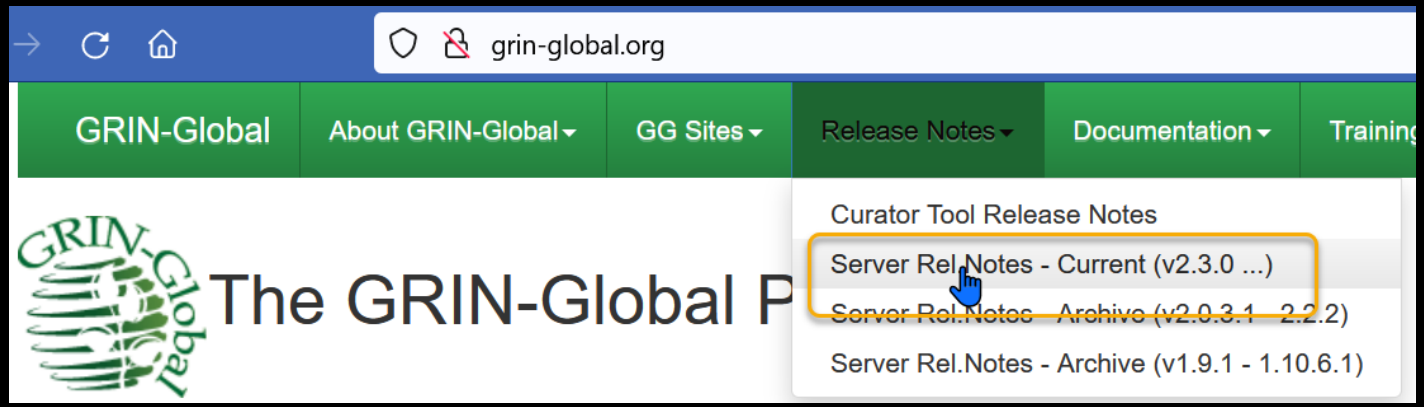
GRIN-Global

Public Website
&
Server Changes

Releases…

4 major releases since last CGC

Next release: March 2024



Major Changes

SMTA acceptance required for international distributions effective January 1, 2024

Major Changes

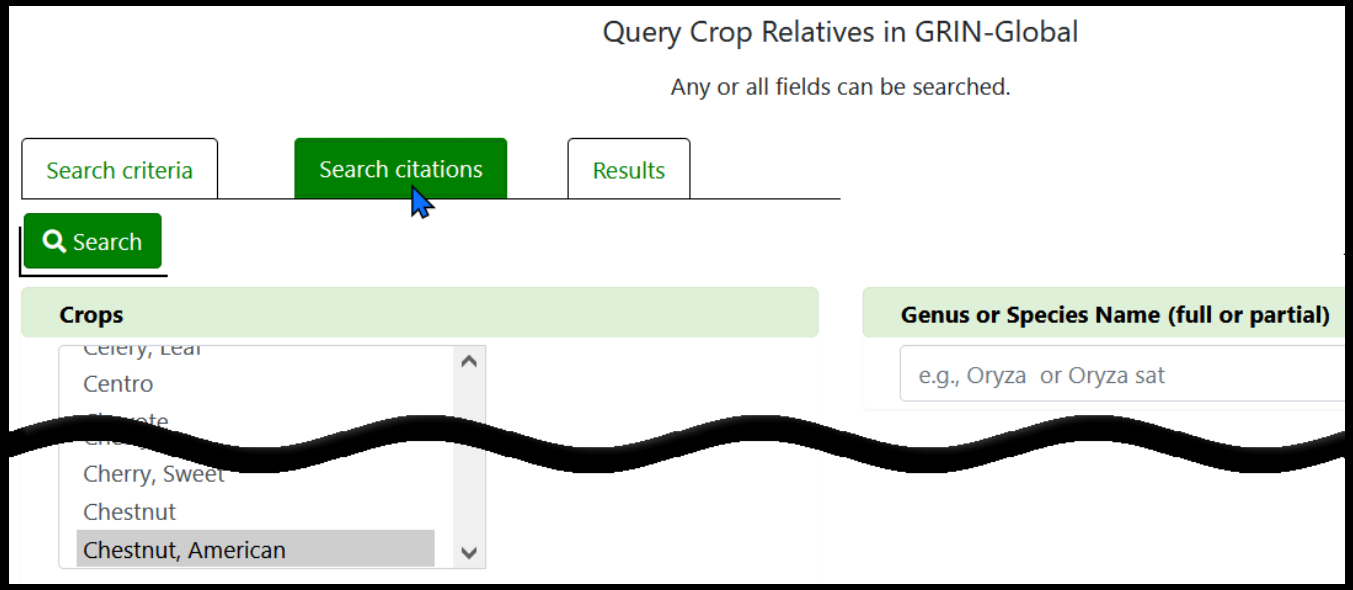
Changed mapping feature to map only one accession
(button added for related accessions)

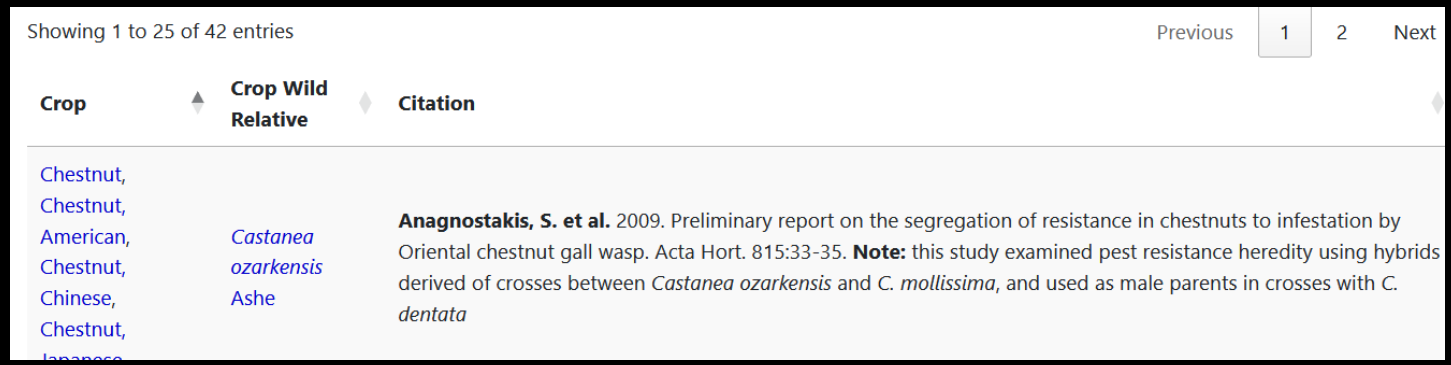
Major Changes

Advanced Search
plant parts option

Citations

Citation search added to the Crop Wild Relatives (CWR) page





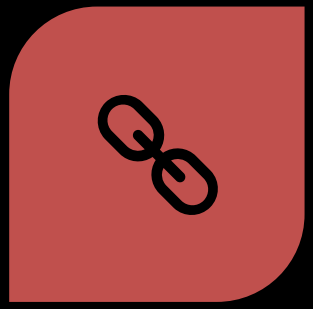
Citations

Citations on an Accession Detail page now include links to all other accessions with that citation

Taxonomy related

- Changed scientific name search to look for hybrids
- Also added "no hybrid symbols" to the text label

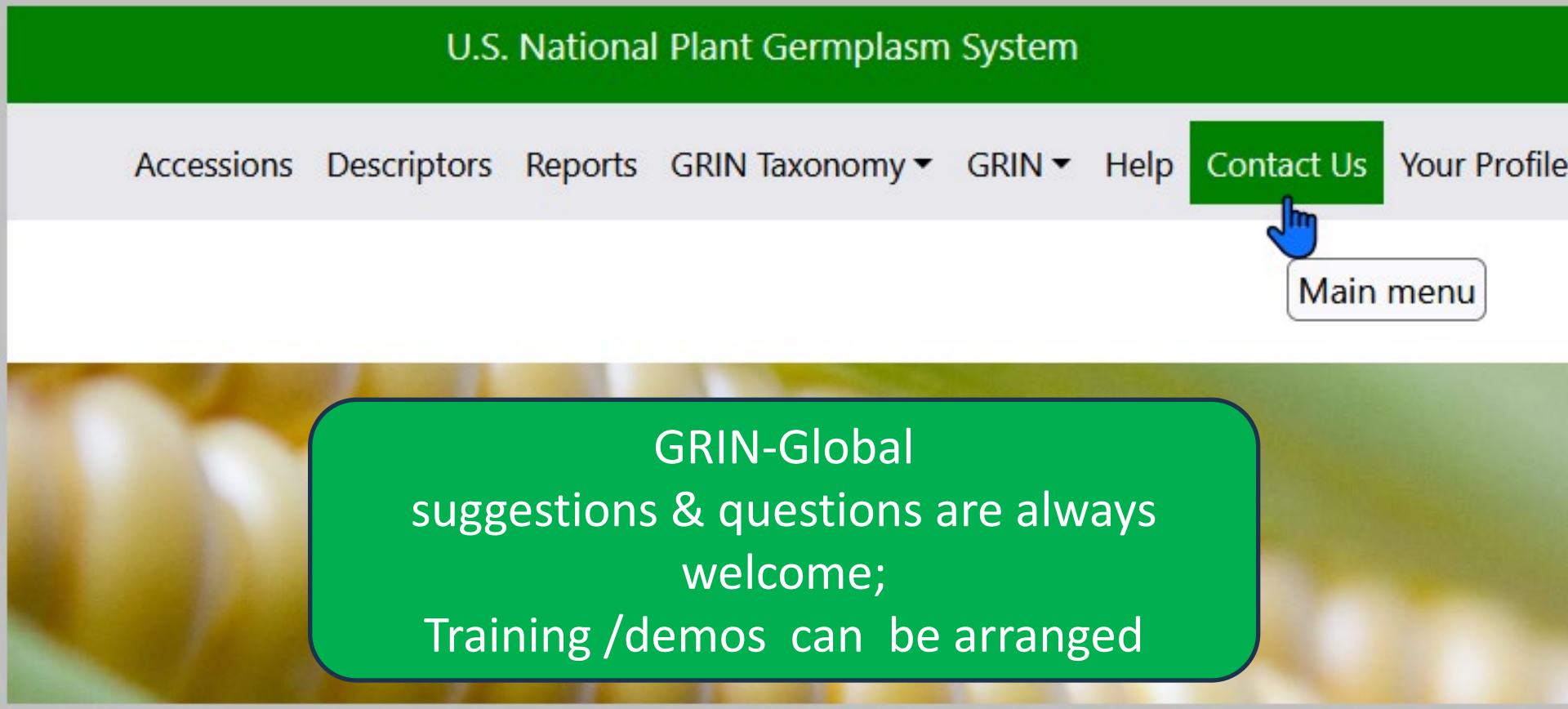
Usability Improvements



More direct links to curatorial sites: request history pages; “Contact us”

Confirmation emails w/ link to FAQs

Consistency - wording changes



Contact Us

Please do!