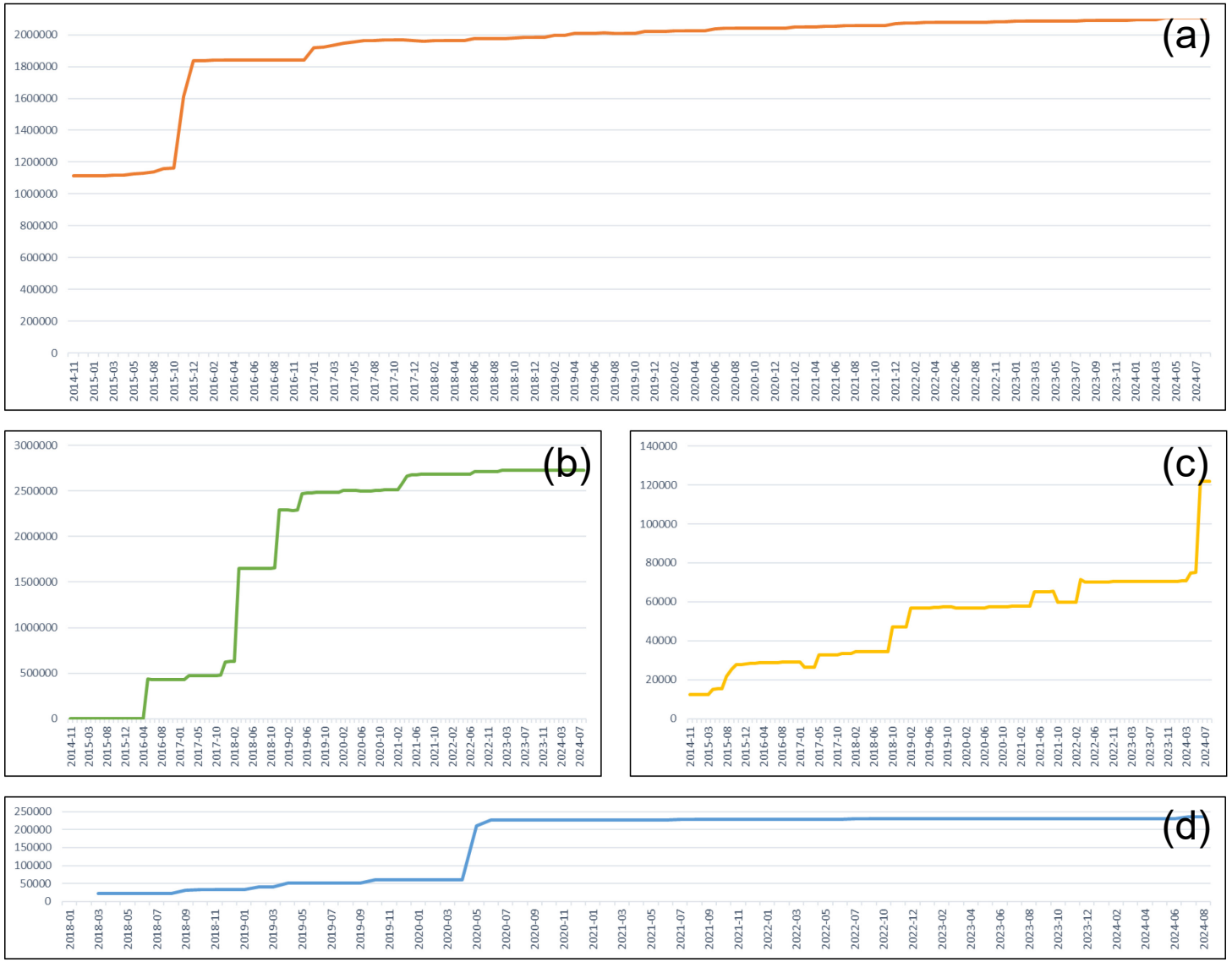
S. Weise

Report on EURISCO activities since the previous meeting

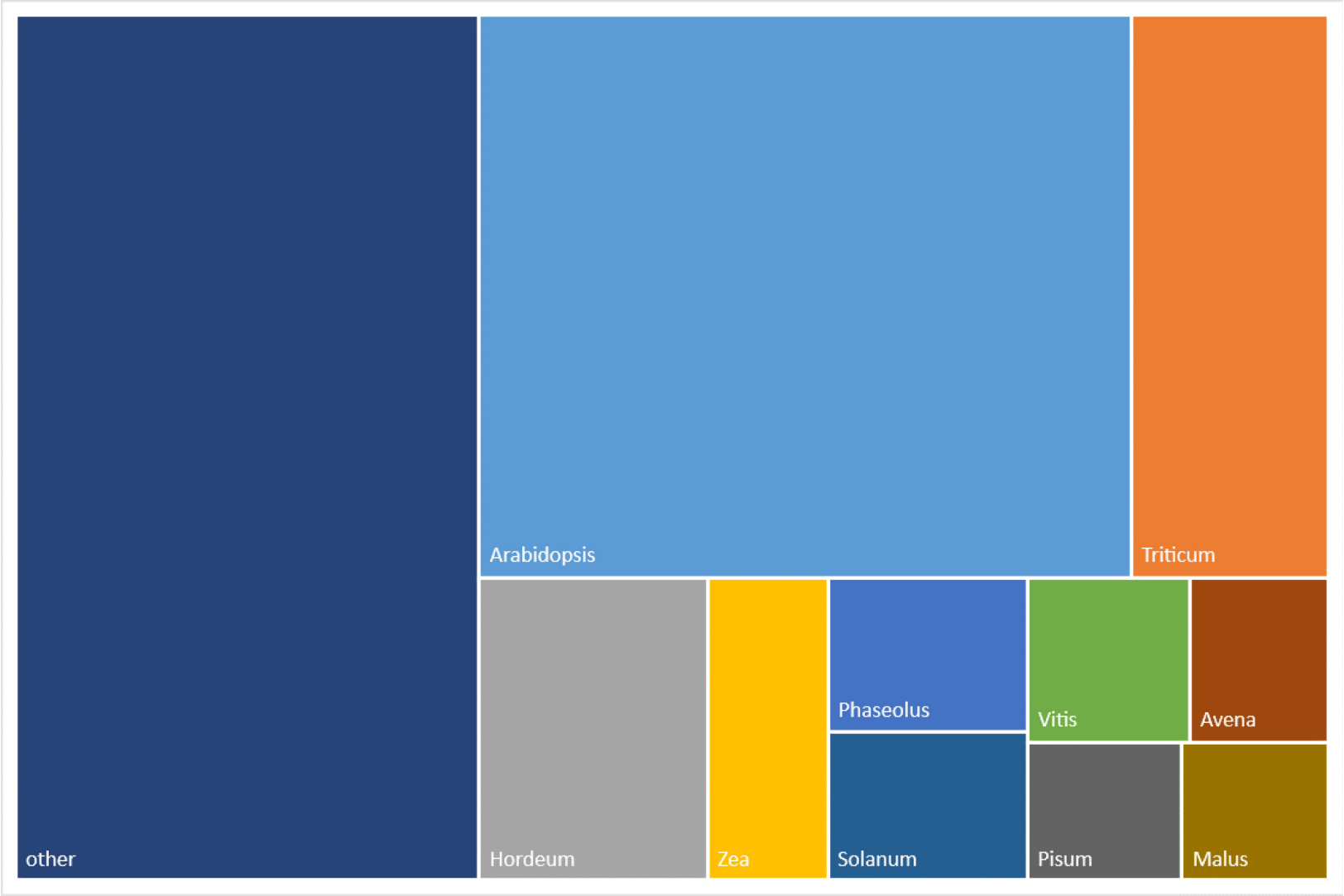
Fourth meeting of the EURISCO Advisory Committee, 20 September 2024, Tallinn, Estonia

Key facts

- 2,108,338 accessions (a)
- 2,729,636 phenotypic data records (b)
- 6,733 genera
- 45,126 species names
- 439,636 MLS accessions
- 121,988 AEGIS accessions (c)
- 236,343 PUIDs (d)

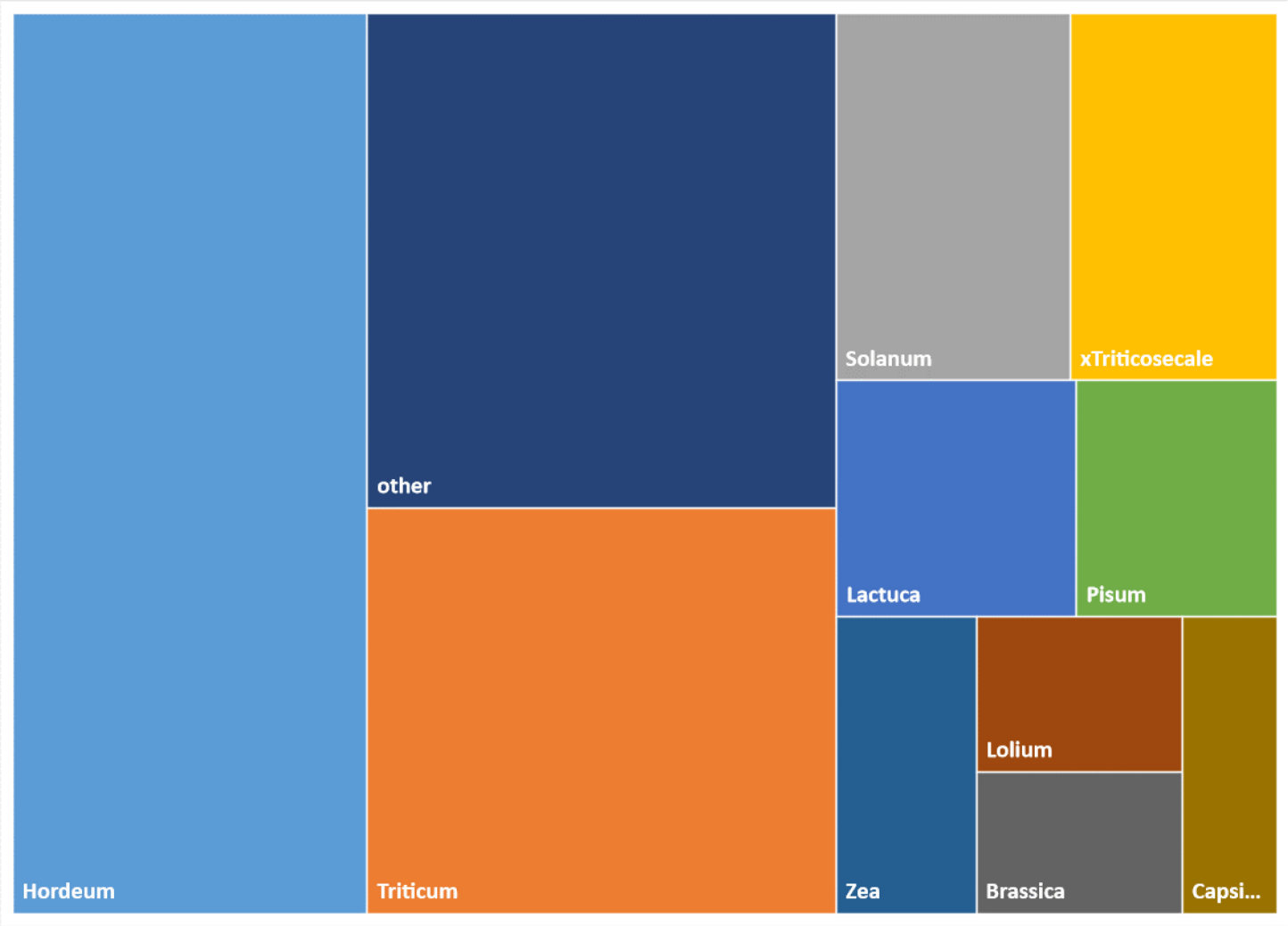


Taxonomic composition



Phenotypic data

- Extension available since 2016
- Currently, 2,729,636 records of data from 21 countries
- 74 phenotypic datasets with 3,919 experiments
- 91,443 accs. with phenotypic data



EURISCO data quality

	2018	2021	2024	Increase
Accs. with collecting information	796,298	841,625	881,162	4.70%
No. of different collecting sites	106,301	112,961	115,531	2.28%
Accs. with geographic coordinates	166,984 (21% of accessions with collecting information)	215,424 (26% of accessions with collecting information)	273,435 (31% of accessions with collecting information)	26.93%
Accs. with donor information	1,178,522	1,199,810	1,213,324	1.13%
Accs. with country of origin	1,075,327	1,136,236	1,187,931	4.55%
Accs. with AEGIS flag	47,049	65,267	121,988*	86.91%
Accs. with PUID	32,651	226,936	236,343	4.15%

* Information on AEGIS accessions of Switzerland currently inconsistent.

Passport data updates (publicly visible)

Year	No. of updates	Accs. total
2014	1	1,114,995
2015	28	1,837,368
2016	25	1,842,539
2017	55*	1,964,062
2018	36	1,976,608
2019	40	2,019,414
2020	38	2,043,282
2021	49	2,071,881
2022	22	2,082,075
2023	36	2,092,387
2024 (as of 2021-09-11)	22	2,108,338

* Additional updates after FAO-WIEWS informed that instead of an annual report, the update of the datasets in EURISCO will also be taken into account.

Phenotypic data updates (publicly visible)

Year	No. of updates	No. of records total
2016	2	427,602
2017	9	624,963
2018	3	2,293,141
2019	5	2,482,274
2020	6	2,513,267
2021	14	2,683,302
2022	2*	2,716,599
2023	2*	2,729,780
2024 (as of 2024-09-11)	-	2,729,636

* This is phenotypic data from collaborative projects involving different countries and holding institutes. The execution of such updates is very time-consuming and requires a lot of communication with the partners involved.

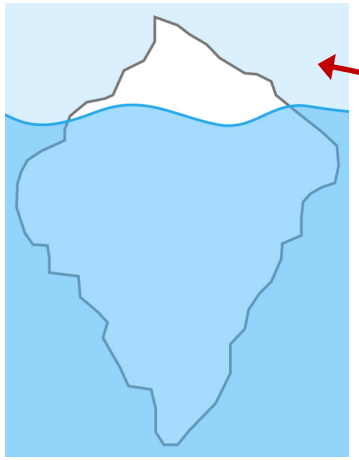
Behind the scenes: database architecture features

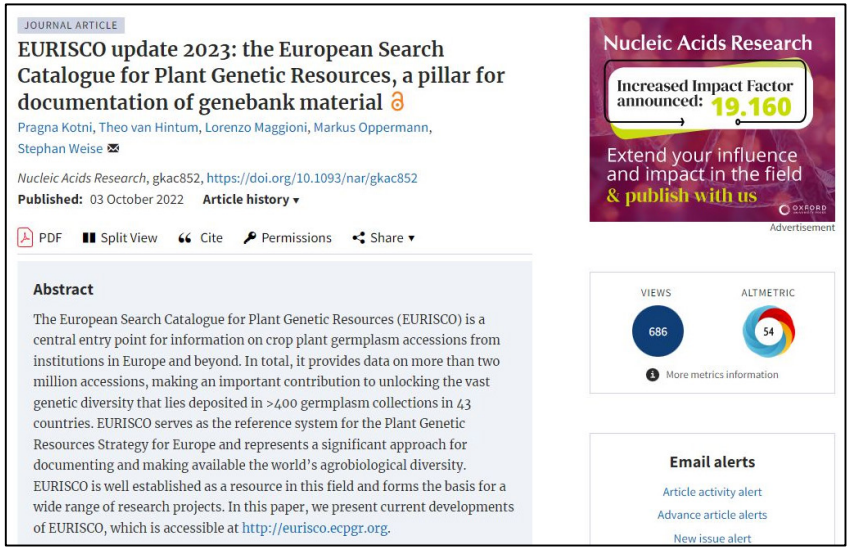
- EURISCO intranet
  - 72 tables
  - 535 indexes
  - 129 triggers
  - 19 PL/SQL packages
  - 281 functions and procedures
    - data upload and import
    - integrity checks
    - updates (passport [*ex situ*/*in situ*] and phenotypic)
    - taxonomy support
  - 67 sequences
  - 30 Java classes

- EURISCO web
  - 62 tables
  - 38 materialised views
  - 785 indexes
  - 11 PL/SQL packages
  - 62 functions and procedures
    - download
    - newsletter
    - statistics
    - phenotypic data visualisation
    - AEGIS status auditing
    - taxonomy support
  - In-memory features
  - 9 Java classes

as of 2024-09-11

Web interface





JOURNAL ARTICLE

EURISCO update 2023: the European Search Catalogue for Plant Genetic Resources, a pillar for documentation of genebank material

Pragna Kotni, Theo van Hintum, Lorenzo Maggioni, Markus Oppermann, Stephan Weise

Nucleic Acids Research, gkac852, https://doi.org/10.1093/nar/gkac852

Published: 03 October 2022 **Article history**

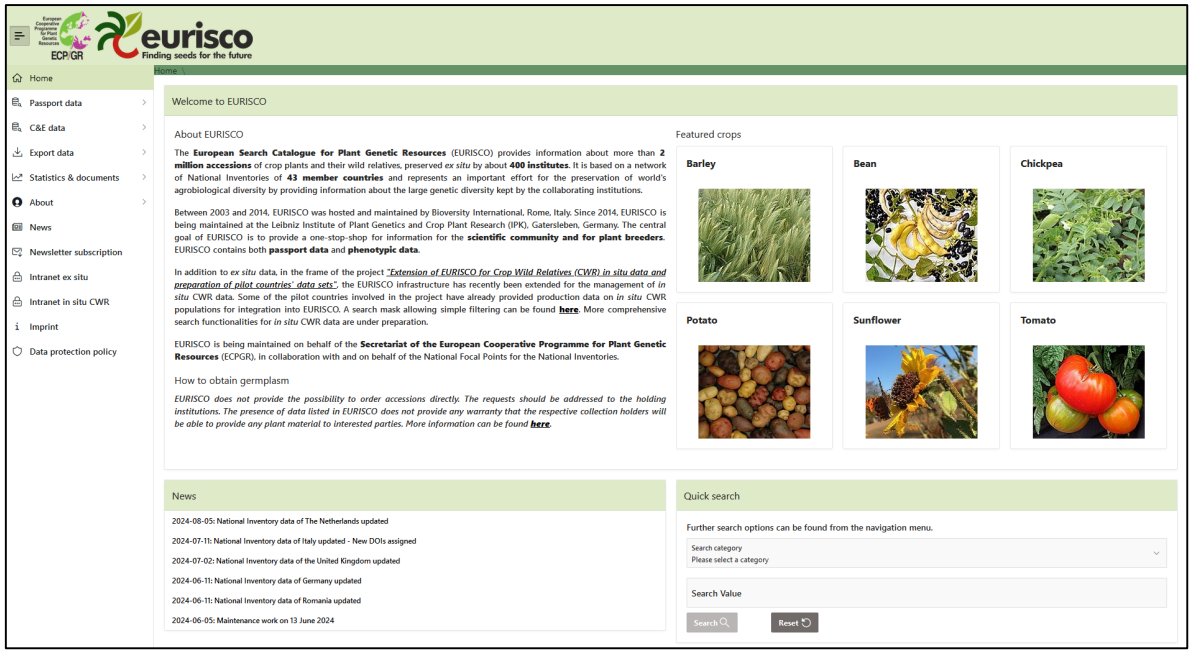
PDF | Split View | Cite | Permissions | Share

Abstract

The European Search Catalogue for Plant Genetic Resources (EURISCO) is a central entry point for information on crop plant germplasm accessions from institutions in Europe and beyond. In total, it provides data on more than two million accessions, making an important contribution to unlocking the vast genetic diversity that lies deposited in >400 germplasm collections in 43 countries. EURISCO serves as the reference system for the Plant Genetic Resources Strategy for Europe and represents a significant approach for documenting and making available the world's agrobiological diversity. EURISCO is well established as a resource in this field and forms the basis for a wide range of research projects. In this paper, we present current developments of EURISCO, which is accessible at http://eurisco.ecpgr.org.

VIEWS 686 ALTMETRIC 54
More metrics information

Email alerts
Article activity alert
Advance article alerts
New issue alert



Version history of the public interface

v1.0.0

- Oct. 2014
- First public version
- v1.0.1 – v1.0.6 continuous improvements

v1.1.0

- Nov. 2014
- New export functionality + download of full dump
- v1.1.1 – v1.1.17 (2015 – 2016) continuous improvements

v1.2.0

- Jun. 2016
- C&E data extension; new export functionalities; new advanced search; lots of small improvements
- v1.2.1 – v1.2.7 (2016 – 2017) continuous improvements

v1.3.0

- Dec. 2017
- Migration to MCPD2; increased usability; lots of small improvements
- v1.3.1 – v1.3.5 (2018) continuous improvements

v1.4.0

- Jun. 2018
- Taxonomy search simple completely reworked
- v1.4.1 – v1.4.9 (2018 – 2019) continuous improvements

v1.5.0

- Sep. 2019
- Taxonomy search advanced completely reworked
- v1.5.1 – v1.5.4 (2019 – 2020) continuous improvements

v2.0.0

- Mar. 2022
- Fully reengineered web interface (new technological basis, additional functionalities)
- v2.0.1–v2.0.10 (2022 – 2023) continuous improvements

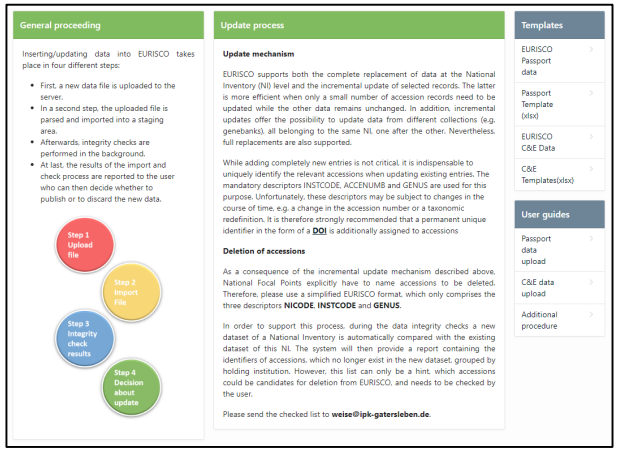
v2.1.0

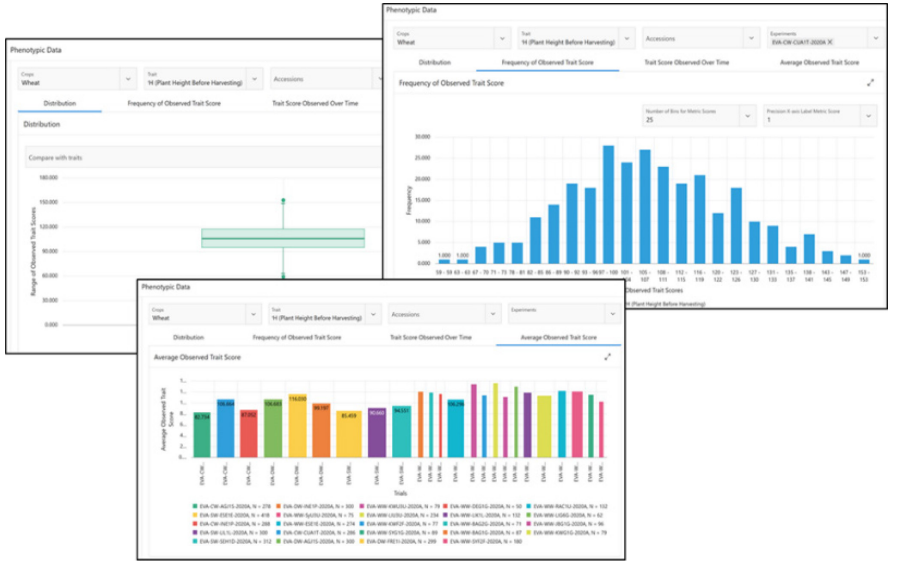
- Dec. 2023
- Improvement of reports & export mechanism; improvement of passport/ phenotypic searches; DOI search; *in situ*
- V2.1.1 – 2.1.2 (2024) continuous improvements

A total of 74 versions and sub-versions of the public EURISCO web interface have been completed since 2014, 20 of which since 2021.

Outcomes 2021

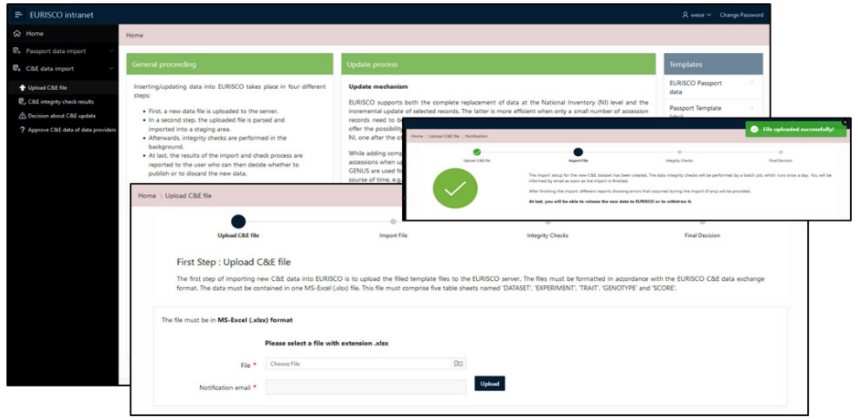
- EURISCO intranet
  - Final tests of reworked passport data update mechanism for National Focal Points
  - Implementation of new intranet interface
- Public EURISCO application
  - Full reengineering of the web interface
    - Regular technical revison
    - Responsive design with clearer layout
    - Critical review of functionalities
    - Introduction of new functionalities
  - RESTful services as additional means of access to EURISCO data
- ECPGR-EVA
  - Specification document compiled
  - EVA database infrastructure designed + implemented
  - Web interface developed → prototype in autumn 2021
  - Import of production data started in December 2021

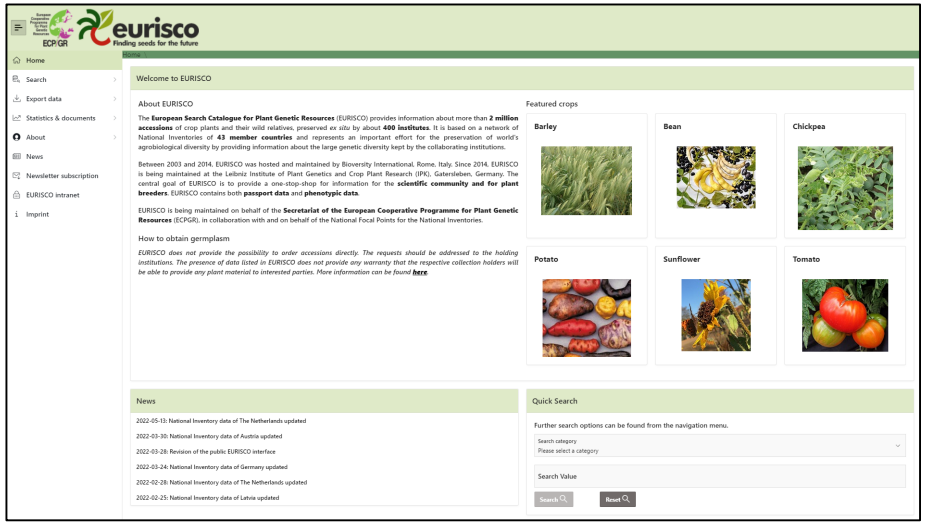




Outcomes 2022

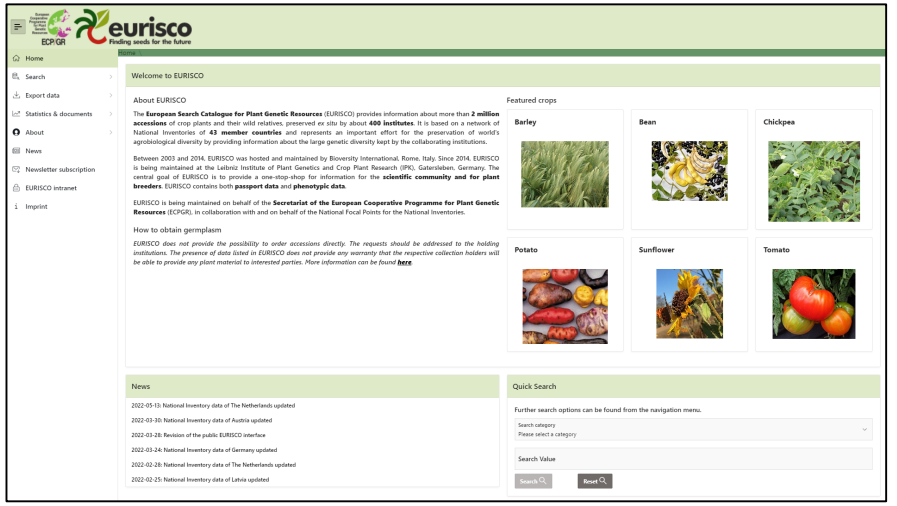
- ECPGR-EVA
  - Continuous improvements
  - Templates extended + data imports (ongoing)
- EURISCO intranet
  - Rework of EURISCO update mechanism for phenotypic data (analogous to the passport data)
  - Extension of intranet interface
- Public EURISCO application
  - Implementation of additional features based on feedback of powerusers
  - Bugfixing
  - Comprehensive performance tuning
  - Release of new version in March 2022
- *In situ* CWR data
  - Extension of EURISCO backend started (data standard, upload mechanism)

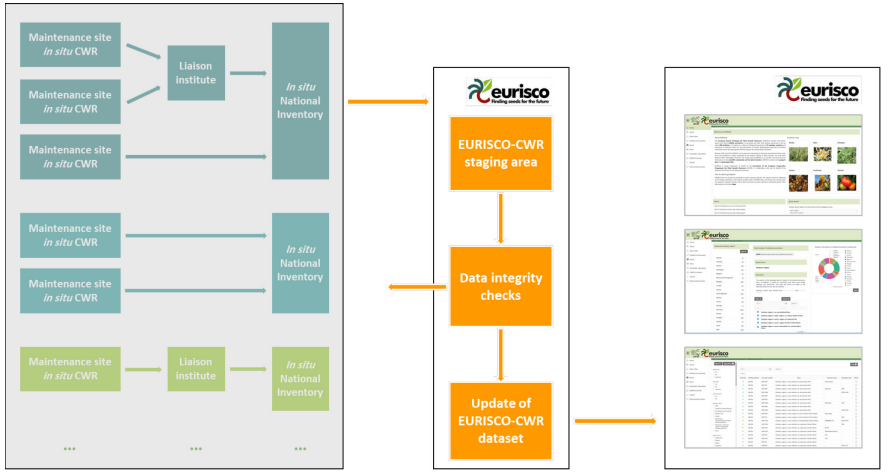




Outcomes 2023

- ECPGR-EVA
  - Continued support
- EURISCO intranet
  - Continuously maintained and further developed (small enhancements, bug fixing)
- Public EURISCO application
  - Continuous development, new release under preparation
    - Improvement of reports
    - Additional export mechanism
    - Improvement of phenotypic data search
    - Improvement of passport data search
    - DOI search
- *In situ* CWR data
  - Integrity checks
  - Update procedures
  - Extensive tests
  - Extension of data standard
  - First extension of public web frontend
  - First production data from four countries publicly available





Outcomes 2024 (ongoing)

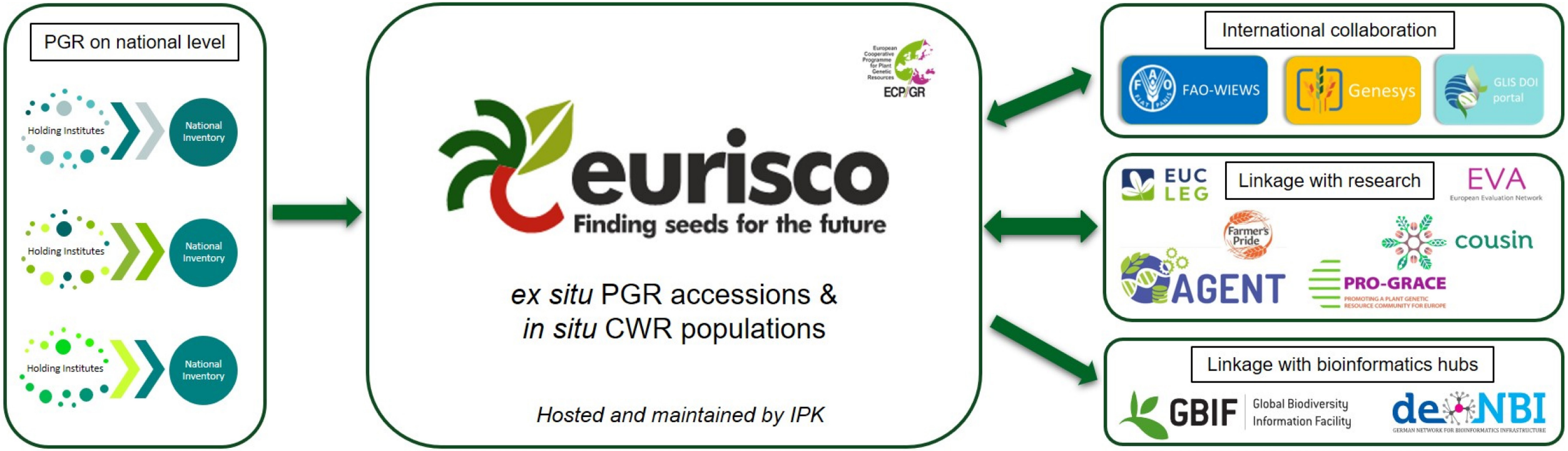
- *In situ* CWR data
  - Update of the data standard (another update planned)
- Public EURISCO application
  - Various reports updated + bug fixes for phenotypic data search
  - Additional CSV download implemented
  - Data dictionary implemented

- Extension of the EURISCO hosting contract for ECPGR Phase XI not signed until the end of February (!) 2024
  - Start of the application process only possible after that
  - Candidate selected in June
  - Termination of his previous contract by the end of September
  - New EURISCO developer from October
  - Familiarisation necessary

Network maintenance + development

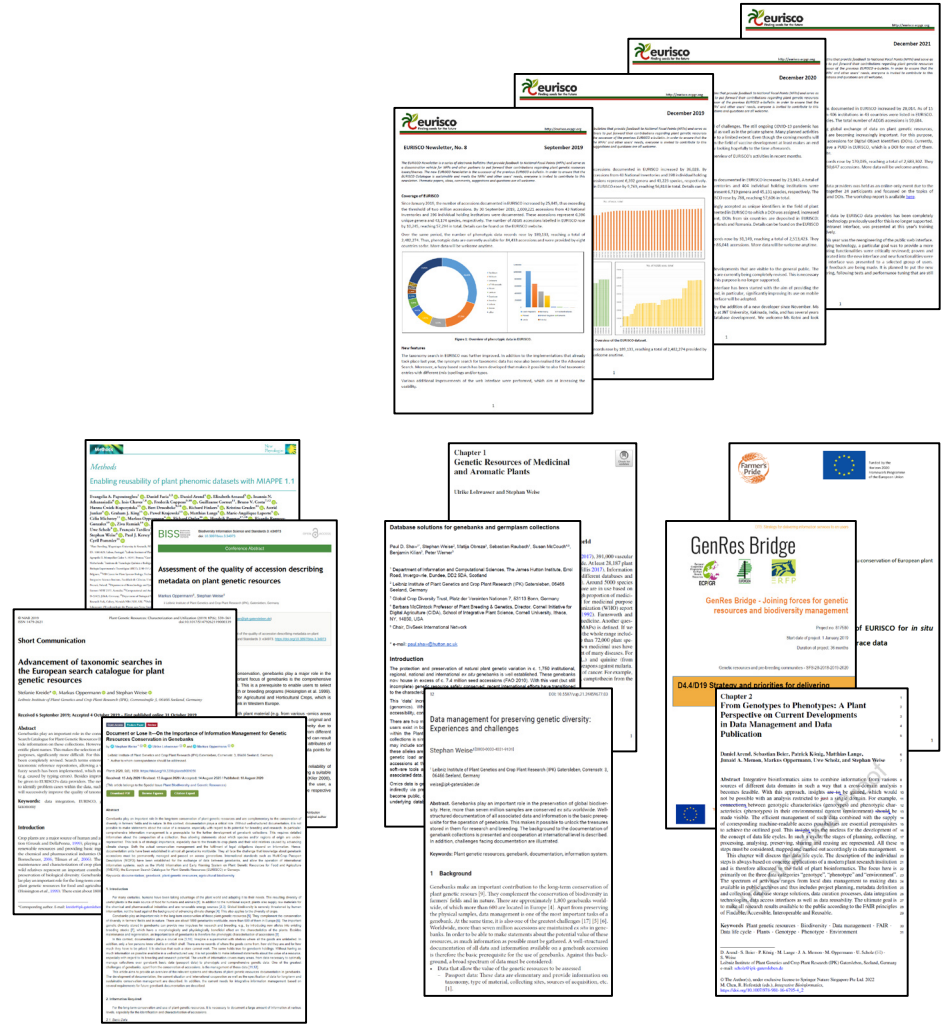
- Contact with EURISCO stakeholders
- Definition of new services, e.g. with regard to DOIs
- Advancement/review of current and definition of new standards, e.g. with regards to phenotypic data
- Coordination with initiatives such as Genesys and GLIS
- Bilateral communication with regard to the coverage of EURISCO
- Cooperation with ECPGR Working Groups
- Preparation of work plans and reports
- **Helpdesk activities behind the scenes (should not be underestimated ;-))**

International integration of EURISCO



Dissemination in ECPGR context

- Regularly short information in ECPGR bulletin
- EURISCO newsletter
- Various reports
- Presentations on several ECPGR workshops
- ECPGR Grant Scheme activities



Dissemination beyond ECPGR

- Journal articles
  - Frontiers in Plant Science
  - NAR database issue 2x
  - Plants
  - Plant Genetic Resources: Characterization and Utilization
  - Journal of Biotechnology
  - Journal of Experimental Botany
  - Various book chapters
- EURISCO talks and posters on several conferences
  - TDWG 3x
  - German Society for Plant Breeding 2x
  - CropTrust BOLD
  - STARGATE, EUCLEG, AGES, EUCARPIA, ESBB, CryoWeb
- Involvement in various committees
  - BreedingValue – scientific advisory board member
  - Genesys – advisory board member
  - BrAPI – advisory board member
- Application as ELIXIR Core Data Resource
  → Rejected without explanation

elixir

Case Document:
European Search Catalogue for Plant Genetic Resources (EURISCO)

Date Document Completed: [24/04/2023]

Document owner:
Stephan Weise, weise@ipk-gatersleben.de, EURISCO coordinator
Sebastian Beier, s.beier@fz-juelich.de, ELIXIR Officer GCBN & Co-Lead ELIXIR Plant Sciences Community
Uwe Scholz, scholz@ipk-gatersleben.de, de.NBI GCBN service center coordinator

Please complete this Case Document by adding information for your data resource in the appropriate Indicator sections below.

Full information about the Indicators can be found in the article "Identifying ELIXIR Core Data Resources" (https://f1000research.com/articles/5-2422/v2).

Where a panel/question is not relevant to your resource, please leave it blank

t is useful.

ource a:

rnational e of the	YES/~~NO~~
tion)	~~YES~~/NO

Published online 3 October 2022 *Nucleic Acids Research, 2023, Vol. 51, Database issue* ***D1465–D1469***
https://doi.org/10.1093/nar/gkac852

EURISCO update 2023: the European Search Catalogue for Plant Genetic Resources, a pillar for documentation of genebank material

Pragna Kotni[1], Theo van Hintum[2], Lorenzo Maggioni[3], Markus Oppermann[1] and Stephan Weise[1,*]

[1]Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben, Corrensstr. 3, 06466 Seeland, Germany, [2]Centre for Genetic Resources, The Netherlands (CGN), Wageningen University & Research, Droevendaalsesteeg 1, 6708 PB Wageningen, The Netherlands and [3]European Cooperative Programme for Plant Genetic Resources (ECPGR), c/o Alliance of Bioversity International and CIAT, Via di San Domenico 1, 00153 Rome, Italy

Received July 29, 2022; Revised September 13, 2022; Editorial Decision September 16, 2022; Accepted September 23, 2022

ABSTRACT

The European Search Catalogue for Plant Genetic Resources (EURISCO) is a central entry point for information on crop plant germplasm accessions from institutions in Europe and beyond. In total, it provides data on more than two million accessions, making an important contribution to unlocking the vast genetic diversity that lies deposited in ∼400 germplasm collections in 43 countries. EURISCO serves as the reference system for the Plant Genetic Resources Strategy for Europe and represents a significant approach for documenting and making available the world's agrobiological diversity. EURISCO is well established as a resource in this field and forms the basis for a wide range of research projects. In this paper, we present current developments of EURISCO, which is accessible at http://eurisco.ecpgr.org.

INTRODUCTION

Crop plants are the basis of nutrition for humans and farmed animals. However, biodiversity, including the agricultural component, is threatened worldwide by various factors (1–4). The progressing climate crisis plays a special role here (5,6). In particular, rising temperatures, changing precipitation patterns and the increasing frequency of extreme weather events are leading to adverse effects, such as declining crop yields (7). The changes in the environment due to the climate crisis are also forcing farmers to grow other varieties or even other crops, with the danger of losing the old ones. Furthermore, crop related wild species are increasingly under threat of disappearance due to these environmental changes (8). In order to combat this genetic erosion and be able to rely on the genetic diversity of cultivated plants and their wild relatives in the future, this diversity must be preserved. Genebanks play an important role in long-term preservation efforts. There are about 1800 genebank collections of plant genetic resources for food and agriculture (PGRFA) worldwide, of which about 625 are in Europe (9). It is a truism that something can only be used if one has information about it. The best resource will not be exploited if it is not well documented, and without data, proper genebank management will not be possible (10). In other words, the better described PGRFA material is, the more valuable it is for potential users and the better it can be preserved. In addition to pure management data and information on the legal status of the material, it is therefore important to have information that allows users to select the most suitable material for breeding and research programmes, especially passport data (about identity and origin) and phenotypic characterisations (about traits) of the genebank material (11).

The European Search Catalogue for Plant Genetic Resources (EURISCO) is an international aggregated database that aims to provide a central entry point for information on the large genetic diversity harboured in the collaborating collections. Presently, it contains data on more than two million genebank samples, so-called accessions, which are preserved in ∼400 institutes in Europe and some neighbouring countries. EURISCO is maintained on behalf of the European Cooperative Programme for Plant Genetic Resources (ECPGR) and is based on a network of National Inventory Focal Points, one in each of 43 member countries. EURISCO has been available online since 2003 and from 2014 the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben, Germany, has been responsible for the operation and further development of the information system as well as the coordination of the EURISCO network of National Inventory Focal Points.

*To whom correspondence should be addressed. Tel: +49 39482 5 744; Fax: +49 39482 5 155; Email: weise@ipk-gatersleben.de

Access statistics

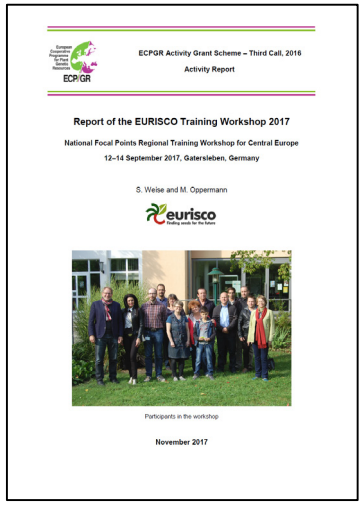
Year	Unique users	# of hits	# of pages	# of accesses
2019	18,461	49,789	910,173	1,190,423
2020	18,045	59,882	1,315,558	1,579,331
2021	23,787	93,223	1,175,809	1,461,246
2022	31,809	168,541	4,441,965	4,809,474
2023	61,715	505,777	3,909,183	4,315,740
	153,817	**877,212**	**11,752,688**	**13,356,214**

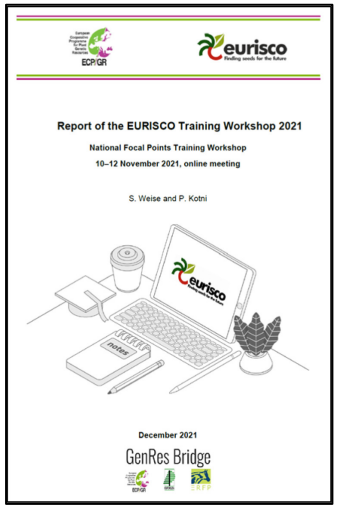
- **Unique users**:
  Number of distinct IP addresses (=physical users)
- **# of hits**:
  Every new user who accessed a page and did not access any page of the website within the last 60 minutes
- # **of pages**:
  Total number of accessed pages (sum of all accesses of all users; HTML pages only)
- **# of accesses**:
  Total number of all shown content (HTML pages, images, files, …)

EURISCO training workshops

- Indispensable
  - Refreshing knowledge on data preparation and provision
  - Stay in touch with data providers
  - Discussion of changes and extensions
  - Continuous increase of data quality

- Switch to biennal trainings in 2018
- Next training will take place in 2025, location still to be defined
- Additional online training on specific topics on request





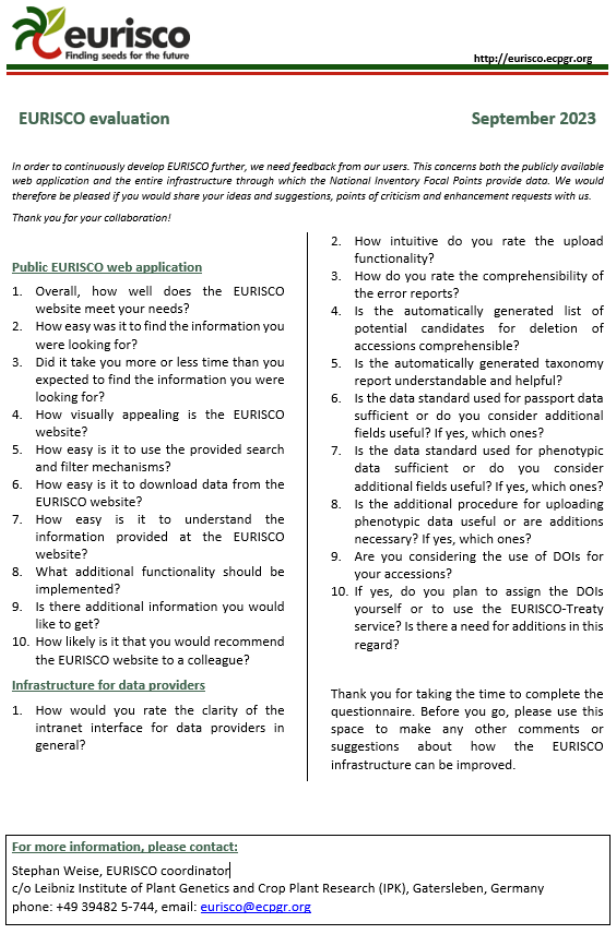
Participation in project consortia

- Various ECPGR Grant Scheme Activities
- EUCLEG (Horizon 2020), 2017–2021
- Farmer’s Pride (Horizon 2020), 2018–2021
- GenRes Bridge (Horizon 2020), 2019–2021
- ECPGR European Evaluation Network (initial funding BLE), 2019–2022
- AGENT (Horizon 2020), 2020–2025
- PRO-GRACE (Horizon Europe), 2023–2025
- COUSIN (Horizon Europe), 2024–2028

- Further project participations in preparation

Future

- ECPGR phase XI (2024–2028)
  - Continuous improvement of functions and services
  - Specific focus on:
    - General visual overhaul of the public web interface, taking into account evaluation results
    - *In situ* CWR data
      - Extension of backend infrastructure of EURISCO done, but only minimalistic search features for the public web interface
    - Phenotypic data
      - Extend for more fine-grained metadata
      - Reorganisation of the search and display of phenotypic data
      - Strengthen role as repository
    - Data quality (e.g. completeness, reliability) → continuous task
  - Further hosting of EVA
  - Participation in project consortia related to EURISCO (AGENT, PRO-GRACE, …)
  - All further development in close collaboration with ECPGR bodies



eurisco Finding seeds for the future

http://eurisco.ecpgr.org

EURISCO evaluation **September 2023**

In order to continuously develop EURISCO further, we need feedback from our users. This concerns both the publicly available web application and the entire infrastructure through which the National Inventory Focal Points provide data. We would therefore be pleased if you would share your ideas and suggestions, points of criticism and enhancement requests with us.

Thank you for your collaboration!

Public EURISCO web application

1. Overall, how well does the EURISCO website meet your needs?
2. How easy was it to find the information you were looking for?
3. Did it take you more or less time than you expected to find the information you were looking for?
4. How visually appealing is the EURISCO website?
5. How easy is it to use the provided search and filter mechanisms?
6. How easy is it to download data from the EURISCO website?
7. How easy is it to understand the information provided at the EURISCO website?
8. What additional functionality should be implemented?
9. Is there additional information you would like to get?
10. How likely is it that you would recommend the EURISCO website to a colleague?

Infrastructure for data providers

1. How would you rate the clarity of the intranet interface for data providers in general?
2. How intuitive do you rate the upload functionality?
3. How do you rate the comprehensibility of the error reports?
4. Is the automatically generated list of potential candidates for deletion of accessions comprehensible?
5. Is the automatically generated taxonomy report understandable and helpful?
6. Is the data standard used for passport data sufficient or do you consider additional fields useful? If yes, which ones?
7. Is the data standard used for phenotypic data sufficient or do you consider additional fields useful? If yes, which ones?
8. Is the additional procedure for uploading phenotypic data useful or are additions necessary? If yes, which ones?
9. Are you considering the use of DOIs for your accessions?
10. If yes, do you plan to assign the DOIs yourself or to use the EURISCO-Treaty service? Is there a need for additions in this regard?

Thank you for taking the time to complete the questionnaire. Before you go, please use this space to make any other comments or suggestions about how the EURISCO infrastructure can be improved.

For more information, please contact:

Stephan Weise, EURISCO coordinator
c/o Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben, Germany
phone: +49 39482 5-744, email: eurisco@ecpgr.org

M. Grau / IPK

Thank you for your attention