Report of the EURISCO Training Workshop 2023

National Focal Points Training Workshop

12–14 September 2023, Plovdiv, Bulgaria

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Contents

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1 Introduction

The European Search Catalogue for Plant Genetic Resources (EURISCO) provides a central entry point for information on material maintained in Europe and some neighbouring countries. In addition to passport data, the catalogue also includes phenotypic observations. Currently, more than two million accessions from 410 collections are documented in EURISCO. EURISCO is based on a network of 43 member countries.

Within the EURISCO network, regular training workshops are held for EURISCO's data providers – the National Inventory Focal Points. These are essential for the operation of such an aggregator database. From 2015 to 2018, a training workshop was organized annually, after which a change to a biennial rhythm was made. Due to the worldwide COVID-19 pandemic, the workshop planned for 2020 unfortunately had to be cancelled; instead, an online-only workshop was held in 2021. Although this was very positively evaluated by the participants, there was and still is a clear preference for on-site training. Such meetings offer participants the opportunity to exchange ideas on various aspects of cooperation aside from the training agenda. Furthermore, additional small online training sessions for smaller groups of data providers are possible at relatively short notice. This offer has already been used by various data providers in the past years.

This year's workshop was organized in cooperation with the Institute of Plant Genetic Resources ‘K. Malkov’, Sadovo, Bulgaria, and the EURISCO coordinator, and brought together 16 National Inventory Focal Points. The aim of the workshop was to train the National Inventory Focal Points to update their *ex situ* National Inventory data in EURISCO. Besides a general overview of the latest developments, the main emphasis was therefore put on the submission of passport and phenotypic data to EURISCO. The major focus in this context was on the preparation and uploading of data, in particular the quality and completeness of the data, but also on the data templates to be used and the uploading procedure. Practical exercises on uploading and testing data sets of the individual participants were carried out; the results of the data integrity checks were discussed together. Another important topic was the use of Digital Object Identifiers (DOIs) as unique and stable identifiers for plant genetic resources and their support by EURISCO.

Nikolaya Velcheva and Stephan Weise opened the workshop and welcomed the participants. N. Velcheva and her colleagues from the Bulgarian Genebank were thanked for the time and effort they put into planning and organizing this workshop. Further thanks went to the ECPGR Secretariat for their support with the logistics of the workshop. The meeting was divided into plenary sessions and hands-on sessions where participants were expected to engage.

All participants were asked for a short self-introduction. S. Weise then presented the agenda of the meeting as well as the expectations from the organizers' point of view and asked about the expectations of the participants. The expectations can be summarized as follows:

- Conduct training on importing passport data and phenotypic data into the EURISCO system
- Increasing the frequency of updates and the quality of EURISCO data
- Obtaining feedback from data providers
- Raising awareness of DOIs as a means of uniquely identifying PGR accessions
- Strengthening collaboration through face-to-face interactions
- Providing information on current and future developments, especially the extension for *in situ* CWR data.

2 Plenary presentations

The following presentations were given during the workshop. The main points addressed are listed below each title. The presentations are available on the ECPGR workshop webpage.

2.1 Development and status of the National Inventories of the participants' countries

All National Inventory Focal Points participating in the workshop had been asked in advance to prepare some slides for a short overview of their respective National Inventories:

- Austria: Plant Genetic Resources Conservation & Documentation in Austria,
  by Sylvia Vogl
- Bulgaria: Bulgarian National Inventory – Development and status,
  by Nikolaya Velcheva
- Cyprus: National Inventory of Cyprus,
  by Angelos Kyratzis
- Estonia: Development and status of the Estonian National Inventory,
  by Vahur Kukk
- Georgia: Plant Genetic Resources for Food and Agriculture,
  by Tamar Jinjikhadze
- Hungary: The Status of the Hungarian National Inventory in EURISCO in 2023,
  by Lajos Horváth
- Israel: The National Genetic Resources and Seed Quality Center,
  by Dikla Lifshitz
- Italy: Current status of the germplasm data sources: the case of Italian National Germplasm database,
  by Maria Antonietta Palombi
- Latvia: Latvian PGRFA – National Inventory,
  by Dainis Ruņģis
- Montenegro: PGR in Montenegro,
  by Miroslav Čizmović
- Nordic Countries: Nordgen – Nordic Regional Inventory,
  by Kjell-Åke Lundblad
- Poland: Development and the status of the National Inventory of Poland,
  by Renata Kowalik
- Portugal: Current status of the National Inventory of Plant Genetic Resources in Portugal,
  by Octávio Serra
- Serbia: National PGRFA Inventory Serbia,
  by Milena Savić Ivanov
- Spain: Status of the Spanish Inventory of PGR,
  by Miguel Angel López Carrasco
- United Kingdom: UK Plant Genetic Resources Inventory – Recent developments and proposal,
  by Lin S. Huang

2.2 EURISCO – The European Search Catalogue for Plant Genetic Resources

by Stephan Weise

- Background information about EURISCO – history and intention
- Development of EURISCO and data flow
- Overview about data volume
- Technical architecture of the EURISCO infrastructure
- Search and filter options for end users
- AEGIS data in EURISCO
- International integration of EURISCO
- Training and dissemination
- Participation in project consortia related to EURISCO
- Current and planned developments

2.3 Digital Object Identifiers (DOI) for plant genetic resources: Possibilities/benefits and their support through EURISCO

by Stephan Weise

- Unique identification of PGR accessions – background and limitations
- Specific challenges for aggregator systems, such as EURISCO, Genesys or WIEWS
- Need for widely accepted, unique and stable identifiers for PGR accessions → permanent unique identifiers (PUIDs)
- Use of Digital Object Identifiers (DOIs) as PUIDs – advantages and disadvantages
- Assignment of DOIs for PGR accessions – illustration of different options
- Overview of DOI use in EURISCO
- Specific focus on the DOI registration service provided by EURISCO in close collaboration with the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

2.4 Passport data: Gaps, pitfalls and data quality

by Stephan Weise

- Definition of data quality and metrics for measuring it
- Presentation of four selected metrics
- Correctness
- Completeness
- Reliability
- User expectation conformity
- Best practices and examples for validating passport data and improving its quality
- Syntactic and semantic passport data checks in EURISCO
- Preparatory steps to be performed by the data providers and tools to support
- Check of coordinates (land or water/within or outside country border)
- Correctness of taxonomic terms (different taxonomic schools, typos etc.)
- Completeness of passport information (per descriptor/Passport Data Completeness Index)
- Development of completeness of passport data in EURISCO over the years
- Data gaps in EURISCO
- Example of EURISCO taxonomy backbone

2.5 Passport data updates

by Stephan Weise

- Introduction of the EURISCO intranet
- Procedure for updating passport data in EURISCO
- File preparation, upload and basic checks
- Data integrity checks
- Review of check results
- Approve/rework data
- Incremental vs. full updates
- Taxonomy checks
- AEGIS status checks
- Live demo of new uploader interface

2.6 Phenotypic data in EURISCO

by Stephan Weise

- Challenges on phenotypic data
- Current EURISCO approach
- Data model and description of data exchange templates
- Procedure for updating phenotypic data in EURISCO
- File preparation, upload and basic checks
- Data integrity checks
- Review of check results
- Approve/rework data
- Additional upload procedure – delegation of upload to collection curators and approval by National Inventory Focal Point
- Overview of phenotypic data in EURISCO
- Towards FAIR data

2.7 EURISCO extension for *in situ* CWR data

by Stephan Weise

- Background and preliminary activities of the *in situ* community
- Approach for including *in situ* CWR data in EURISCO and technical framework
- Steps to integrate data into EURISCO and status of implementation
- Presentation and discussion of the EURISCO *in situ* CWR data standard

3 Hands-on sessions

During the workshop, two practical exercises on preparing and uploading data into EURISCO were conducted. The aim of the practical exercises was to train the National Inventory Focal Points in:

- Preparing and uploading National Inventory data sets (passport data, phenotypic data)
- Carrying out integrity checks
- Interpretation of the results.

In preparation for the workshop, participants were asked to bring some data of their National Inventory datasets to practice uploading and applying the EURISCO data integrity checks to these data. Some test data were made available upon request.

User guides for uploading passport data and phenotypic data as well as MS Excel templates were available to participants via the EURISCO intranet.

3.1 Passport data

The hands-on session started with a presentation of the EURISCO intranet. The procedure for updating passport data of the National Inventory was explained step by step. The focus was on the web-based tool that allows direct import from MS Excel files. It was shown how data integrity checks are carried out and how to interpret their results. Furthermore, the concept of deletion candidates was explained. Here, newly uploaded records of a National Inventory are automatically compared with the accessions already documented in EURISCO in order to be able to give indications of which accessions should possibly be removed from EURISCO. This only applies to full updates and must be verified by the data providers. In addition, details were given on the automatic checks of the AEGIS status of EURISCO accessions as well as on the automatic mapping of the taxonomic terms provided against two public repositories – GRIN taxonomy and Mansfeld taxonomy, respectively. The latter serves in particular to find incorrect spellings.

During the session, the passport data files of several participants were used to demonstrate EURISCO updates. Participants were assisted in the correct formatting of data files as well as in the interpretation of integrity errors. It was again reminded that the EURISCO intranet supports incremental updates as a complementary way to upload data when it is not necessary to change all the information contained in the National Inventory.

3.2 Phenotypic data

This session started with a presentation on phenotypic data. The challenges associated with the exchange and integration of phenotypic data were outlined and the minimum consensus approach consisting of five templates currently used in EURISCO was presented. The data model and detailed information on the fields of the five templates (GENOTYPE, DATASET, EXPERIMENT, TRAIT and SCORE) and their use were explained. The procedure for uploading phenotypic data into EURISCO was demonstrated by showing the individual steps of data import and data checking one after the other, followed by the interpretation of the check results. In addition, ideas for the further development of the exchange of phenotypic data in the next EURISCO hosting phase were outlined.

Afterwards, the workshop participants actively made use of the possibility of uploading phenotypic data sets. Errors that occurred (syntactic and semantic) were explained; solutions were suggested.

4 EURISCO survey

User feedback is essential to continuously develop and improve a system like EURISCO. This is particularly important to find software bugs, improve existing features and add new ones, as well as to generally increase the awareness of EURISCO and to open up new user groups. As the workshop participants are power users who have a good understanding of both the data provision side and the usage side of EURISCO, a survey was designed in advance of the workshop and conducted during the workshop. It consisted of two parts with ten questions each: 1) infrastructure for data providers (EURISCO intranet), and 2) public EURISCO web application.

The system was mostly evaluated positively, but some suggestions for improvement and feature requests were also made. A detailed evaluation of the results of the survey will be presented to the EURISCO Advisory Committee (AC). Suggestions for improvements/functional enhancements will be reviewed for feasibility and included in future work plans in consultation with the AC.

5 Discussions and conclusions

The participants had lively discussions throughout the workshop; the main points are summarized below.

The data standard for phenotypic data currently used in the EURISCO network represents a minimum consensus approach. It includes five templates (see above) that allow the capture of the most important information to describe phenotypic data. During the workshop, there was consensus that these templates can be used relatively easily by data providers who can draw on the support of database-driven information systems (GRIN-Global, in-house developments, etc.). However, a large proportion of phenotypic data in many institutes is only available in the form of various files, often MS Excel files. Transforming such data into the exchange format required for EURISCO is a considerable effort. Therefore, two data exchange templates were presented during the workshop, which were designed in the EU project AGENT, in which the ECPGR Secretariat and the EURISCO coordinator are partners. These are a relatively simple template developed especially for the collection of historical phenotypic data, and a more complex template that allows the collection of extensive and fine granular metadata to achieve full MIAPPE compliance. The simpler template was particularly well received by the participants and it was suggested that a data exchange based on it should be offered in EURISCO as soon as possible.

The presentation and search/filter possibilities of phenotypic data in the public web interface were also discussed. It was pointed out by the participants that the current presentation of the data offers only limited value to users. This is well known and is due to the fact that while the data exchange format is standardized (see above), there are still no widely accepted lists of traits and scales as well as methods to record them. Existing approaches such as IPGRI or UPOV descriptors are often individually modified, which makes cross-experiment or cross-institutional comparability very difficult. It was explained that the concept of well-described datasets promoted by Genesys is considered very promising and that, subject to EURISCO AC approval, efforts will be made to implement this for EURISCO in the upcoming ECPGR Phase XI.

The workshop participants asked for a reminder to be sent once a year to update the passport data.

The participants also suggested that the data quality checks carried out during the data import should be expanded.

Furthermore, an extension of the EURISCO-MCPD standard to include a descriptor AVAILABILITY was discussed. It was pointed out that the availability of PGR material has been discussed controversially for years and no consensus has been reached on this yet. At present, statements about the availability of material can only be made to a limited extent with the help of the AEGISSTAT descriptor. The possible introduction of an AVAILABILITY descriptor should be discussed again by the EURISCO AC.

The wish was expressed to indicate the plant family in addition to genus and species in the public EURISCO web interface. This can be done automatically without extending the EURISCO-MCPD format, as the corresponding taxonomic data is available.

Furthermore, the mention of plant usage was discussed. Again, the problem is that there is no widely accepted controlled vocabulary. It was agreed to check whether it is possible to automatically assign plant usage information on the basis of GRIN Taxonomy. A similar approach has already been successfully implemented for common crop names.

Another point of discussion was the newly developed data standard for *in situ* CWR data based on van Hintum & Iriondo (2022)[1]. The descriptors contained therein were presented. While there was agreement in principle, it was noted that some descriptors should be expanded in the future. For example, the descriptor SITEPROT currently only provides for a single value. However, it was pointed out that multiple expressions should be allowed. A possible extension is being examined.

The participants were positive about this year's training workshop. It was considered interesting and helpful. The participants expressed appreciation for the good organization. The participants enjoyed the vivid discussions during the workshop.

[1] van Hintum & Iriondo (2022) Principles for the Inclusion of CWR Data in EURISCO. European Cooperative Programme for Plant Genetic Resources (ECPGR). 30pp. https://www.ecpgr.cgiar.org/resources/ecpgr-publications/publication/principles-for-the-inclusion-of-cwr-data-in-eurisco-2022

Annexes

Annex A. Agenda

DAY 1 (11 SEPTEMBER 2023)		
	Arrival of participants - Transfer from Sofia Airport to Plovdiv	N. Velcheva

DAY 2 (12 SEPTEMBER 2023)		
08.30 – 09.00	Registration	
09.00 – 09.15	Welcome	S. Weise, N. Velcheva
09.15 – 09.30	Round of introductions	All participants
09.30 – 10.00	Introduction of agenda and expectations	S. Weise
10.00 – 10.30	EURISCO catalogue • General presentation • Development in recent years • Outlook on planned developments in the near future	S. Weise
10.30 – 11.00	**Tea/coffee break**	
11:00 – 12:30	Development and status of the National Inventories of the participants' countries	All participants (~10 min. each)
12:30 – 13:30	**Lunch**	
13:30 – 14:00	DOIs for plant genetic resources and their support by EURISCO	S. Weise
14:00 – 15:00	Passport data • Data gaps and pitfalls • How to improve data quality?	S. Weise
15:00 – 15:30	**Tea/coffee break**	
15.30 – 15.45	Demonstration of the EURISCO web information system	S. Weise
15.45 – 16.15	Feedback to the web information system + requirements for future improvement	All participants
16.45 – 17.30	Discussions, group photo	All participants
20:00	Social dinner "Megdana" traditional restaurant	All participants

DAY 3 (13 SEPTEMBER 2023)		
09.00 –09.30	Passport data • Data templates and upload procedure • How to interpret data integrity checks? • Taxonomy • AEGIS status	S. Weise
09.30 – 10.30	Hands-on session passport data (bring your own data)	All participants
10.30 – 11.00	**Tea/coffee break**	

11.00 – 11.30	C&E data • Well-known challenges • Data templates • Upload procedure	S. Weise
11.30 – 12.30	Hands-on session C&E data (bring your own data)	All participants
12.30 – 13.30	**Lunch**	
13.30 – 14.00	Transfer to IPGR Sadovo	
14:00 – 14:15	Welcome and introduction	K. Uzundgalieva
14:15 – 16:00	Visiting information centre, genebank, museum, botanical garden, regeneration / experimental field	N. Velcheva, G. Desheva / IPGR team
16:00 – 18:00	Visiting Bachkovo Monastry near Asenovgrad	N. Velcheva / IPGR team
18:00	Transfer to Plovdiv and dinner on your own	

DAY 4 (14 SEPTEMBER 2023)		
9.00 – 10.30	Hands-on session C&E data (cont.)	All participants
10.30 – 11.00	**Tea/coffee break**	
11.00 – 12.00	EURISCO extension for *in situ* CWR data • Background • Data standard • Status of implementation	S. Weise / tba
12.00 – 12.30	Feedback + general discussion / end of meeting	All participants
12.30 – 13.30	**Lunch**	
14.00 – 18.00	Visiting the Ancient city of Plovdiv; dinner on your own	N. Velcheva / IPGR team

DAY 5 (15 SEPTEMBER 2023)		
	Departure of participants - Transfer from Plovdiv to Sofia Airport	N. Velcheva

Annex B. List of participants

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