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From:	Stephan Weise (IPK)	To:	Lorenzo Maggioni (ECPGR Secretary) Theo van Hintum (Head, EURISCO Advisory Board)
CC:	Markus Oppermann (IPK)		

This document describes the activities carried out in 2024 for hosting and maintaining the European Search Catalogue for Plant Genetic Resources (EURISCO), and for coordinating the EURISCO network.

Content

1 EURISCO development

The focus of activities in 2024 was mainly on EURISCO coordination, not on software development. The contract for the new EURISCO hosting phase 2024–2028 between IPK and the Alliance of Bioversity International/CIAT could only be finalised late, at the end of February 2024. As a result, the process of advertising and filling the position of the new EURISCO software developer could not be started until the beginning of March; the selected candidate had to observe a notice period of several months with his previous employer, meaning that he was not available until October 2025. This only allowed some of the planned activities to be carried out. This was already discussed at the EURISCO Advisory Committee (AC) meeting on 20 September 2024 in Tallinn, Estonia.

1.1 Hosting of the EVA infrastructure

The infrastructure of the European Evaluation Network (EVA) was continued to be hosted. As planned, a DivBrowse instance for the visualisation of genotyping data from lettuce was also integrated (Figure 1). Apart from minor bug fixes, no further activities were carried out.

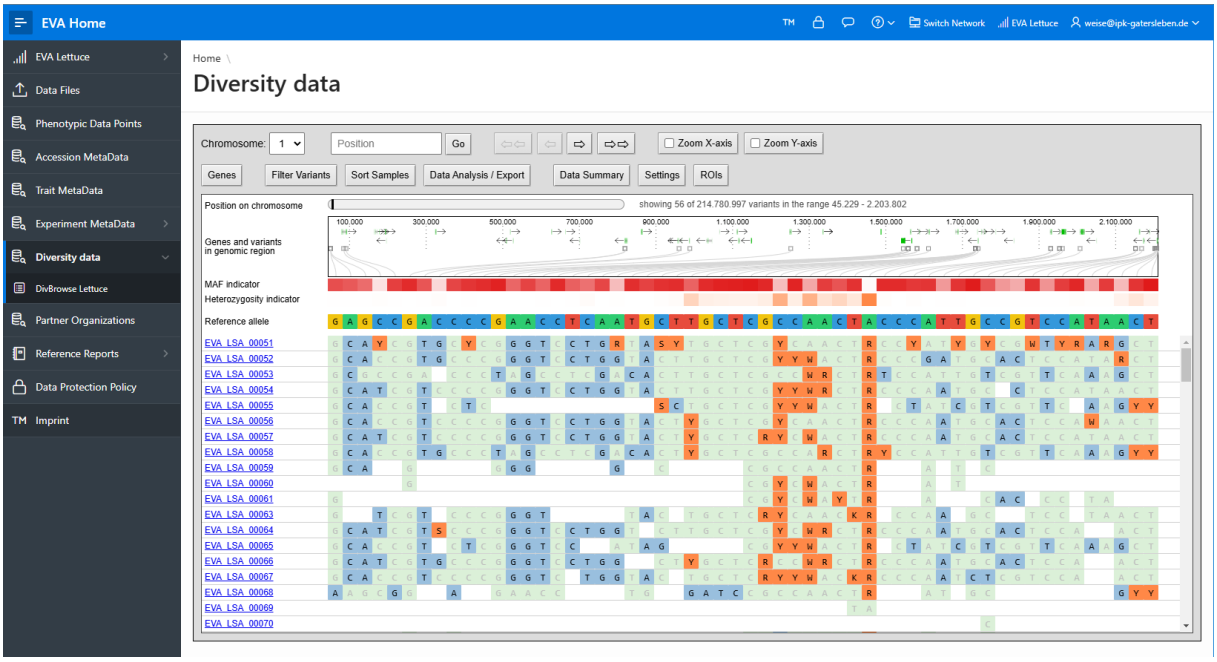

Figure 1: Screenshot of the EVA web interface showing the visualisation of lettuce genotyping data using DivBrowse.

The EVA web application and the underlying database are used exclusively by the various EVA consortia; public access is not provided. In 2024, the number of phenotypic data points uploaded to the EVA database increased by 17,953 to a total of 627,405 (Figure 2). Once the embargo periods have expired, the data is successively transferred to EURISCO.

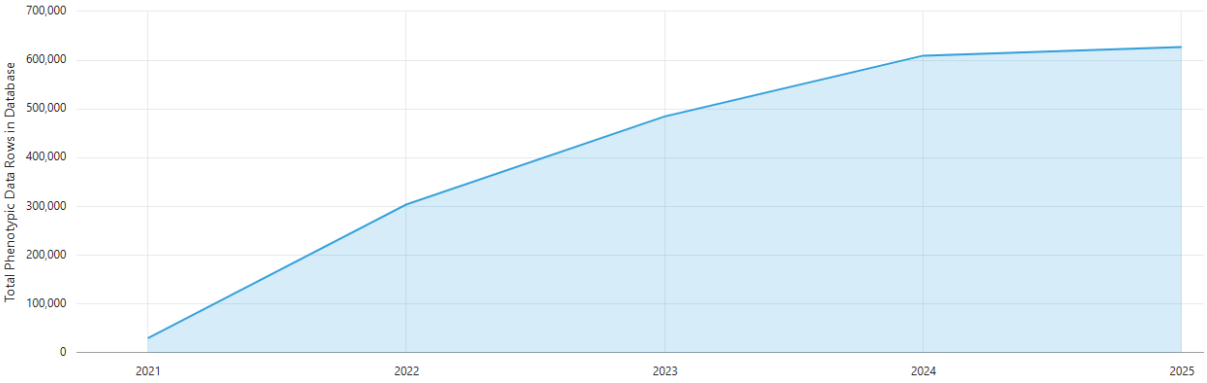

Figure 2: Increase of phenotypic data points uploaded to the EVA infrastructure.

1.2 Extension of the intranet support mechanisms for data providers (permanent activity)

The upload/update mechanisms for *ex situ* and *in situ* CWR passport data and for phenotypic data continued to be maintained and minor bug fixes were carried out. In particular, various *in situ* CWR datasets were uploaded, checked and integrated into EURISCO over the course of the year without any major adjustments being necessary.

Both the data standard as well as the user guide for uploading *in situ* CWR passport data to EURISCO were updated[1].

At the EURISCO Advisory Committee meeting (see above), the proposal to make the exchange format for phenotypic data more user-friendly was accepted. The exchange format has already been revised as a result (see section 2.1); the necessary implementations in the EURISCO backend (DB schema, upload and check procedures) are planned for 2025.

1.3 Extension of functionality of the public EURISCO application (permanent activity)

1.3.1 Extension of EURISCO frontend for *in situ* CWR passport data

As the new EURISCO developer was not available until October 2024, this activity could not be tackled and will have to be postponed until 2025.

1.3.2 Reorganisation of the search and display of phenotypic data

As the new EURISCO developer was not available until October 2024, this activity could not be tackled and will have to be postponed until 2025.

[1] While the data standard documents are available from the public EURISCO web interface, the user guides for compiling and uploading *ex situ* and *in situ* CWR passport data as well as phenotypic data are only available to the data providers on the respective intranet pages.

1.3.3 Continuous development of the existing public web interface

Preparations for the revision of the EURISCO web interface could not begin until October 2024. Until then, activities were limited to the operation of the web interface and minor bug fixes.

At the meeting of the ECPGR Documentation & Information Working Group (Doc&Info WG) on 18–19 September 2024 in Tallinn, Estonia, and subsequently at the EURISCO Advisory Committee meeting (20 September 2024), it was decided not only to completely revise the web interface visually and functionally, but also to align it more closely with Genesys in terms of technology in order to strengthen synergies. In summary, this means:

- Genesys is the central entry point for data on plant genetic resources on a global scale. Nevertheless, it is very important for the brand EURISCO to maintain its own identity and offer its own web interface. Limited functionality is sufficient for this purpose.
- The aim is to achieve a greater separation of the data storage and presentation layers. Since EURISCO, as the European hub, forwards its passport data to Genesys, the REST APIs from Genesys can be used to set up a new EURISCO web interface. This has the advantage that these APIs do not have to be maintained by EURISCO itself and EURISCO can therefore focus more strongly on other activities (e.g. data quality). For functionalities that cannot be offered with the Genesys APIs, additional REST interfaces must be implemented on the EURISCO side. This currently concerns phenotypic data in particular, as this is not yet synchronised with Genesys. Furthermore, Genesys does not yet manage data on *in situ* CWR populations.
- Should it be decided in future to make the link with Genesys less tight, the corresponding APIs would have to be re-implemented on the EURISCO side; this would not be visible to users.

The new EURISCO developer started work in October 2024. His activities initially focused on familiarising himself with the entire existing EURISCO infrastructure. To this end, he conducted an in-depth analysis of EURISCO's existing online presence and identified areas for improvement in terms of design, usability and functionality. An initial mockup was then developed to discuss the basic design (Figure 3).

A series of extensive tests were then carried out to check whether and to what extent the Genesys REST APIs could be integrated into the preferred technology of the web application (Oracle APEX framework). This involved solving a number of challenges relating to authentication and data synchronisation. The tests were successful and, based on current knowledge, it can be assumed that the implementation using both technologies can be continued in 2025.

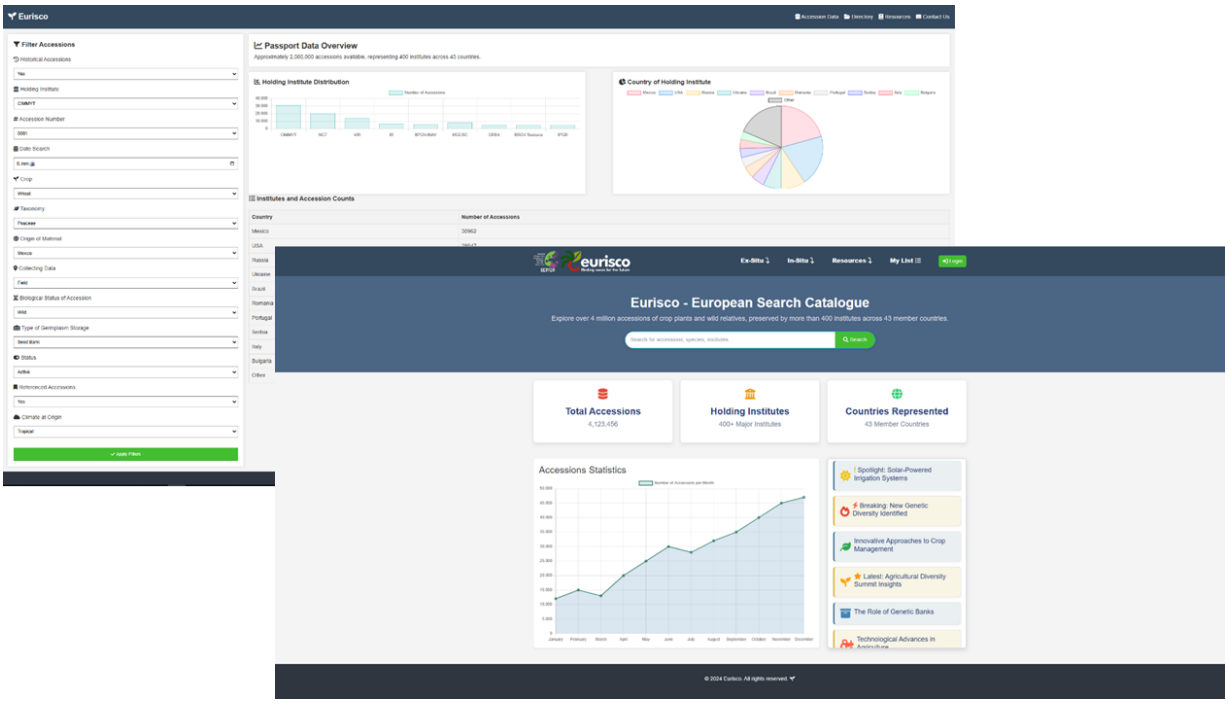

Figure 3: Initial mockup to discuss the future design of the EURISCO web interface.

2 EURISCO coordination

2.1 EURISCO network maintenance and coordination of the EURISCO development

As in previous years, contact with (potential) EURISCO stakeholders was also intensified in 2024 as an ongoing activity to demonstrate the potential of this joint European approach.

The EURISCO coordinator held an online training session in the context of the 'Crop wild relatives data in EURISCO' project with representatives of the pilot countries on 9 April 2024.

Two presentations were given at the meeting of the 'Extension of EURISCO for Crop Wild Relatives (CWR) *in situ* data and preparation of pilot countries' project that took place in Sadovo, Bulgaria, on 18–19 June 2024 (S. Weise).

A talk about rethinking plant genetic resources documentation in the age of data-driven science was given at the Joint PRO-GRACE/EMPHASIS Policy Symposium and Workshop on Plant Genetic Resources and Phenotyping, 27–28 June 2024, Brussels, Belgium (C. Aguilar).

A presentation on opportunities and limitations of the FAIR principles for collections of plant genetic resources was given at the SPNHC & TDWG Joint Conference 'Enhancing Local Capacity, Elevating Global Standards', 2–6 September 2024, Okinawa, Japan (S. Weise).

Two talks were given at the meeting of the ECPGR Documentation & Information Working Group, 18–19 September 2024, Tallinn, Estonia (M. Oppermann, S. Weise).

At the Doc&Info WG meeting, two points were discussed that are important for the future handling of phenotypic data in EURISCO. As single-seed descent (SSD) lines, especially for heterogeneous material such as landraces, do not reflect the entire diversity of an accession, there was consensus that such data cannot be mapped directly to the original genebank accessions. Furthermore, SSD lines often cannot be permanently preserved in PGR collections, which is why they are usually not documented in EURISCO. A technical solution has therefore been proposed that will make it possible to incorporate the valuable data on SSD lines into EURISCO while at the same time separating it from the original accessions. A dedicated search for SSD lines will not be implemented. Instead, when phenotypic data sets are displayed, it will be explicitly pointed out that this data was collected from individual lines selected from genebank accessions. This proposal has already been approved by the EURISCO AC. A proposal for a revised exchange format for phenotypic data was also developed and has already been approved.

An article about the EURISCO-EVA Information System was published in Genetic Resources (Kumar et al., 2024). It describes the extension of EURISCO, which was developed to facilitate standardised data collection, sharing and analysis for multi-site evaluations of different crops within the European Evaluation Network.

The EURISCO newsletter was sent around in December 2024. This is considered very important for providing feedback to the EURISCO users.

33 production updates of passport data from various National Inventories were performed in 2024, either partially or completely. The number of accessions documented in EURISCO increased by 8,367, reaching 2,100,754. Data of more than 620,000 accessions was updated in total, which is above average. These accessions were managed in 418 *ex situ* and 18 *in situ* CWR collections comprising 2,096,070 and 4,684 accessions, respectively. The number of AEGIS accessions increased significantly last year by 48,915 to a total of 119,343, while the number of phenotypic data records rose only moderately by 6,286 to a total of 2,736,066. In total, phenotypic data is available for 91,779 accessions from 21 countries. Further data is always welcome and can be made available to EURISCO with the involvement of the National Inventory Focal Points.

In addition, much effort was invested into providing a helpdesk ‘behind the scenes’. Direct, personal communication took place with National Inventory Focal Points and National Coordinators (e.g. support for updates, provision of specific database queries and special data export formats, discussion about future developments).

2.2 Participation in project proposals

An indispensable task of the EURISCO coordination is to participate in the preparation of project proposals in order to acquire additional funding for the future development of EURISCO.

Special attention was again paid to the HORIZON 2020 project AGENT, in which EURISCO plays a central role in managing new data from European wheat and barley collections. This project, which will run until April 2025, serves as a sandbox to test ways of expanding EURISCO. A particular focus, for example, is on improving the FAIRness of the data. In addition, solutions for linking traditional genebank data with genotyping data are being evaluated.

In addition, the EURISCO coordination has been involved in the HORIZON Europe project PRO-GRACE since 2023. The aim of this project is to develop a concept and proof-of-concept measures for the

establishment of a large European research infrastructure for plant genetic resources. In this context, the EURISCO coordination focusses on information standards and the interaction of different information systems.

The EURISCO coordination continued and continues to actively participate in preparing further project proposals to acquire additional funding for developing certain aspects of EURISCO.