

<b>Project:</b>	EURISCO	<b>Date:</b>	2022-02-11
<b>From:</b>	Stephan Weise (IPK)	<b>To:</b>	Lorenzo Maggioni (ECPGR Secretary) Theo van Hintum (Head, EURISCO Advisory Board)
<b>CC:</b>	Markus Oppermann (IPK)		

This document describes the activities carried out in 2021 for hosting and maintaining the European Search Catalogue for Plant Genetic Resources (EURISCO), and for coordinating the EURISCO network.

## Content

1	EURISCO development .....	2
1.1	Extension of the intranet support mechanism for National Inventories (perm. activity).....	2
1.1.1	Rework of update mechanism.....	2
1.1.2	Infrastructure for ECPGR EVA.....	2
1.1.3	Update how-to documents .....	3
1.2	Extension of functionality of the public EURISCO application (permanent activity) .....	3
1.2.1	Revision of the public web interface and general improvements .....	3
1.2.2	Linking with genetic data.....	4
1.2.3	Continue crop portal for forages.....	4
1.3	Documentation and planning of the next steps.....	5
2	EURISCO coordination .....	5
2.1	EURISCO network maintenance and coordination of the EURISCO development .....	5
2.2	Participation in project proposals .....	6

## 1 EURISCO development

### 1.1 Extension of the intranet support mechanism for National Inventories (permanent activity)

#### 1.1.1 Rework of update mechanism

A new upload/update mechanism for passport data for National Focal Points (NFPs) was largely developed by the end of 2020. Extensive testing and a number of enhancements took place in 2021. In this context, the EURISCO intranet interface was also revised. The new interface has been made more visually appealing and uses the latest version of Oracle APEX technology. The import of passport data is now purely web browser-based; third-party software and special firewall permissions are no longer required. EURISCO data providers were instructed in the use of the new mechanism in a training workshop.

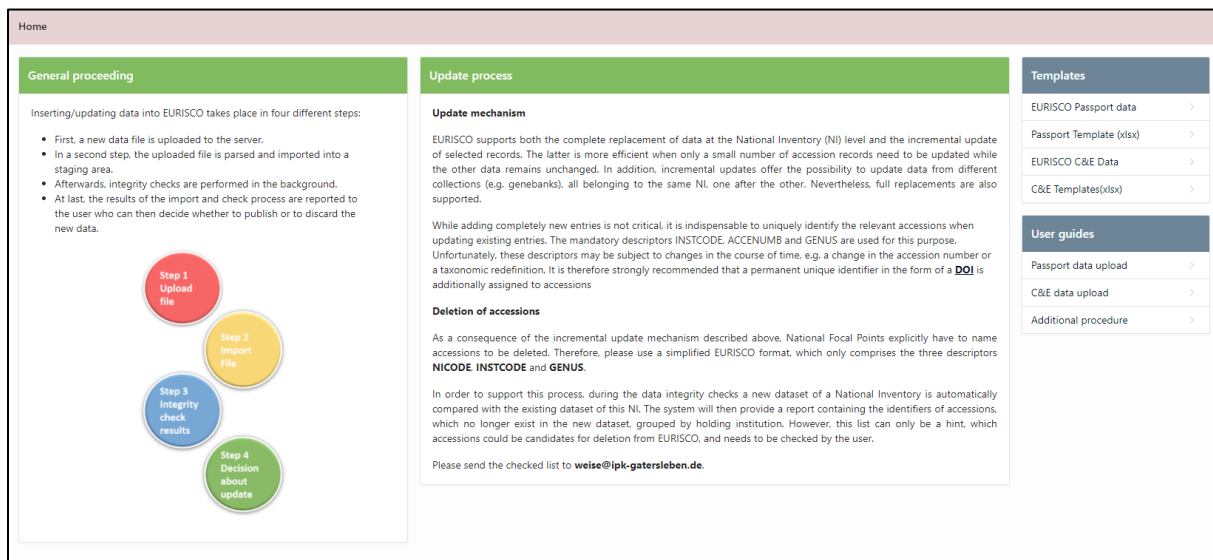


Figure 1: Screenshot of the new EURISCO intranet interface.

The overhaul of the upload/update mechanism for phenotypic data was also designed; due to time constraints, implementation could not yet be completed and is scheduled for 2022.

#### 1.1.2 Infrastructure for ECPGR EVA

The EURISCO coordination is involved in the European Evaluation Network (EVA), which made it possible to provide additional funding for a software developer. The EVA software developer started work in January 2021. Based on the preliminary work from 2020, a specification document was created in the first step. This was refined in several iterations and then used to design the database infrastructure. The implementation was then carried out in an Oracle DBMS.

Subsequently, a web-based application was developed based on the database infrastructure. This offers the partners of the respective EVA consortia the possibility of project data management, search functionalities, definition of embargo periods and so on. The prototype of the new application was

presented to selected power users in autumn 2021. The feedback received from them was used to improve/enhance the system.

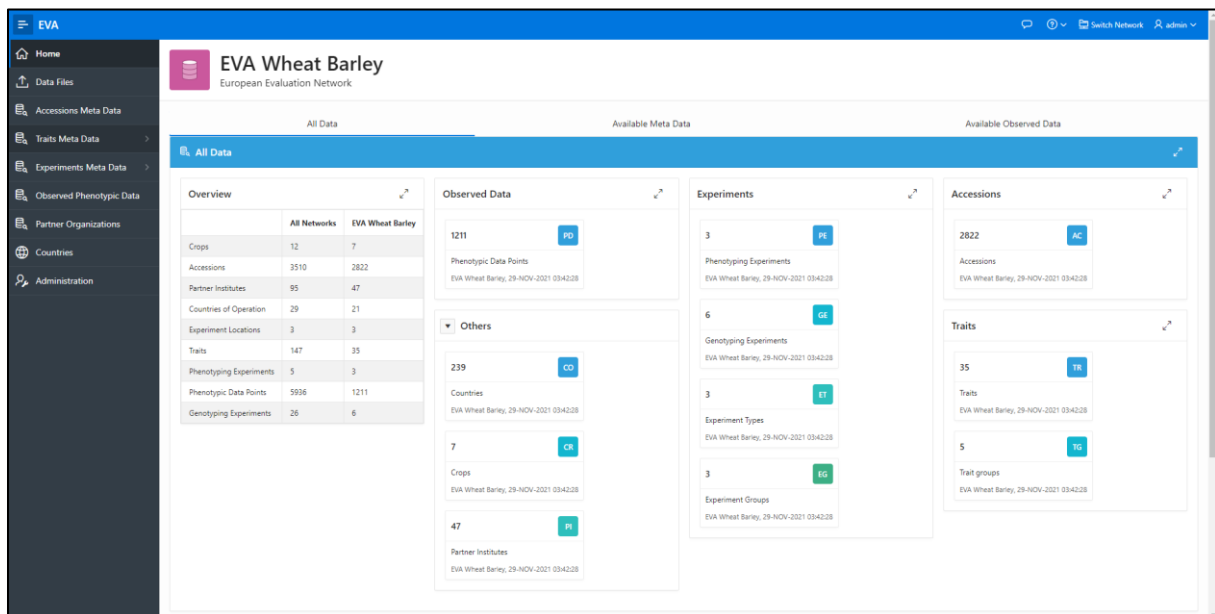


Figure 2: Screenshot of the EVA interface.

In close consultation with the EVA coordination, the data import templates were continuously developed; the first upload options have already been implemented.

An extensive test data set was used to test the system. In December 2021, the import of production data was started. All data available by the end of the year was imported. This process will be continued on an ongoing basis.

Further information can be found in the technical report of the EVA project.

### 1.1.3 Update how-to documents

How-to documents, descriptions of data exchange formats etc. are continuously updated.

## 1.2 Extension of functionality of the public EURISCO application (permanent activity)

### 1.2.1 Revision of the public web interface and general improvements

Both technologies and user behaviour continue to develop. Therefore, even established information systems need to be revised regularly. By hiring a new EURISCO software developer, the revision of the central EURISCO web application could be advanced in 2021.

In addition to necessary updates of the technology used, a special focus was placed on the implementation of a responsive design. In this context, it was also examined which functionalities of the previous application were used particularly heavily or little, in order to adopt or discontinue them accordingly in the new application. Furthermore, new functionalities were introduced on the basis of user feedback, in particular a combined search via passport data and phenotypic data.

Furthermore, additional functionalities such as faceted search, map-based selection options of accessions as well as search indices for scientific names and common crop names have been implemented. For the latter, an automatic mapping to an internal list of common crop names based on data from the GRIN system takes place with each data update. This allows the user to search for consistent names and leads to more complete results.

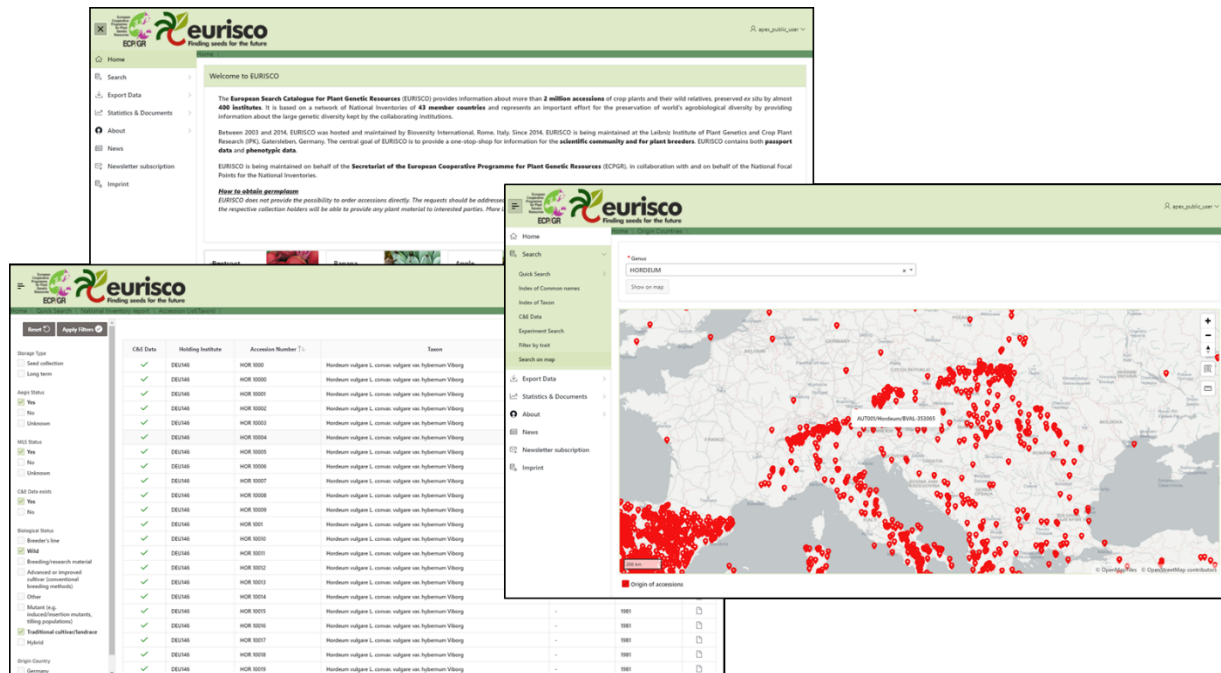


Figure 3: Screenshots of the revised EURISCO public web application.

The prototype of the new application was first presented at the EURISCO Training Workshop 2021 (see below) and received positive response from participants. Feedback is currently being gathered from a group of power users. The aim is to make the new interface publicly available by spring 2022 at the latest.

### 1.2.2 Linking with genetic data

In recent years, the desire to link genetic data collected on genebank accessions to EURISCO has been expressed repeatedly. These data are usually deposited in public repositories such as NCBI GenBank or EMBL-ENA/EVA. The EURISCO coordination is actively involved in the EU project AGENT (see below), in which, among other things, solutions for linking have been evaluated and are currently being implemented. As soon as these have proven successful, they will subsequently be adopted for EURISCO.

### 1.2.3 Continue crop portal for forages

Apart from some checks of passport data, there was very little interaction regarding the crop portal in 2021 (ECPGR Grant Scheme Activity "ImprovLoliumCol"). As soon as the data is available, it will be imported into EURISCO and made available in the crop portal for forages. However, the data has only been announced for 2022.

### **1.3 Documentation and planning of the next steps**

The developments described in sections 1.1–1.2 were specified and all developments were documented.

## **2 EURISCO coordination**

As in previous years, in addition to the actual network activities, an important focus of work consisted of collaboration with various projects, especially under the EU's Horizon 2020 programme.

### **2.1 EURISCO network maintenance and coordination of the EURISCO development**

As a continuous activity, the contact to (potential) EURISCO stakeholders was also intensified in 2021 in order to demonstrate the potentials of this common European approach.

As mentioned in last year's report, the EURISCO training workshop originally planned for 2020 had to be cancelled due to the COVID-19 pandemic. The situation did not improve much in 2021 either, so in the end an on-site training had to be abandoned. Instead, the experiment of organising a purely online training was ventured. All the necessary tools, slide sets, how-to documents and test data sets were adapted or newly created. The workshop took place from 10 to 12 November 2021. The pure online training was viewed with scepticism in advance by both the participants and the trainers, but the workshop was rated very positively as a result. Nevertheless, an online workshop cannot replace the exchange of experiences and ideas that takes place away from a workshop agenda. The aim is therefore to hold the future biannual workshops as face-to-face events again. Smaller, regional trainings can be offered as additional online events if needed. In total, the workshop brought together 24 participants. Shortly after the end of the workshop, a number of data sets were productively updated in EURISCO by participants.

Already on 11 May 2021, an ad-hoc training for new colleagues from the UK took place as an online event.

A presentation on EURISCO was given at the *34th Meeting of the EUCARPIA Fodder Crops and Amenity Grasses Section in cooperation with the EUCARPIA Festulolium Working Group*, 6–8 September 2021 (online event).

Another talk was given by video conference at the meeting *Biodiversität der Nahrungspflanzen – Datenbank der Vielfalt*, Austrian Agency for Health and Food Safety (AGES), Linz, Austria, 20 September 2021.

In addition, EURISCO was presented in the *EUCLEG Workshop on Genomics assisted breeding in forage and grain legumes*, 30 September – 1 October 2021 (online event).

The EURISCO newsletter was sent around in December 2021. This is considered very important for providing feedback to the EURISCO users.

The update frequency of National Inventory datasets was even higher in 2021 than in the previous year. A total of 49 production updates of passport datasets took place, either partially or completely.

The number of accessions documented in EURISCO increased by 28,599 to a total of 2,071,881 on 31 December 2021. In total, passport data of 472,176 accessions were updated or newly imported. The number of AEGIS accessions was 59,684.

The number of phenotypic records increased by 170,035 to 2,683,302 due to 14 production updates, resulting in phenotypic data for 90,647 accessions from 17 countries. In this context, phenotypic data from the ECPGR International Lactuca Database (ILDB), previously hosted by CGN Wageningen, was also imported into EURISCO.

Against the background of the increasing global exchange of data on plant genetic resources, permanent and unique identifiers (PUIs) are becoming increasingly important. To this end, genebanks are registering more and more accessions for Digital Object Identifiers (DOIs). As of 31 December 2021, 228,917 accessions from eight countries had a PUID in EURISCO, which for most of them is a DOI.

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 acquire additional funding for the future development of EURISCO. Fortunately, some of the corresponding project applications were approved.

In 2021, the EURISCO coordination participated in the three already running Horizon 2020 projects “EUCLEG” (work package lead) and “Farmer’s pride” (task lead) as well as “GenRes Bridge”, all of which are related to EURISCO. Work had to be carried out in all projects (see separate project reports). In addition, a large number of video conferences were held. The three projects mentioned above ended in 2021.

End of 2019, another Horizon 2020 project was approved for funding – Activated GENEbank NeTwork (AGENT). The AGENT project is a concerted effort to activate genebanks that started in May 2020. It focuses primarily on wheat and barley and aims to facilitate access to genetic resources for breeders and farmers through standardised protocols for data generation, documentation and provision to users. The EURISCO coordination is mainly involved in two work packages aiming at the development of guidelines and formats for data production, exchange and representation, and at the development of the infrastructure for managing and analysing genotypic and phenotypic data about genetic resources, respectively.

2021, further support was provided for the creation of additional bridging collections, while the main focus of activities was on the management of project data. In addition to contributing to data flow guidelines, particular efforts were made to achieve synergy effects through close cooperation with the European Evaluation Network (EVA) of the ECPGR.

The EURISCO coordination is involved in EVA. As part of this initiative, an intranet extension of EURISCO is being developed to temporarily host the evaluation data generated by the network in a protected environment. After three years of embargo, this data will become fully public within EURISCO. The new EVA developer started his work as planned at the beginning of 2021. After preparing a requirements analysis, he started implementing the necessary database infrastructure. Subsequently, a first prototype of the user interface of the intranet application was developed for the EVA project partners. This interface was presented to various EVA consortia and expanded based on the feedback received. In December 2021, work began on importing the first evaluation data (see above).