Report of the EURISCO Training Workshop 2017

National Focal Points Regional Training Workshop for Central Europe

12–14 September 2017, Gatersleben, Germany

S. Weise and M. Oppermann

Participants in the workshop

November 2017

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INTRODUCTION

The EURISCO Training Workshop 2017, a workshop of the Documentation and Information Working Group (Doc&Info WG), was held 12–14 September 2017 in Gatersleben, Germany. Its purpose was to continue the series of regional training workshops of the European Plant Genetic Resources Catalogue (or European Internet Search Catalogue, EURISCO), which was revived in 2015 by means of the first workshop in Tirana, Albania, and was continued by the second workshop in Angers, France, in 2016. The 2017 workshop focused on Central Europe.

The workshop, organized in collaboration with the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), brought together 14 participants. The focus of this workshop was, besides providing the basic training elements, on increasing the volume of characterization and evaluation (C&E) data records in EURISCO. Therefore, the participants primarily comprised National Focal Points (NFPs) from the region, and preference was given to newly appointed NFPs who did not participate in a EURISCO workshop before, and to those NFPs who have C&E data to contribute.[1]

Stephan Weise opened the workshop and welcomed the participants on behalf of the local host, the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK). Thanks were expressed to the German Federal Ministry of Food and Agriculture and to the ECPGR for funding the workshop through its Activity Grant Scheme (Third Call, 2016), and to the ECPGR Secretariat for their assistance in the logistics of the workshop. The meeting would be structured in plenary sessions and hands-on sessions, in which the involvement of participants was expected.

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

- Provision of training for the EURISCO system for importing both passport data and C&E data
- Obtaining feedback from the users (new system, desirable support, additional use-cases)
- Discussion about strategies for increasing update frequency and data completeness
- Strengthening of cooperation through personal interactions.

PLENARY PRESENTATIONS

The following presentations were given during the workshop. The main points addressed are listed below each title. The presentations are available online here.

Development and status of the National Inventories of the participating countries

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

- Albania: Albanian National Inventory Status, by Belul Gixhari
- Belarus: National Collection of Plant Genetic Resources of the Republic of Belarus, by Iryna Markevich

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[1] See also the Activity proposal at http://www.ecpgr.cgiar.org/working-groups/documentation-information/eurisco-national-focal-points-training-workshop-2017/

- Bulgaria: Bulgarian National Inventory of Plant Genetic Resources – Development and Status, by Nikolaya Velcheva
- Finland: Status on Finnish National PGR Programme inventory, by Merja Hartikainen
- Hungary: The status of the Hungarian National Inventory in EURISCO, by Lajos Horváth & Attila Simon
- Italy: Advances in The Italian National Germplasm Database – PlantA-Res, by Maria Antonietta Palombi
- Latvia: Plant Genetic Resources in Latvia, by Anita Gaile
- Romania: Romanian National Inventory, by Cezar Ciobăniţei
- Slovakia: NI Status of PGR in Slovak Republic through GRISS, by Ľubomír Mendel

The comprehensive overview of these presentations was highly appreciated.

EURISCO, the European Search Portal for Plant Genetic Resources – Status quo & planned developments

by Stephan Weise
- Background information about EURISCO
- Overview about data volume and taxonomic composition
- Architecture of the new EURISCO infrastructure
- Extension for C&E data
- Challenges and future developments

The German National Inventory PGRDEU

by Matthias Ziegler
- Overview about PGR conservation in Germany and perspectives for EURISCO
- Further development of "Red list of threatened useful plants"
- Outlook on *in situ* activities in Germany
- Descriptors for *in situ* data
- Crop wild relatives genebank
- Genetic reserves in Germany

The Bulgarian National Inventory of Plant Genetic Resources in EURISCO. Experience with the new uploading system

by Nikolaya Velcheva
- Overview about the Bulgarian National Inventory
- Holding institutes, taxonomic composition and status of accession samples
- Experiences with the new infrastructure for uploading data to EURISCO

HANDS-ON SESSIONS

During the workshop, two hands-on sessions for preparing and uploading data to EURISCO were performed. Therefore, a training room was prepared enabling the participants to work with the EURISCO software in parallel. The aim of the hands-on sessions was to train the National Focal Points for:

- uploading National Inventory datasets (passport data, C&E data),
- running integrity checks, and
- interpreting the results.

Thus, in preparation for the workshop, the participants were asked to bring their National Inventory datasets in order to practice the upload and to apply the EURISCO data integrity checks onto this data. In addition, some test data was provided.
User guides for uploading passport data as well as characterization and evaluation data to EURISCO were prepared beforehand and were provided to the participants. These guides are also available from the EURISCO intranet.

In parallel to the hands-on session on passport data, a session dedicated to the improvement of the quality of accession-related data took place.

Passport data

The hands-on session started with a presentation about the new EURISCO intranet. The procedure of updating National Inventory passport data was explained step by step. Special emphasis was put on the new Java-based import tool, thus allowing to directly upload data from MS Excel™ files. It was demonstrated how data integrity checks are performed and how their results should be interpreted. In addition, details were given about the harmonization of the EURISCO data exchange format with the latest version of the Multi-crop passport descriptors (MCPD 2.1), which will shortly take place.

In the course of the session, passport datasets of several participants were used for demonstrating EURISCO updates. The participants received assistance in correctly formatting data files as well as in interpreting integrity errors. Once again, it was pointed out that the new EURISCO intranet now supports incremental updates.

Characterization and Evaluation (C&E) data

In a presentation, the participants were provided with background information about the development of the C&E data exchange format. The new data model as well as detailed information about the fields of each of the five sub-templates (genotype, dataset, experiment, trait and score) and their usage were explained. The procedure of uploading C&E data to EURISCO was demonstrated by successively showing the individual steps of importing and checking data, followed by the interpretation of the check results.

Afterwards, the workshop participants actively made use of the possibility of uploading C&E datasets. Occurring errors (syntactic and semantic) were explained; solutions were proposed.

Improvement of data quality

Markus Oppermann introduced tools for matching scientific plant names and for checking geographic coordinates of accession passport data.

For visualizing and consolidating georeferenced objects like accessions, geographic information systems (GIS) are useful tools. The free and open-source software QGIS is one of the most powerful tools for such purposes. In a live presentation with original data from EURISCO, an introduction to

different ways of creating representative maps where given. It was also explained how to use QGIS for data cleansing by extracting possible wrong coordinates.

Furthermore, as a way to organize and edit data, the platform OpenRefine was introduced.

DISCUSSIONS AND CONCLUSIONS

All participants engaged in vivid discussions, which are summarized below, grouped by topic.

Phenotypic data

The EURISCO C&E data exchange format was discussed. The question was raised why the format consists of five different templates instead of one single wide table. It was explained that this format represents a kind of a minimum consensus. The intention was to provide a slim exchange format which only uses as few fields as possible to describe all information necessary to interpret phenotypic information. A wide table with a virtually unlimited (and varying) number of columns would hamper the automatic import of data. Moreover, even in that case it would be necessary to store metadata, such as descriptions of experiments, or definitions of traits and their scales, to name a few.

It was asked if a standardization of traits would make sense at this point in time. It was explained that at the 2014 meeting of the Doc&Info WG the decision was made not to standardize trait definitions, methods and scales at the beginning. Instead, all available data should be accepted as is until a critical mass is reached, which will allow demonstrating to users the benefits of the C&E data extension of EURISCO. Afterwards, a standardization discussion will be initiated.

In addition, it was discussed if it would be feasible to add an image or a description file to each trait. It was explained that it is already possible to add a description file (preferably a PDF) to each experiment, which could contain, amongst others, a description of the scored traits within the respective experiment. An example file was shown. If it turns out that a description file on experiment level is not sufficient, the extension of the C&E data exchange format for such a file on trait level will be reconsidered.

Taxonomy and crop names

The EURISCO taxonomy project, which aims at extending the taxonomic backbone of EURISCO, was briefly introduced. It was explained how the procedures, which will be developed in the course of this project, will be used to provide a more sophisticated feedback (accepted names, synonyms, typos) to the data providers.

It was asked if it would be possible to use a controlled vocabulary for crop names. The main challenge herein is that there is no generally accepted vocabulary. However, a feasible approach might be to use the crop names provided by GRIN taxonomy. In the EURISCO intranet, an additional report could be created which automatically suggests crop names for the uploaded accessions to the data providers.

The same approach could be followed in case of information about the use of crops. GRIN taxonomy also provides this kind of information. The EURISCO coordination will evaluate if these features could be implemented with reasonable efforts in the EURISCO intranet. While crop names are already part of the MCPD format, the use of crops has not been taken into account so far. If the discussed suggestions prove useful for the NFPs, the extension of the MCPD format should be considered accordingly.

In situ / on farm data

The participants were informed that the EURISCO coordination will participate in the Farmer's Pride project coordinated by Nigel Maxted, University of Birmingham, UK. One of the outcomes will be a

concept for the integration of *in situ* data into EURISCO as well as a concept for the technical extension of EURISCO.

Public web interface

It was discussed if it would be feasible to add pictures to the accession data. Due to resource limitations it will not be possible to add a variety of images to all accessions. However, it was considered feasible to add one overview image per accession, which should be shown at the accession details pages.

Cezar Ciobăniţei, Romanian NFP, offered to provide a set of sample images. They will be added to a test environment of EURISCO for further discussion. In case this approach is accepted by the users, the necessary effort for implementing an appropriate upload mechanism for accession images will be evaluated.

It was suggested to add information about available phenotypic data to the accession passport information. Currently, it is possible to get from a phenotypic data search to the associated passport data, but not vice versa. It was thus requested to show the number of available traits per accession both at the accession lists which are generated based on the chosen search criteria and on the respective accession details pages. In addition, some statistics could be shown at the accession details pages, e.g. the number of phenotypic scores of a specific accession or the number of experiments in which this accessions was scored.

Furthermore, it was asked to show the most phenotyped accession(s).

Workshop feedback

In contrast to the previous workshops, additional training infrastructure was provided, thus enabling the participants to upload test data simultaneously. This was highly appreciated by the participants. Moreover, with Markus Oppermann a second trainer was available.

A separate workshop evaluation was performed via SurveyMonkey shortly after the workshop. The workshop was assessed very positive by the participants.

ANNEXES

Acronyms and abbreviations

C&E	Characterization and evaluation
CBD	Convention on Biological Diversity
ECPGR	European Cooperative Programme for Plant Genetic Resources
EURISCO	European Internet Search Catalogue
FAO	Food and Agriculture Organization of the United Nations
GRIN	Genetic Resources Information Network *(of the United States Department of Agriculture – Agricultural Research Service, USDA-ARS)*
IPK	Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MCPD	Multi-crop passport descriptors
MLS	Multi-lateral system
NC	National Coordinator
NFP	National Focal Point
NI	National Inventory
PGR	Plant genetic resources
WG	Working Group
WIEWS	World Information and Early Warning System *(of the FAO)*

Agenda

DAY 1 (12 SEPTEMBER 2017) – VENUE: BIOINFORMATICS CENTRE, IPK GATERSLEBEN		
12.30	Transfer from the hotel to IPK Gatersleben	
13.00 – 13.30	Registration of participants	
13.30 – 14.00	Welcome and introduction	S. Weise
14.00 – 14.15	Self-introduction of the participants	All participants
14.15 – 14.30	Introduction of the agenda and expectations	S. Weise
14.30 – 15.15	Country NI development and status	NFPs (~10 min. each)
15.15 – 15.45	**Tea/coffee break**	
15.45 – 16.30	EURISCO catalogue (Status quo + planned developments)	S. Weise
16.30 – 16.45	Demonstration of the EURISCO web information system	S. Weise
16.45 – 17.15	Discussion and wrap up	All participants
17.30	Transfer to Quedlinburg (hotel)	
	Dinner on your own	

DAY 2 (13 SEPTEMBER 2017) – VENUE: BIOINFORMATICS CENTRE, IPK GATERSLEBEN		
08.30	Transfer from the hotel to IPK Gatersleben	
Two parallel sessions 09:00 – 10:30		
09.00 – 10.30	Improvement of data quality (group 1) • Scientific plant names • Geographical data • Tools + test datasets	M. Oppermann & NFPs (Seminar room of IPK communication centre)
or		
09.00 – 10.30	Hands-on session passport data (bring your own data) (group 2) • Adaptation to MCPD2 • Upload of NI datasets (test environment) • Run integrity checks • Interpret results • Discuss improvements	S. Weise & NFPs
10.30 – 11.00	**Tea/coffee break**	
Two parallel sessions 11:00 – 12:30		
11.00 – 12.30	Improvement of data quality (group 2)	M. Oppermann & NFPs (Seminar room of IPK communication centre)
or		
11.00 – 12.30	Hands-on session passport data (group 1)	S. Weise & NFPs
12.30 – 13.30	**Lunch**	
13.30 – 14.00	C&E data in EURISCO	S. Weise

	• Templates • Implementation • Data uploads	
14.00 – 15.15	Hands-on session C&E data (bring your own data)	S. Weise, M. Oppermann & NFPs
15.15 – 15.45	**Tea/coffee break**	
16.00 – 17.30	Guided tour IPK herbarium and genebank	K. Pistrick + U. Lohwasser (~45 min. each)
18.30 – 20.30	Workshop dinner	
20.30	Transfer to Quedlinburg (hotel)	

DAY 3 (14 SEPTEMBER 2017) – VENUE: BIOINFORMATICS CENTRE, IPK GATERSLEBEN		
08.30	Transfer from the hotel to IPK Gatersleben	
09.00 – 09.30	The German National Inventory PGRDEU	Matthias Ziegler
09.30 – 10.00	The Bulgarian National Inventory of Plant Genetic Resources in EURISCO. The experience with the new system	Nikolaya Velcheva
10.15 – 11.00	Guided tour IPK Lemnatec plant	A. Junker
11.15 – 11.45	**Tea/coffee break**	
11.45 – 13.00	General discussion & conclusion • Additional use-cases for EURISCO • Strategies for increasing the update frequency • Increasing the coverage of EURISCO • Strengthening the network • Extension of EURISCO descriptors • Further expectations • Workshop feedback	All participants
13.00 – 14.00	**Lunch**	
End of workshop		
14.00	Transfer to Quedlinburg (hotel)	

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