

**A REPORT FROM THE
ECPGR/AEGIS WORKSHOP:
ESTABLISHMENT OF THE
EUROPEAN FORAGE
COLLECTION**

“TO AGE WITH AEGIS”

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“TO AGE WITH AEGIS”

A report from the ECPGR/AEGIS workshop - Establishment of the European Forage Collection

30th January- 3rd February 2012, Research Centre for Agrobiodiversity, Hungary

Participants: Graiss, Wilhelm; Fourtier Stéphane; Horvath, Lajos; Marum, Petter; Palmé, Anna; Poulsen, Gert; Thomas, Ian David; Tomaszewski, Bartosz; Veteläinen, Merja and Willner, Evelin

Local organizers: Simon Attila and Lazlo Holly

Contact details are provided in the end of the report

The welcome words in the workshop were given by Dr. László Holly from the Research Centre for Agrobiodiversity, Tápiószele. He wished the participants most welcome to the research centre and gave a presentation on the new structure and organisation for the conservation of all genetic resources in Hungary. He also presented the history and activities of the Tápiószele gene bank.

Merja Veteläinen welcomed the participants to the work shop on behalf of the AEGIS project organising group (Evelin Willner, Ian D. Thomas, Petter Marum, Gert Poulsen and MV). The goals of the meeting were high-lighted. In addition, she presented the recent developments of AEGIS and development of the European collection based on the material that was provided by the ECPGR secretariat (Presentation 1: AEGIS Forage workshop).

Petter Marum gave a presentation on the history of the ECPGR Working Group of Forages work on the European Forage Collection since 1997. It could be concluded that the WG has already worked with goals and spirit of AEGIS for 15 years. The present workshop has thus the ambitious goal to make significant progress in identifying accessions to the collection (Presentation 2: The long history of European Forage Collection).

Evelin Willner presented the work with the European *Poa* database as an example on how to work with towards the European collection. Definition of selection criteria was explained, as well selection steps of candidates to EFC (Presentation 3: Forage grasses - *Poa* Central Crop Database Development and assigning Most original sample towards defining an European Forage Collection (EFC)).

Ian D. Thomas gave an interactive presentation on Google Fusion Tables that allow gathering, visualizing and sharing data online. One of the aims of the workshop was to test new tools in the process of identifying European Forage Accessions. Google Fusion Tables is a data management system that give possibilities to browse the data in an effective way e.g. using aggregation function (several layers are possible). Ian showed, for example, how species name errors and crop name errors (an example of species name found “grasses”) can be detected easily. The system can also

visualize the geographical data on maps e.g. Google earth, if latitude and longitude information is available. The visualization function is also a good tool for looking for errors in latitude/longitude data, for example a case where accessions were found in the sea was demonstrated. The system allows also flagging of errors that are identified. Furthermore, merging of different data tables is possible and could be used to add new columns that explain coded values in another other column e.g. institute code to a proper name of an institute. Ian explained that the Google Fusion Tables system is still under development and wished that a function that restricts certain data sets to a part only would be available soon. After the demonstration of the system Ian offered the database managers separate tables for each database and put them together for checking data of several species with a national gene bank.

Finally, during the first day of the workshop all database managers presented the state of the Central Forage Databases that they manage. Also information from each respective country/gene bank of the forage collection and seed availability of the accessions were demonstrated. The demonstrations showed that the analyses for EFC candidates in the different databases have progressed, but have reached different stages. Many bottle-necks such as insufficient, missing or inaccurate accession level documentation and taxonomic problems have slowed the process (see an example in Table 1: Originality defined in Minor Forage Legume Database by using MOS algorithm and 2 different descriptors). Also, a severe problem is the fact that individual collection holders (gene banks) cannot be reached for confirmations or responses cannot be received for unknown or known political/organisational reasons. Since many of the problems faced by the forage database collection holders might be common for other ECPGR groups, it was decided that these findings will be communicated to ECPGR as a separate appendix of this report.

Table 1. : Originality defined in Minor Forage Legume Database by using MOS algorithm and 2 different descriptors

Originality with MOS algorithm
COLL=4522, DON=201, BRED=204
MOS=3767
ORIG with single NAME
3736
MOS=6649
ORIG with LOC SITE COLL
7584
MOS=11066
TOTAL: 18746

The presentations of different forage databases were the following:

1. **Gert Poulsen, NordGen:** Minor forage grasses (including also former *Agropyron*, *Agrostis*, *Arrhenatherum*, *Bromus*, *Phalaris* and *Trisetum*) and *Phleum* databases. Presentation: Phleum and Minor Grasses Database
2. **Lajos Horvath, Hungary:** Minor forage legumes database. Presentation 4: Minor Forage legume ECCDB
3. **Bartosz Tomaszewski, Poland:** *Dactylis* and *Festuca* databases. Presentation 5: European Festuca and Dactylis Databases,
4. **Ian D. Thomas, UK:** *Lolium* and *Trifolium*, interactive presentations.
5. **Stephane Fournier, France:** *Medicago*, perennial database. File: xls-presentation.
6. **Evelin Willner, Germany:** *Poa* database. Presentation 6: Forage grasses - Poa Central Crop Database Development and assigning Most original sample towards defining an European Forage Collection (EFC)
7. **Wilhelm Graiss, Austria:** *Vigna* database. Presentation 7: European Vigna Database and National Report Austria

E-mail contacts on *Medicago*, annual database manager Valentin Maya were used prior and during the workshop e.g. on precision of species belonging to the two *Medicago* databases.

On the second day of the workshop practical work was carried out in order to proceed with the identification of the accessions to the European Forage Collection. Instructions for workshop preparations were delivered to the participants before the workshop (Appendix 2.). The practical work in the work shop was guided by the organising group. Various technical problems were solved, processes explained and data checks done. Also national engagement to act as primary holder of candidate accessions was confirmed for proposed PRIMCOLLs.

The results of the workshop are presented in the Table 2. Altogether more than 10 000 accessions (almost 10%) were identified as candidates to EFC. The plan is that after the meeting the database managers will look for the confirmations with different gene banks/collection holders so that the number of EFC accessions can be increased considerably. Therefore, it should be noted that the presented figures are very temporary since it is expected that the work to identify new candidates is continuous process.

Table 2. Number of accessions in each database, accessions with ORIG and PRIMCOLL data, and number of accessions identified as candidates to EFC at the time work shop. These numbers should be considered as temporary since up-date is on-going process.

Database	No acc	No acc with ORIG	No acc with PRIMCOLL	No acc with EFC	To be done after WS
Poa	6 437	6 217	5 839	1 303	
Phleum	5 844	2 228	2 326	1 452	
Trifolium	16 492				To be confirmed during 2012
Lolium	12 209	11 544		1 039	
Festuca	13 164	2 873	2 184	892	
Dactylis	12 341	2 188	2 045	1 067	
Medicago, annual	4 830	4 164	1 257	721	
Medicago, perennial	7 880	7 880	4 512	2 048	
Minor legumes	18 746	18 746	11 066	1 063	
Minor grasses	4 641	1 069	869	706	
Trifolium subterraneu	5 046	4 703	3 697	194	
Sum	107 630	61 612	33 795	10 485	

Further clarification is needed on how the identified EFC accessions enter EURISCO with the necessary information is needed. This question will thus be submitted with this report to AEGIS Advisory Committee. There is also need to develop the process that would enable the identified primary holders of accession to quickly respond to the database managers for their request to confirm the responsibility. The role of EURISCO national focal points could be examined in this process.

Acknowledgements

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Appendix 1: Issues to be addressed to ECPGR

Introduction

The ECPGR Working Group for Forages arranged a workshop within the frames of AEGIS grant scheme on 30th January- 3rd February 2012 on Research Centre for Agrobiodiversity in Hungary. The ultimate goal of the workshop was the Establishment of the European Forage Collection (EFC). The participants of the workshop were the database managers of the different central forage databases. During the workshop a follow-up of each of the databases in terms of identification of primary collection holder and candidates to EFC was carried out. Based on the results of the follow-up, goals for the practical work that would allow further progress during the work shop were set-up. However, there were a number of issues – that were not possible to handle within the frame of the workshop in terms of expertise needed or mandate of the database managers – and that could not be solved. Thus, the workshop participants wish that these issues are handled by ECPGR and EURISCO since they are crucial for progress to achieve AEGIS goals and are most probably common problems for various ECPGR working groups. The above mentioned issues are handled individually below:

Development of EURISCO into a data source that allows identification of European accessions in a dynamic process

Technical needs:

It has been generally stated that EURISCO should be a primary source of information for AEGIS and for the identification of accessions for European collection. However, at the moment the Working Group of Forages cannot use this information source but instead use central forage databases. These have now been designed at so that necessary information for definition of candidates for European collection can be added and extracted from/in the databases. However, it is important that this process utilizes up-dated and validated accession data. The simplest solution would therefore be that EURISCO could be used as one central data source. In order to ensure that the identification of European collection makes progress, we propose the following necessary improvements and additions to EURISCO:

- Add the following fields that are necessary for identification of European collection:
 - o EFC (AEGIS): The accession is included in the European collection
 - o EFC_DATE_ENTERED: The date when the accession was approved to the European collection
 - o EFC_DATE_WITHDRAWN: The date when the accession was withdrawn from the European collection
 - o PRIMCOLL: Primary collection holder suggested by the respective crop database manager
 - o PRIMCOLL-GB: Primary collection holder status approved by the collection holder

- ORIGINALITY: Most original sample (values: 1 (MOS), 2 (with MOS),3 (one away), 4 (more away), 5 (unknown))
- ORIGINALITY-GB: Most original sample value confirmed by the collection holder
- PLOIDY: Ploidy level of the accession
- RECDATE: Date of the last up-date

Since the inclusion of the accession in EURISCO does not imply anything regarding availability of, or access to the germplasm documented in the National Inventories, there is a problem to use EURISCO as the data source.

During the course of work shop it was clarified by the ECPGR secretariat that the relevant descriptors for that process will strongly vary from one crop to another and it will be difficult to include them all within EURISCO. It was thus concluded that at that the Central Crop Databases still play an important role. The work shop, however, utilized a temporary environment to e.g. compare the data between central forage databases and EURISCO and for other workshop needs. This temporary environment was created in the frames of Google Fusion tables. The working group for forages will continue to explore the further possibilities of this environment for the work.

Up-dating mechanism and intervals:

The second important aspect regarding the usefulness of EURISCO for definition of European collection is the need for a regular up-dating of the national data in EURISCO. We propose that EURISCO coordination regularly and actively reminds the national focal points to up-date their datasets for EURISCO since this highly affects the formation of the European collection, if EURISCO is to be used as a data source. The most ideal situation would be that EURISCO “mirrors” the national PGR databases in real time and is automatically up-dated. Thus it is recommended to study possibilities for this kind up-date.

Taxonomic check of accessions entering EURISCO

The definition of the European collection also demands high quality documentation regarding the taxonomic information attached to accessions. The forage database managers have identified serious problems in taxonomy documentation. During the course of the work shop ECPGR secretariat informed that “Currently, real time taxonomy reports are available on countries upload pages. The taxonomy reports highlight taxonomic imprecision such as spelling mistakes, indicating which scientific names are fully matching, partially matching or not matching the GRIN-Taxonomy.” However, these report seem not be sufficient since the forage group has identified serious taxonomic mistakes in the database. Therefore, there is a need to enforce a different system. A common ECPGR taxon list to be used for general (perhaps automatic) checks prior the submission of data from national inventories is suggested. We propose that ECPGR considers

establishing an ad hoc working group for documentation and standardization of taxonomic information in European PGR collections.

Appendix 2



Instructions: How to prepare myself for the workshop?

ECPGR/AEGIS workshop - Establishment of the European Forage Collection

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A. The Forage Databases

1. Send the up-dated database to Ian D. Thomas (he will send a request to you and inform you about the format)
2. He will compare your database with the information in EURISCO catalogue (<http://eurisco.ecpgr.org/>) and send you an up-dated/supplemented file back
3. Fill in the information on in the following columns:
 - i. ORG status (Originality)

1. Most original sample (MOS)	Gene bank is collector or breeder of the material.
2. With MOS	The material of a donor has been repatriated by the gene bank; the gene bank is collector or breeder.
3. One away	Gene bank obtained the material from a donor which is collector or breeder of the material.
4. More away	Gene bank obtained the material from a donor which is not collector or breeder of the material, but another institute or breeding company.
5. Unknown	Donor of the sample is unknown.

- ii. PRIMCOLL (primary holder) suggested by db manager,
- iii. PRIMCOLL approved by the collection holder,
- iv. Seed availability for request
- v.

B. The data from my own country/gene bank

Add information for: Originality, PRIMCOLL, Seed availability, Safety duplicate (=information on duplication site)

Please, confirm also with your domestic gene bank/-s which forage accessions they are prepared to act as a primary holder (PRIMCOLL). This information will be utilised in the workshop to assign accessions to the European Forage Collection. Also check their seed availability in general (all accessions may not be available at his time point due to on-going regeneration, but in principal they are = available).