

«Selection and flagging of accessions for the European Collection (AEGIS)

Presentation of ECPGRs guidelines and
progress on the European Forage Collection

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Beitostølen-Norway 1997 (WG)





The European Forage Collection

- Objectives
 - To formalize the sharing of responsibility
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The European Forage Collection (Continued)

- Objectives

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- To reduce the workload for each country and to allow a more effective conservation

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Workplan

- The database managers for the different species would suggest a genebank as the “**primary collection**” for each original accession
- National commitment would be sought for long-time conservation and to provide access to the accessions



Workplan

- National programs would be requested to provide to the respective database managers a list of accessions for which the country would **accept long term responsibility**.
- Database managers would record the institute that holds the “primary collection” in the **European database**



Responsibilities

- The primary collection would
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- The European Forage Database Manager would
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- The genebank hosting safety-duplicates would
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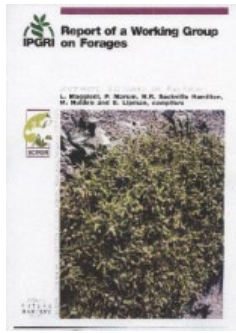
Elvas – Portugal 1999 (WG)





Most Original Samples (MOS)

- An procedure to indentify MOS was proposed by R. Sackville Hamilton
 - MOS
 - one step away from MOS
 - two steps away from MOS
 - with MOS
 - unknown
- An algorithm was developed to identify MOS
- All accession should provisionally be marked after this system by April 2000

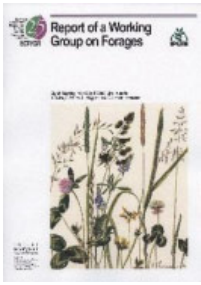


Most Original Samples (MOS)

- The WG agreed on a mechanism whereby responsibility would be accepted for the maintenance of MOS indentified in the forage collection
- This mechanism was almost identical to what was agreed in Beitostølen, Norway in 1997.
(Shorter, new terms introduced 'MOS' 'Black box')

Linz- Austria 2003 (WG)





Definition and identification of MOSs

- Little progress was made in the proposed mechanism
 - Difficulties applying the algorithm
 - **Missing data**
- Prior to the meeting, curators were asked to assign an “originality” descriptor to the accessions in their collection
 - Algorithm
 - Manually



Workplan

- Collection curators / WG members to add a descriptor “Originality” and assign it values of MOS
 - 1 = MOS
 - 2 = with MOS
 - 3 = one away
 - 4 = two (more) away
 - 5 = unknown



- Collection curators / WG members to send information on “originality” to CCBM managers by 1 July 2003
- CCDB managers to make a proposal for “Holder of primary collection” (PRIMCOLL) by October 2003
- CCDB managers to send compiled data back
- Priority: Dactylis, Festuca, Lolium, Medicago, Phleum, Poa and Trifolium

Lindau - Switzerland 2005 (Ah)





Ad hoc Meeting

Lindau, Switzerland 2005

- Discussions the relationship between Central Crop Databases (CCDB) and **EURISCO**
- Encourage National Inventory to make sure all available data are included in EURISCO.



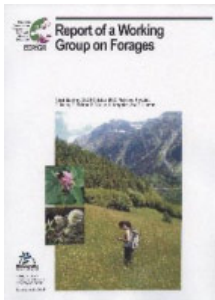
- Progress in MOS definition
 - The meeting split in several groups to work on updating the CCDBs of the seven priority crops.
 - This process was continued by the DB managers after the meeting.



- Recommendations / Workplan
 - Data format and description order
 - EURISCO descriptors followed by other agreed descriptors, listed in the same order
 - Identification of MOS / primary holder
 - Based on the algorithm it is often impossible to identify MOS.
 - The “Primary holder” should be the genebank in the country which the variety was bred.

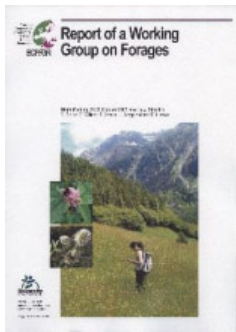
Pest'any - Slovakia 2007 (WG)





Piešťany, Slovakia 2007

Step	Action	Responsible	Interaction with
1	Add MOS data to accessions data in genebank (ORIGINALITY secriptor)	Genebank curators	
2	Per genus deliver national datasets containing MOS info to CCDBs	WG member	Genebank curators, CCDB managers
3	Incorporate MOS information in CCDBs and assign primary holder (PRIMCOLL)	CCDB manager	
4	Identify cases needing clarification; propose solution	CCDB manager	Genebank curators, CCDB managers
5	Obtain approval of assumption of responsibility as primary holder for list of predefined accessions	CCDB manager	Genebank curators, CCDB managers
6	Assign values (Yes / No) to EFC descriptor field where situation is clear	CCDB manager	



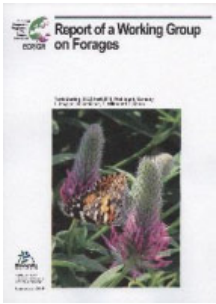
- Progress in this ambitious workplan has not been as fast as it was hoped after the 2003 WG meeting.
 - Steps 2 and 3 only partly completed
 - Steps 4 and 5 limited to Poa and Phleum
- EURISCO
 - Link to CCDBs a burning issue
 - Characterization and evaluation data
- **AEGIS**
 - Develop proposed initial list of European Collection(EAs), based on criteria for the selection of Most Appropriate Accessions (MAAs)
 - MOS = MAA ??

Poel - Germany 2010 (WG)





- Reduce the no. of forage ECCDBs
 - From 23 to 11
- Use EURISCO as a data source for the ECCDBs
- DB Managers identify MOS and PRIMCOLL
 - By December 2010
- MAA = MOS
- Slow progress
- Test the use of **Google Fusion Table methodology** for the identification of European accessions
 - <https://www.google.com/fusiontables/DataSource?docid=1-zfghbgVvv7l-TJWqzF4KiQnAq-DG75b0INTEkR2>



Selection procedure

- CCDBs or EURISCO
 - Preferably EURISCO
- Selection criteria
 - MOS
 - Maintained in “country of origin”
 - A known origin
 - Comprehensiveness of passport information
 -
 -
 -
 -

Tápiószele – Hungary 2012 (WS)



No of acc with ORIG and PRIMCOLL data and no. of acc. identified as candiates to EFC

Database	No. Accessions	No. Acc with ORIG	No. ACC. with PRIMCOLL	No. cadidate ACC. To 7EFC
Poa	6 437	6 217	5 839	1 303
Phleum	5 844	2 228	2 326	1 452
Trifolium	16 492			
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, annu	4 830	4 164	1 257	721
Medicago, pere	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
Tifolium subter.	5 046	4 703	3 697	194
SUM	107 630	61 612	33 795	10 485

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

“TO AGE WITH AEGIS”

**30 JANUARY- 3 FEBRUARY 2012,
RESEARCH CENTRE FOR
AGROBIODIVERSITY, HUNGARY**

compiled by Merja Veteläinen

Alnarp – Sweden 2013 (WS)





Before the Workshop

- The Google tables was sent to the Forage Germplasm collection holders
 - To confirm that the proposed identification of PRIMCOLL is correct.
 - To confirm that your institution agrees to maintain and make the PRIMCOLL available to users as part of EFC within AEGIS framework



AEGIS candidates and AEGIS accessions

- The number of responses from the collection holders was not as high as wanted
- **AEGIS candidates**
 - Accession is MOS and genebank has approved to act as primary holder. However the requirements for safety duplication and seed availability are not fulfilled
- **AEGIS accessions**
 - Needs formal approval by the National Coordinator



- *Note:* On 10 July 2013 ECPGR Secretariat informs about the draft for ‘**Revised simplified procedure for selection and flagging of accessions for the European Collection**’. The proposed procedure means in practice that germplasm collection holders would make offers of AEGIS accessions to the National Coordinator for approval. He/she will request the NFP to flag the respective approved accessions in EURISCO

Revised simplified procedure for selection and flagging of accessions for the European Collection

- The reason for the change in selection procedure
 - The data available in EURISCO and the ECCDBs were not of high quality
 - The various parties involved were not able to quickly respond and agree on proposed candidate accessions.
- The countries will play the central role

Preparation to the Workshop

- Sent request for information about the AEGIS progress in respective countries to the members of the ECPGR forages Working Group. (7 September)
 - Included “Suggested selection criteria for AEGIS candidate forage accessions”
- A friendly reminder (19 October)

Suggested selection criteria for AEGIS candidate forage accessions

- The selection criteria are suggested by the management group of the ECPGR project “Forages 2020”
- The criteria are in agreement with the criteria described in the “Revised simplified procedure for the selection and flagging of accessions for the European Collection” and are adapted from (but not identical to) the criteria used by NordGen for selection of candidates.

The accessions should be:

- Under the management and control of the Associate Member/country
 - 34 countries
- Plant genetic resource for food and agriculture or medicinal and ornamental species
- Included in **EURISCO**

No. Of Accession in EURISCO in Selected Genera

Genera	No. accessions	Genera	No. Accessions
Phleum	7289	Agrostis	1678
Lolium	14225	Arrhenat-herum	564
Festuca	15104	Trifolium	27180
Dactylis	13814	Medicago	14232
Bromus	1239	Lotus	2587
Phalaris	553		

- Genetically unique within AEGIS and have a European origin or introduced germplasm
 - MOS

- Viable
 - Germination above the minimum standard used by the gene bank

- Duplicated
 - Seed are safety duplicated at another genebank and/or in the Svalbard Global Seed Vault according to the criteria specified in: “AEGIS Safety Duplication policy endorsed by SC 15022013»

- Accessible
 - Seed are available for distribution according to the AEGIS guidelines
- Article 4.8.4 of the Genebank Standards endorsed by the FAO Commission on Genetic Resources for Food and Agriculture states: *“For most species a sample of a minimum of 30-50 viable seeds should be supplied for accessions with sufficient seeds in stock. For accessions with too little seed at the time of request and in the absence of a suitable alternative accession, samples should be supplied after regeneration/multiplication, based on a renewed request. For some species and some research uses, smaller numbers of seeds should be an acceptable distribution sample size.”* It

- Assured long term conservation
 - Accepted for long term conservation (ACC) by the Associate Member

- Minimum documentation
 - Known species
 - Accession name assigned
 - Known biological status of accession (SAMPSTAT)

– Known origin

- Origin country
- If wild or semi-wild: minimum collection data includes at least one of the following
 - Latitude and longitude
 - region (higher and/or lower admin level and/or location)
- Cultivar
 - Known breeder and/or known donor
- Landrace, at least one of the following
 - Latitude and longitude
 - region (higher and/or lower admin level and/or location)
- Breeding material
 - Known donor

- We see the process of selecting accessions for the European collection as a **continuous** process.
- Through the daily work at the gene bank, new accessions will reach the minimum criteria specified above, for example because work has been conducted to increase knowledge on seed status, regeneration has increased seed amount or germination or new accessions have been included in the collection.

Responses from 16 countries

Country	Initiated selection process	Total in EURISCO (Impotent genera)	Suggested by Genebank manager	Aproved by National Coordinator	Flagged in EURISCO
Lithuania	No?	875	875	875	0
Belgium	Yes	162 ?	56	0	0
Latvia	Yes	557	26	16 *	0
Bulgaria	No	1433 ?	0	0	0
Portugal	No	0	0	0	0
Czech Rep.	Yes (grasses)	2215*	375	262	262
United Kingdom	In workshop				
Switzerland	In workshop				
Greece	In workshop				
Hungary	In workshop				
Germany	In workshop				
Nordic countries	In workshop				

Responses from 17 countries I

Country	Initiated selection process	Total in EURISCO (Impotant genera)	Suggested by Genebank manager	Aproved by National Coordinator	Flagged in EURISCO
United Kingdom	In workshop				
Switzerland	In workshop				
Greece	In workshop				
Hungary	In workshop				
Germany	In workshop				
Nordic countries	In workshop				

Responses from 17 countries II

Country	Initiated selection process	Total in EURISCO (Impotent genera)	Suggested by Genebank manager	Aproved by National Coordinator	Flagged in EURISCO
Belgium	Yes	162 ?	56	0	0
Bulgaria	No	1433 ?	0	0	0
Czech Rep.	Yes (grasses)	2215*	375	262	262
Estonia	Yes	147*	57	57	0
Latvia	Yes	557	26	16 *	0
Lithuania	No?	875	875	875	0
Portugal	No	0	0	0	0

Status 1. November 2015

Genera	No of AEGIS accessions flagged in EURISCO	% of total in EURISCO
Phleum	328	4,5
Festuca	1886	12,5
Dactylis	623	4,4
Lolium	1726	12,1
Poa	1154	15,0
Bromus	13	1,0
Phalaris	30	5,4
Agrostis	48	2,9
Arrhenatherum	19	3,4
Alopecurus	7	0,8
Trifolium	1145	4,2
Medicago	26	0,2
Lotus	20	0,8
<u>SUM</u>	7025	6,6





- Aegis accessions flagged in EURISCO are expected to only be un-flagged specific cases
 - Will this result in that the collection holders is too cautious to flag an accession?
 - We don't know what the future will bring!
 - Funding

- Monitor the composition of the European Crop Collection (including the existence of possible gaps....)
 - What is a reasonable number of AEGIS accessions for each species and country.

- Flagging of varieties that still have breeder protection and/or are on the National Variety Lists?