



Most Appropriate Accessions – the selection process

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Content of presentation



1. AEGIS and the European Collection
2. Current status
3. Selection requirements
4. Selection criteria
5. Summary of MAA identification process
6. Proposed follow-up action
7. An additional point for discussion

AEGIS and the European Collection – i.e. **the context**



For AEGIS the **European Collection** is the major output

The following are the key aspects of **selection process**:

- Criteria to identify/select accessions agreed (using so-called **selection requirements and criteria**)
European Accessions need to comply with **all requirements!**
- **Selection criteria** to identify MAAs have been discussed for the model crops; they could be/are crop specific and provide guidance to select most appropriate accessions among set of (quasi) duplicates
- Important role of **countries and of WGs** in selection process
- Some **experience** in selecting MAAs gained with model crops
- Lack of **adequate information** could be bottle-neck in selection process

Current status



- Main players are countries and Crop Working Groups
- (Non-standardized) selection process used by all model crops
- There are no definite procedures fixed
- No precise definition of MAA exists (result of a process!)
- Selection requirements have been approved by the Steering Committee
- The selection criteria have been discussed by the model crop groups, without much divergence of opinion
- As foreseen in the process, a WG agreement on selection criteria will be required for each crop or crop group
- [Some additional selection criteria are available as a guide to countries when selecting MAAs]

Selection requirements

- **Selection requirements** for identification of European Accessions agreed by SC during its 11th Meeting:
 1. Material **under the management and control of the governments** of member countries and their associate members, in the **public domain** and **offered by the associate members for inclusion into AEGIS**
 2. **Genetically unique within AEGIS**, to the best available knowledge (i.e. genetically distinct accessions; assessment based on available data and/or on the recorded history of the accession)
 3. **Plant genetic resources for food and agriculture** as defined in the International Treaty as well as medicinal and ornamental species
 4. **European origin or introduced germplasm** that is of **actual or potential importance to Europe** (for breeding, research, education or for historical and cultural reasons).

Selection criteria - 1



Note: The criteria presented here are the result of many discussions as well as of applying them by several model crops. Need adjustment to specific crop!

- A. Need to be agreed by **each WG** for their specific crop(s)
- B. **Not** fully discriminative
- C. Used when deciding **which accession to accept** among two or more “quasi duplicate” or similar accessions;
- D. **WGs** to decide if any of these considerations has **prevalence** over the others, or that the selection should be the result of a **combination of two or more** secondary criteria

Selection criteria - 2



1. Maintained in “country of origin”
2. A known origin (collected and/or bred; pedigree data!?)
3. Comprehensiveness of passport information
4. Number of regeneration/multiplication cycles (Do we know?)
5. Health status (i.e. is the germplasm disease free?)
6. Existence of morphological/molecular characterization data

Selection criteria - 3



7. Existence of (agronomical) evaluation data
 8. Validated accession name (particularly relevant for perennial clonal crops where the same name can be attributed to different accessions; history of individual accessions is important; special attention to be paid to synonyms and homonyms)
- Some suggestions have been made to consider also adequacy of management procedures as requirement/criteria

“Additional” selection criteria - 1



Discussed during Cereals Network meeting (and that could provide a useful guide to countries):

1. Accessions that have been collected or bred in the country where they are being conserved in one of its genebanks
2. Accessions of the crop genepool in question that are crop wild relatives
3. Germplasm accessions that are traditional varieties and/or landraces

“Additional” selection criteria - 2



4. Germplasm accessions that represent **old and/or obsolete varieties**
5. **Modern varieties**, bred with conventional methods
6. Accessions that are **breeding lines**
7. **Genetic stocks** of the crop gene pool in question
8. Accessions that consist of **research material** like mapping populations, mutants, etc. – if different from 7 above

Summary of the foreseen MAAs identification process



1. **WGs** to develop **crop specific selection criteria** for identification of the Most Appropriate Accessions (MAAs)
2. **WGs** to develop/agree **process** of identifying MAAs
3. **WGs** could **pre-select candidate MAAs** and propose these pro-actively to countries and establish iterative process
4. **Selection of “candidate” accessions at the National level**, using the selection requirements, selection criteria and the agreed "process".

Summary of the foreseen MAAs identification process



5. **WG** to analyse list of all **candidate accessions** of a given crop proposed by countries to arrive at **list of MAA** per crop to be included in the European Collection
6. Inform **National Coordinators** for **flagging these European Accessions** in EURISCO

Alternative approaches to the above could/should be considered. Some suggestions have been made to accept for the European Collection all accessions proposed by the countries, and subsequently eliminate the “redundant” ones through bilateral interactions, rather than to identify MAAs “at once”!?

Point for discussion?

Proposed WG follow-up action

1. Proceed with formulating the “final list” of selection criteria
2. Strive to ensure that missing data are provided to EURISCO as soon as possible!
3. Respective WGs, where relevant, to assist countries (and their Associated Member institutes) in identifying “candidate” MAAs in their collections. This could be done by developing guidelines etc. (Is coordination between WGs required?)
4. Develop crop (genepool) specific list of MAAs on the basis of the candidate accessions, using the selection criteria
5. Where necessary, suggest any “additional” accessions to countries

Proposed WG follow-up action

6. Establish “final list” of the **European Accessions** for a given crop gene pool and confirm final decision with **National Coordinators**
7. It has been suggested to consider a kind of “**certification**” of the accessions and/or genebanks that manage European Accessions. **See next slide.**

An additional point



- As a possible additional future step and based on the
 - a. Agreed minimum **technical and operational standards**,
 - b. The established **quality management system**, including
 - c. the process to derive at "**certified European Accessions**"

the Working Group might **consider to discuss** the idea of certifying accessions/collections/ genebanks.

- It is understood that such **certification approach** (of accessions, collections, genebanks, genebank operations??) needs wider discussion, including by the **Steering Committee**

Steps ahead in making AEGIS operational



Summary of Crop WGs responsibilities :

1. Establish **selection criteria** for Most Appropriate Accessions
2. Coordinate the process of identifying European Accessions
3. Establish **final list of European Accessions**
4. Comment on **generic management standards**
5. Draft and agree on **crop specific technical standards**



Thank you
for your
attention!

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