AEGIS: An update and guidance for discussion by model crops

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AEGIS model crops curators and db managers meeting
1-3 July 2008, Radzików, Poland
Content of presentation

A. Brief overview of AEGIS
B. AEGIS procedures
C. Role + responsibilities of model crop groups
   1. Process of identifying MAAs
   2. Developing a quality management system
   3. Miscellaneous items
D. Details on MAA process
E. Proposed priority actions for next Phase
A. Why AEGIS?

To establish a European Collection and...

- exploit collective cultural, scientific and environmental strengths and opportunities
- increase general conservation quality
- facilitate sharing of responsibilities
- allow a more rational and cost-efficient approaches
- overcome constraints and problems
- facilitate implementation of IT
- Others?

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A. Some facts and figures

- **Worldwide**
  - app. 1500 genebanks/germplasm coll.
  - app. 6 million accessions
  - Estimated 2 million unique

- **Europe**
  - app. 500 genebanks/germplasm coll.
  - app. 2 million accessions
  - Only 30-40% unique(?)
  - > 40 European countries

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A. Perceived Benefits of AEGIS

- **Cost efficient** conservation activities
- **Reduced duplication** of germplasm material
- **Improved** quality standards
- **Increased** effectiveness in regeneration
- Facilitated **access and availability** of germplasm
- **Improved** security of germplasm through safety-duplication
- **Improved** sharing of knowledge and information

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A. Model Crops

- Seed propagated material – annual
- Annex I crops of ITPGRFA

Avena spp (entire genepool) selfing

Brassica spp
For MAA: B. rapa

Vegetatively propagated material – biennial and perennial
Non Annex I of ITPGRFA

Allium sp. (vegetatively propagated)
Prunus spp (cherry)

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B. AEGIS procedures

Broad agreement to establish an efficient, well coordinated and rational European Collection (Strategic Framework document) include:

• Process to identify Most Appropriate Accessions
• MAAs are by definition in public domain and readily available
• Countries to accept long-term conservation responsibility for MAAs; applying agreed quality standards and QM system
• Formalizing commitments through Collective MOU
• Whenever possible, using existing ECPGR bodies to oversee (=SC), coordinate (CWGs) and implement activities (NCs)
• Request ECPGR Secretariat to coordinate process

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B. AEGIS procedures (cont.)

cont.
- ECPGR SC provides “governance” to programme
- AEGIS Advisory Committee provides oversight
- Build on capacity of (national) genebanks
- Use existing ECPGR institutional framework
- Important role + responsibilities for Crop WGs
- Coordinating role by National Coordinators
- Critical role of EURISCO and CCDBs
- Specified role of model crops in this process

Mid-term ECPGR SC meeting 09.2006: Agreement to continue AEGIS process as an ECPGR Programme element
B. MOU for the establishment and operation of AEGIS - 1

Table of contents of this agreement of countries:

1. Definitions
2. Establishment of AEGIS
3. Countries and regional organizations eligible for membership in AEGIS
4. Objectives of AEGIS
5. Relationship of AEGIS with ECPGR
B. MOU for the establishment and operation of AEGIS - 2

6. Responsibilities of members of AEGIS;
7. Responsibilities of ECPGR National Coordinators;
8. General principles applicable to European Accessions under AEGIS
9. Associate membership of AEGIS;
10-12. Legal paragraphs (entry into force; termination; amendments etc.; and depositary)

Annex: Associate Membership Agreement between collaborating genebanks/others and Nat. Coord.
C. Role and responsibilities as assigned by SC to model crops

Steering Committee decision 3:

a. Identification of Most Appropriate Accessions
b. Development of criteria for such identification
c. The development of quality systems
d. Recommendations on how to involve all relevant stakeholders from the European region
e. Provide a report addressing the above-mentioned activities
f. An integrated report featuring a synthesis and generic conclusions on the further work of the four model crop groups is expected (from the Secretariat)
C. Role and responsibilities as assigned by SC to model crops

Steering Committee decision 4:
To make calculations as soon as possible of the costs of the maintenance of the collections of the model crops (to allow comparison of costs before and after introduction of AEGIS)

Steering Committee decision 5:
Development of draft quality management systems for the four model crops. In kind contributions by genebanks and/or member states will enable this effort.

Steering Committee decision 6:
To develop a list of proposed specific accessions of each of the model crops to be designated for their incorporation into the European Collections. The four model crop groups are each requested to perform such exercise.
C. Details from MOU on roles and responsibilities of WGs

Regarding decision 3 points a and b, Article 5d of the draft Memorandum of Understanding states:

The ECPGR Crop Working Groups will provide technical support for the implementation of AEGIS, including:

i. adopting crop specific criteria that are consistent with the general criteria adopted by the ECPGR Steering Committee for the selection of accessions to be proposed for registration as European Accessions;

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C. Details from MOU on roles and responsibilities of WGs

ii. helping to **identify** and **making recommendations** to the participating countries regarding the accessions proposed for **registration as European Accessions**;

iii. preparing and coordinating the implementation of **Crop Conservation Work Plans**;

iv. **proposing standards** for the management of the European Collection on a crop gene pool specific basis for adoption by the ECPGR Steering Committee.
C. Some “additional” role + responsibilities of WGs

1. Contribute to survey of capacities and availability of expertise, facilities, etc.

2. Prepare implementation of (annual?) Crop Conservation Workplans (CCWs)

3. Oversee/coordinate implementation of CCWs, including the following routine activities, e.g.:
   1. manage central crop database
   2. coordinate collecting activities
   3. coordinate characterization/ evaluation
   4. other?

4. WG can delegate (part of) listed tasks to a Coordinating European (Lead) Institution
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The following slides are meant as an introduction to the next session after the coffee break

- The process has been initiated by all model crops
- There are no definite procedures (yet)
- Different interpretations of primary and secondary criteria have been made
- It is suggested to work towards an ECPGR agreement on the primary criteria and a WG agreement for each crop
- Additional priority selection criteria are suggested as a guide to countries to establish scope/priorities
D. Concept of Most Appropriate Accession (MAA) - 2

**Primary criteria:**

A. To-be-approved by Steering Committee
B. fully *discriminative*, i.e. all European Accessions will need to comply with all requirements below;
C. these criteria are *not crop-specific*

1. Accessions in **public domain** (i.e. Annex I material that is in the MLS and non-Annex I material designated to AEGIS by governments or any other holder)
2. **Genetically unique,** to the best available knowledge (i.e. genetically distinct accessions; assessment based on available data and/or on the recorded history of the accession)
D. Concept of Most Appropriate Accession (MAA) - 3

3. **Agronomically** (incl. research material) and/or **historically** and/or **culturally** important

4. **Plant Genetic Resources**, incl. medicinal and ornamental spp., CWR and used wild species (i.e. excluding forest genetic resources, non-plant agrobiodiversity species, etc.)

5. **European origin** or **introduced germplasm** that is of **actual or potential** (breeding/research) **importance** to Europe
D. Concept of Most Appropriate Accession (MAA) - 4

Secondary criteria:

A. 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.
D. Concept of Most Appropriate Accession (MAA) - 5

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
D. Concept of Most Appropriate Accession (MAA) - 6

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)

9. Others?

APPLICATION OF CRITERIA WILL LARGELY DEPEND ON AVAILABILITY OF GOOD INFORMATION.
D. Concept of Most Appropriate Accession (MAA) - 7

Draft priority selection criteria:

A. Meant as guide to countries/genebanks to establish scope/priorities of MAAs for individual crops

B. WG are expected to scrutinize proposals, applying secondary criteria

C. Thereafter, WGs propose MAAs to countries for final acceptance

D. Concept of Most Appropriate Accession (MAA) - 8

Priority selection criteria:

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

4. Germplasm accessions that represent old and/or obsolete varieties
D. Concept of Most Appropriate Accession (MAA) - 9

Priority selection criteria:

5. Modern varieties, bred with conventional methods

6. Accessions that are breeding lines

7. Genetic stocks of the crop genepool in question

8. Accessions that consist of research material like mapping populations, mutants, etc. – if different from 7 above
D. Suggested actions by model crops regarding MAAs

1. Provide any comments on primary selection criteria
2. Agree on secondary selection criteria
3. Provide comments on priority selection criteria
4. Propose best procedure for agreeing on a list of MAAs, involving country partners and WG
5. Produce a list of selected MAAs (possibly after meeting, applying agreed criteria/procedures)
Thank you