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aegis

Federal Ministry of Food and Agriculture

Why AEGIS?

History, policy, strategy

L. Maggioni and J. Engels – ECPGR Secretariat

Workshop on “Assessing current practices and procedures to strengthen AEGIS”
10-12 December 2018, San Fernando de Henares (Madrid), Spain

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Content

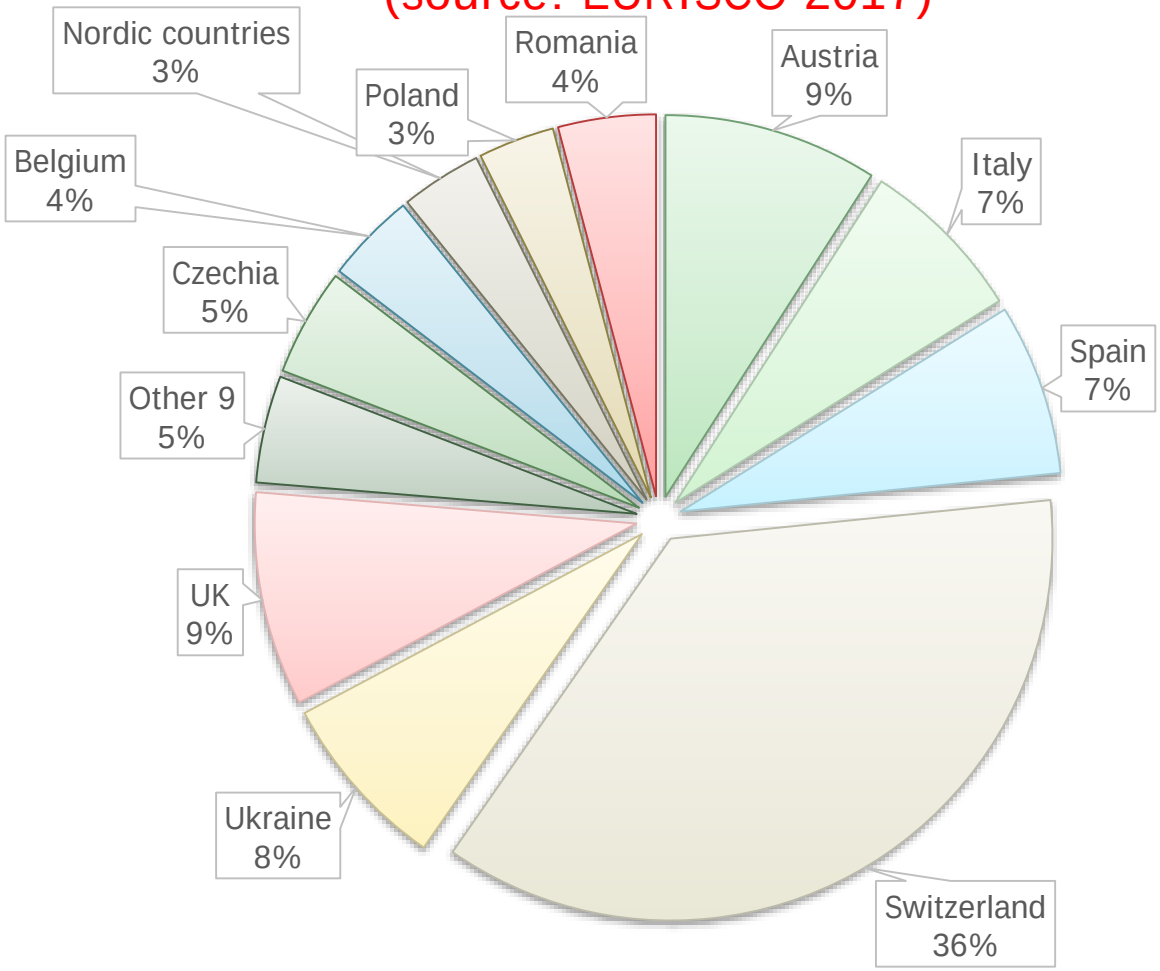
- Why AEGIS - background
- Historical reconstruction of events
  - Proposals for a feasibility study
  - Phase VII
  - Phases VIII and IX
- Conclusion

Ex situ conservation in Europe - Background

- ~ 600 germplasm collections/genebanks in Europe
- ~ 2 million accessions
- 35-50% unique accessions

Decentralized collections - example

24 000 accessions of *Malus domestica*
(source: EURISCO 2017)



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Reported difficulties with the situation at the turn of the century

- Lack of long-term conservation facilities
- Insufficient safety-duplication
- Regeneration backlogs
- Lack of well-defined technical standards
- Heterogeneous quality of material and information
- Variable germplasm exchange conditions

Proposal at 9th Steering Committee meeting – Izmir 2003

Concept note of a model project (by Germany):

- Difficulty to properly maintain European collections with existing resources
- Countries' obligations to conserve and sustainably utilize (CBD 1992, GPA 1996, FAO-Treaty 2001)
- Options for sharing responsibilities:
  - Decentralized collections ✓
  - Semi-centralized (by crops)
  - Centralized

Limiting factors:

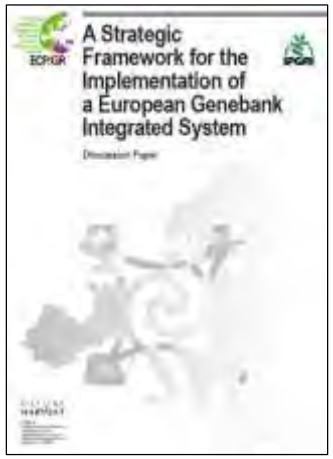
- Definition of responsibilities
- Implementation of effective framework (quality standards, access to material)
- More time and resources required than ECPGR WGs can dedicate
- Insufficient mandate from national authorities

⇒ Launch of feasibility study based on case studies

AEGIS in Phase VII (2004 – 2008)

- Four model crop groups (*Allium*, *Avena*, *Brassica*, *Prunus*) discussed options and requirements:
  - Preference for decentralized system, with exceptions (*Allium*)
  - Need for formalization with a clear legal framework (governmental support)
  - Concept of Most Appropriate Accessions
  - Requirement for quality standards through consensus agreement
  - Requirement for extra funds (activation energy)
  - Necessary strong link between conservation and use
  - Importance of effective, transparent documentation system

➡ Draft by Secretariat of Strategic Framework
– Discussion Paper



Riga, Latvia, 2006
10th SC meeting (mid-term)

Issues / Concerns during round table discussion:

- Need for overview of operational costs before and after AEGIS
- Concerns over loss of national sovereignty
- Clarify relationship with International Treaty
- Concerns that rationalization might lead to job losses/closure of institutes
- AEGIS is wider than just genebank conservation, as it is also connected with use
- Missing role of EU

Sarajevo, 2008
11th SC meeting (end of Phase VII)

The Steering Committee agreed or noticed:

- Strategic Framework Policy Guide

  (describing AEGIS goal, scope, structure, benefits, implementation process, relationship with Treaty)
- Memorandum of Understanding

  (not legally binding, but clear statement of political commitment)
- Principles for Quality System (AQUAS), to be further developed
- Need to prepare instructions for identification of Most Appropriate Accessions
- Cost analysis – methodological framework

→ End of feasibility study and readiness to launch AEGIS as a formalized initiative

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Consensus agreement in Sarajevo, September 2008

Unanimous recognition of the importance and urgency of establishing AEGIS in order to develop a more efficient regional system of conservation and sustainable use of PGRFA through the setting up of a European Collection, and to provide a mechanism for regional cooperation in the implementation of the International Treaty on PGRFA.

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Strategic Framework – Policy Guide

Goal of AEGIS is to create A European Genebank Integrated System for plant genetic resources for food and agriculture, aimed at conserving the genetically unique and important accessions for Europe and making them available for breeding and research. Such material will be safely conserved under conditions that ensure genetic integrity and viability in the long term.

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Strategic Framework – Policy Guide (benefits)

Benefits:

- Improved collaboration among European countries and a stronger unified Europe;
- Cost-efficient conservation activities;
- Reduced redundancy in European collections;
- Improvement of quality standards across Europe;
- More effective regeneration;
- Facilitated access to all the germplasm included in AEGIS;
- Improved security of germplasm through formal commitments and safety-duplication;
- Improved linkages between *ex situ* and *in situ* conservation as well as linkages with users;
- Improved sharing of knowledge and information.

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MEMORANDUM OF UNDERSTANDING
for the establishment of
A EUROPEAN GENEBANK INTEGRATED SYSTEM (AEGIS)

- Formal agreement signed by country representative and deposited at Bioversity International, on behalf of ECPGR
- ECPGR framework and International Treaty principles
- Voluntary option to designate accessions to the European Collection (responsibilities attached to long-term conservation and distribution of these accessions)
- Role of Working Groups in the conservation planning
- Use of SMTA for both Annex I and non-Annex I material
- Formal separate agreements between each NC and national institutions (Associate Members)

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Quality System for AEGIS

Approved by the ECPGR Steering Committee

Version 15 (09.09.09)

Jan Engels and Lorenzo Maggioni, Bioversity International, Rome
Theo van Hintum, CGN, Wageningen

Principles:

1. Quality assurance: Say what you do, do what you say, let someone check, correct and improve
2. Building consensus
3. Define "agreed minimum standards"
4. Little bureaucracy – pragmatism, not doctrine
5. Need to develop a monitoring and record-keeping system (guiding and advising, not policing)
6. Capacity building

Cost analysis – A methodological framework for AEGIS – by D. Horna (IFPRI)

Benefits:

- Better coverage of genepool
- Better quality of materials conserved
- Availability of materials and information
- Reduced redundancy
- Knowledge transfer, integration and participation

Costs:

- Coordination of AEGIS
- Identification of MAA
- Database management
- Adoption of AEGIS standards
- Costs related to promotion, publication, fund- raising

- Quantitative analysis for a system genebank requires monitoring of costs throughout the system over time

Management of AEGIS in Phase VII (2004-2008)

- AEGIS managers:
  - ✓ Birgitte Lund 100% (2004-2006)
  - ✓ Jan Engels 50% (2007-2008)

- AEGIS Steering Committee (11 members)

- Projects submitted to EU by IPGRI to improve coordination and data exchange:
  - ✓ one to COST
  - ✓ two to AGRI GENRES – Regulation 870/2004

Phases VIII and IX (2009-2018) – AEGIS implementation

- April 2009 – dispatching of MoU to countries
- July 2009 – AEGIS entering into force with 10 signatures
- December 2011 – first accessions in the European Collection
- March 2014 – reached 34 Member countries

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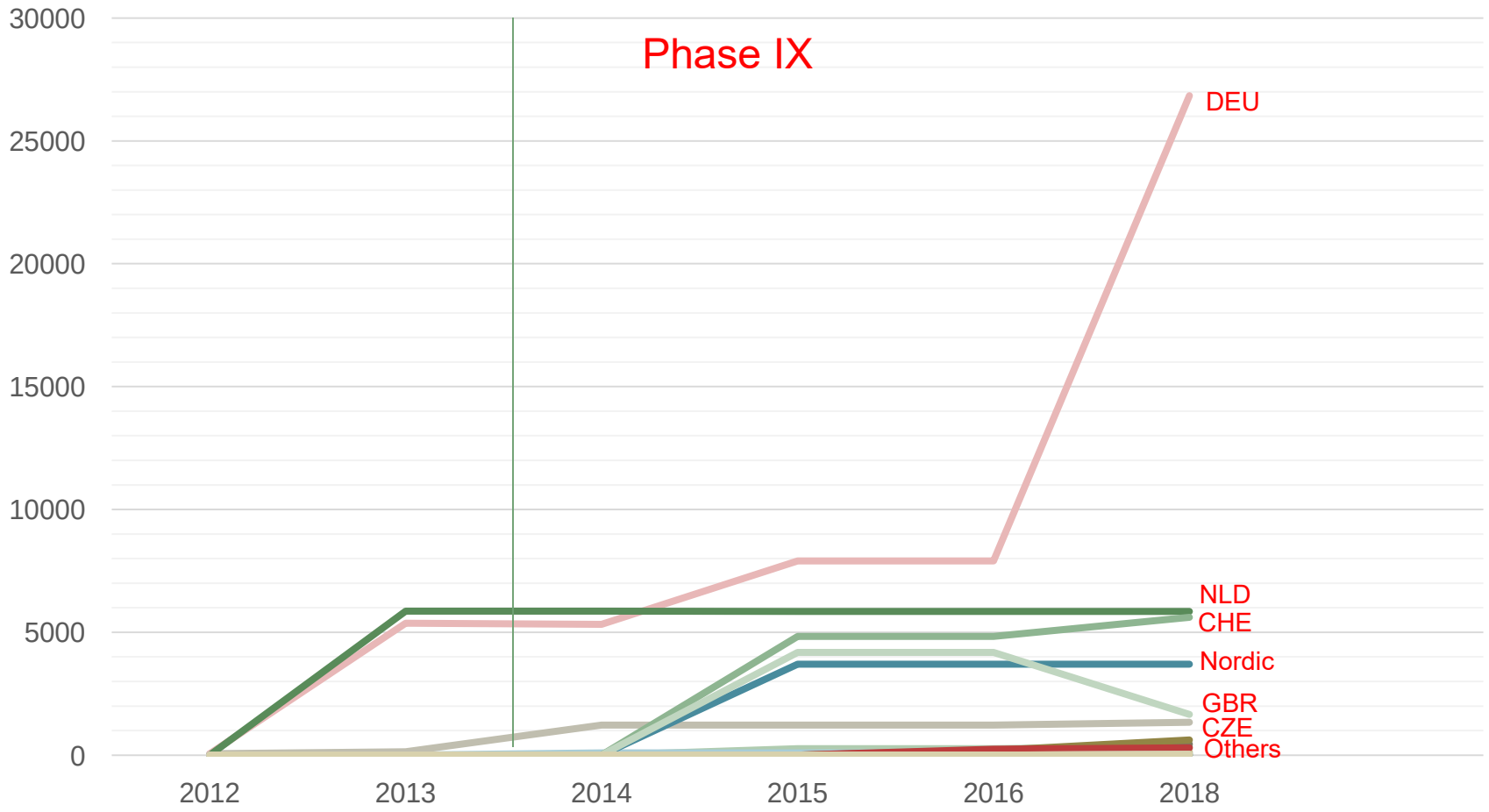
European Accessions growth

47 000 Accessions



AEGIS implementation (2009-2018)

AQUAS standards

- Quality Management System (2009)
- Operational genebank manual template (2010)
- Adoption of FAO generic genebank standards (2012)
- WGs agreed crop-specific standards (2014-2017)

AQUAS policies

- Safety duplication (2013)
- Distribution guidelines (2013)
- Record keeping and monitoring (2016)

Documents and Procedures

- Simplified selection of European Accessions (2010)
- Revised simplified selection (2013)
- Benefits of establishing AEGIS for various stakeholders (2015)

AEGIS implementation (2009-2018)

- AEGIS Grant Scheme

8 AEGIS-specific Working Group projects (2009-2013)

(Pea core collection; Garlic cryopreservation; Duplicate finder; old Potato clones; European Forages, Umbellifer, Rye Collection; Iberian brassicas)

- ECPGR Activity Grant Scheme

18 AEGIS-related Working Group projects (2014-2018)

Inclusion as part of AEGIS → Barley > 13 000; Forages > 10 000; Wheat 6500

Waiting list → Rye, Allium, Plums, Sweet cherries, Pears, Wild carrots, Beans, Medicinal and ornamental

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Management of AEGIS Phases VIII - IX

AEGIS Coordinator:

Jan Engels 50 % (2009-2014)

25 % (2015-2016)

AEGIS Advisory Committee (5 members 2009-2012)

ECPGR Executive Committee (2013 - present)

(Unsuccessful) Projects submitted to EU:

7FP – Research infrastructure

2009: EUROGENEBANK (32 partners, 19 countries, 8.6 M)

2011: PlantGeneAccess (33 partners, 16 countries, 10 M)

H2020 – Research and Innovation Action

2015: PGR Gold (12 partners, 8 countries, 5 M)

AEGIS – specific expenditures (€) (2004-2018)

	Phase VII	Phase VIII	Phase IX	TOTAL
Coordination	184 108	267 190	87 478	538 776
Activities	47 203	94 933		142 136
TOTAL	231 311	362 123	87 478	680 912

AEGIS sustainability

- Self-funded (time, facilities and services) by national programmes; also part of their commitment to implement the International Treaty)
- ECPGR funds
  - Secretariat
  - ECPGR Grant Scheme (small projects: € 15K per Working Group)
- Project funds
  - Submission of proposals to EU 
  - Other ?

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Concluding remarks – The past slow progress and the perception of AEGIS

- The AEGIS principles have been unanimously endorsed by the technical representatives (National Coordinators)
- At the Ministerial level, sometimes there is fear of increasing costs and reluctance to formalize long-term commitment
- Users (e.g. breeders) easily see the benefits and recommend implementation of the system
- Genebanks do not always perceive a benefit (increasing efficiency of the system requires local adjustments – coordination with wider circle – exposure to monitoring)
- Progress is dependent on good coordination and support at national level

Conclusion and recommendations – from Background Document

- Is AEGIS complex? Instruction manual might help?
- Vegetatively propagated crops require specific attention (phytosanitary problems, etc.)
- Communication channel among AEGIS members and Associate Member institutions is perhaps missing
- Reporting and monitoring procedure is required to make AQUAS effective → peer review scheme?
- Benefits are not perceived equally strong by everyone. Hopefully this meeting will clarify AEGIS current and potential benefits

Thank you for your attention!

Selection of Most Appropriate Accessions

Several constraints experienced by model crop groups:

- Low quality of passport and phenotypic data
- Incomplete databases
- Difficult to establish effective interaction between Crop WG recommendations and national decisions (18 Working Groups x 43 National Coordinators)

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Scope of European Collection

- Material **under the management and control** of the member countries and their associate members, **in the public domain** and offered by the associate members for inclusion into AEGIS
- **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)
- **Plant genetic resources for food and agriculture** as defined in the International Treaty as well as **medicinal and ornamental** species
- **European origin or introduced** germplasm that is of actual or potential importance to Europe (for breeding, research, education or for historical and cultural reasons).

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Selection of European Accessions

Selection at country level on voluntary basis – approved by National Coordinator:

- Crop-specific selection criteria (role of Working Groups)
- Country of origin as primary initial criteria

Once selected:

- Flagged in EURISCO as part of AEGIS
- To be maintained at same institute at crop-specific standard (role of WG)
- To be safety-duplicated
- To be promptly available under SMTA