



EUGENA



ERFP

Definitions of Genebanks

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What is a Genebank?

- A genebank is a facility or system that conserves genetic resources.
- Aim: safeguard biodiversity and enable sustainable use.
- Applies to both plant and animal genetic resources.
- Types: ex situ (in vivo, in vitro).

Genebank definition in EUGENA terms of reference



European Regional Focal Point for Animal Genetic Resources

European Genebank Network for Animal Genetic Resources.

Terms of Reference

(Approved by the ERFP General Assembly, 9th of September)

1. Introduction

World food security and poverty alleviation are global challenges for present and future generations. At the same time, the conservation and sustainable utilization of biological diversity as well as the fair and equitable sharing of the benefits arising out of the use of genetic resources are central responsibilities of the global community, as agreed by the

2. Definitions.

Genebank: A genebank for AnGR is a repository for ex situ conservation and sustainable use of AnGR held by a host institution authorized and/or recognized by a national authority to fulfil these tasks. A genebank may be constituted by one or more repositories (in vitro or in vivo) collaborating as a network.

What next?

- In vivo genebanks should be part of EUGENA?
- What types of the facilities?
- Should we define an in vivo genebank for EUGENA purposes?

Ex situ WG ERF inputs

Discussion on *ex situ in vivo*

- It was underlined that the **definition of ex situ in vivo is not uniform** and is applied differently across countries.
- A clear distinction was made between **gene banks in vitro** and **ex situ in vivo conservation**, the latter including facilities such as Ark farms, zoos, or educational institutions.
- National examples showed that **Ark farms may be organized as supervised networks**, with requirements such as keeping multiple species, promoting local breeds, opening to the public, and providing educational activities.
- Attention was drawn to the **biosecurity risks** of such farms, as animals kept outside regular production systems could be highly vulnerable in case of disease outbreaks.
- In some contexts, ex situ in vivo also **covers management activities outside commercial farming**, for example in the fields of conservation or education.
- The debate extended to whether the definition should **include production parameters** (e.g., milk or meat yield), the role of breeders and institutions (e.g., closed populations with controlled exchange to limit inbreeding), and conservation or research functions (e.g., protecting genetically valuable but not yet recognized breeds).

Integration with EUGENA

- The current framework of EUGENA focuses mainly on ex situ in vitro material (cryopreserved resources).
- Concerns were raised about whether ex situ in vivo can be fully integrated, as its nature differs from in vitro gene banking.
- It was emphasized that in situ conservation (traditional breeding under resource constraints) must be clearly distinguished from ex situ in vivo (closed, managed populations under conservation control).
- The discussion concluded that ex situ in vivo should be recognized within the broader scope of EUGENA, but its definition needs to remain flexible to cover different national models.
- It was agreed that the topic should be further developed through a new Ad-hoc Action (AHA).

In situ conservation

- Conservation of genetic resources in their natural habitats.
- Animals: traditional farming systems, natural ranges.
- Plants: wild habitats, on-farm conservation.
- Dynamic – allows natural adaptation and evolution.

Ex situ In vivo Genebank

- Conservation of live organisms outside their natural habitat.
- Animals: conservation herds, flocks, zoos.
- Plants: orchards, botanical gardens, field genebanks.
- Maintains reproduction and phenotypic traits.

Ex situ In vitro Genebank

- Genetic resources conserved outside the living organism.
- Examples: seed banks, cryopreserved semen, embryos, DNA.
- Long-term, secure, low-cost, but static (no adaptation).

In vivo Genebank

- A genebank based on maintaining live populations.
- Animals: **conservation** herds or flocks of endangered breeds.
- Plants: field collections of crops with recalcitrant seeds.
- Key for preserving full phenotype and genetic diversity.