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# IMAGE

## Innovative Management of Animal Genetic Resources

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### DELIVERABLE D2.3

Deliverable title: Specifications for the development of a European web portal for genetic collections

**Abstract:** Based on the European wide survey of genetic collections (germplasm and DNA/genomic collections) (Deliverables 2.1 and 2.2) a number of key features for the European IMAGE web portal for genetic collections were identified. The aim of the IMAGE portal is to provide a user friendly interface for accessing breed related (meta) data of germplasm/DNA collections and related genomic data. The IMAGE portal will be closely connected to the EUGENA (European Gene Bank Network) portal, managed by the European Regional Focal Point for Animal Genetic Resources. Officially recognized EUGENA gene banks will become visible through the EUGENA portal, that will be connected to the IMAGE web portal. In addition to key/meta information on genetic collections, the IMAGE portal is also the interface connecting breed related data of germplasm/DNA collections to related (genomic) data for the same breed.

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Organisation name of lead contractor: WR

Contributors: WR (WP2 Leader) in collaboration with WP5 (WP5 Leader PTP)

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## Executive Summary

<p><b>Background</b></p>	<p>Information on farm animal genetic collections (germplasm, DNA) and related (genomic) databases cannot be easily accessed by potential/interested users of genetic material or data. Researchers and breeders are considered as the main users, who would like to have easy access to information on genetic collections, structured by breed, collection and country.</p>
<p><b>Objectives</b></p>	<p>To provide easy access to metadata on breed specific genetic collections and related databases at European level through a web portal, and to allow/facilitate connection between databases through appropriate interfaces.</p>
<p><b>Methods</b></p>	<p>Key features for a genetic collections web portal were identified having in mind different user perspectives (monitoring, breeding, conservation, research). The IMAGE project will develop a portal with the aim to establish a user friendly interface for connecting breed related (meta-)data of genetic collections. Information about genetic collections and related genomic data will be accessible through the EBI-EMBL Biosamples database.</p>
<p><b>Results &amp; implications</b></p>	<p>The IMAGE portal will become a user friendly interface for connecting breed related (meta-)data of genetic collections. In order to avoid duplication of efforts and to facilitate access to all relevant breed related (meta)data, the IMAGE portal should be directly linked to the European/global breed database EFABIS/DAD-IS, and to the portal of EUGENA, the network of officially recognized national gene banks for long term conservation, governed by the European Regional Focal Point for Animal Genetic Resources (ERFP). Specifications for the web portal are based on the European wide survey (T2.1) and the specifications of the EUGENA portal.</p>

## 1. Objectives and approach

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The main objective is to identify key features and specifications of a European IMAGE web portal that will provide easy access to (meta-)data on breed specific genetic collections and related databases.

Providing a web portal with information on animal genetic resources addresses a long-term concern of the European Commission and particularly DG Agri Council Regulation since the council regulation No 870/2004. (see more on [https://ec.europa.eu/agriculture/genetic-resources\\_en](https://ec.europa.eu/agriculture/genetic-resources_en)).

The IMAGE portal will be closely linked and aligned with the EUGENA portal, managed by the European Regional Focal Point for Animal Genetic Resources, and the European/global breed databases EFABIS/DAD-IS. Different users groups for the IMAGE portal include researchers, extension organisations, gene bank managers, policy makers, breeding associations, and industry/private breeders.

IMAGE supports the EUGENA initiative. EUGENA is the network of gene banks, officially recognized by governments, in the European countries, with the objective to support the *ex situ* conservation and sustainable use of livestock animal genetic resources in Europe under common terms of agreement. It operates under the umbrella of ERFP (European Regional Focal Point of Animal Genetic Resources). One of the objectives of EUGENA is enable access to the register of EUGENA gene banks in Europe.

Gene banks covered by EUGENA will be a subset of all existing genetic collections in Europe, because EUGENA only covers officially recognized gene banks for long term conservation, while the IMAGE WP2 survey shows a much larger variety of germplasm and genomic collections. Moreover, the global and European Information Systems for Animal Genetic Resources (DAD-IS/EFABIS) show aggregated information at breed/country level, including aggregated data on cryoconserved genetic material at breed level.

Users will benefit the most from the availability of different types of information and different levels of detail when relevant databases are properly linked. IMAGE will develop a proper interface for making available gene bank related information through the IMAGE portal.

## 2. Features and specifications of a European genetic collections web portal

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### I. Key features/specification of a European IMAGE web portal

Deliverable 2.2 describes in detail the results of the European wide genetic collection survey for Animal Genetic Resources. The detailed survey report will be made available through the IMAGE website.

From the survey a number of key features/specifications were identified, for the development of a web portal, with the aim to give access to relevant information on genetic collections to potential users of collections or data.

A genetic collection web portal should provide the following type of information, for each genetic collection:

- Contact details of the gene bank
- Species and breeds covered by genetic collection
- Type of material, amount and year of collection by species and breed
- Sanitary status of the material
- Terms of use

All attributes will be searchable, one will be able to retrieve, by filtering, a list of samples belonging to that species, that specific breed, and so on...

WP5 has developed an integrated data infrastructure (D5.1) that includes all relevant genetic collections related (meta)data. In 2017 it was decided that gene bank data will be processed through the already established EBI EMBL Biosamples database. A user interface (IMAGE portal) will be developed that gives easy access to the data stored in EBI EMBL Biosamples. The IMAGE user interface will be properly linked and aligned with the EUGENA portal (subset of all genetic collections) and with the European/global breed database EFABIS/DAD-IS. All the samples represented in EUGENA (by gene bank information) will have an ID in IMAGE and, consequently, a biosample ID. Queries in the IMAGE portal will connect to EUGENA.

Sustainability of IMAGE portal in the long run is an issue to be considered from the beginning. Whereas several options can be considered, the first approach will be to discuss the future of IMAGE portal with ERFP, in line with the development of EUGENA.

## II. EUGENA

In 2017 ERFIP decided about the development of the EUGENA web portal (in parallel with the start of the IMAGE project) that has the following specifications (para II.1 to II.3). WP2 survey data contributed to getting a first overview of potential EUGENA gene bank collections and WP2 survey data can be used as the initial data that could be made available through the EUGENA web portal.

The objectives of the EUGENA web portal are:

- To provide users with a single entry point to the register of AnGR gene banks in Europe
- To promote the activities of EUGENA
- To provide overview of the EUGENA gene banks content
- To allow national gene banks to present their collections
- To provide researchers, policy makers and breeders with information needed in their work

The set-up of EUGENA portal is shown below.

### II.1 Home

- What is EUGENA
- About Eugena Portal
- Contact us
- FAQ
- Disclaimer
- Copyright
- Terms and conditions of use
- Privacy policy
- Login

### II.2 Countries

- Country data
- Participating gene banks in the country
- Species and breeds represented
- Number of samples reported by material type
- search

### II.3 Gene banks : **this section will use the same fields as in IMAGE web portal**

- Contact details of the gene bank
- Species and breeds covered by genetic collection
- Type of material, amount and year of collection by species and breed
- Sanitary status of the material
- Terms of use