

Meeting of the ERFP Ex situ Conservation WG  
Zagreb, 23-26.05. 2012

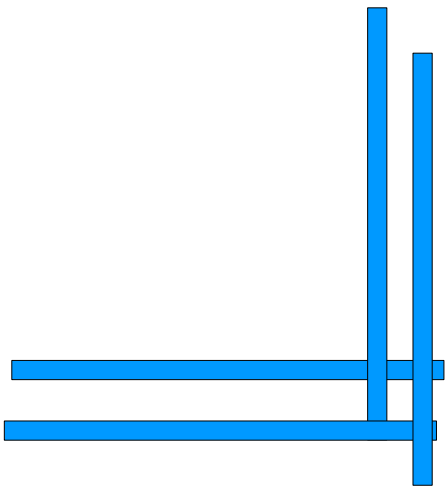
# Introduction to CryoWEB and state of implementation in Europe

Zhivko Duchevev





# National gene banks

- Choosing breeds for conservation
  - Organization of the material collection
  - Freezing and storing the samples
  - Documentation system
- 



# What is CryoWEB

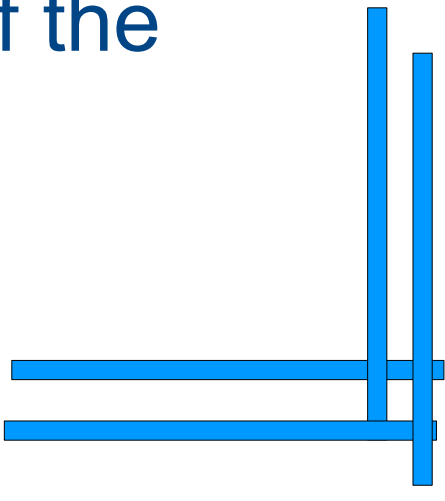
Open source web-software intended to serve as a electronic register of the national collections, uniformly applicable across various species, types of genetic material, storage facilities.

Develped in Institute of Farm Animal Genetics (FLI) in Germany



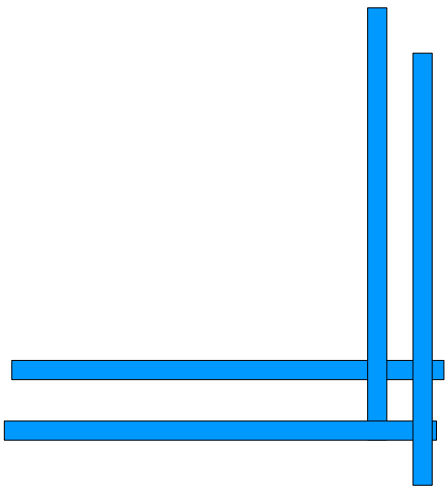


# With CryoWEB the manager can

- Find the distribution of each recorded sample in the storage facilities
  - Get all the information about the sample by the label on its physical storage vessel
  - Find the procedure to be followed when thawing the sample
  - Perform complete or partial inventory of the storage
- 

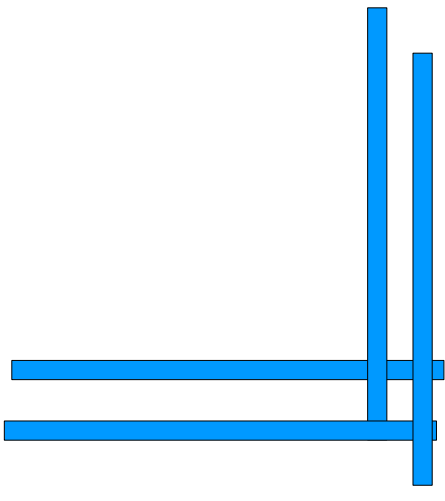


# With CryoWEB the manager can

- Identify all samples from a single donor
  - Keep track of material relocation and use
  - Virtually browse the storage facilities
  - Keep contact data of involved organizations
- 



# Other CryoWEB features

- The page can be accessed from anywhere via Internet
  - Access can be restricted to Intranet
  - Data access control
  - Can be translated and used in the local language
- 



# Data organization in CryoWEB

- Core “passport” data
  - Extended normalized data
  - Extended archived data
- 



# Core data

- Essential for the gene bank operation
- Uniform across species and breeds
- Minimal data set

Examples: sample id, donor, vessel type, location







# Extended normalized data

- Non essential for the gene bank operation
- Not available for all donors
- Useful additional information

Examples: donor's sire and dam, birth date, coordinates of the donor location






# Extended archived data

- Intended for storage only
- Not directly processed in the system
- Organized as free content fields, archives, images

Examples: donor's scaled image, archived documents



# Animal form

  
CRYOWEB

Genebank Documentation System

FRIEDRICH-LOEFFLER-INSTITUT  
**FLI**  
Bundesforschungsinstitut für Tiergesundheit  
Federal Research Institute for Animal Health

CRYOWEB V1.3

Home Page

About Cryo

Main menu

Help

Logout

You are login as:  
**manager**  
(Germany)

Webmaster:  
e-mail

Cryo Material

Organization

Storage

Animal

Reports

Sample


Admins

Sample distribution

Sample status

Protocols

ANIMAL MANAGEMENT









 [Insert new animal](#)

Animal ID

Species

Breed

1-8 records sorted  by

#	Animal ID	Species	Breed	Sex	Actions
1	G-000000/G-001001	Sheep	CoF	male	 
2	G-000000/G-097003	Sheep	Rhoe	male	 
3	G-000000/G-098001	Sheep	Rhoe	male	 
4	G-000041	Sheep	Rhoe	male	 

ANIMAL

Animal ID\*

Species\*

Birthdate

Sex\*

Latitude

Photo

Comments

File

Sire ID


Breed\*

Birthyear

Organization\*

Longitude

Dam ID



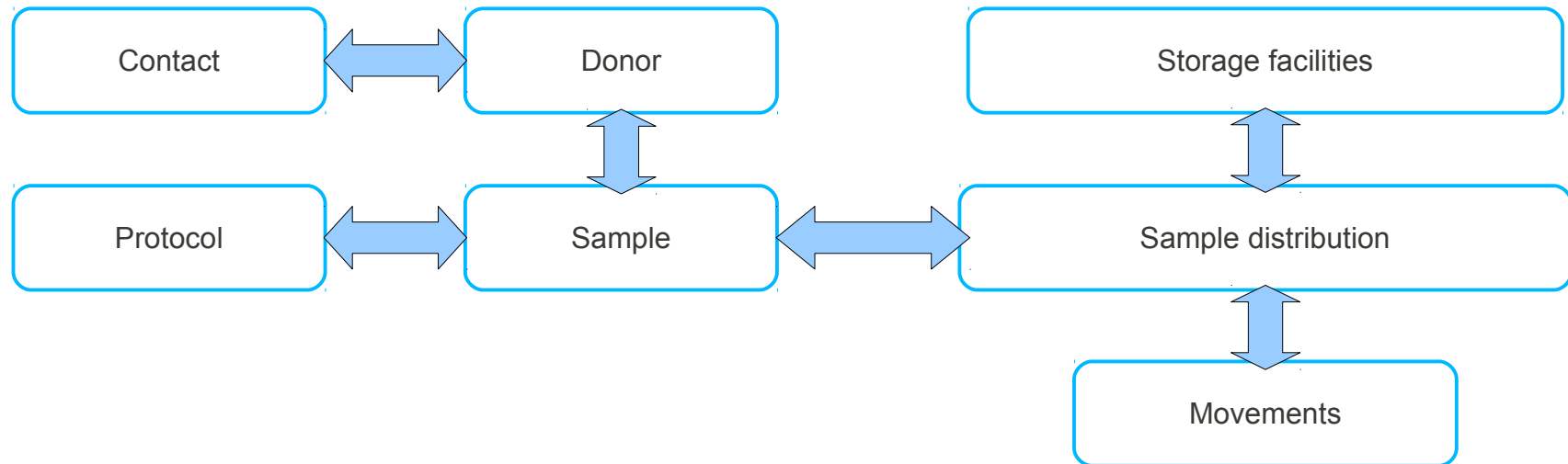
# Animal form II

## ANIMAL


Animal ID*	<input type="text" value="G-003340"/>	<input type="button" value="?"/>	Sire ID	<input type="text" value="G-000250"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>	Dam ID	<input type="text" value="G-097797"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>
Species*	<input type="text" value="Sheep"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>	Breed*	<input type="text" value="RPL"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>			
Birthday	<input type="text" value="26-03-2003"/>	<input type="button" value="📅"/>	<input type="button" value="?"/>	Birthyear	<input type="text"/>	<input type="button" value="?"/>				
Sex*	<input type="text" value="male"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>	Organization*	<input type="text" value="ZV-NS-Schaf"/>	<input type="button" value="↕"/>	<input type="button" value="?"/>			
Latitude	<input type="text" value="52.847123"/>	<input type="button" value="?"/>	Longitude	<input type="text" value="9.12723"/>	<input type="button" value="?"/>					
Photo <input type="button" value="?"/>	<input type="text"/>				<input type="button" value="Browse..."/>					
Comments	<input type="text"/>					<input type="button" value="?"/>				
File <input type="button" value="?"/>	<input type="text"/>				<input type="button" value="Browse..."/>		<input type="button" value="📎"/>			
<input type="button" value="View"/>										



# Basic blocks of mandatory data



# CryoWEB snapshots

**CRYOWEB**

**Genebank Documentation System**

FRIEDRICH-LOEFFLER-INSTITUT  
**FLI**  
Bundesforschungsanstalt für Tiergesundheit  
Federal Research Institute for Animal Health

CRYOWEB V1.3


Home Page  
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You are login as:  
**manager**  
(Germany)  
Webmaster:  
**e-mail**

**Cryo Material**  
Organization

**Storage**  
Animal







**Reports**  
Sample

**Admins**  
Sample distribution  
Sample status  
Protocols

**SAMPLE MANAGEMENT**  
 [Insert new sample](#)

Material type **All** Animal ID  Production date   
Sample ID


1-4 records sorted **ASC** by **Material type**

#	Material type	Animal ID	Production date	Sample ID	Actions
1	Semen	G-000000/G-001001	02-03-2004	MA_085_KR_S_Snh_S03_Mariensee_G-000000/G-001001_CoF_02.03.04	  
2	Semen	G-000000/G-098001	03-03-2004	MA_095_KR_S_Snh_S03_Mariensee_G-000000/G-098001_Rhoe_03.03.04	  

**SAMPLE**  
Sample ID\*   
Animal ID\*  Production date\*  Freezing date   
Protocol name\*  Vessel type\*   
Comments   

LOC	Storage*	Tank*	Canister*	Compartment*	Unit cell*	Units*	Status*	Entry date*
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Core	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Core	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Core	<input type="text"/>

# CryoWEB snapshots II

**CRYOWEB**

**Genebank Documentation System**

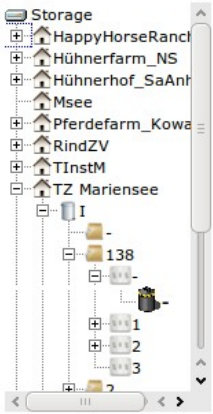
FRIEDRICH-LOEFFLER-INSTITUT  
**FLI**  
Bundesforschungsinstitut für Tiergesundheit  
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CRYOWEB V1.3

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(Germany)  
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**e-mail**

**Cryo Material**  
Move Samples  
**Storage**  
Move Containers  
**Reports**  
Browse Storage  
**Admins**  
Manage Storage  
Overview

**BROWSE STORAGE**




Sample ID	Material	Vessel type	Core	Own	Free
<a href="#">Erwin_0095_396292_GenreTZV</a>	Semen	Straw 0,25	252		
<a href="#">Erwin_0455_396292_GenreTZV</a>	Semen	Straw 0,25	104		
<a href="#">Erwin_0805_396292_GenreTZV</a>	Semen	Straw 0,25	203		
<a href="#">Erwin_1395_396292_GenreTZV</a>	Semen	Straw 0,25	204		
<a href="#">Erwin_1465_396292_GenreTZV</a>	Semen	Straw 0,25	192		
<a href="#">Erwin_1576_396292_GenreTZV</a>	Semen	Straw 0,25	293		
<a href="#">Erwin_1716_396292_GenreTZV</a>	Semen	Straw 0,25	282		
<a href="#">Erwin_2165_396292_GenreTZV</a>	Semen	Straw 0,25	180		
<a href="#">Erwin_2205_396292_GenreTZV</a>	Semen	Straw 0,25	282		
<a href="#">Erwin_2935_396292_GenreTZV</a>	Semen	Straw 0,25	252		

# CryoWEB project page

[Home](#) [Screenshots](#) [Developers](#) [Download](#) [Contact us](#)

## Genebank Documentation System

  
CRYOWEB

[Home](#)[Screenshots](#)[Developers](#)[Download](#)[Contact us](#)

### What is CryoWEB

CryoWEB is an Open Source software for documentation of national genebanks of cryo-preserved domestic animals. The proper documentation of the conserved material is an integral part of the establishment of cryobank. The recorded data should be of high quality and consistence to allow in distant future the usage of the stored samples for recreation of the breed, or for supportive breeding. Usually the information systems developed in that area are species specific. The CryoWEB software takes a different route being a uniform non-species specific. It records a minimal mandatory core set of data which should be available for all species and which is critical for the successful management of a cryobank, leaving the user options to add more specific data to it.

You can see some [Screenshots](#) of the CryoWEB here, or go and try it on our [Demo site](#)(opens a new window, the user name and password are: guest).

### Software platform

CryoWEB is a web application written mainly in [Perl](#). It uses [Apache2](#) for web server, [PostgreSQL](#) as database engine and [JasperReports](#) as reporting framework. It utilizes also many packages from [CPAN](#). CryoWEB is released under the GPL license and can be downloaded freely from [our Download section](#)

#### Current installations

Estonia

#### News

[CryoWEB paper published](#)  
An article about the CryoWEB software was published in the BIOINFORMATION journal.

#### Data blocks

The following data blocks are recorded in CryoWEB:

- Contacts
- Animals
- Samples
- Protocols
- Storage facilities
- Samples distribution

#### Links to other projects and organizations

- [EFABISnet](#)
- [MolabIS](#)
- [VCE](#)
- [PopReport](#)
- [Institute of Farm Animal Genetics](#)
- [ERFP](#)
- [DAD-IS](#)

FRIEDRICH-LOEFFLER-INSTITUT  
**FLI**  
Bundesforschungsinstitut für Tiergesundheit  
Federal Research Institute for Animal Health  
Last updated on: 23.11.2011

<http://cryoweb.tzv.fal.de/>





# Additional information

## CryoWEB – User's Guide and Reference manual

First published 2010

In Series: Applications in Biodiversity Informatics

Institute of Farm Animal Genetics (FLI), Mariensee

ISBN 978-3-9813280-0-4

CryoWEB demo site

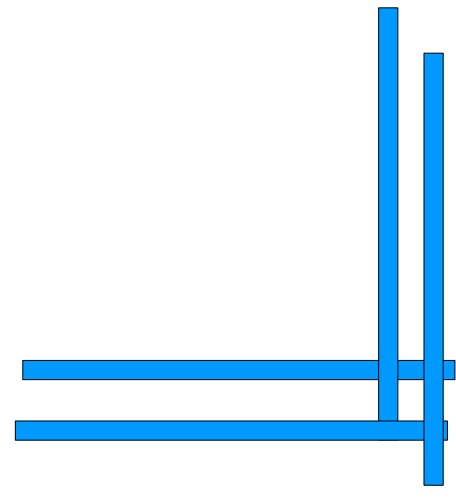
<http://cryo-devel.tzv.fal.de/>



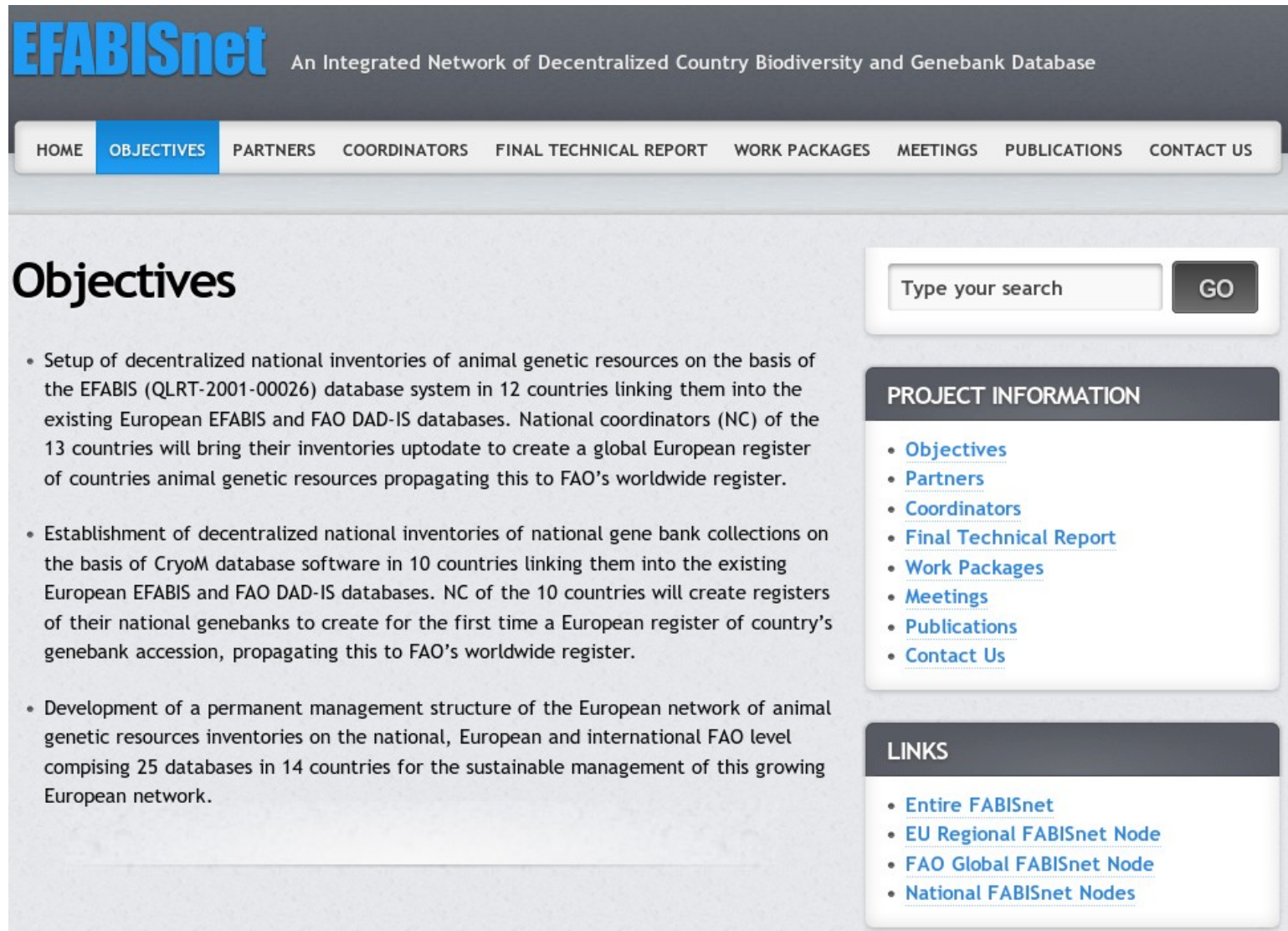


# Implementation in Europe

- Within EFABISnet project
- Outside EFABISnet project



# EFABISnet project



The screenshot shows the EFABISnet website. At the top, the logo 'EFABISnet' is displayed in blue, followed by the tagline 'An Integrated Network of Decentralized Country Biodiversity and Genebank Database'. Below this is a navigation bar with links: HOME, OBJECTIVES (highlighted in blue), PARTNERS, COORDINATORS, FINAL TECHNICAL REPORT, WORK PACKAGES, MEETINGS, PUBLICATIONS, and CONTACT US. The main content area is titled 'Objectives' and contains three bullet points describing the project's goals. To the right of the objectives is a search bar with the text 'Type your search' and a 'GO' button. Below the search bar are two sections: 'PROJECT INFORMATION' and 'LINKS'. The 'PROJECT INFORMATION' section lists links to Objectives, Partners, Coordinators, Final Technical Report, Work Packages, Meetings, Publications, and Contact Us. The 'LINKS' section lists links to Entire FABISnet, EU Regional FABISnet Node, FAO Global FABISnet Node, and National FABISnet Nodes.

**EFABISnet** An Integrated Network of Decentralized Country Biodiversity and Genebank Database

HOME OBJECTIVES PARTNERS COORDINATORS FINAL TECHNICAL REPORT WORK PACKAGES MEETINGS PUBLICATIONS CONTACT US

## Objectives

- Setup of decentralized national inventories of animal genetic resources on the basis of the EFABIS (QLRT-2001-00026) database system in 12 countries linking them into the existing European EFABIS and FAO DAD-IS databases. National coordinators (NC) of the 13 countries will bring their inventories uptodate to create a global European register of countries animal genetic resources propagating this to FAO's worldwide register.
- Establishment of decentralized national inventories of national gene bank collections on the basis of CryoM database software in 10 countries linking them into the existing European EFABIS and FAO DAD-IS databases. NC of the 10 countries will create registers of their national genebanks to create for the first time a European register of country's genebank accession, propagating this to FAO's worldwide register.
- Development of a permanent management structure of the European network of animal genetic resources inventories on the national, European and international FAO level compising 25 databases in 14 countries for the sustainable management of this growing European network.

Type your search **GO**

### PROJECT INFORMATION

- [Objectives](#)
- [Partners](#)
- [Coordinators](#)
- [Final Technical Report](#)
- [Work Packages](#)
- [Meetings](#)
- [Publications](#)
- [Contact Us](#)

### LINKS

- [Entire FABISnet](#)
- [EU Regional FABISnet Node](#)
- [FAO Global FABISnet Node](#)
- [National FABISnet Nodes](#)

<http://efabisnet.tzv.fal.de/>



# Installations in EFABISnet

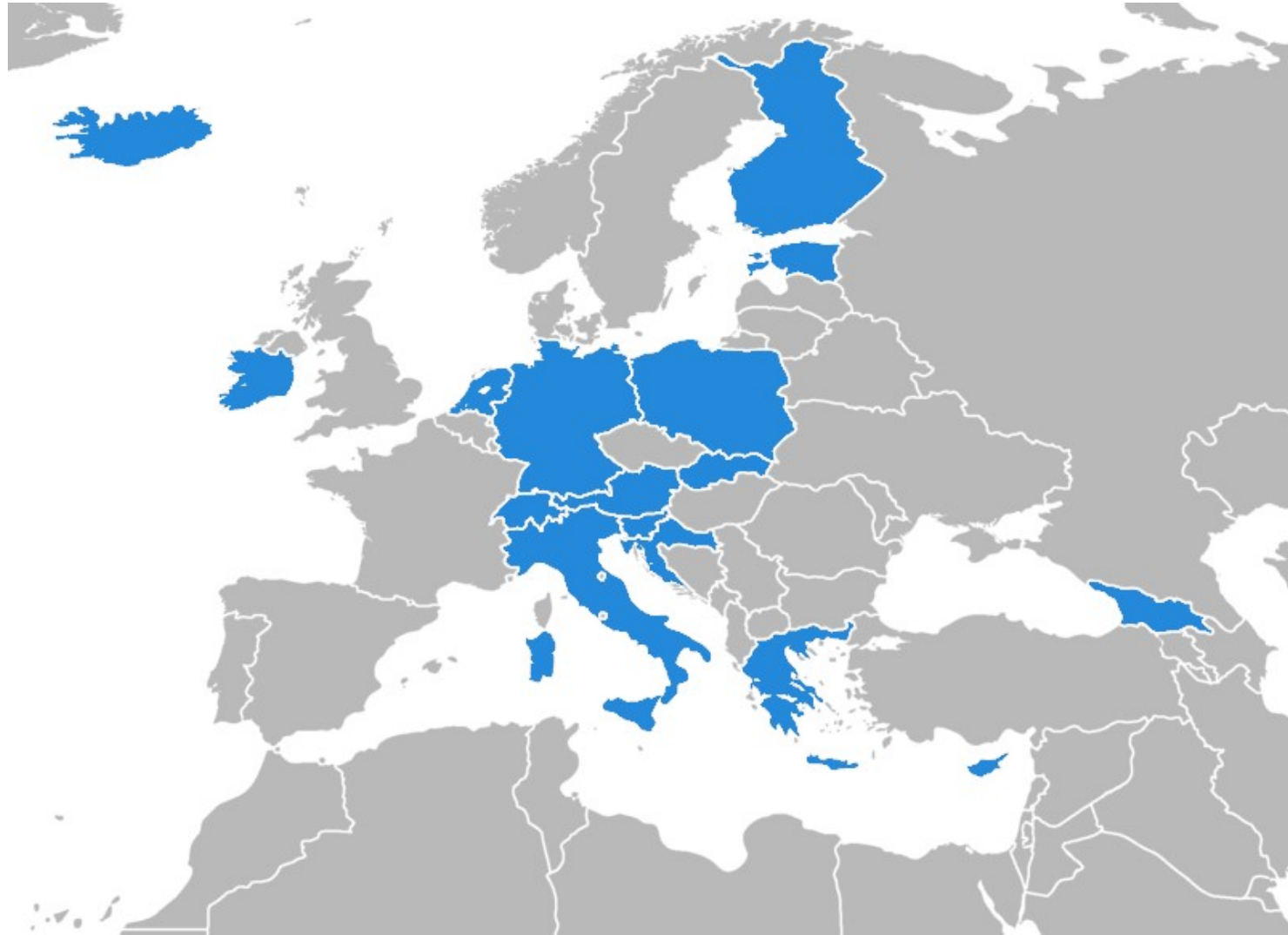
- Austria
  - Estonia
  - Finland
  - Georgia
  - Iceland
  - Ireland
  - Netherlands
  - Slovakia
  - Slovenia
  - Switzerland
- 



# Additional installations

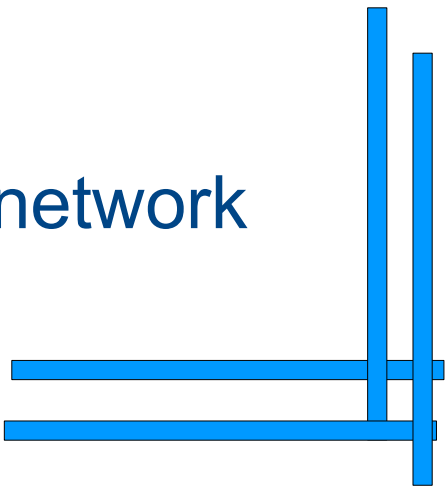
- Germany
  - Greece
  - Croatia
  - Cyprus
  - Italy
  - Poland
- 

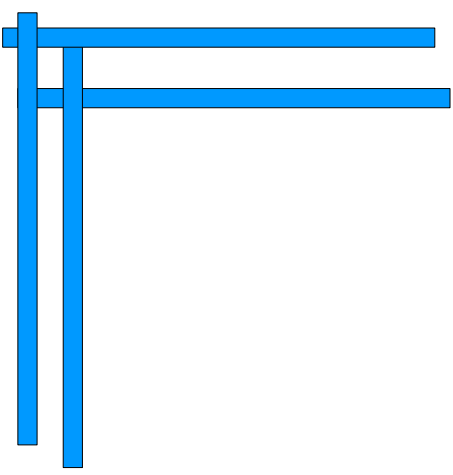
# Map of installations in Europe





# Use cases for CryoWEB

- Countries having operational gene banks
    - Data migration
    - Data verification
  - Countries just starting
    - Model for data collection
    - Ready solution for documentation
  - Sub-regional genebanks
    - Italian animal genetic resources cryobank network
    - MTT Finland
- 



Thank you for your attention!

