



IMAGE
European Project n° 677353



Second Dialogue Forum of IMAGE project Tallinn, 2017

Michèle Tixier-Boichard

www.imageh2020.eu

Objectives of IMAGE



- to enhance the use of genetic collections
- to upgrade animal gene bank management
- to demonstrate the benefits brought by gene banks:
 - To minimise genetic accidents
 - To allow the livestock sector to respond to new environmental constraints and market needs

through genomics, bio-informatics, reproductive biotechnologies

28 partners, March 2016 to February 2020 ; 7 M€

Achievements so far



- **Meeting point at the dialogue forum**
- **Surveys on gene banks** : completed for gene bank operations, in progress for expectations regarding the sociological analysis of innovation challenges
- **Diagnostic tool for quality management of gene banks tested**
- **Realisation of reproductive biotechnologies experiments**
- **Mapping of available molecular data on gene bank collections**
- **Sampling strategy for sequencing, sequencing done for cattle**
- **Model for data integration for the IMAGE portal / Biosamples of EBI**
- **Initiated introgression project in chickens**
- **Communication tools: web site, logo, flyer newsletter**
- **Calendar of training events set up with third countries**

Sampling and representativeness of gene banks

➤ Considering that :

Local breeds are one specific target of gene banks

Local breeds are often located far from certified AI center

Local breeds cannot always afford expensive disease monitoring tests on the entire population at each generation

// Sanitary regulations for reproductive material are intended for international commercial exchange and are thus highly demanding

➤ **It is often impossible to collect samples of local breeds in the conditions requested by the regulations**

➤ **What to do ?**

➤ **Permission to collect with mobile equipment / certified center**

➤ **Perform sanitary tests on the donors and their samples at 'entry'**

➤ **Save plasma samples for further studies, at 'exit'**

⇒ **Preserve health-documented material**

- **Storage, transportation of animal germplasm**
 - Sanitary regulations for reproductive material require different locations according to species, to material**
 - ⇒ **Increased cost of gene bank operations**
 - **What to do ?**
 - **scientific expertise on the need to separate species, which disease risk according to sampling conditions ?**
 - **scientific expertise on the need to separate materials from the same species : semen / embryos / cell cultures ?**
- **Storage of infected tissues for research**
 - Requires protected facilities, not yet established as a biobank**

➤ Using collections

○ What about old samples ?

**Most precious for genetic use (genetic trend, inbreeding)
but conditioned with 'old' technique,
sanitary status not documented for 'recent' diseases**

○ clean material collected outside an AI center, typically on a research center should be made available on the catalogue of the gene bank

What to do ?

PCR testing on semen samples,

Which pathogens?

**Validity of the test to be approved by the Vet authorities
who is paying ?**

⇒ sanitary status must be documented, standards ? categories?

necessary to provide information to the user in all cases