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**ENDANGERED  
ANIMAL BREEDS**

# Update EURC-EAB activities

ERFP General Assembly

4-9-2026      *Sipke Joost Hiemstra*



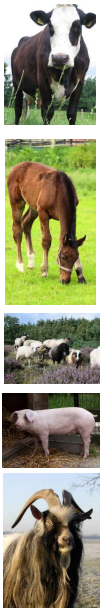
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# Designation of the EURC-EAB

- Animal Breeding Regulation (EU) 2016/1012
- Responsible for the scientific and technical contribution to the establishment and harmonisation of methods for the preservation of endangered breeds, and the preservation of the genetic diversity existing within those breeds
- Bovine, Porcine, Ovine, Caprine, Equine species
- EURC-EAB works on endangered breeds of those animal species only



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## Work Programme 2025-2027

### Work package 1 – Cooperation with breed societies, NCAs and third parties

- 1.1 - Contact point and communication
- 1.2 - Training and dissemination
- 1.3 – Guidelines and best practices

### Work package 2 – Methods for preservation of (genetic diversity within) breeds

- 2.1 - Evaluation of breeding programmes of endangered breeds
- 2.2 - Breed risk status indicators
- 2.3 - Integration of ex situ
- 2.4 - Transboundary breeds

### Work package 3 – International cooperation

- 3.1 - Cooperation
- 3.2 - Standing Zootechnical Committee



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## Breeding programme assessment (BPA)

Lead institute WUR/CGN – Jan ten Napel, Mirjam Spoelstra, Mira Schoon

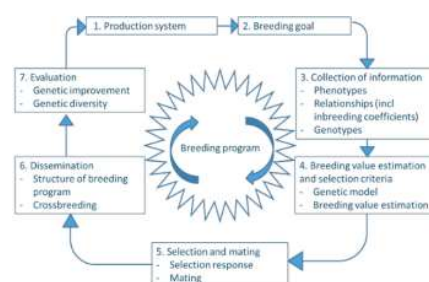
### Guidelines and tools for (self)evaluation of breeding programmes for endangered breeds

#### Objectives:

- Support development of effective breeding programs
- Propose (self) assessment framework - “comparable” across breeds, species and countries

Target groups: Breed societies & NCAs

Approach: Expert group and ERFP involvement



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Prototype online tool BPA



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Breeding Programme Assessment Tool

Testing mode: False

Navigate

- Home
- Descriptive information
- Current state and trends
- Breed Preservation
- Breed Improvement
- Self-sustaining
- Submit & Results

Descriptive information on breeding programme

1. General2. Breed3. Breed organisation4. Breeding program

Breed

Uses (select all that apply)

Used for dairy products

Q1.4 — Main purpose \*

Select answer

Q1.14 — Countries and regions in which the breed is currently kept \*

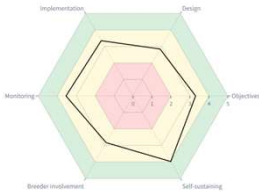
Q1.15 — Formal status 'Endangered breed' \*

Select answer

PreviousNext

Manage app

Spiderweb — Final Scores by Assessment Area



Export

Download ExcelDownload PDF

Objectives — Final Score: 3.30

| Subdimension                                  | Average score | Accuracy | Weight |
|-----------------------------------------------|---------------|----------|--------|
| Genetic diversity                             | 2.33          | Measured | 30.00  |
| Breeding goal: breed specific characteristics | 3.00          | Measured | 20.00  |
| Breeding goal: economic performance           | 3.30          | Measured | 20.00  |
| Genetic                                       | 3.00          | Measured | 30.00  |

Design — Final Score: 2.85

| Subdimension                             | Average score | Accuracy | Weight |
|------------------------------------------|---------------|----------|--------|
| Genetic diversity                        | 3.00          | Measured | 30.00  |
| Ex situ conservation                     | 2.50          | Measured | 15.00  |
| Improving breed specific characteristics | 3.75          | Measured | 20.00  |
| Improving economic performance           | 1.00          | Measured | 15.00  |
| Organisational structure                 | 4.50          | Measured | 20.00  |

Implementation — Final Score: 3.35

| Subdimension                                 | Average score | Accuracy  | Weight |
|----------------------------------------------|---------------|-----------|--------|
| Self-sustaining system                       | 3.67          | Measured  | 30.00  |
| Ex situ conservation                         | 2.80          | Measured  | 20.00  |
| Selection for breed specific characteristics | 3.33          | Measured  | 30.00  |
| Selection for economic performance           | 3.00          | Measured  | 20.00  |
| Breeding stock                               | 3.00          | Estimated | 20.00  |

Monitoring — Final Score: 3.53

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Feedback and next steps

Feedback

- Feedback collected from expert group
  - Further refinement of indicators in the tool
  - Clarification needed inside tool & through guidelines

Next steps

- Writing guidelines
- Feedback round (2) after updating the tool
- Later: write recommendations based on scores

Guidelines for the BPA Tool

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# Breed risk status indicators

Lead institute IDELE - Stéphanie Minéry, Coralie Danchin

## Working group EURC EAB – ERFP

| Country       | First Name | Name       | Organization                                                               |
|---------------|------------|------------|----------------------------------------------------------------------------|
| BELGIUM       | Steven     | Janssens   | KU Leuven's Centre of Animal Breeding and Genetics                         |
| BULGARIA      | Zhivko     | Duchev     | Department "Information services", Agricultural Academy                    |
| FRANCE        | Eleonore   | Charvolin  | INRAE                                                                      |
| FRANCE        | Stéphanie  | Minéry     | Institut de l'Elevage (IDELE)                                              |
| GERMANY       | Lisa       | Balzar     | BLE                                                                        |
| GREECE        | Christina  | Ligda      | Hellenic Agricultural Organization                                         |
| SERBIA        | Srdjan     | Stojanovic | Ministry of Agriculture, Forestry and Water Management                     |
| SLOVENIA      | Tina       | Flisar     | University of Ljubljana                                                    |
| SPAIN         | Clara      | Santos     | Spanish Ministry of Agriculture                                            |
| UNITED KINDOM | Marcus     | Bates      | British Pedigree Association - Chief Executive of British Pigs Association |

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# Review of indicators currently used to assess the status of endangerment breeds in the European countries (First step)

EURC-EAB :  
Review and Proposal for the indicators used to assess the status of endangerement breeds

Stéphanie Minéry, Coralie Danchin  
6-7 May 2025

Based on results of the survey on the implementation of Regulation (EU) 2016/1012 for endangered breeds sent in May 2023 to representatives of breeding organizations and federations of breeding organizations, national competent authority and national coordinators for animal genetic resources.

+ **completed by email requests (2024/2025)**

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# Second step : Working on Guidelines

How to answer to a European country asking for recommendations about computation of risk status?

- **LEVEL 1 : Primary indicators**
  - Group 1 “Demographic Data”
  - Group 2 “Genetic Data”
  - Group 3 “Geographic distribution”
- **LEVEL 2 : Secondary indicators**
  - Group 4 “Breed viability” (economic context)
  - Group 5 “Organization” (genetic management of the breed)
  - Group 6 “Social context”
  - Group 7 “Cultural”

Some reference papers from ERFP cited in this work:

European Regional Focal Point for Animal Genetic Resources

ERFP Task Force – Risk Status and Indicators

Final Report

Edited by: Eléonore Charvillat

European Regional Focal Point for Animal Genetic Resources

Socio-economic and environmental parameters and their applicability into a tool to evaluate risks and trends

Final Project Report

Edited by: Christina Ligda and Enrico Sotgiu

Project members

|                             |          |                          |
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[2017]

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# Guidelines ready for publication (sept 2026)

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## Integration of ex situ

*Lead institute BLE – Lisa Balzar & Holger Göderz*



- Recommendation out of European AnGR Strategy:

*Develop and implement national strategies and action plans for integrated and complementary in situ and ex situ long term conservation strategies for AnGR, engaging all relevant public and private stakeholders in the process*





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## Integration of ex situ

*Lead institute BLE – Lisa Balzar & Holger Göderz*



Cooperation with ERFP Ad hoc action “Integration of in situ and ex situ conservation approaches”

- Started in 2025
- Primary outcome: guidelines for all stakeholders
- Draft of the guidelines is available; it is currently being further revised
- Meeting of 18<sup>th</sup> May 2026 in Sassari & GA presentation of In situ WG





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## Integration of ex situ

Lead institute BLE – Lisa Balzar & Holger Göderz

**Key elements of the guidelines:**

- Building a national network
- Conservation of genetic diversity
- International collaboration



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## Transboundary breeding programmes

Lead institute CGN/WUR – Renzo Bonifazi, Lisa Buttgen, Mira Schoon

1 breed, 2 herdbooks  
2 EU Breeding Programmes  
Belgium is book of origin



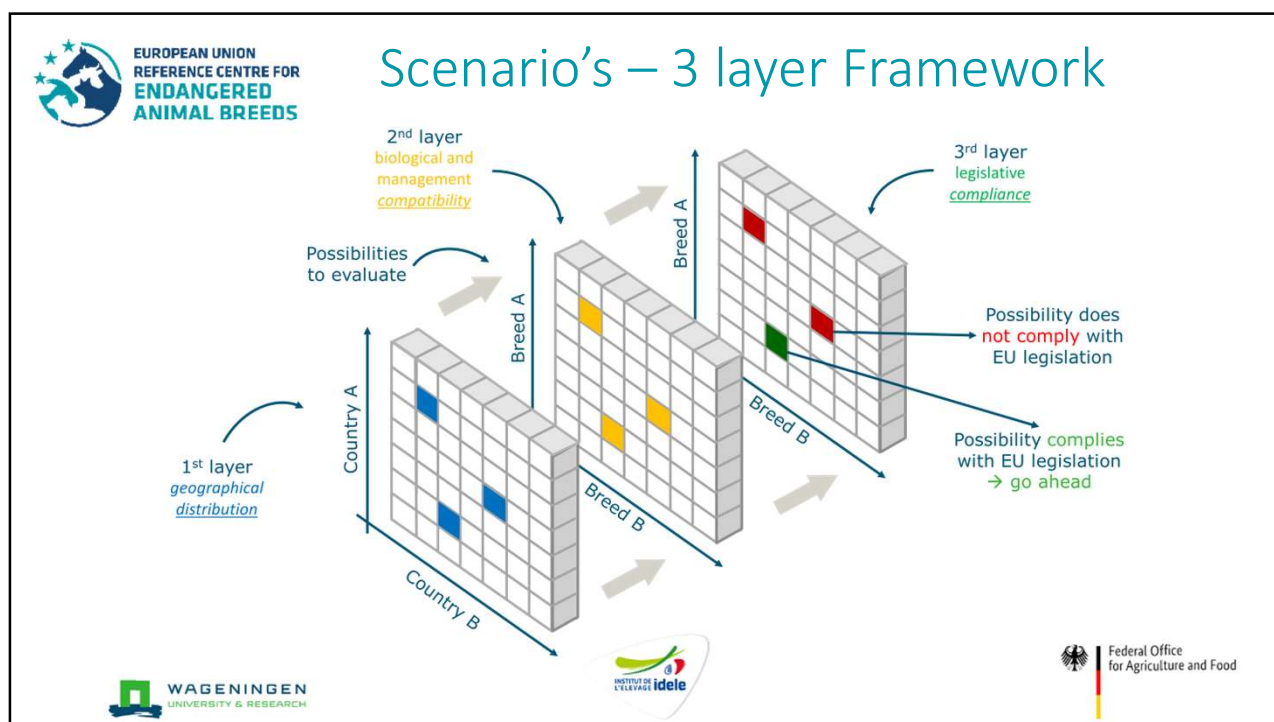
2 breeds, 2 herdbooks  
2 EU Breeding Programmes  
Both accept each others breeding animals



1 breed, 1 herdbook  
1 EU Breeding Programme in NL  
Territorial extension to DE & BE



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**Guidelines for Breeding Programmes of Transboundary Breeds**

Guidelines set-up for different scenario's, based on 3-layer framework

- Geographical distribution
- Biological and management compatibility
- Legislative compliance

Breed society/NCA are directed to **specific guideline per scenario**

- via three **decision trees and supporting tools**

Guidelines and information include:

- **Genetic relatedness**
- **Collaboration** between breeding programmes
- **Exchange** of breeding animals or gene bank material

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## Webinar series “Breeding Wisely – Safeguarding endangered livestock breeds within the EU”

*Lead institute BLE – Holger Goederz & Lisa Balzar*

**Safeguarding endangered livestock breeds within the EU**  
For representatives of the National Competent Authorities for Animal Breeding

Webinar 1: Setting the scene: protecting animal genetic resources



Download Slides

Webinar 2: Monitoring and assessing endangered breed populations



Download Slides

Webinar 3: Derogations in breeding programmes for endangered breeds



Download Slides

<https://www.eurc-eab.eu/publications-webinars>





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## Website – Webinar recordings

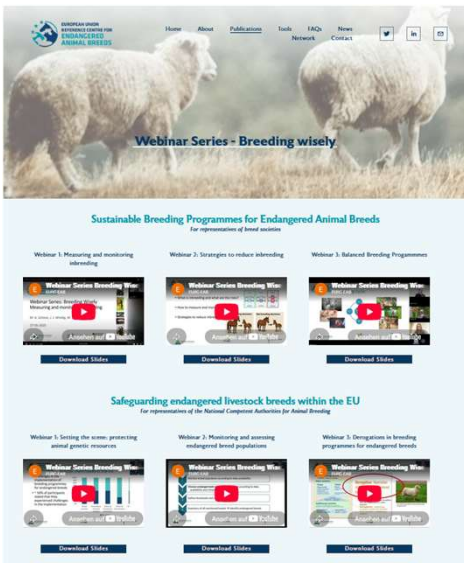
**Webinar Recordings – Breeding Wisley**

**Sustainable Breeding Programmes** *(For representatives of breed societies)*

1. Measuring and monitoring inbreeding
2. Strategies to reduce inbreeding
3. Balanced breeding programmes

**Safeguarding endangered livestock breeds within the EU** *(For representatives of NCAs)*

1. Setting the scene: protecting animal genetic resources
2. Monitoring and assessing endangered breed populations
3. Derogations in breeding programmes for endangered breeds






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## National webinars (for representatives) of breed societies

Welkom bij de 7<sup>de</sup> thema-avond van 'Fokken met verstand'

Het programma start om 19.30 uur



Centrum voor Genetische Bronnen Nederland (CGN)

 [www.fokkenmetverstand.nl](http://www.fokkenmetverstand.nl) [wur.nl/cgn](http://wur.nl/cgn)

RETROUVEZ LE REPLAY DU WEBINAIRE ORGANISÉ LE VENDREDI 12 DÉCEMBRE 2025

[Replay webinaire] La consanguinité, mythes et réalités  
Anomalies génétiques et conséquences

Tout individu est porteur de quelques mutations (récessives) nuisibles

Estimations réalisées chez l'homme : au moins une vingtaine de mutations affectent directement la synthèse des protéines

1. Le reproducteur parfait n'existe pas
2. Des anomalies dans toutes les espèces et toutes les races

Regarder sur YouTube

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Avec la contribution financière du comité d'affectation spéciale développement agricole et rural CADAR

MINISTÈRE DE L'AGRICULTURE ET DE LA SOUVERAINETÉ ALIMENTAIRE



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## Website – Publications & links

### Links to National Competent Authorities and EU-approved breeding programmes per country

Original webpage European Commission

|                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li><a href="#">Austria</a></li><li><a href="#">Belgium</a></li><li><a href="#">Bulgaria</a></li><li><a href="#">Croatia</a></li><li><a href="#">Cyprus</a></li><li><a href="#">Czech Republic</a></li><li><a href="#">Denmark</a></li><li><a href="#">Estonia</a></li><li><a href="#">Finland</a></li><li><a href="#">France</a></li></ul> | <ul style="list-style-type: none"><li><a href="#">Germany</a></li><li><a href="#">Greece</a></li><li><a href="#">Hungary</a></li><li><a href="#">Ireland</a></li><li><a href="#">Italy</a></li><li><a href="#">Latvia</a></li><li><a href="#">Lithuania</a></li><li><a href="#">Luxembourg</a></li><li><a href="#">Netherlands</a></li><li><a href="#">Poland</a></li></ul> | <ul style="list-style-type: none"><li><a href="#">Portugal</a></li><li><a href="#">Romania</a></li><li><a href="#">Slovakia</a></li><li><a href="#">Slovenia</a></li><li><a href="#">Spain</a></li><li><a href="#">Sweden</a></li><li><a href="#">Norway</a></li><li><a href="#">Switzerland</a></li></ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Safeguarding Endangered Breeds Before and During Disease Outbreaks

Europe is currently facing the spread of several serious animal diseases, including sheep pox, bluetongue disease, lumpy skin disease (in cattle), swine fever, avian influenza (bird flu), and West Nile virus (in equine). These outbreaks often necessitate the slaughter of infected animal populations, and preventive culling is sometimes required.

Necessary national disease eradication measures pose an extreme threat to endangered livestock breeds, especially those with populations localised within a restricted geographical area. Although we fully subscribe to the need for disease eradication measures, we want to draw attention to several options to support the conservation of endangered breeds in the light of current and upcoming disease threats.

[Read more](#)

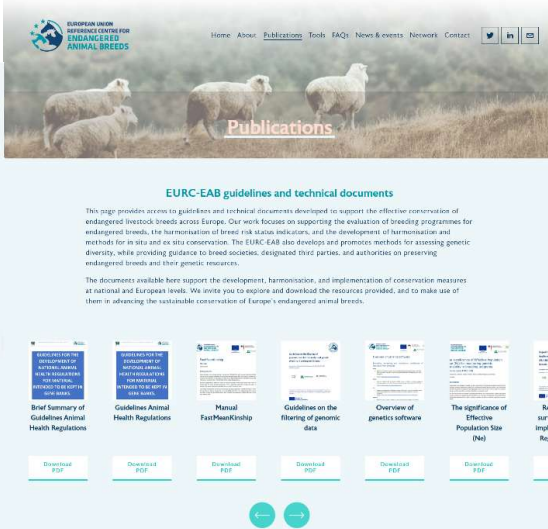
### Publications

The EU reference centre for endangered animal breeds shares all presentations, reports, documents and factsheets publicly on this website. Have a look at our most recent publications:

[EURC-EAB presentations](#)

[EURC-EAB documents](#)

[Other relevant publications on genetic resources](#)



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# Website – Tools

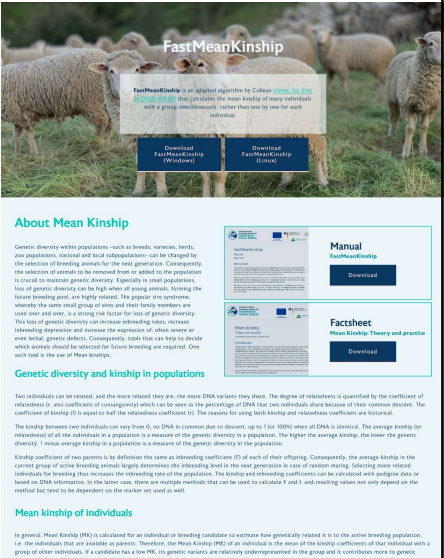
## FastMeanKinship

is an adapted algorithm by Colleau<sup>1</sup> that calculates the mean kinship of many individuals with a group simultaneously, rather than one by one for each individual.

## Application

The tool can help to decide which animals should be selected for future breeding. Breeding organizations are advised to select as much as possible replacement stock with a low mean kinship with the active breeding population.

*Genet. Sel. Evol. 34 (2002) 409-421<sup>1</sup>*





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# Website – Tools

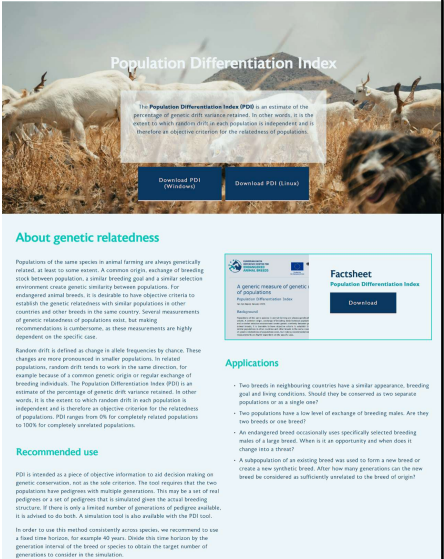
## Population Differentiation Index (PDI)

PDI is the extent to which random drift in each population is independent and is therefore an objective criterion for the relatedness of populations.

| Population Differentiation Index | Interpretation                   |
|----------------------------------|----------------------------------|
| 0-20%                            | Freely interbreeding populations |
| 20-40%                           | Highly related populations       |
| 40-60%                           | Related but distinct populations |
| 60-80%                           | Largely unrelated populations    |
| 80-100%                          | Two separate populations         |

## Recommended use

*PDI is intended as a piece of objective information to aid decision making on genetic conservation, not as the sole criterion. The tool requires that the two populations have pedigrees with multiple generations.*





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