PREP Database: Extension to Genomic Evaluation

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Promotion of harmonisation or improvement of the methods of performance testing or genetic evaluation.
An online platform for breed societies/NGEC to submit and share descriptive information regarding performance recording, national genetic evaluation systems and publication policies in a more structured and standardized way.

Enables collection of additional breed and trait information \(\rightarrow\) Harmonizes and standardizes information.

Easy to compare evaluations methods, traits definitions etc. across countries-breeds-traits.

Common database available to cattle breed associations and third parties (incl. NGECs, Researchers, Competent Authorities): submissions and data queries \(\rightarrow\) Open to All, NOT ONLY to Interbull users.
Aims:

• Transparency
• Comparison
• Harmonisation

Info collected and shared:

• National evaluations
• International evaluations
• Beyond populations in international evaluations
PREP-Dairy

- Production traits
- Calving traits
- Conformation traits
- Female Fertility traits
  - Udder health traits
  - Longevity traits
  - Workability traits

PREP-Beef

- Adjusted weaning weight
- Calving traits
- Carcass traits
Information for “Other traits” evaluated nationally but not (yet) at Interbull level → **Opportunity** to start an international evaluation in the future

With the aim of getting a transparent and standardised overview of Performance Recording and Evaluation practices for all (European) cattle Populations

This helps with Comparison, Harmonisation, and identifying Opportunities and Challenges for **EURC** and **Interbull**
• Trait correlations play an important role in the **quality** of the estimations for international evaluations

• Harmonisation of traits helps to **improve correlations** and thus to achieve **better national and international evaluations**

• Extracting the Information from PREPdb → ICAR- Interbull Guidelines to improve across country compatibility of traits

• Calving- 2022

• Fertility- 2024
Forms are structured **separately** for each **TRAIT GROUPS**

Breed-trait(s) combinations

All breeds-individual trait(s) within the trait groups
Forms are structured **separately** for each **TRAIT GROUPS**

**General information for each individual traits**

Trait’s definition, scale, measurement methods, heritability, data edits, TMI, etc.
Forms are structured **separately** for each **TRAIT GROUPS**

- Evaluations and statistical models
- National-International
- MT-ST/MB-SB
- BLUP- AM
- Fixed -Random effects.
- Reliability- validation methods, publication criteria etc.
PREP - Structure of the current Form(s)

Forms are structured **separately** for each TRAIT GROUPS.

Scientific base

Scientific references used for reliability or validation methods for traits
Similar structure as the current available forms on PREP database.

- More **genomic-oriented**
  - **General genomic information** → SNP chip used, Imputation method, reference population
  - **Genomic model and methods** → Single-Step/ Bayesian, Polygenic etc.
  - **Genomic reliability and System validation**
Having a separate form ONLY for “Genomic” related questions and options with the concept of having ONLY one general form for all TRAIT GROUPS (NOT Individual Traits)
PROS:

- More efficient and easier for organizations to fill in the form
- **No need** for repeating to fill the information already have been provided in the Conventional forms
- Possibility of copying information across TRAIT groups and breeds in **ONE** form
- Possibility to modify/edit the information that may differ among different TRAIT GROUPs
General GENO form: more efficient, user friendly and more general form

- More general and informative regarding genomic evaluation, information all in ONE form (instead of several separate forms)

- Only ONE form for different TRAIT GROUPS with the feasibility of copying/modifying information across different TRAIT GROUPS (that could be more efficient even in case that countries change the model/ SNP chip they used etc. over time for different trait-breed)

- No need for repeating the information regarding the individual traits definition, scale, heritability etc. for countries have already provided such information in the Current Conventional PREP forms

Some Consideration:
- Countries/Organizations still need to fill in/access general information regarding each individual traits via current conventional form in PREP.