PREP Database: Extension to Genomic Evaluation

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Interbull Centre

European Union Reference Centre (EURC) for Zootechnics (Bovine Breeding)

Promotion of **harmonisation** or **improvement** of the methods of **performance testing** or **genetic evaluation.**

PREP Database – Service and Benefits

PREP

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

PREP

Enables collection of additional breed and trait information → **Harmonizes** and **standardizes** information

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

PREP

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

PREP DataBase

Aims:

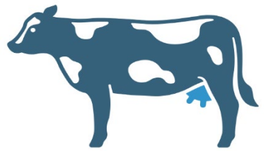
- Transparency
- Comparison
- Harmonisation

Info collected and shared:

- National evaluations
- International evaluations
- Beyond populations in international evaluations

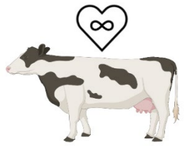
PREP-Available and upcoming forms

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

PREP-Other traits form

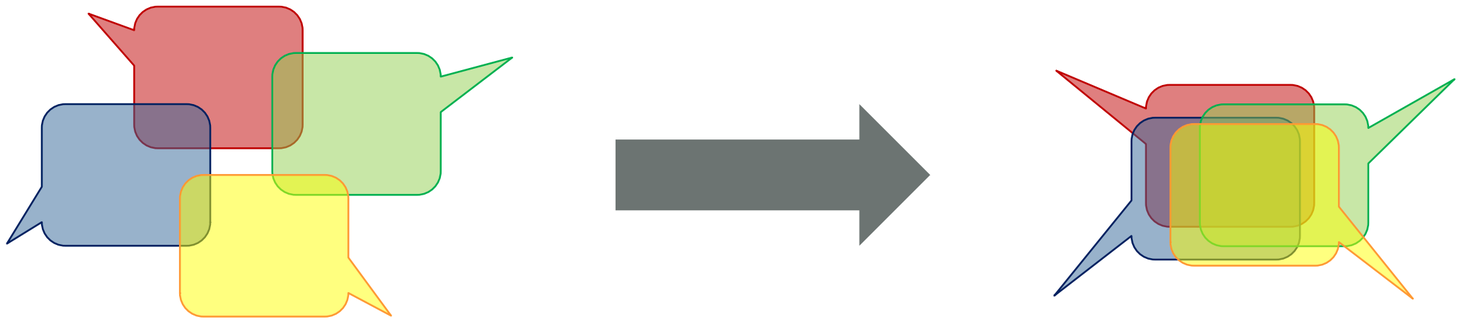
Information for “Other traits” evaluated nationally but not (yet) at Interbull level→ **Opportunity** to start an international evaluation in the future

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**

PREP-Harmonisation of traits

- 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

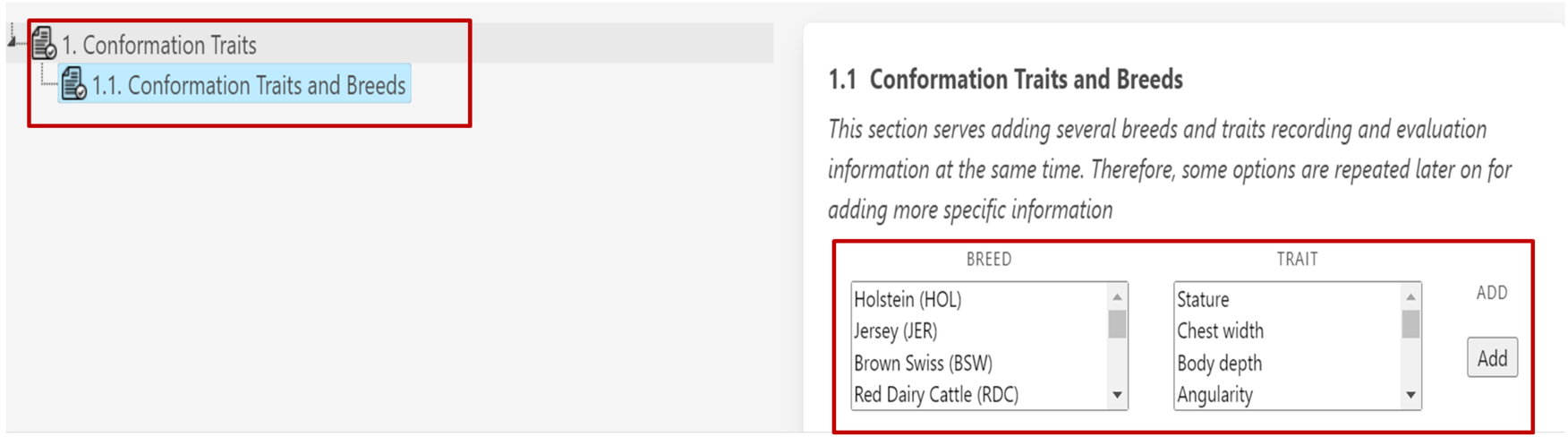


PREP- Structure of the current Form(s)

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

Breed-trait(s) combinations

All breeds- **individual trait(s)** within the trait groups

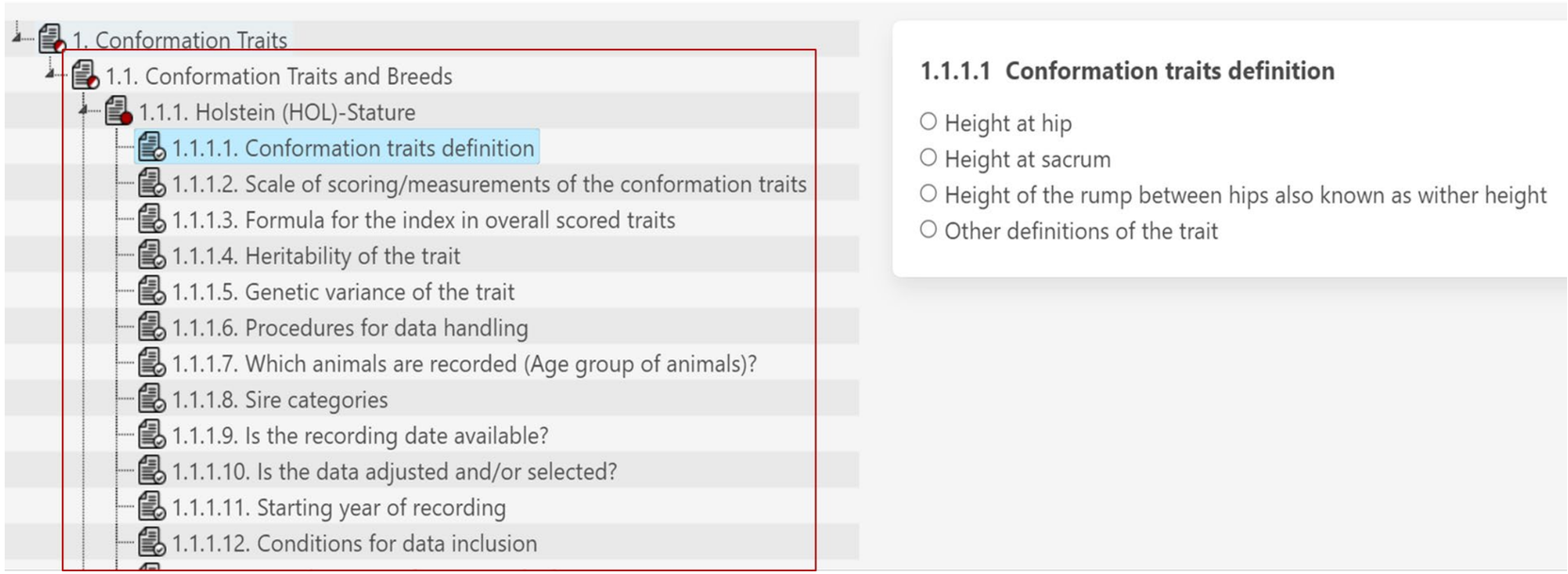


PREP- Structure of the current Form(s)

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.



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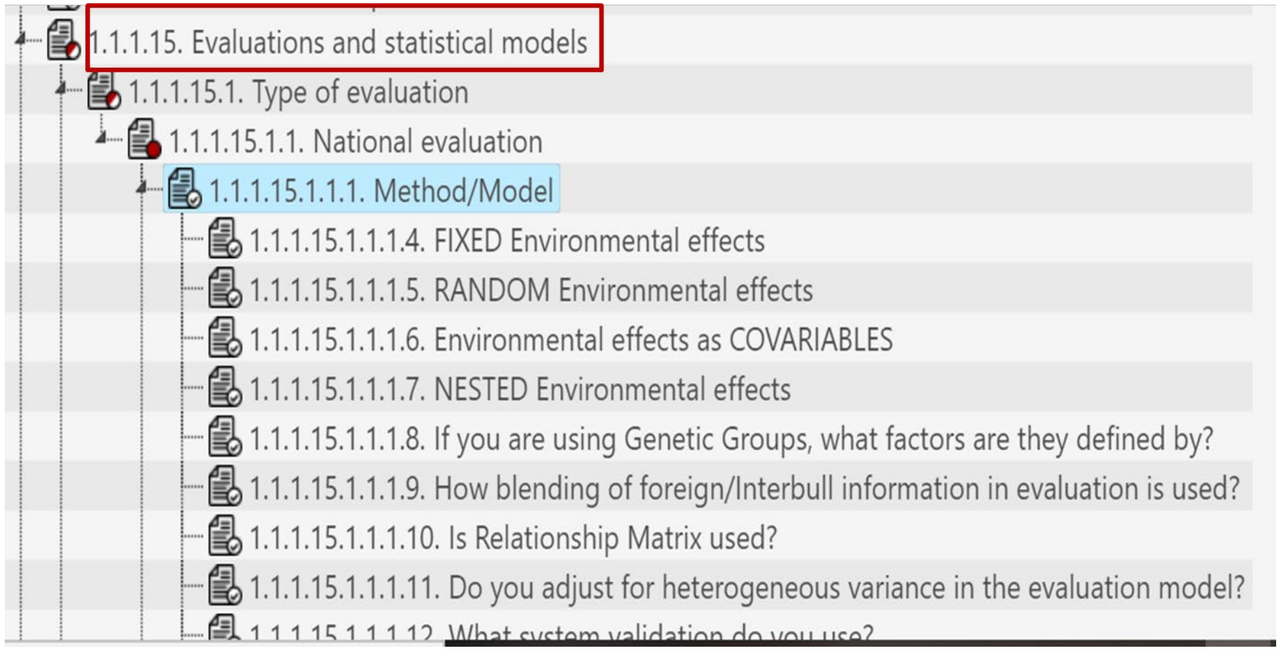
Evaluations and statistical models

National-International
MT-ST/MB-SB
BLUP- AM
Fixed -Random effects.
Reliability- validation methods, publication criteria etc.



PREP- Structure of the current Form(s)

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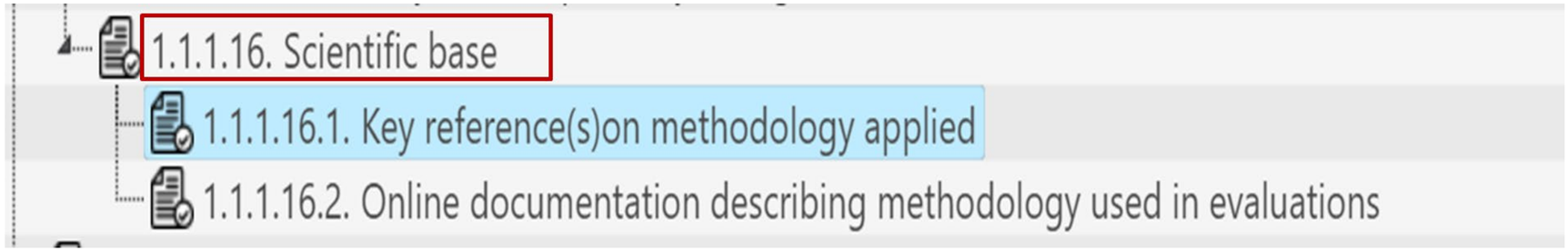
Scientific base

Scientific references used for reliability or validation methods for traits

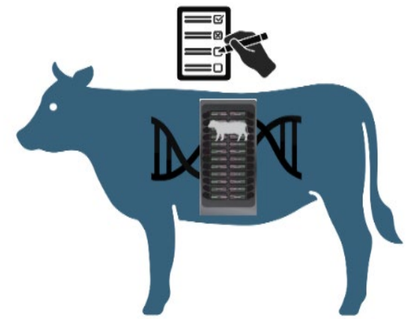


PREP- Genomic Form- Concept

- Similar structure as the current available forms on PREP database.

✓ More **genomic-oriented**

✓ **General genomic information** → SNP chip used, Imputation method, reference population

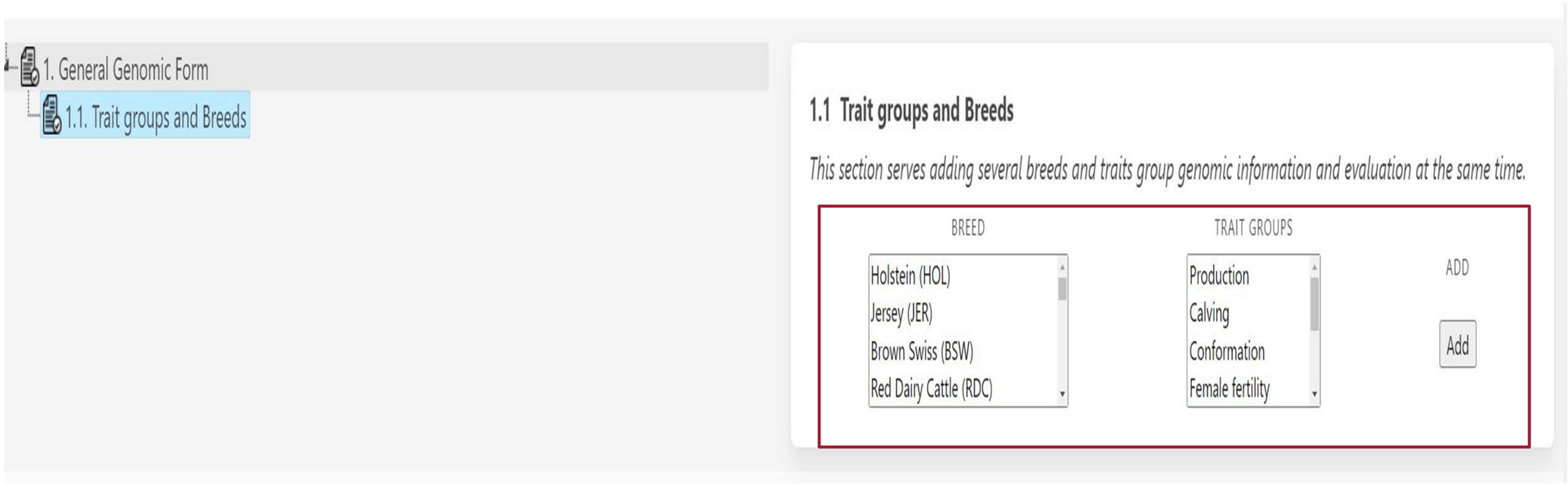


✓ **Genomic model and methods** → Single-Step/ Bayesian, Polygenic etc.

✓ **Genomic reliability and System validation**

PREP - Genomic Related form(s)

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)



PREP - Genomic Related form(s)

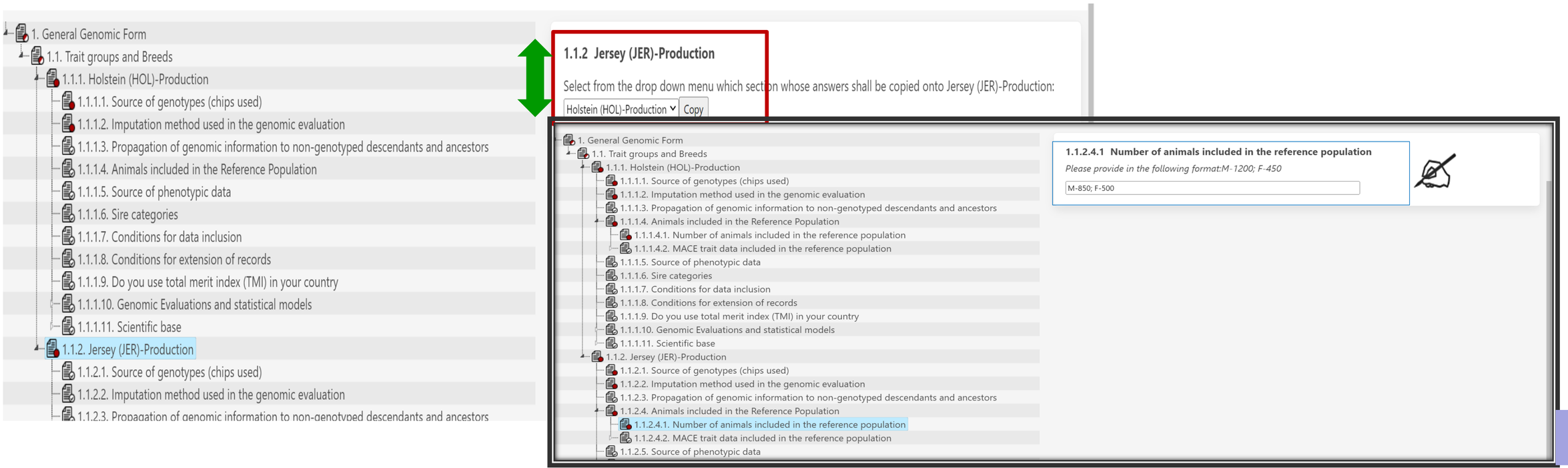
Pros:

☑ 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



PREP – Genomic Form- Conclusion

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)

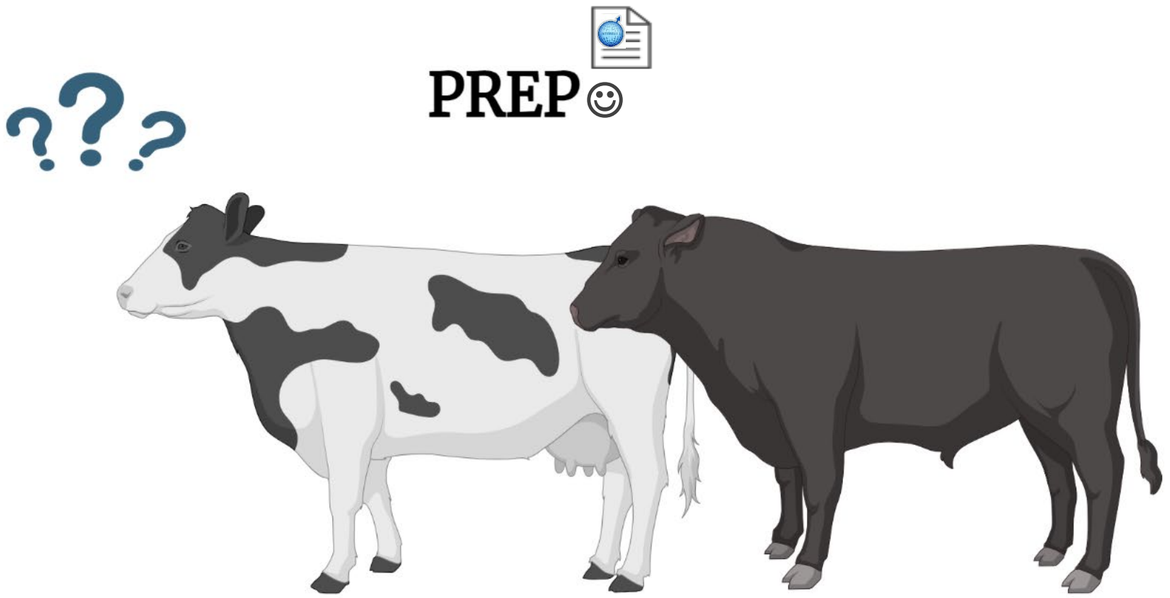
- **No need for repeating** the information regarding the individual traits definition, scale, heritability etc. for countries have already provided such information in the Current Conventional PREP forms

❖ **Some Consideration:**

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

PREP Database

Thank you!



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PREP webinar