



WP6

Initiative for harmonisation and international evaluation

Jean-Michel Astruc (IDELE) & all the participants to the WP6



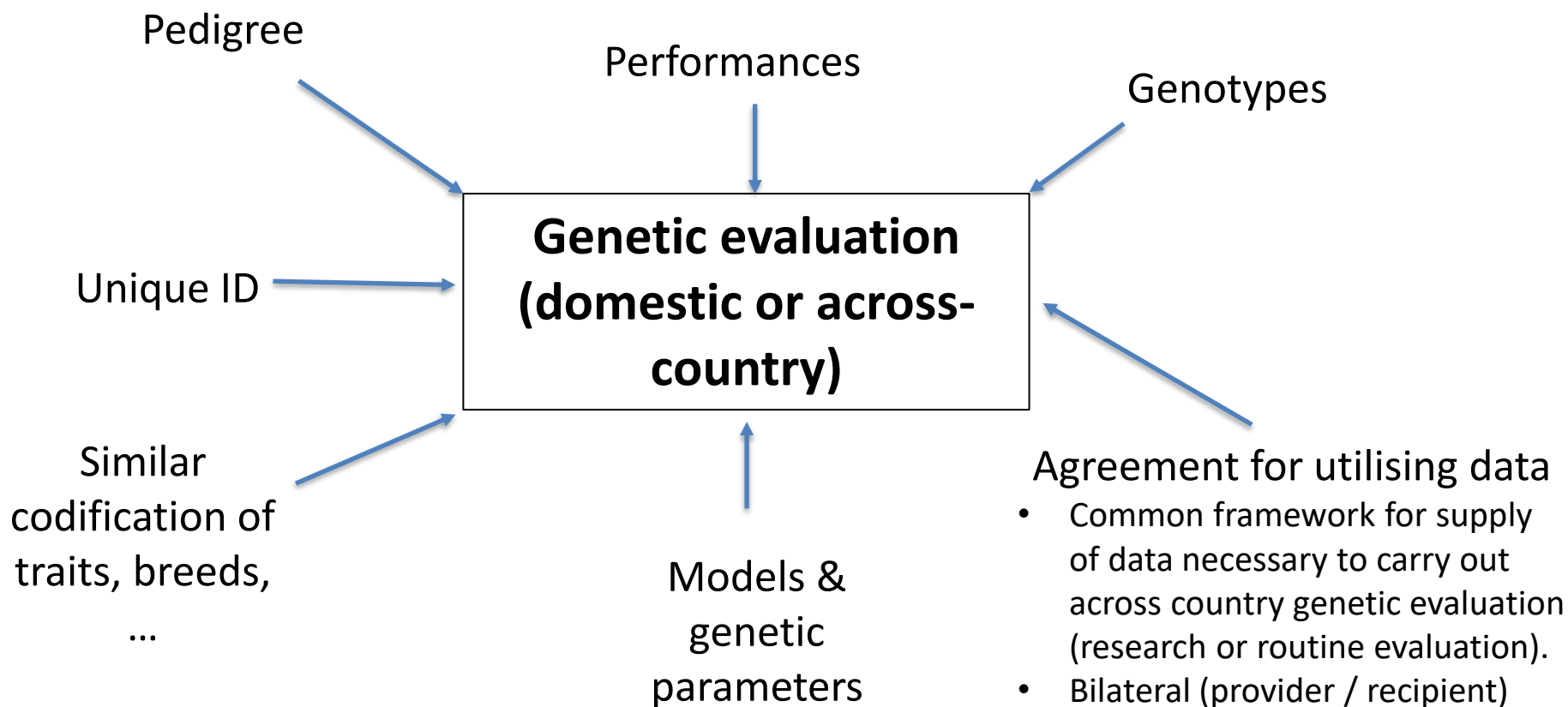
Final meeting Toledo - Tue. 23rd May 2023



Among the objectives - DoA

- Provide **international guidelines for harmonious** measurement, reporting and analysis of Resilience & Efficiency related traits on farm
- Create an **international initiative** that will facilitate, encourage and motivate the **exchange of information, know-how and data** (phenotype, genotype and pedigree) for **international cooperation** and improved breeding for Resilience & Efficiency in small ruminants

Building tools useful for across country evaluation



Building tools useful for across country evaluation

- File format for exchanging data (international ID, pedigree, phenotypes, genotypes)

International ID - contains **breed**, **country**, **sex** and **ID number**

Example: **CHA****FR****M**000FR12345678901

Phenotype - Same format as Interbeef. Includes weight of performance, number of environmental effects & recoded level of the environmental effects.

Genotype - includes international animal ID, SNP name and allele in format A/B

Parameters - Same format as Interbeef. For each trait: h^2 , maternal genetic & maternal permanent environmental effects, animal permanent environmental effect, number of environmental effects included in the national model, environmental effects recoded and type of effects (contemporary group, fixed, covariate, random).

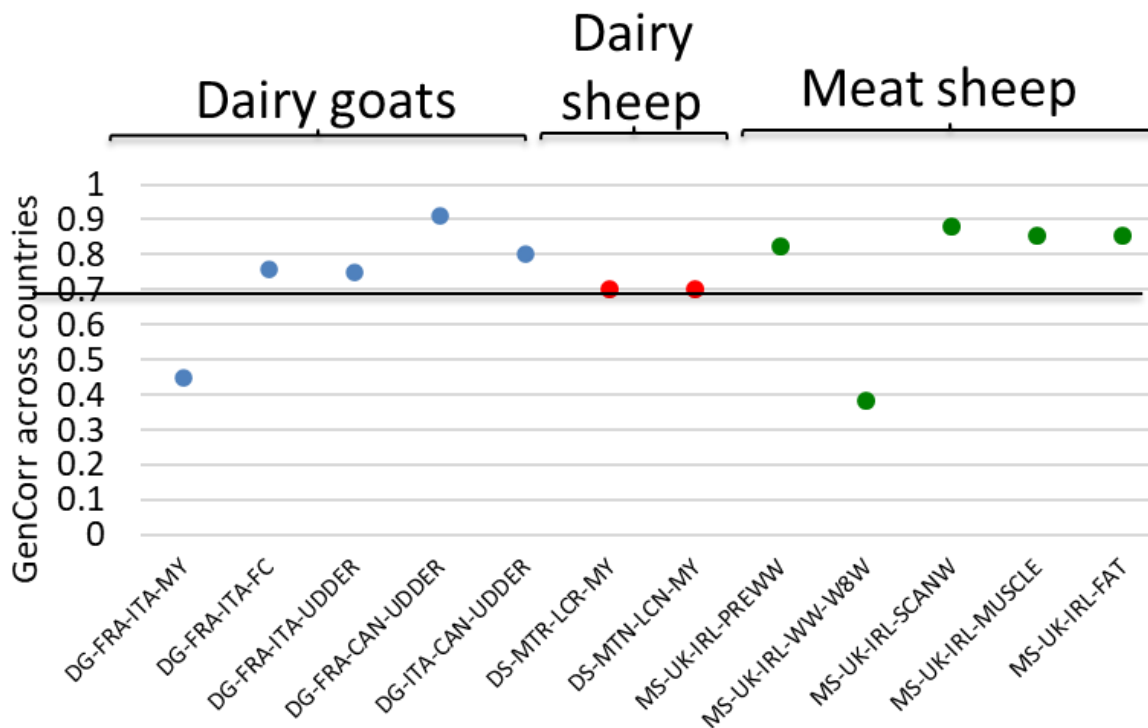
Building tools useful for across country evaluation

– Lessons drawn from data handling/editing in SMARTER case studies

- International ID: must comply with the format proposed in SMARTER; some animals in common (e.g. sires used across 2 or more countries) are identified differently in the different countries, hence a miss of link. VERY IMPORTANT FOR CONNECTEDNESS.
- When genotypes come from different platforms (e.g. Affymetrix and Illumina), take care of data editing for the same loci and remove the outliers to solve any problem.
- Relevance of using tools set up in Interbull?

Across country evaluations

Genetic correlations across countries and EBV's computation



Links exist across country

Across country evaluations

- Results from case studies are encouraging for running routinely international evaluations: strong genetic correlations estimated between countries, in most cases, warrant possible benefits from a joint genetic evaluation. This also suggests that limited re-ranking of sires would be expected between countries.
- Some limitations were identified:
 - (1) exchanges of germplasm were sometimes only unidirectional, and exchanges in both ways might strengthen the connection across countries.
 - (2) in some cases, very unbalanced sizes of populations.
 - (3) the question of the **harmonization of the phenotypes is important**
 - For existing trait (e.g. calculating the lactation yield; ages of weighing).
 - For novel traits such as **resilience and efficiency related traits** studied in SMARTER.

Guidelines for recording and analysing resilience and efficiency traits

Objective: propose recommendations that would be useful for a large community (scientific and breeding companies)

ICAR guidelines are a good framework for such recommendations

Create a new section of resilience and efficiency trait



THE GLOBAL STANDARD FOR LIVESTOCK DATA

Network. Guidelines. Certifications.

ABOUT US ▾ TECHNICAL BODIES ▾ CERTIFICATIONS ▾ PUBLICATIONS ▾ GUIDELINES MEETINGS ▾

You are here: [ICAR](#) > ICAR GUIDELINES

ICAR GUIDELINES

ICAR has updated how we structure and present our Guidelines. The new format makes them easier to browse and to access your specific interests.

- Section 16 - Dairy Sheep and Goats
- Section 17 - Buffalo Milk Recording
- Section 18 - Breed Associations
- Section 19 - Recording Feed Intake for Genetic Evaluation
- Section 20 - Methane Emission for Genetic Evaluation
- Section 21 - Meat, reproduction and maternal trait in sheep and goats

What's new

Latest news from ICAR here Bundesverband Rind und Schwein e.V. (Germany) successfully renewed its [...]

[Read more...](#)

ICAR Certifications

According to ICAR standards, ICAR certifies ear tags, RFIDs, milk meters and genetic laboratories. ICAR [...]

[Read more...](#)

ICAR Recording Guidelines

The page presenting the ICAR Guidelines has been made available here . In summary, the new [...]

Organisation of guidelines of R&E in sheep and goats

Scope

Efficiency-related traits	Feed efficiency
	GHG emissions
Record environment	Diet, meteorological data, ...
Resilience-related traits	Health & disease: resistance to parasites, footrot, mastitis
	Survival foetus & young
	Behaviour
	Lifetime resilience

Guidelines for recording and analysing resilience and efficiency traits

- Contributions from:
 - SMARTER partners (WP1, WP2, WP6 partners)
 - GrassToGas partners (feed efficiency & GHG emissions)
 - ICAR working group on sheep, goat and camelid
- All 7 subsections (already) achieved => D6.3
- Next step (beyond the project): make the sub-sections agreed as ICAR guidelines (process within mid-2024)

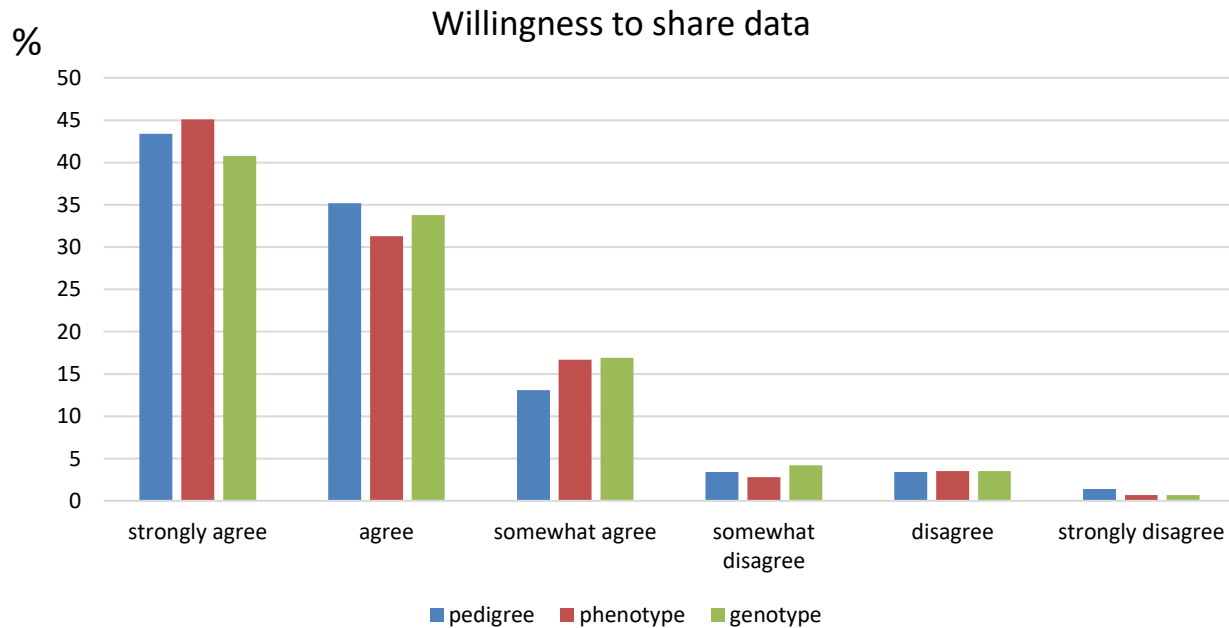
Practicalities, perspectives

Are we doing that for the fun or is there a need and an acceptability for harmonisation and cooperation?

Aim of T6.3: assess this need and acceptability

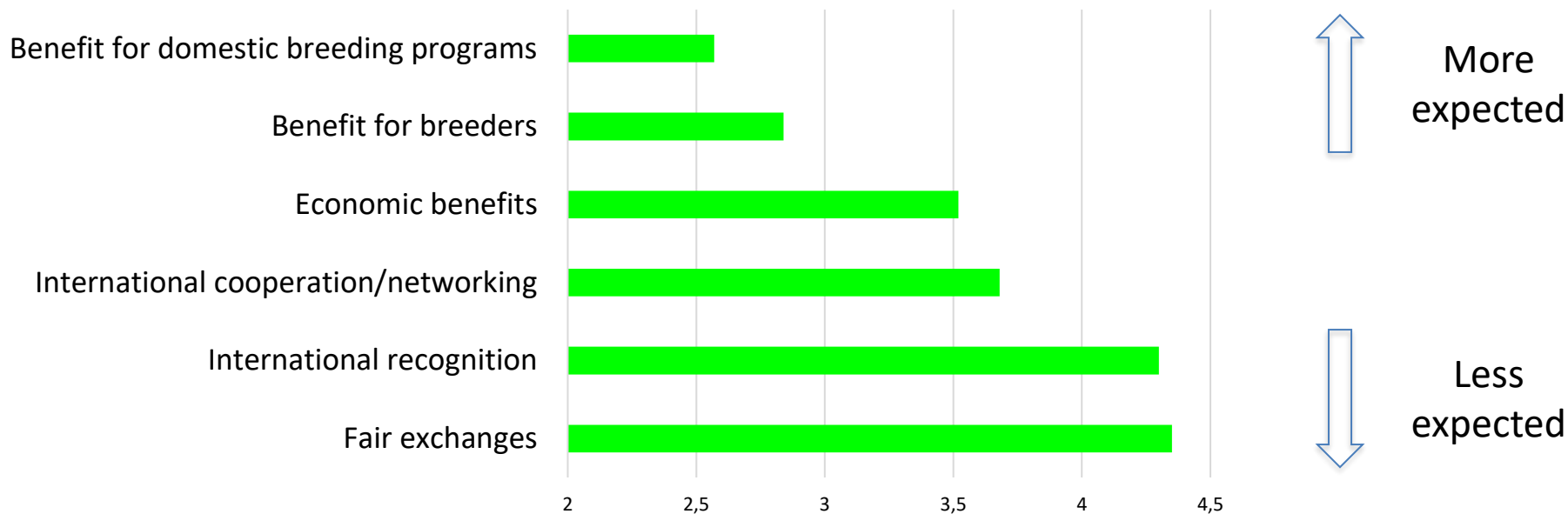
- Comprehensive survey carried out in each partner x country & the stakeholder platform (WP8)
- Targeting breeding organisations and breeders + research
- Questionnaire translated in English, German, Spanish, Italian or French. On the whole, **200 responses were received and analysed**
- Materials also collected from interviews (France, Greece, Italy and Uruguay) towards producers, conducted in WP7 on selection practices and genetic management of flocks/herds

Assessing the motivation of countries for across country evaluation



Expectations from across country evaluation

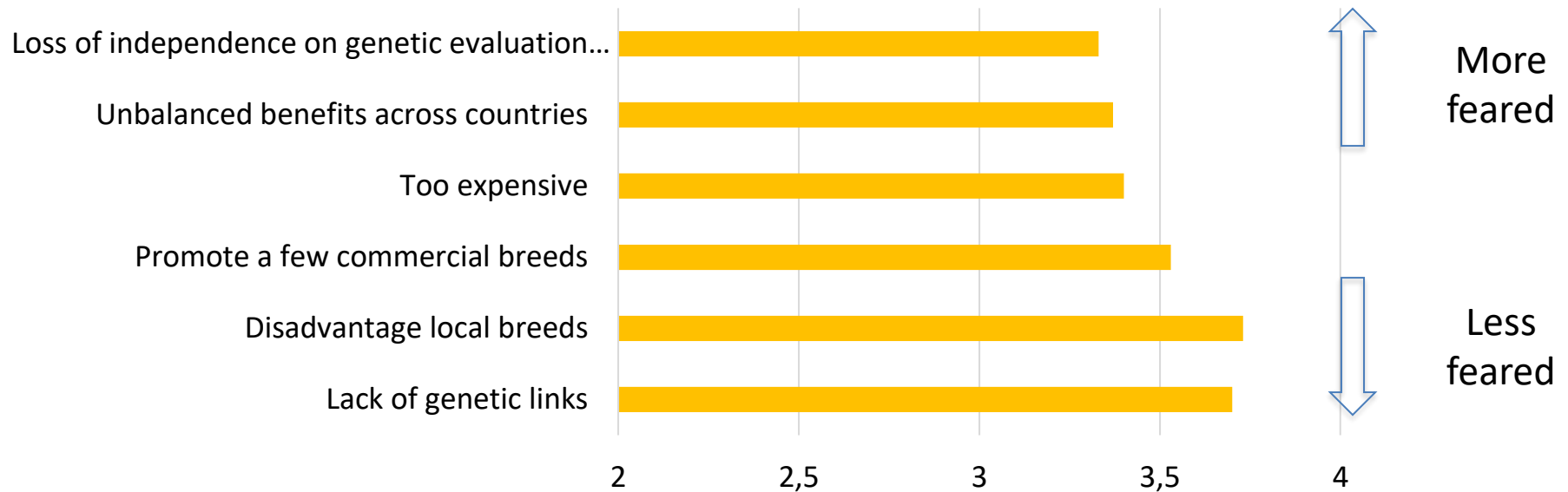
Expectation from international evaluation



Clearly marked hierarchy of the expectations

Concerns from across country evaluation

Concerns from international evaluation



Concerns more balanced than expectations

Perspectives on international initiatives

Recommendations for EU / policy / farmers

- ✓ SMARTER = relevant and competent community for stepping forward on harmonisation and international cooperation in sheep and goat.
- ✓ Good example of continuum between academic research and services to breeding organisations and providers of services such as ICAR.
- ✓ Utilising tools built within SMARTER might be recommended.
- ✓ International evaluation: case study towards routine => adaptation of infrastructure (e.g. pedigree, phenotype, GenoEx database in Interbull). Issue of sharing the costs across species x breed.
- ✓ Practical applications
 - Across country evaluation expected in Latxa x Manech to be routinely run using Interbull infrastructure.
 - Translation of recommendations on recording E&R into ICAR guidelines

SMARTER PARTNERS



Thank you for your attention

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