INTERBULL Business Meeting

Aotea Centre, Auckland, New Zealand
11 February 2018

THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Network. Guidelines. Certification.

INTERBULL Business Meeting

Reinhard Reents
INTERBULL Chairman

Aotea Centre, Auckland, New Zealand
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Agenda

1. Opening
2. Adoption of agenda
3. Interbull Centre update (including finances and personnel)
4. Interbull Technical Committee report
5. Interbull Centre Activities
6. Interbeef working group report
7. The New EU Animal Breeding Law and Interbull Centre’s role as the EU Reference Centre
8. Governance
9. Calendar for future events
10. Other matters

Agenda

5. Interbull Centre Activities
   a) International R&D on feasibility study to combine SNP solutions across countries; “SNPMACE”
   b) ICAR Parentage Analysis Accreditation of DNA Data Interpretation Centres
   c) GenoEx-PSE
   d) InterGenomics (Brown Swiss and Holstein)
   e) Review of schedule for additional Test Run
   f) “IDEA and ID Developments: Current and Future”

InterGenomics

Hossein Jorjani

Interbull Centre

Expanding InterGenomics

- **InterGenomics 2.0**
  - Process started back in April 2014
  - Final steps set in motion
    - Implementation and validation of a quality protocol

- **InterGenomics Holstein**
  - Introducing InterGenomics to Holstein

InterGenomics 2.0

- Actions from ITBC
  - Successfully included IG in our QMS
  - Preparing for a new set of GEBV validation (March-April 2018)
  - Working on tools for
    - Comparison of consecutive national genomic evaluations
    - Comparison of national and international genomic evaluations
    - Revision of file formats -> considering creation of conversion program

InterGenomics-Holstein

- February 2017, Ljubljana, Slovenia
- August 2018, Tallinn, Estonia

Survey

Country	No progeny bulls	No young bulls	Each year
Belgium	21	233	50
Croatia	0	13	5 to 6
Czech Republic	1500	500	100 - 150
Estonia			
Hungary	550	1000	
Ireland	5500	30	7
Latvia			
Portugal	1896	28	120/200
Slovakia			
Slovenia	200		50 - 100
Macedonia			
Brazil	230		
Israel	1427	545	400
South Africa	89	65	300
South Korea	300		50
Uruguay	200	65	n.a

Marija Klopčič, Toine Roozen, Brian Van Doormaal

Submitted Genotypes in Research run 1

	HRV	IRL	PRT	SVN	URY	ZAF	SUM
N-EBV	673	2218	2151	470	956	1255	7723
G-type	0	3285	831	343	251	88	4798
Ref bull	87	267	488	251	158	141	1392
							1401

Summary result

- GBLUP
- 26 traits;
- 6 country scales
  - HRV – 5 traits
  - IRL – 26 traits
- Total 105 country-trait combinations
- Small reference populations (1100-1500)
- Modest reliability gain for young bulls

Research run 2

- May / June 2018
- New genotypes from the current participating countries
- New chip manifests will allow more genotypes from the current participating countries
- New countries joining
  - ISR
  - KOR
- Other countries?

Review of schedule for additional test run

Valentina Palucci

Interbull Centre

Current Rules for Test Runs

- 2 official test runs, January & September:
  - Changes tested should be introduced within 2 consecutive routine runs
  - If changes tested are NOT implemented at the first routine run then Rg are adjusted (extra work at ITBC, not 100% satisfied countries due to Rg adjustment)

Background

- Genomic era -> Difficulties for some countries to test introduction of new models (conventional AND genomic) acknowledging both the Interbull CoP rules and national requirements of the customers.

WG and SC Discussion

- Under discussion:
  - Implementation of national changes should be done at the first routine run (i.e *not* within two consecutive routine runs). If not a fee should be applied, to account for extra adjustments at Interbull Centre
  - Plus Possible Extra test run for specific country-breed-traits (extra fee needed)

IDEA and ID Developments: Current and Future

Hossein Jorjani

Interbull Centre

Before Interbull Data Exchange Area (IDEA)

Before “IDEA”:

- Many file formats (010, 015, 115, 016, 017, 019, 020);
- Pedigree information was in 010 files;
- Pedigree information could not be processed before all 010 files had been processed;
  - Problem in any country’s 010 file detected at any stage => re-start pedigree processing;
  - Country edits of depth of data in 010 => loss of pedigree information;
  - New mistakes in 010 file => spread to the whole pedigree;
  - Animal in 015 – 020, but not in 010

With ”IDEA”

Interbull Data Exchange Area enabled:

- Separation of pedigree information from the production file;
- Allow pedigree processing before the start of the run;
- Retain old correct pedigree information;
- Etc., Etc..

ICAR and INTERBULL Guidelines

- 4.1.1Assignment to a breed of evaluation

ICAR and INTERBULL Guidelines

- 4.1.2 Animal ID:
  - Each animal's ID should be unique to that animal,
  - Given to the animal at birth,
  - Never be used again for any other animal,
  - Be used throughout the life of the animal;
  - In the country of birth and also by all other countries.
- Additionally:
  - All parts of an Animal ID should be kept intact.

ICAR and INTERBULL Guidelines

4.1.2 Animal ID:

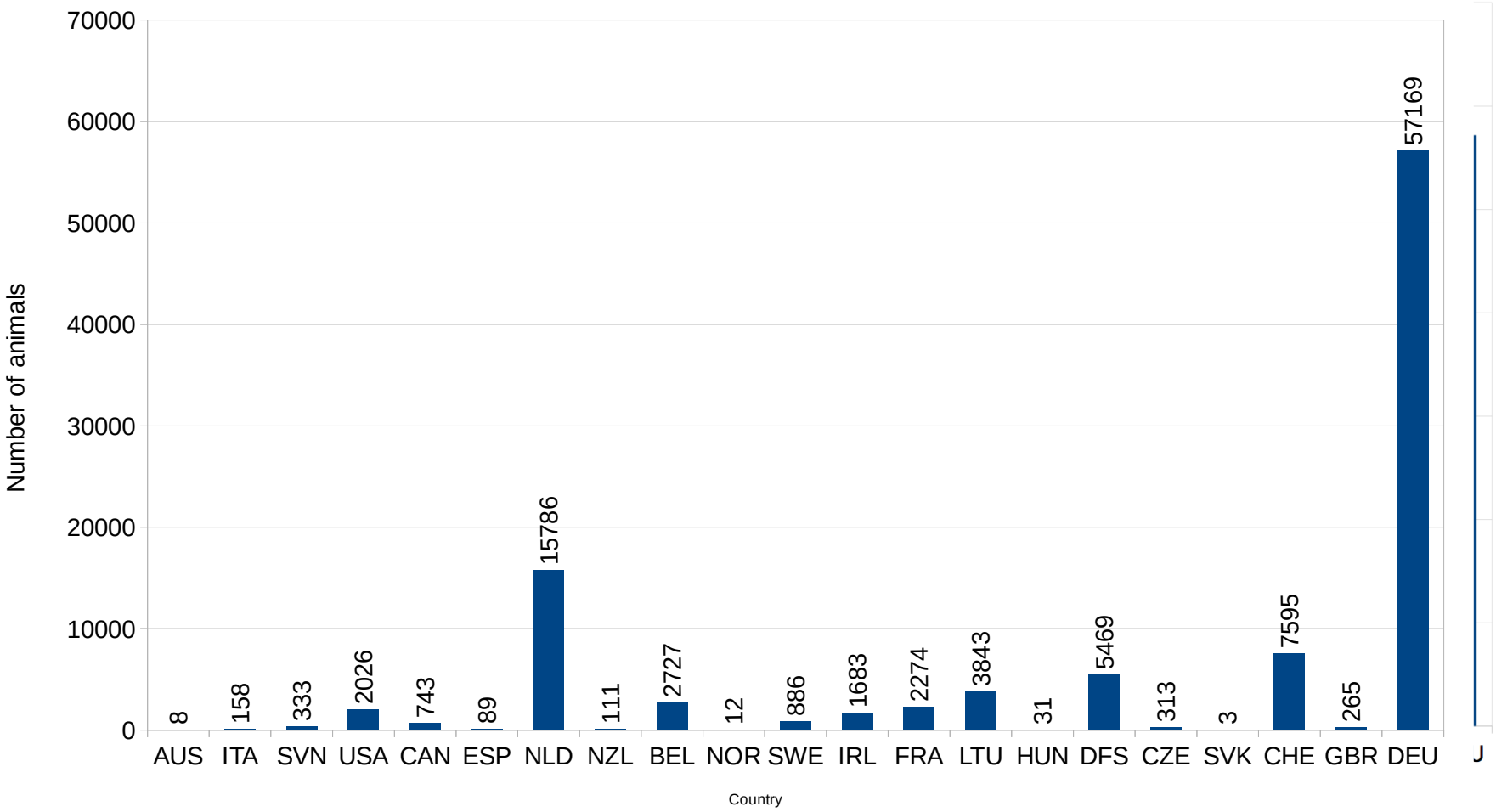
- If, for any reason, modification of the original Animal ID is necessary:
  - It should be considered as a re-registration;
  - Fully documented by a cross-reference table;
  - Relating the original (and intact) Animal ID and the Animal ID given to the animal in the importing country;
  - The cross-reference table should be made available to other interested parties, particularly to the Interbull Centre;
  - All communications at the international level should always use the Animal ID given to the animal in the country of birth.

ID

- Observed inconsistencies
  - Change of breed code (instead of changing the breed of evaluation);
    - Example: HOL <= => RED
  - Change of country code
    - Example: 840 <= => USA
  - Several changes in ID (within and across countries)
    - Example: HOL???M000000257676 <= => RED??? M003066502483

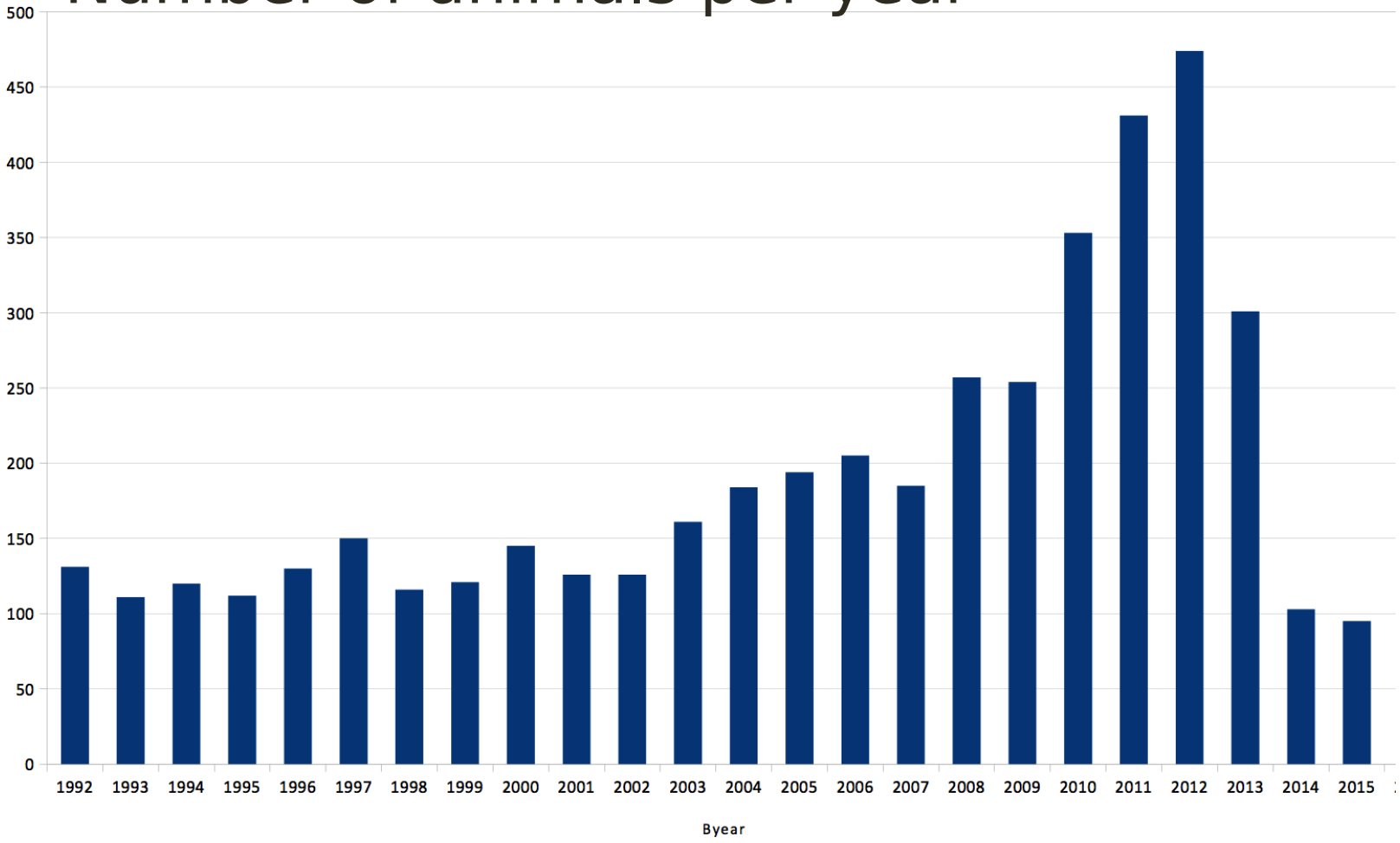
RED Holstein; 'RED' ID's

- Number of animals per country



RED Holstein; RED ID's

- Number of animals per year



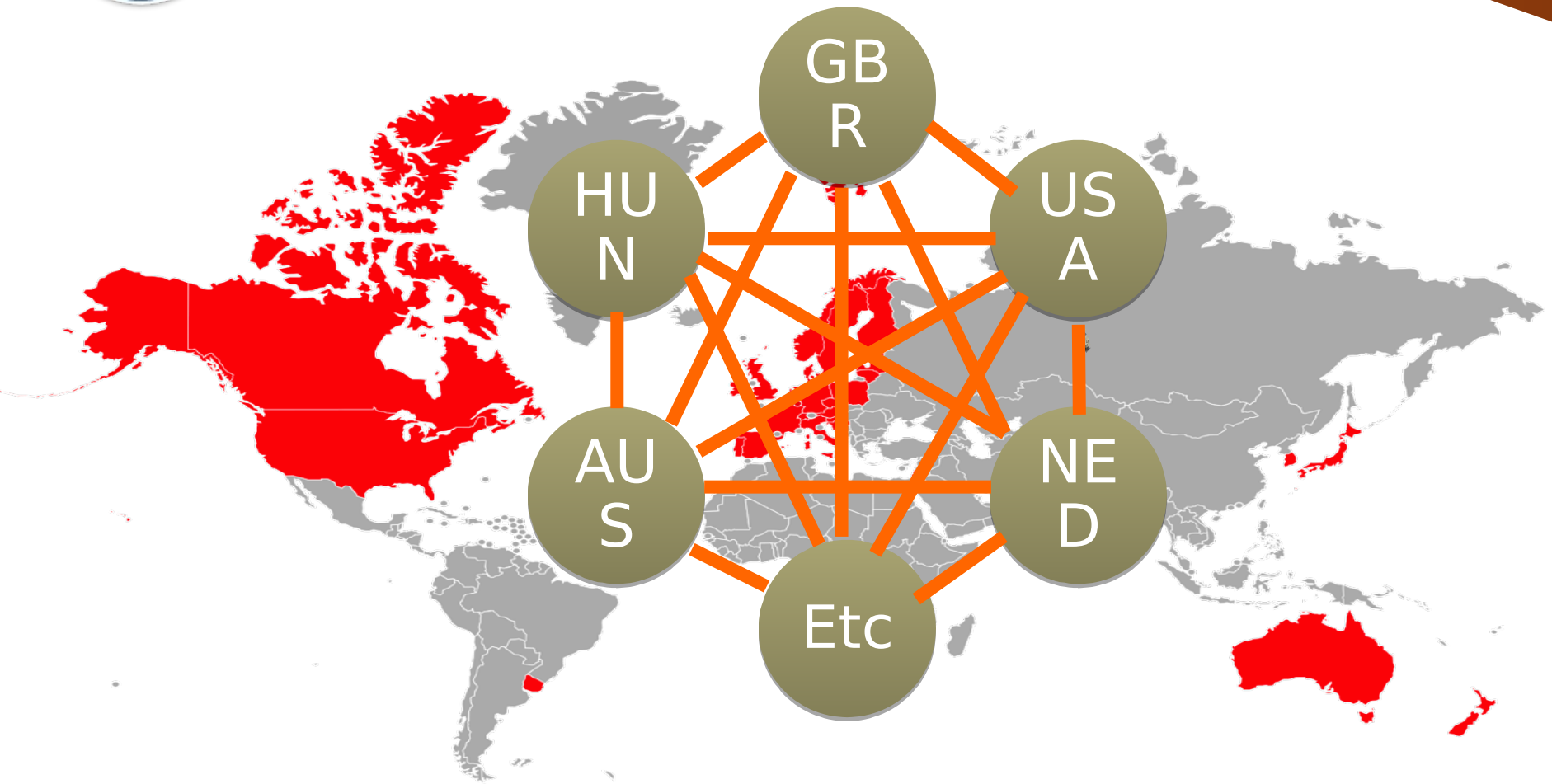
More info about RED HOL

- How to handle this issue
  - Change RED to HOL
  - Add the old ”RED” ID to X-ref
  - Store the coat color in AnimInfo
  - Make sure that MACE results are not affected
- Supported by member countries, e.g. EuroGenomics

IDEA - Duplicate

- Latest developments in IDEA Duplicate page
  - Print extract list of duplicates
  - Such conflicts can then be processed via uploading of link file202
- Such new developments should make easier dealing with such cases but
- Current/Future IDEA developments
  - Phenotype module
  - Revision of CheckPedigree.py (latest done in 2015)

WHFF – Genetic Traits



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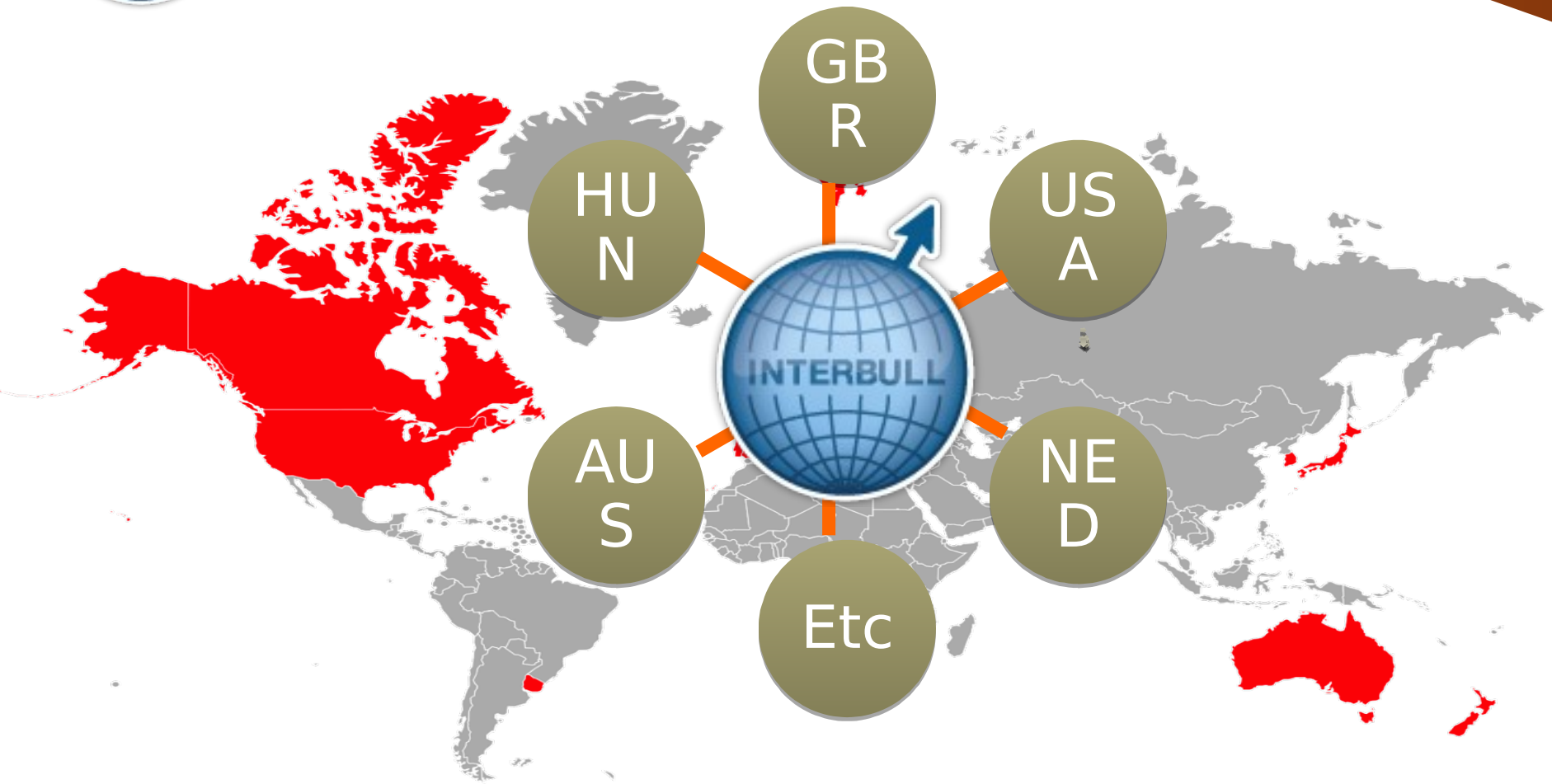

WHFF – Genetic Traits

- World Holstein Friesian Federation (WHFF) requested Interbull to assist exchange of single gene genetic traits:
  - Platform: IDEA AnimInfo
  - Tested by 3 organisations uploading >160 000 genetic tests
- Open to all HOL countries once the service has been agreed and introduced:
  - Direct traits only (at least initially)
  - Conflict resolution to be discussed by WHFF Board on 12/13 February 2018
  - Considered new ‘trait group’ for Interbull Service Users
  - NGEC’s to make arrangements with

Interbeef Update.

- International genetic evaluation of beef cattle.
  - ICAR-Interbeef => members.
  - ICAR-Interbeef => Interbull Centre/SLU => members.
- Based on using countries pedigree and **phenotype** data => International EBV's *(Phocas, 2005).*
  - Countries own models, variances & correlations.
- Currently includes 10 countries, 3 breeds (LM, CH & SI) & 4 sets of traits (Wean wt, Calving, Female fertility & Carcass).
- Research capacity provided by members.
- Database & routine services provided by the Interbull Centre.
- WG chaired by Andrew Cromie (IRE) and TC chaired by Eric Venot (FRA).

Status of Interbeef Evaluations.

	Jan 2016	Jan 2017	Jan 2018*
Number of countries	10	10	10
Number of breeds	2	3	3
Number of cou- brd-trt combinations	18	24	50
Number of animals in the pedigree database (both dairy and beef)	25,389,096	28,256,603	29,338,894
Number of submitted national records	7,472,166	7,977,376	37,012,251
Number of estimated international EBVs	57,996,544	61,142,008	203,625,798
Number of publishable international EBVs	1,108,658	1,344,841	4,403,605

Interbeef Priorities for 2018+

1. New routine evaluations for female fertility.
   - Move current research work in female fertility evaluations (being undertaken by DEU) from research environment to routine evaluations.
2. Complete work on use of cross-bred data in Interbeef evaluations.
3. Data call and genetic parameter estimation for carcass traits for existing breeds (CH, LM and BSM).
4. Data call and genetic parameter estimation for new breeds (Angus and Hereford).
   - Involvement of ABRI-Breedplan as a new member is key. Data (a lot!) + new research partner.

Interbeef Priorities for 2018+

5. **Build system for routine parameter estimation as new countries/breeds start to participate within Interbeef.**
6. **Develop procedures to facilitate the optimal integration of Interbeef EBV's within National evaluations.**
   - **EBV's and EBV's_Minus own country.**
7. Pilot project to share information on genotypes through IDEA and potentially genotypes through GenoEx (v2).
8. Undertake a review of ICAR guidelines re: beef performance recording.
9. **Continue to expand Interbeef service to new members. As services expand, review fee structure (upwards) to more accurately reflect total breeding cows, breeds & traits within participating countries.**

Yesterdays Working Group Meeting.

The New EU Animal Breeding Law and Interbull Centre's role as EU Reference Centre

Toine Roozen

Interbull Centre

Interbull Centre

- European Union Reference Laboratory (EURL) for Zootechnics (Bovine Breeding)
  - Since 1996
  - Responsible for collaborating in "*rendering uniform the testing methods and the assessment of the results for pure-bred breeding animals of the bov species*".

  - **Standards/Guidelines**
  - **Validation of National**

Validation of National EBVs and GEBVs

Validation: **One of Interbull Centre's most important roles:**

- Test national genetic evaluation results for **consistency:**
  - Various Methods and Tests, Validation software
- Public recognition: data supplied by countries is **reliable:**
  - EU Reference Centre responsibility.

Validation of National EBVs and GEBVs

- When is validation required?:
  - New national evaluation methodology
  - New countries and populations
  - At least every 2 yea

Validation Tests	
2013	146
2014	183
2015	132
2016	150
2017	153

Animal Breeding Law

- New EU Animal Breeding Regulation 2016/1012
- Into Force: 1 November 2018.
- (Potentially) many changes for national organsations.

- New role for EU Reference Centre.

COMMISSION IMPLEMENTING REGULATION (EU) 2017/1422

of 4 August 2017

designating the European Union reference centre responsible for the scientific and technical contribution to the harmonisation and improvement of the methods of performance testing and genetic evaluation of purebred breeding animals of the bovine species

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

HAS ADOPTED THIS REGULATION:

Article 1

The following centre shall be designated as the European Union reference centre responsible for the scientific and technical contribution to the harmonisation and improvement of the methods of performance testing and genetic evaluation of purebred breeding animals of the bovine species:

Interbull Centre
Department of Animal Breeding and Genetics
Swedish University of Agricultural Science — SLU
Ulls väg 26
Box 7023
SE-750 07 Uppsala
Sweden

(1) OJ L 171, 29.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 1 November 2018.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 4 August 2017.

For the Commission
The President
Jean-Claude JUNCKER

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Work Programme EURC

- No increase in budget
- No change in activities until 1 November 2018.
  - Activity Plan Jan-Oct accepted
- 1 November 2018
  - start with implementation of new role
- Tasks of EURC are set out in EU Animal Breeding Regulation 2016/1012
  - Annex IV, Article 2

Work Programme EURC

- March 2018: Meeting with EU Member States Representatives
  - Activity Plan Nov-Dec 2018 to be submitted in April 2018
- Discuss practical implementation with EU Member State representatives:
  - Practical implementation
  - EU MS particular expectations from the EURC work programme
  - Level/hierarchy of cooperation with breed societies/ competent authorities

Governance

SLU – ICAR Agreement

- Original SLU – ICAR agreements on establishing and running of the Interbull Centre in place since 1995
- Reviewing and updating SLU - ICAR Agreement:
  - Additional services: Dairy; Beef; Data Exchange
- ICAR – IB OP TF are working on a new agreement
  - Basic principles agreed: ICAR and SLU
    - BUT potential to streamline it => ICAR president

INTERBULL Terms of Reference

- Active Terms of Reference: 2004
- Updated: 2016.

- Connect to new agreement (ICAR Board level)
  - ICAR board => Interbull Subcommittee
- Take out operational procedures (IB Steerin Committee)
  - Steering Committee with
    - Interbull Centre
    - ITC, SAC, .. Committes
    - ...

Committees

Governance

Interbull Steering Committee

Name	Country	(Re)elected	End of Term
Sophie Mattalia	France	2014	2018
Gert Pedersen Aamand	Denmark	2015	2019
Reinhard Reents	Germany	2015	2019
Marco Winters	UK	2015	2019
Enrico Santus	Italy	2016	2020
Marija Klopčič	Slovenia	2017	2021
Brian Van Doormaal	Canada	2017	2021
Gordon Doak	USA	2017	2021
Matthew Shaffer	Australia	2017	2021

Interbull Steering Committee

Name	Country	(Re)elected	End of Term
Sophie Mattalia	**France**	**2018**	**2022**
Gert Pedersen Aamand	Denmark	2015	2019
Reinhard Reents	Germany	2015	2019
Marco Winters	UK	2015	2019
Enrico Santus	Italy	2016	2020
Marija Klopčič	Slovenia	2017	2021
Brian Van Doormaal	Canada	2017	2021
Gordon Doak	USA	2017	2021
Matthew Shaffer	Australia	2017	2021

Interbull Technical Committee

Name	Country	Organisation
Gert Pedersen Aamand	Denmark	NAV
Raphael Mrode	UK	SRUC
Gerrit Kistemakers	Canada	CDNne
Tom Lawlor	USA	Holstein USA
Esa Mäntysaari	Finland	LUKE
Zengting Liu	Germany	vit
Hossein Jorjani	Sweden	Interbull Centre
Gerben de Jong	Netherlands	CRV
Paul VanRaden	USA	USDA - ARS
Peter Sullivan	Canada	CDN

Interbull Scientific Advisory Committee

Name	Country	Organisation
Vincent Ducrocq (Convener)	France	INRA
Mike Goddard	Australia	Agriculture Victoria
Ignacy Misztal	USA	University of Georgia
Daniel Gianola	USA	University of Wisconsin-Madison

Interbull Centre

FUTURE MEETINGS

INTERBULL

7 – 11 February 2018

THE GLOBAL STANDARD FOR LIVESTOCK DATA

Annual Conference

icar2018.nz

11-16 February 2018

11th WORLD CONGRESS ON GENETICS APPLIED TO LIVESTOCK PRODUCTION

wcgalp.com

AOTEA CENTRE, AUCKLAND, NEW ZEALAND

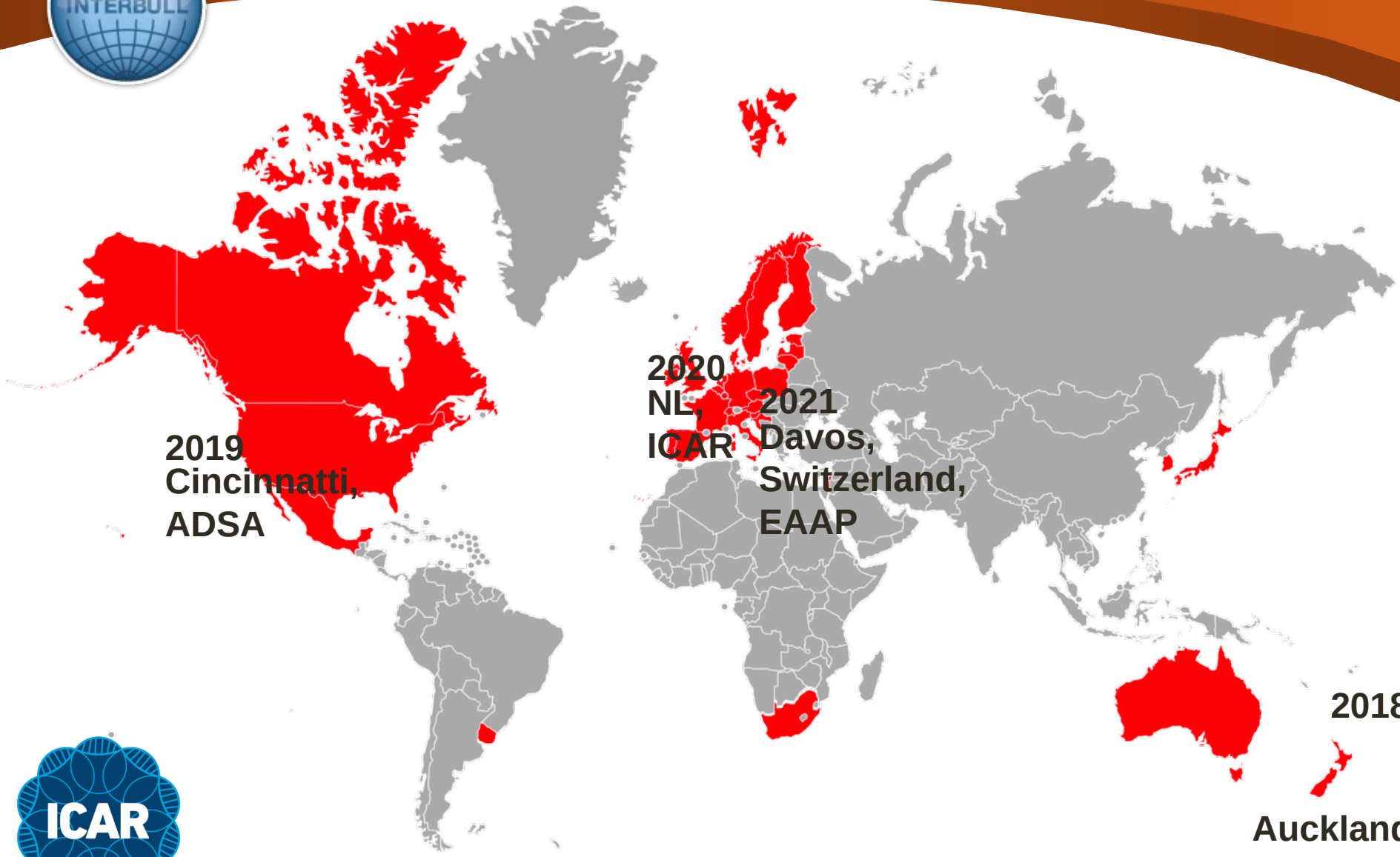
Interbull-WCGALP Sessions

Methods and Tools

- **Monday 12 Feb:**
- 10:00: Models and Computing Strategies
- 13:00: Software
- 16:00: Prediction

- **Tuesday 13 Feb:**
- 13:30 GWAS
- 16:00: Prediction

Interbull Annual Meetings



www.interbull.org/ib/ibc_future_events

ADSA® Annual Meeting

June 23–26, 2019 Cincinnati, Ohio

http://www.adsa.org/2019/

Interbull Annual Meeting

ADSA® Annual Meeting

June 24–27, 2018 • Knoxville, Tennessee

http://www.adsa.org/2018/

Joint Interbull-ADSA Symposium on 27 June: Phenotyping and Genetics in the New Era of Sensor Data from Automation

Joint Interbull – EAAP Session

Joint Interbull – EAAP Session

Joint Interbull – EAAP Session at the EAAP meeting in Dubrovnik, 27th August 2018

Joint Interbull – EAAP Session at the EAAP meeting in Dubrovnik, 27th August 2018

Cow genotyping for genomic selection, management and marketing in cattle (with INTERBULL)

Chairs: Sophie Mattalia & Marija Klopčič

Optimization of a genomic breeding program for small-sized cattle populations (with INTERBULL)

Chairs: Sven König & Reinhard Reents

25-26 August 2018: Dubrovnik, Croatia

- Interbull Technical Workshop
- Focus on development of Interbull Services, including:
  - SNPMace
  - Mendelian Sampling Test
  - InterGenomics-Holstein

Deadlines:

- Deadlines for submission of Abstracts:
- According to ADSA/EAAP rules and regulations:

- Interbull-ADSA: 21 February 2018
  - www.ADSA.org/2018
- Interbull-EAAP: 1 March 2018
  - www.EAAP2018.org

Any other business

Thanks to all our collaborators!