



# INTERBULL

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*Strategic Plan*  
**2024-2026**





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## EXECUTIVE SUMMARY

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The Interbull Strategic Plan for 2024-2026 outlines the priorities and achievements that the organisation aims to accomplish over the upcoming three years, spanning from January 2024 to December 2026.

The environmental scan during the strategic planning process depicted a sector that is changing quickly and where some other organisations are growing significantly. As a result, there is a range of problems, challenges, and opportunities on the horizon for animal evaluations. Some challenges include proprietary evaluations and reduced data sharing, whilst opportunities include quality assurance of national evaluations, single-step evaluations, increased dairy x beef breeding, an enhanced focus on sustainability, and demands from many stakeholders for “safe” platforms for the exchange of data. These emerging factors underpin Interbull’s direction over the next three years.

Interbull’s strategy has four strategic pillars which support its delivery of results:

1. Promote expansion of existing services to current and new service users.
2. Enhance existing services to increase value and relevance to current and new service users.
3. Explore diversified service options to underpin Interbull’s future.
4. Support capability and collaboration to effectively deliver and share Interbull’s success.

Strategic planning identified the potential for expanding the number of Interbull service users using current services. These “core” services remain important to Interbull and must not be overlooked when considering future directions.

Options to enhance existing services included more flexible and customized services (including individualized services for specific groups and/or changes to timing of service delivery, e.g., more frequent evaluations). Options for a fee-for-service platform for interested groups or offering services for closed groups of countries/customers who defined their own business models are also proposed.

It is critical that Interbull explores the potential for other services in future, for not only genetic evaluation centres but also potentially offering Interbull data exchange services to genetics companies and genomic service providers. Without a focus on introducing new services to both existing and new service users, the relevance of Interbull may diminish considerably given the changes rapidly occurring in the operating environment.

Finally, to deliver on the objectives and areas of focus identified above requires sufficient capability and capacity within Interbull and the ability to collaborate effectively with the broader evaluation community.

## 1. INTRODUCTION

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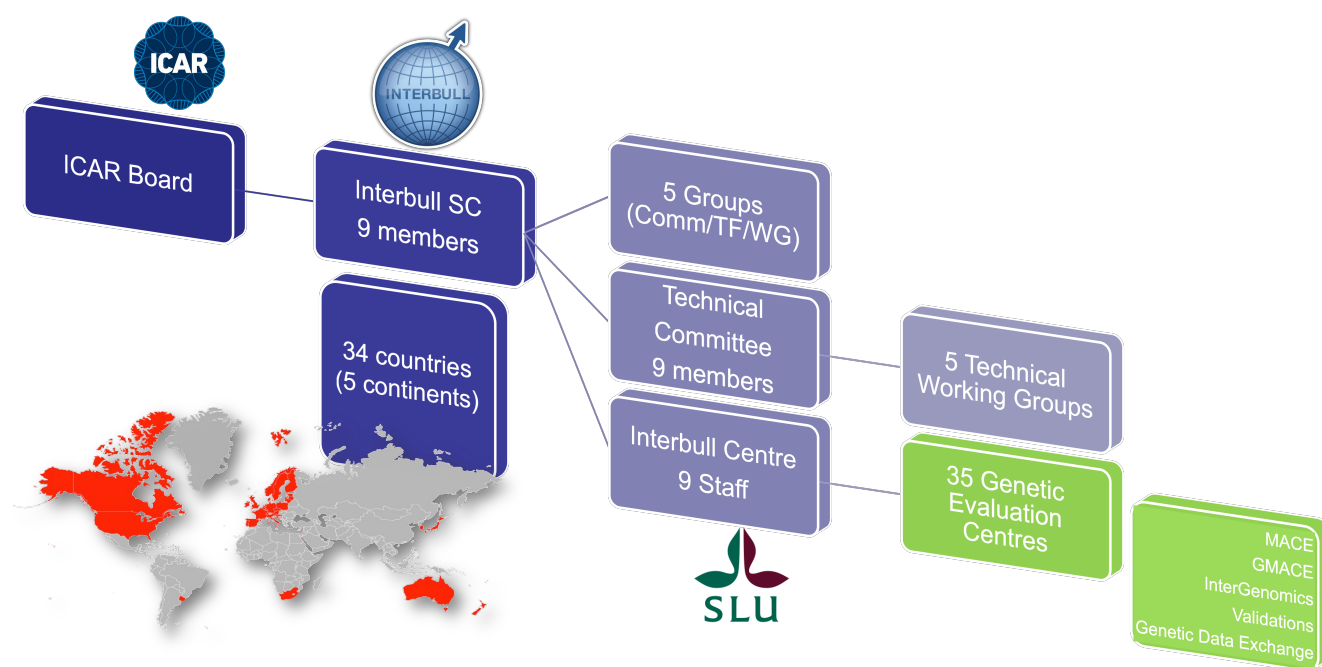
The Interbull Strategic Plan for 2024-2026 delineates the priorities and achievements that the organisation aims to accomplish over the upcoming three years, spanning from January 2024 to December 2026. This plan encompasses four primary functions:

- a) **Defining Interbull's Course:** The plan sets a clear trajectory for Interbull for the forthcoming three-year period.
- b) **Establishing Goals and Objectives:** Aligned with the organisation's vision and mission statements, the plan outlines specific goals and objectives.
- c) **Building on Past Successes:** The plan aims to consolidate the progress made under the previous Strategic Plans and Annual Operating Plans to further enhance the organisation's value.
- d) **Identifying Focus Areas:** Interbull identifies key domains where focus will be directed to bolster services and overall capabilities.

Consultation and input into the strategic planning process included a review of the previous Strategic Plan (2020-2023), an online survey of Interbull stakeholders (including Interbull Centre staff and management) and a strategic planning meeting held with the Interbull Steering Committee in October 2023.

## 2. ORGANISATIONAL OVERVIEW

Interbull comprises Interbull Centre, an operational unit that provides services to its service users, and is governed by the Interbull Steering Committee, which is a permanent sub-committee of the International Committee for Animal Recording (ICAR). The Interbull Centre is a section of the Department of Animal Biosciences of the Swedish University of Agricultural Sciences (SLU).



Interbull provides international leadership in developing methods for generating international genetic and genomic evaluations. It achieves this through coordinating and reviewing research done by service users, as well as running its own research program.

The Interbull Centre provides the International Genetic Evaluation Service that calculates international genetic evaluations for most of the economically important traits in dairy cattle and has 34 countries currently subscribed to this service. The Interbull Centre is also the operational unit for ICAR's Interbeef Working Group, providing international evaluations for beef cattle. The Interbull Centre has developed the expertise, infrastructure, processes, and procedures to carry out these services. The Interbull Centre is ISO certified. Interbull provides service users with advice and assistance on a range of matters relating to the genetic evaluation of cattle. This includes guidance for countries developing joint evaluation or recording schemes, and recommended codes of practice for national evaluation systems.

The Interbull Centre fulfils its function as the European Union Reference Centre - Zootechnics in accordance with European Union Regulations 2016/1012 (Animal Breeding) and 2017/1422 (EU Reference Centre).

This Strategic Plan, with its Vision and Mission statements, is applicable to both the Interbull Centre (operational unit) and to the ICAR appointed Interbull sub-committee (Interbull Steering Committee). Ultimately, the Interbull Centre is governed by the Interbull Steering Committee.

**Vision** To be the worldwide network providing information services for the genetic improvement of livestock.

Interbull's vision aligns with ICAR's Vision Statement:

- *ICAR shall have participating members in all countries.*
- *Collaborating with complementary organizations.*
- *To be the responsive organization in the field of animal industry standards.*
- *To provide dynamic work of the Subcommittees and working groups to serve members.*

**Mission** To enhance livestock genetic improvement through international data exchange and best methods development.

Interbull's mission aligns with ICAR's Mission Statement:

- *To meet the needs of ICAR's global membership in a professional and responsive manner while collaborating with other organizations, having similar objectives, and operating in a dynamic animal production environment.*

Interbull's objective is to support the cattle industry with accurate genetic information on bulls of the major breeds for use by importers and exporters, thereby facilitating selection of the best genetics for different countries, environments, or breeding goals.

## Guiding Principles

Interbull is guided by the following principles:

1. **Customer-Oriented** – we align our objectives around understanding and satisfying our customers' requirements.
2. **Accurate** – we are committed to measurements and data being correct and precise.
3. **Impartial** – we work with an open mind and no bias.
4. **Independent** – we make decisions and act in the best interests of the global Interbull network, not any individual organization.
5. **Integrity** – we act with honesty and consistency in whatever we do.
6. **Transparent** – we are committed to open, two-way communication.
7. **Cost-Effective** – we strive to find the most cost-effective means for customers to achieve their goals.
8. **Innovative and Leading-Edge Services** – we continually look for new and better ways of doing things.

# Governance and Operations

## Governance

The Interbull Centre, the operational unit that provides services on behalf of Interbull, is governed by the ICAR appointed Interbull Sub-Committee, usually referred to as the Interbull Steering Committee (Interbull SC).

The Interbull SC has its mandate described in the Terms of Reference for the Interbull Sub-Committee.

The Interbull SC has nine members with current regional coverage:

Interbull SC membership	Current delegate representation
Two representatives for North and South America	Canada (Lactanet Canada) & United States (Council on Dairy Cattle Breeding, CDCB)
One representative for Germany, Austria, Switzerland and Luxemburg	Switzerland (Qualitas AG)
One representative for United Kingdom, Ireland, The Netherlands and Flanders	The Netherlands (Coöperatie CRV u.a.)
One representative for Denmark, Sweden, Norway and Finland	Denmark (Nordic Cattle Genetic Evaluation, NAV)
One representative for France and Wallonia	France (France Génétique Elevage)
One representative for Italy, Spain and Portugal	Italy (Associazione Nazionale Allevatori Pezzata Rossa Italiana, ANAPRI)
One representative for Central and Eastern Europe	Slovenia (University of Ljubljana)
One representative for Africa, Asia and Oceania	Australia (DataGene Ltd)

The ICAR Board appoints the Interbull SC members from representatives nominated by Interbull delegates to the Annual Business Meeting.

Interbull SC members are entitled to serve for a four-year term and up to three consecutive terms. Effective new appointments starting 2022, the maximum number of years that a person may serve on the Interbull SC is 12 years.

The Chairperson and Vice-Chair of the Interbull SC are elected from and by its members for a four-year term. The Chairperson and Vice-Chair can be elected for consecutive terms. The maximum number of terms is two (plus an additional two years in exceptional circumstances).

The Interbull Technical Committee (ITC) reports to the Interbull SC. The ITC has its mandate described in the Terms of Reference for the Interbull Technical Committee.

The ITC is a group of highly regarded experts, actively involved with research and development in international evaluations and experienced in national and international genetic evaluation procedures for dairy cattle. The ITC's primary role is consideration of new or improved methods that increase the efficiency and/or accuracy of the Interbull evaluation services.

## **Interbull**

### *Strategic Plan 2024-2026*

Interbull convenes Working Groups and Task Forces as required to consider and address specific topics at both the Steering Committee and ITC level.

Interbeef activities are guided by the Interbeef Working Group, appointed by the ICAR Board and governed by ICAR's Interbeef WG Terms of Reference.

### **Operations and administration**

The Interbull Centre provides the operations and administration for the Interbull SC. This arrangement is the subject of a contractual agreement between ICAR and the Swedish University of Agricultural Sciences (SLU) which hosts the Interbull Centre.

## **Background**

The International Bull Evaluation Service, with short form Interbull, was formed by EAAP (European Federation of Animal Science), IDF (International Dairy Federation) and ICAR (International Committee for Animal Recording) with support of FAO (Food and Agriculture Organisation of the United Nations; [www.fao.org](http://www.fao.org)) in 1983. Since 1988, Interbull has been a permanent Sub-Committee of ICAR.

### 3. SERVICE DESCRIPTION

EVALUATIONS	VALIDATION	EXCHANGE	COLLABORATION
MACE	Conventional breeding values	GenoEx-PSE	PREPdb
GMACE		GenoEx-GDE	Interbull Bulletin
InterGenomics	GEBV-test	Genetic Traits	Meetings
Interbeef	EURC Validation		Workshops
	TMACE		Guidelines
			ICAR Services

## International Evaluations

### Multiple Across Country Evaluations (MACE)

MACE is a method for international genetic evaluations used by Interbull which combines information from participating countries using all known relationships between animals, both within and across populations, to calculate across-country measures of genetic merit for individual traits for progeny proven sires, which are then published by participating countries.

Unlike for conventional MACE evaluations, the results of “MACE SNP training for National Genomic Evaluations” are not to be included in international EBV publications. This MACE provides accurate data for SNP training by participating organisations, as no substitute traits are included in the evaluation.

### Genomic Multiple Across Country Evaluations (GMACE)

GMACE evaluations for bulls not yet progeny proven combine usage of the national genomic evaluation estimated in each of the countries where a genotype exists with MACE parent average in each of the countries where a genotype does not exist and produce an international genomic evaluation breeding value expressed on the scale of each participating countries, with or without their national genomic evaluation.

### International Genotype-based Evaluations (InterGenomics)

InterGenomics uses shared genotypes and predicts GEBVs on each specific country-trait combination scale, for the traits evaluated in the Interbull MACE Service. The distributed results from InterGenomics evaluations are SNP-effects, DGVs, GEBVs, and their reliability. In addition, information on duplicate genotypes, SNP-conflicts and parentage conflicts is also provided.

### International Beef Evaluations (Interbeef)

Interbeef evaluations are carried out using raw performance data provided by the National Genetic Evaluation Centres. The raw performance data from each Interbeef member is treated as a separate trait in an international multi-trait (multi-country) genetic evaluation and analysed based on each country’s national evaluation model. The resulting breeding values are provided on each member country’s scale. The ICAR Interbeef Working Group is responsible for the applied methodology and parameters.

# Validation

## Validation of national conventional breeding values

Verification of genetic trends by validation of national conventional EBVs is a pre-requisite for data inclusion in Interbull's international evaluations (MACE). Interbull's Conventional Validations are done using TrendTest software, available exclusively for Interbull users via the Interbull Data Exchange Area interface. Besides trend validation the Mendelian Sampling test also has to be applied to the national evaluations.

## Validation of national genomic breeding values (GEBV-test)

A GEBV-test is applied to validate national genomic models used to compute GEBVs that the National Genetic Evaluation Centres publish and eventually submit to Interbull for international genetic evaluations including genomic information. A GEBV-test can also be considered a quality assurance assessment for national genomic evaluations.

## European Union Reference Centre (EURC) Validation

Interbull Centre offers all European Genetic Evaluation Centres, Breeding Organisations and their third parties Associations the opportunity to assess the correctness of their genetic evaluation models using EURC Validation software. This service is available to all breeding organisations and their third parties (incl. National Genetic Evaluation Centres), even if the organisation or breed is not participating in an international genetic evaluation at the Interbull Centre.

## Truncated MACE (TMACE)

TMACE uses national EBVs obtained from the current national model as an input, but with the four most recent years of phenotypic data removed. This is particularly important for groups of countries sharing the same reference population for genomic predictions and use the output for validation of their genomic evaluation system.

# Data Exchange

## Parentage SNP Exchange (GenoEx-PSE)

GenoEx-PSE is a service for exchanging standardised sets of SNP for genotyped animals to facilitate and streamline parentage analysis activities carried out by organisations that are responsible and/or active in parentage integrity.

## Genomic Data Exchange (GenoEx-GDE)

GenoEx-GDE enables full genotype exchanges (whole SNP arrays) covering a variety of available genotyping chips and where users define how and with whom the data for individuals or groups of animals is to be shared.

## Genetic Traits

Interbull Centre facilitates the collection, exchange, and conflict resolution of information on genetic traits, which are generally undesirable recessive characteristics but may also include other gene test results. The exchange of information on genetic traits takes place through the AnimInfo module within the Interbull Data Exchange Area ("IDEA"). Currently this is already used for the Holstein and Brown Swiss breeds.

# Collaboration

## Performance Recording, Evaluation and Publication Database (PREPdb)

The PREP Database is a resource of information for geneticists, researchers and authorities on national genetic evaluations and performance recording. The PREPdb consists of several electronic forms to provide information for breeds and traits included in the international evaluations offered by Interbull Centre or information on other breeds or traits that could be included in future international evaluations. Each form is constructed in the most efficient way to provide repeatable information across breeds and traits with the ability to copy data between breed-trait combinations if the information is the same or similar.

## Interbull Data Exchange Area (IDEA) and AnimInfo

IDEA is the web interface for exclusive use by Interbull Service Users to add, modify and display information used for international genetic and genomic evaluations. The IDEA database contains pedigree data, Estimated Breeding Values (EBVs/GEBVs), performance data and additional information (such as information on recessive genetic traits) on individual animals present in the pedigree database. IDEA also provides access to TrendTest software which is used by Interbull Service Users for validation of national breeding values using three different methods.

AnimInfo is a module in IDEA for National Genetic Evaluation Centres (NGECs) to upload additional information connected to existing animals in the IDEA Pedigree module, either as additional information for the international evaluations, or for information exchange as an independent service.

## Collaborative activities

Interbull co-ordinates an international network through **meetings**, **workshops**, online discussion forums, surveys, presentations, publications, and a **website**. Interbull annually organizes an international seminar for exchange of research results and experiences among industry representatives and scientists in genetic evaluation of dairy cattle and publishes these through the online journal '**Interbull Bulletin**'. The Interbull Centre also provides specific services in support of **ICAR services** such as the *ICAR Certification of DNA Data Interpretation Centres* and the *ICAR Certificate of Quality*.

# 4. CONTEXT

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## Operating Environment

The survey of Interbull stakeholders, targeted interviews and Steering Committee discussions during the strategic planning meeting described a sector that is changing quickly and where some other organisations are growing. There is a range of problems, challenges, and opportunities on the horizon for animal evaluations.

### Proprietary evaluations

The establishment of very large evaluation units combined with large female reference populations and those that are conducting their own proprietary genomic predictions has significant implications for the role of Interbull in future. Disruptions to existing evaluation services include commercial proprietary evaluations and genomic evaluations for females.

### Reduced data sharing

Commercial competition is reducing cooperation between organisations, resulting in restrictions on data access and diminished willingness to share data. Aspects of genomic selection have strongly reduced the cooperation among countries worldwide especially in breeds where there are one or few major players. It was envisaged that there may be further protection of phenotypes in future, especially from commercial entities. It was also recognized that genotypes are exchanged bilaterally rather than multilaterally to a large extent.

### Single-step evaluations

The move to single-step genomic evaluations was highlighted by many stakeholders as a substantial change. Combining all pedigree, phenotypes, and genotypes available into one single evaluation, and the increased reliance on genomic relationships poses both threats and opportunities for Interbull. Factors that require resolution are integration of MACE to include foreign data in single step evaluations, and provision of conventional EBVs to Interbull when running single-step. A positive development could be the provision of an “international single-step” for smaller breeds.

### Increased dairy x beef breeding

There continues to be growth in the number of dairy cows being bred to beef bulls and demand for dairy x beef evaluations. The ability to provide calving ease evaluations for dairy x beef is an obvious and important opportunity for Interbull (and Interbeef). However, access to data on dairy x beef breeding for national evaluations remains an issue, including the inability in many countries to collect quality data on beef x dairy crossbred calves from birth to slaughter.

### Smaller populations and breeds

A key challenge for Interbull is the cost-effective provision of services to “smaller” breeds – that is, micro breeds (where overall international numbers are low) and small breeds (countries that have low numbers of a larger breed). There are obviously differences between large and small/micro breeds with respect to affordability of services from Interbull. For smaller breeds (for example Ayrshire) international collaboration across countries may be the optimum method for genomic evaluation in small populations (that is, combining data from “small” populations to create a larger population).

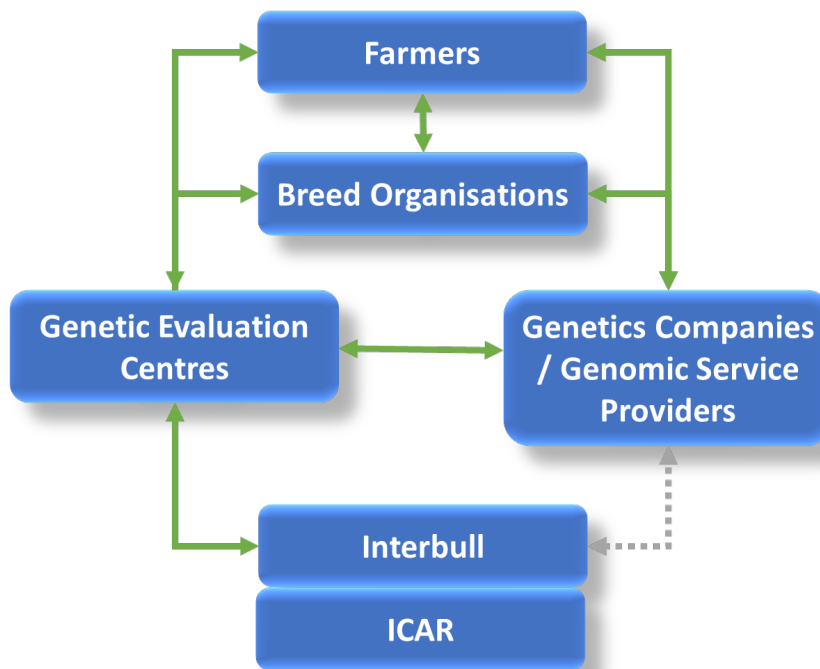
## Sustainability focus

Livestock production worldwide is experiencing increasing focus and concentration on “sustainability” traits. Obtaining data for new traits poses a challenge especially for difficult-to-measure phenotypes such as methane emissions. New traits like methane emissions require more international collaboration, especially for smaller populations, to build sufficiently large reference populations for genomic evaluations.

## Datahubs

Despite the issues that are contributing to overall reduced data sharing, there is still demand from many stakeholders for “safe” platforms for the exchange of data. In this case, service users are seeking an independent and impartial platform to facilitate the collation and exchange of foreign evaluation data. It was also raised that genomic technology is changing and Interbull could start working towards a plan to store, handle or use sequence data. An expansion of Interbull’s data exchange services would require careful consideration of the requirements in terms of skills and possible strategic partnerships.

A key conclusion from the strategic planning exercise was that National Genetic Evaluation Centres (NGECs) may not be the sole client for Interbull in future and that these organisations will continue to evolve in both structure and services. The schematic below describes a potential future role for Interbull in providing services to not only genetic evaluation centres, but also potentially to genetics companies and genomic service providers in terms of data exchange services. This group of organisations provides services and value to breed organisations and ultimately farmers and could benefit from Interbull’s exchange functions. This potential role will be explored over the life of this strategic plan.



## SWOT Analysis

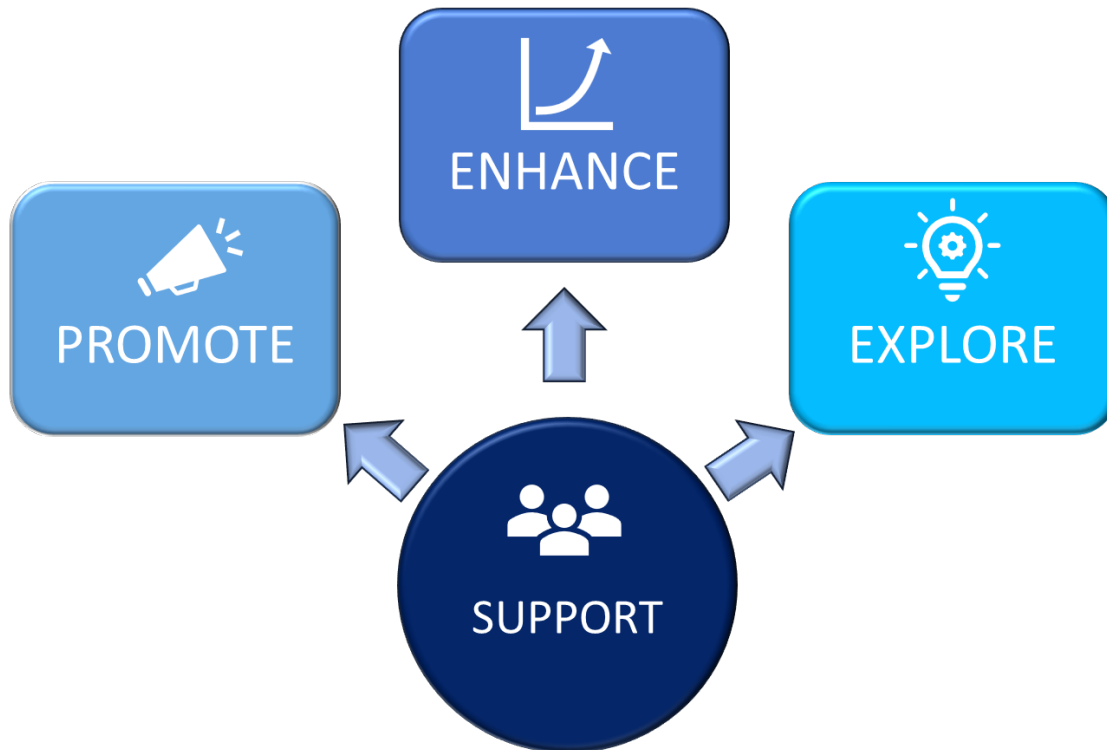
INTERNAL FACTORS	
STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Neutrality, independence, integrity, and credibility.</li> <li>• Trust and accountability.</li> <li>• Provision of international evaluation services on individual country scales.</li> <li>• Excellent customer service and support.</li> <li>• The servicing of many populations and traits.</li> <li>• International standards and quality assurance for national genetic evaluations, including high-quality standards, processes, procedures, and documentation (ISO certified).</li> <li>• Networks, meetings, and ideas exchange opportunities for members; providing a safe environment for exchange.</li> <li>• Data sharing and management, including independent and secure DataHub/Exchange.</li> <li>• Effective communications.</li> <li>• Connection with ICAR and its working groups.</li> <li>• Shared values across most participants.</li> <li>• Technical expertise in statistical data analysis and methodologies. Research and scientific development of methods for validation of national evaluations.</li> <li>• Interbull Centre scientific expertise, networks, and collaboration.</li> <li>• Having an Operational Centre (the Interbull Centre) for implementation.</li> <li>• Status and funding as a European Union Reference Centre - Zootechnics.</li> <li>• Source for genetic improvement information for local animal populations.</li> <li>• Support for international pedigree management.</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate staff resource availability.</li> <li>• Sustainability and adaptability of business models.</li> <li>• Speed of implementation and service innovation below expectations.</li> <li>• Lack of vision in anticipating future services - adoption rate of new traits and adaptation of new methods; expanding outside the current core business; adjusting methodologies towards different species than cattle.</li> <li>• Not offering more regular evaluations for current traits; services for the increasing number of traits.</li> <li>• In need of a clear value proposition for all services offered.</li> <li>• Differences, competition, or conflicts of interest between member countries.</li> <li>• Non-adherence of accepted guidelines by some National Genetic Evaluation Centres.</li> <li>• Challenge of attracting skilled staff to Uppsala.</li> <li>• External brand recognition.</li> <li>• Reliance on National Genetic Evaluation Centres to advertise Interbull activities to their customers; lack of a more direct networking/advertisement.</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• DataHub as neutral platform to share data (genotypes &amp; phenotypes): <ul style="list-style-type: none"> <li>- Linked to R&amp;D projects and ICAR Committees,</li> <li>- For different customer groups.</li> </ul> </li> <li>• Joint project funding applications to support development of data exchange functions at the international level.</li> <li>• Better data exchange of pedigrees.</li> <li>• Ensuring relevance and futureproofing of MACE.</li> <li>• Integration of foreign data in single step evaluations.</li> <li>• Customised services for closed and/or country-specific groups.</li> <li>• Fee-for-service or defined business model for closed groups.</li> <li>• International evaluations of beef sires on dairy cows.</li> <li>• An international single step evaluation for small breeds.</li> <li>• New validation methods / validation of new traits.</li> <li>• International accreditation of genetic evaluation services.</li> <li>• Proactive role of ICAR in marketing and supporting Interbull Services.</li> <li>• Academic capabilities at SLU, and within the Interbull Community.</li> <li>• Network with stakeholders in additional breeds through Interbull Centre's role as EURC-Zootechnics.</li> </ul>	<ul style="list-style-type: none"> <li>• The impacts of consolidation and growth of global genetics companies on the future of national evaluations.</li> <li>• Very large evaluation units combined with large female reference populations and genomic predictions.</li> <li>• Reduction in data sharing due to competitive pressures.</li> <li>• Changes in livestock production, fewer animals, e.g., climate, environment, pressure on meat consumption.</li> <li>• Intercountry evaluations.</li> <li>• Developing satisfactory Interbull business models (for different sized countries).</li> <li>• Ongoing relevance of current Interbull core services.</li> <li>• Potential limited market/uptake for new services.</li> <li>• Reduction of quantitative genetics expertise over time.</li> </ul>

## 5. STRATEGIC PLAN

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Interbull’s strategy has four strategic pillars which support its delivery of results:

1. **Promote** expansion of existing services to current and new service users.
2. **Enhance** existing services to increase value and relevance to current and new service users.
3. **Explore** diversified service options to underpin Interbull’s future.
4. **Support** capability and collaboration to effectively deliver and share Interbull’s success.



Objectives and areas of focus within each strategic pillar during the timeframe of this plan are detailed below.

# I. Promote expansion of existing services to current and new service users

The strategic planning process identified the potential to expand the number of service users utilising current core services. A key point made was that these services remain important to Interbull and could easily be overlooked when considering future directions.

### Objectives:

- Increase the participation of new countries in existing Interbull services.
- Maintain high-quality delivery of existing Interbull services.
- Preserve or increase satisfaction of service users with current Interbull services.

### Focus areas:

- Incorporate new traits in MACE:
  - a. for regular MACE services
  - b. for SNP training only
- Assess existing services and service delivery to understand roadblocks to uptake.
- Ensure adequate staffing and resourcing for continued delivery of existing services.
- Promote availability of validation services to existing and potential users.
- Prioritise new countries for engagement and promotion of services.
- Regularly assess customer satisfaction regarding Interbull's current services and service levels.

# 2. Enhance existing services to increase value and relevance to current and new service users

Options to enhance existing services included consideration of more flexible and customized services (including individualized services for specific groups and/or changes to timing of service delivery, e.g., more frequent evaluations). Options for a fee-for-service platform for interested groups or offering services for closed groups of countries/customers who defined their own business models were also proposed.

### Objectives:

- Identify opportunities for incorporating females into existing Interbull services, potentially including a SNP MACE service.
- Identify and potentially implement enhancements to expand services to new and existing users.
- Continuously improve evaluation methodologies.

### Focus areas:

- Investigate increasing frequency and timing of evaluations according to service user needs and demand.
- Confirm user interest and develop and deliver a 'closed' MACE service.
- Enable the Genomic Data Exchange (GenoEx-GDE) to be more available and accessible to other users.
- Examine the potential for enhancing genetic traits exchange and/or pedigree exchange services.
- Ensure continuous development of methodologies and timely implementation of updates and improvements. Regularly review and adjust methods and tools to account for changes in data and/or in underpinning assumptions.

## 3. Explore different service options to underpin Interbull's future

It is critical that Interbull explores the potential for expanding services in future. Without a focus on introducing new services, the relevance of Interbull may diminish considering the changes rapidly occurring in the operating environment.

### Objectives:

- Develop the concept of Interbull as a DataHub and initiate development.
- Proactively understand the needs of potential new service users.
- Identify and evaluate diversified service offerings to increase customer numbers and revenue.

### Focus areas:

- Develop a business case for the development of a DataHub as the preferred platform for exchanging high-quality animal data (e.g., genotypes, phenotypes, pedigrees, etc.).
- Engage with prioritised potential new service users and conduct a needs analysis to understand their requirements.
- Scope out a "borderless" approach to evaluations.
- Identify and evaluate certification and auditing opportunities for Interbull regarding evaluations.
- Investigate opportunities for Interbull services, including data recording, in relation to the growing trends of beef on dairy.
- Proactively propose new EU projects and/or join existing ones.
- Periodically conduct horizon scanning to remain up-to-date on changes in the operating environment.

### 4. Support capability and collaboration to effectively deliver and share Interbull's success

To deliver on the objectives and areas of focus identified above requires sufficient capability and capacity within Interbull and the ability to collaborate effectively with the broader evaluation community.

#### Objectives:

- Interbull maintains a sustainable financial base and appropriate operational efficiencies.
- Interbull attracts and retains talented people for its operational centre and committees.
- Interbull has the right capability and capacity to deliver current and future services.
- Interbull collaborates effectively to expand its influence and impact.
- The Interbull community is expanded and valued by its participants.

#### Focus areas:

- Align and streamline internal decision-making processes and implementation activities.
- Develop enhanced project management skills and capacity.
- Ensure effective engagement and alignment with ICAR and its Working Groups.
- Identify and implement a fit-for-purpose structure that aligns with Interbull's future roles and activities.

## 6. MARKETING & COMMUNICATION

A previously identified strategic issue was the level of visibility and awareness of the activities and value of Interbull to existing clients, potential clients, and other stakeholders. Work commenced under the 2020-2023 Strategic Plan to better define the Interbull services on offer and clearly articulate the value of each of Interbull’s core services. Some steps were taken to begin more effectively communicating and promoting Interbull’s value proposition to existing and new clients.

Efforts will be required in delivery of the 2024-2026 Strategic Plan to market and communicate Interbull’s benefits to new audiences and potential new service users. This will require genuine engagement with these companies to build a solid understanding of where Interbull can complement and support their activities. At the same time, focus must be retained on providing opportunities for interaction and communication with existing stakeholders.

### High-level Communication Plan

Activity	Communication goals	Communication method	Audience	Frequency
<b>Newsletter / Executive Summary</b>	Provide updates regarding Interbull Steering Committee Decisions, Interbull Meetings, Interbull Steering Committee Membership, ITC Membership, Interbull Services and Service Fees, and Research & Development.	Executive summary (emailed)	1,000 subscribers plus official business contacts of Service Users and people listed on Interbull’s executive email list	Quarterly
<b>Interbull Annual Meeting: Business Meeting</b>	Report on the activities of the Interbull Centre.  Present the Interbull Strategic Plan and budget.  Provide Interbull Service Users with a forum for discussion of services, both current and future demands.  Discuss operational and political decisions of the Steering Committee with participating organisations.	Public meeting	Interbull Service Users, National Genetic Evaluation Centres and other stakeholders	Annual
<b>Interbull Annual Meeting: Open Meeting</b>	Provide scientific reports of relevance to evaluations	Conference	Interbull Service Users, National Genetic Evaluation Centres and other stakeholders	Annual
<b>Joint meetings with EAAP and ADSA</b>	Maintain linkages between the Interbull community and the broader animal science community with shared interests.	Conference	ADSA and EAAP members	Every two years with organisations alternating.
<b>Technical Workshops</b>	Provide scientific support and insight on new challenges	Conference	Interbull Service Users, National Genetic Evaluation	Bi-annually or when deemed necessary

## Interbull

### Strategic Plan 2024-2026

			Centres and other Stakeholders	
<b>Technical Webinars</b>	Provide technical support and insight on Interbull Services	Webinar	National Genetic Evaluation Centres	When deemed necessary
<b>Interbull website</b>	Modernize the current website	Website	Interbull Service Users, National Genetic Evaluation Centres and other stakeholders, Research units	Monthly

# 7. RISKS

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The following risks have been identified regarding delivery of the Interbull Strategic Plan for 2024-2026:

### Funding

- Lack of commitment by industry stakeholders to contribute funding and/or pay for services.
- Services are not valued by industry or are not competitively priced.
- Delivering cost-effective provision of services to “smaller” breeds.
- Sustainability and adaptability of business models.

### Strategic

- Competition in evaluation provision including commercial proprietary evaluations and genomic evaluations for females.
- Restrictions on data access and diminished willingness to share data.
- Data ownership / governance, data control and access.

### Operational

- Interbull is too slow to innovate and/or respond to demands from markets and customers.
- Speed of implementation and service levels do not meet customer expectations.
- Ineffective engagement and communication with potential and new service users.
- Low adoption rate of new traits and adaptation of new methods.
- Potential limited market or uptake for new services.

### Partnerships

- Differences, competition, or conflicts of interest between member countries.
- Non-adherence of accepted guidelines by some National Genetic Evaluation Centres.
- Reduced cooperation amongst countries.
- Divergence of the goals of Interbull and large member countries.
- Lack of preparedness to change by some members' stakeholders.

### Personnel

- Interbull Centre dependency on a small team of highly technical staff.
- Attracting skilled staff to Uppsala.
- Capability to run genetic evaluation systems (at both NGECs and Interbull Centre).
- Reduction of worldwide quantitative genetics expertise.

## 8. ANNUAL OBJECTIVES / ACTION PLAN

Strategic pillar	Objective	Annual activities		
		2024	2025	2026
1. Promote expansion of existing services to current and new service users	Increase the participation of new countries in existing Interbull services.	<p>Customer focused description of services and activities.</p> <p>Draft communication and marketing plan endorsed.</p> <p>Communication with stakeholders.</p> <p>Prioritise new countries for engagement and promotion of services.</p> <p>Restructure and update Interbull Centre webpage.</p> <p>Backend integration and launch of new website.</p>	<p>Implement communication and marketing plan.</p> <p>Communication with stakeholders.</p> <p>Engage and promote services to new countries.</p> <p>Update Interbull Centre website.</p>	<p>Implement and evaluate communication and marketing plan.</p> <p>Communication with stakeholders.</p> <p>Engage and promote services to new countries.</p> <p>Update and review of Interbull Centre website.</p>
	Maintain high-quality delivery of existing Interbull services.	<p>Update QMS according to changes in operating and management system.</p> <p>Prepare EURC work program for 3-year period (2025-27).</p>	<p>Update QMS according to changes in operating and management system.</p>	<p>Update QMS according to changes in operating and management system.</p>
	Preserve or increase satisfaction of service users with current Interbull services.	<p>Identify potential emerging problems in relation to genetic and genomic evaluations and provide contingency plans.</p> <p>Review Dairy service schedule.</p>	<p>Identify potential emerging problems in relation to genetic and genomic evaluations and provide contingency plans.</p>	<p>Identify potential emerging problems in relation to genetic and genomic evaluations and provide contingency plans.</p>

## Interbull

### Strategic Plan 2024-2026

Strategic pillar	Objective	Annual activities		
		2024	2025	2026
2. Enhance existing services to increase value and relevance to current and new service users	Identify opportunities for incorporating female livestock into existing Interbull services.	Engage with service users to understand their requirements.	Develop Business Case for incorporating female livestock into existing Interbull services.	Implement developments for incorporating female livestock into existing Interbull services (if required).
	Identify and implement enhancements to expand services to new users.	<p>Identify which trait(s) to prioritise/ propose into the New Traits pipeline.</p> <p>Investigate increasing frequency and timing of evaluations according to service user needs and demand.</p> <p>Confirm user interest in a 'closed' MACE service</p>	<p>Finalise and implement plans for implementing new traits.</p> <p>Implement changes to frequency and timing of evaluations (if required).</p> <p>Develop and deliver a 'closed' MACE service (if required).</p> <p>Enable GenoEx-GDE to be more available and accessible to other users.</p> <p>Examine the potential for enhancing genetic traits exchange and/or pedigree exchange services.</p>	Develop Business Case for (enhanced) genetic traits exchange and/or pedigree exchange services.
	Continuously improve evaluation methodologies.	<p>Continue the development of methodologies for validation of models used at national level for dairy breeds evaluations.</p> <p>Follow up on technical strategic activities.</p> <p>Roll out enhanced GEBVtest software.</p>	<p>Continue the development of methodologies for validation of models used at national level for dairy breeds evaluations.</p> <p>Roll out enhanced software if available.</p>	<p>Continue the development of methodologies for validation of models used at national level for dairy breeds evaluations.</p> <p>Roll out enhanced software if available.</p>

# Interbull

## Strategic Plan 2024-2026

Strategic pillar	Objective	Annual activities		
		2024	2025	2026
3. Explore different service options to underpin Interbull's future – including alignment with ICAR or other initiatives (potentially within ICAR or Interbull communities, but also outside).	Develop the concept of Interbull as a DataHub.	Engage with prioritised potential new service users and conduct a needs analysis to understand their requirements.  Develop a business case for the development of a DataHub as the preferred platform for exchanging high-quality animal data.  Enhance PREPdb	Implement development of a DataHub as the preferred platform for exchanging high-quality animal data (if required).	Implement development of a DataHub as the preferred platform for exchanging high-quality animal data (if required).
	Proactively understand the needs of potential new service users.	Interbull service needs assessment.  Potential target markets/audiences identified and described.	Proactively engage with new service users.	Proactively engage with new service users.
	Identify and evaluate diversified service offerings to increase customer numbers and revenue.	Implementation of Future MACE software in MACE Service  Plan for next steps with SNPmace.  Investigate opportunities for Interbull services in relation to the growing trends of beef on dairy.  Proactively propose new EU projects and/or join existing ones.	SNPmace Business Model developed (if required).  Scope out a “borderless” approach to evaluations.  Proactively propose new EU projects and/or join existing ones.	SNPmace validation analyses finalized and pilot run performed (if required).  Develop Business Model/Case for “borderless” evaluations (if required)  Identify and evaluate certification and auditing opportunities for Interbull regarding evaluations.  Proactively propose new EU projects and/or join existing ones.

## Interbull

### Strategic Plan 2024-2026

Strategic pillar	Objective	Annual activities		
		2024	2025	2026
4. Support capability and collaboration to effectively deliver and share Interbull's success	Interbull maintains a sustainable financial base and appropriate operational efficiencies.	<p>Develop business model and appropriate fee structure for each new trait and service to be introduced.</p> <p>Update documentation on Business Funding Models and Fee Structures.</p> <p>Review of current AOP and preparation of next year's AOP.</p> <p>Prepare financial report.</p> <p>Develop enhanced project management skills and capacity within Interbull.</p>	<p>Develop business model and appropriate fee structure for each new trait and service to be introduced.</p> <p>Update documentation on Business Funding Models and Fee Structures.</p> <p>Review of current AOP and preparation of next year's AOP.</p> <p>Prepare financial report.</p>	<p>Develop business model and appropriate fee structure for each new trait and service to be introduced.</p> <p>Update documentation on Business Funding Models and Fee Structures.</p> <p>Review of current AOP and preparation of next year's AOP.</p> <p>Prepare financial report.</p>
	Interbull attracts and retains talented people for its operational centre and committees.	<p>Ensure adequate staffing and resourcing.</p> <p>Identify staff development needs and implement training/support.</p>	<p>Ensure adequate staffing and resourcing.</p> <p>Identify staff development needs and implement training/support.</p>	<p>Ensure adequate staffing and resourcing.</p> <p>Identify staff development needs and implement training/support.</p>
	Interbull has the right capability and capacity to deliver current and future services.	<p>Implementation of new Governance Plan.</p> <p>Maintain Governance Handbook of policies and procedures.</p>	<p>Maintain Governance Handbook of policies and procedures.</p>	<p>Maintain Governance Handbook of policies and procedures.</p>
	Interbull collaborates effectively to expand its influence and impact.	<p>Review of various WG ToRs (and membership).</p> <p>Ensure effective engagement and alignment with ICAR and its Working Groups.</p>	<p>Ensure effective engagement and alignment with ICAR and its Working Groups.</p>	<p>Ensure effective engagement and alignment with ICAR and its Working Groups.</p>
	The Interbull community is expanded and valued by its participants.	<p>Issue customer satisfaction survey and review results.</p>	<p>Issue customer satisfaction survey and review results.</p>	<p>Issue customer satisfaction survey and review results.</p>

## Annex I: ICAR Membership & Interbull Participation

Participation in the Interbull activities is open to all ICAR full Members or associated organisations responsible for the national genetic evaluations of the cattle populations represented by the ICAR full member. ICAR charges its members a ‘genetic evaluation’ fee if they are involved in Interbull’s Genetic Evaluation Service. Interbull only charges service fees for provision, maintenance, and development of services. Interbull has 38 service users that are the organisations that subscribe to Interbull’s evaluation services. National Genetic Evaluation Centres are the organisations that are actively participating in the evaluations and exchange of data (on behalf of the national Service Users).

### Overview of ICAR membership, Interbull Service Users and National Genetic Evaluation Centres

Country	ICAR members	Interbull Service Users	National Genetic Evaluation Centres
<b>ARGENTINA</b>	<ul style="list-style-type: none"> <li>Asociación Cridadores de Holando Argentino (ACHA)</li> </ul>		
<b>AUSTRALIA</b>	<ul style="list-style-type: none"> <li>DataGene</li> <li>National Livestock Identification System Limited</li> <li>Agricultural Business Research Institute (ABRI)</li> </ul>	<ul style="list-style-type: none"> <li>DataGene</li> </ul>	<ul style="list-style-type: none"> <li>DataGene</li> </ul>
<b>AUSTRIA</b>	<ul style="list-style-type: none"> <li>Rinderzucht Austria</li> </ul>	<ul style="list-style-type: none"> <li>Association of Austrian Cattle Breeders (ZAR)</li> </ul>	<ul style="list-style-type: none"> <li>Zuchtdata</li> </ul>
<b>BELGIUM</b>	<ul style="list-style-type: none"> <li>Service Public de Wallonie (SPW)</li> <li>CRV Vlaanderen vzw</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of the Walloon Region</li> <li>Vlaamse Overheid</li> </ul>	<ul style="list-style-type: none"> <li>University of Liège, TERRA Research and Teaching Centre</li> <li>Coöperatie CRV u.a. (Netherlands)</li> </ul>
<b>BOSNIA &amp; HERZEGOVINA</b>	<ul style="list-style-type: none"> <li>Dairy Farmers Association of the Republic of Srpska</li> </ul>		
<b>BOTSWANA</b>	<ul style="list-style-type: none"> <li>Department of Veterinary Services, Ministry of Agricultural Development &amp; Food Security</li> </ul>		
<b>BULGARIA</b>	<ul style="list-style-type: none"> <li>Executive agency for selection and reproduction in animal breeding</li> </ul>		
<b>CAMEROON</b>	<ul style="list-style-type: none"> <li>Société de Développement et d'Exploitation des Productions Animales (SODEPA)</li> </ul>		
<b>CANADA</b>	<ul style="list-style-type: none"> <li>Lactanet Canada</li> </ul>	<ul style="list-style-type: none"> <li>Lactanet Canada</li> </ul>	<ul style="list-style-type: none"> <li>Lactanet Canada</li> </ul>
<b>CHILE</b>	<ul style="list-style-type: none"> <li>COOPRINSEM</li> </ul>		

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Country	ICAR members	Interbull Service Users	National Genetic Evaluation Centres
<b>CHINA</b>	<ul style="list-style-type: none"> <li>Shanghai Dairy Cattle Breeding Centre Co.</li> </ul>		
<b>CROATIA</b>	<ul style="list-style-type: none"> <li>Croatian Agency for Agriculture and Food (HAPIH)</li> </ul>	<ul style="list-style-type: none"> <li>Croatian Agency for Agriculture and Food (HAPIH)</li> </ul>	<ul style="list-style-type: none"> <li>Croatian Agency for Agriculture and Food (HAPIH)</li> </ul>
<b>CZECHIA</b>	<ul style="list-style-type: none"> <li>Czech Moravian Breeder's Corporation (CMBC)</li> <li>Breeding Cooperative Impuls</li> <li>World Simmental-Fleckvieh Federation</li> </ul>	<ul style="list-style-type: none"> <li>Czech Moravian Breeders Corporation (CMBC)</li> </ul>	<ul style="list-style-type: none"> <li>Czech Moravian Breeders Corporation (CMBC)</li> </ul>
<b>DENMARK</b>	<ul style="list-style-type: none"> <li>Danish Agriculture &amp; Food Council</li> </ul>	<ul style="list-style-type: none"> <li>Danish Agricultural Advisory Centre</li> </ul>	<ul style="list-style-type: none"> <li>Nordic Cattle Genetic Evaluation (NAV)</li> </ul>
<b>ESTONIA</b>	<ul style="list-style-type: none"> <li>Eesti Põllumajandusloomade Jõudluskontrolli AS</li> </ul>	<ul style="list-style-type: none"> <li>Estonian Animal Recording Centre (EARC)</li> </ul>	<ul style="list-style-type: none"> <li>Estonian Animal Recording Centre (EARC)</li> </ul>
<b>FINLAND</b>	<ul style="list-style-type: none"> <li>ProAgria Group</li> </ul>	<ul style="list-style-type: none"> <li>Faba Co-op</li> </ul>	<ul style="list-style-type: none"> <li>Nordic Cattle Genetic Evaluation (NAV)</li> </ul>
<b>FRANCE</b>	<ul style="list-style-type: none"> <li>France Génétique Elevage</li> </ul>	<ul style="list-style-type: none"> <li>France Génétique Elevage (FGE)</li> </ul>	<ul style="list-style-type: none"> <li>GenEval</li> </ul>
<b>GERMANY</b>	<ul style="list-style-type: none"> <li>German Livestock Association (BRS)</li> <li>IT Solutions for Animal Produktion (vit)</li> </ul>	<ul style="list-style-type: none"> <li>German Cattle Breeders Federation (ADR)</li> <li>Federation of Breeding and Artificial Insemination Organisations in Southern Germany (ASR)</li> <li>German Society for Animal Production (DGfZ)</li> <li>German Holstein Association (DHV)</li> </ul>	<ul style="list-style-type: none"> <li>IT Solutions for Animal Produktion (vit)</li> <li>Bavarian State Research Centre for Agriculture (LfL)</li> </ul>
<b>HUNGARY</b>	<ul style="list-style-type: none"> <li>National Food Chain Safety Office (Nébih)</li> <li>Livestock Performance Testing Ltd.</li> </ul>	<ul style="list-style-type: none"> <li>National Food Chain Safety Office (Nébih)</li> </ul>	<ul style="list-style-type: none"> <li>National Food Chain Safety Office (Nébih)</li> </ul>
<b>ICELAND</b>	<ul style="list-style-type: none"> <li>Icelandic Agricultural Advisory Centre</li> </ul>		
<b>INDIA</b>	<ul style="list-style-type: none"> <li>National Dairy Development Board</li> </ul>		
<b>IRELAND</b>	<ul style="list-style-type: none"> <li>Irish Cattle Breeding Federation (ICBF)</li> </ul>	<ul style="list-style-type: none"> <li>Irish Cattle Breeding Federation (ICBF)</li> </ul>	<ul style="list-style-type: none"> <li>Irish Cattle Breeding Federation (ICBF)</li> </ul>
<b>ISRAEL</b>	<ul style="list-style-type: none"> <li>Israeli Cattle Breeders' Association (ICBA)</li> </ul>	<ul style="list-style-type: none"> <li>Israeli Cattle Breeders' Association (ICBA)</li> </ul>	<ul style="list-style-type: none"> <li>Israeli Cattle Breeders' Association (ICBA)</li> </ul>
<b>ITALY</b>	<ul style="list-style-type: none"> <li>Associazione Italiana Allevatori (Italian Breeders Association, AIA)</li> <li>Associazione Veneta Allevatori</li> <li>Unione per I servizi alla selezione e biodiversità (Synergy)</li> </ul>	<ul style="list-style-type: none"> <li>Associazione Nazionale Allevatori Frisona Italiana (ANAFI)</li> <li>Associazione Nazionale Allevatori Razza Bruna (ANARB)</li> <li>Associazione Nazionale Allevatori Pezzata Rossa Italiana (ANAPRI)</li> </ul>	<ul style="list-style-type: none"> <li>Associazione Nazionale Allevatori Frisona Italiana (ANAFI)</li> <li>Associazione Nazionale Allevatori Razza Bruna (ANARB)</li> <li>Associazione Nazionale Allevatori Pezzata Rossa Italiana (ANAPRI)</li> </ul>

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Country	ICAR members	Interbull Service Users	National Genetic Evaluation Centres
<b>JAPAN</b>	<ul style="list-style-type: none"> <li>Livestock Improvement Association of Japan, Inc</li> </ul>	<ul style="list-style-type: none"> <li>Livestock Improvement Association of Japan, Inc</li> </ul>	<ul style="list-style-type: none"> <li>National Livestock Breeding Center (NLBC)</li> </ul>
<b>KOSOVO</b>	<ul style="list-style-type: none"> <li>Ministry of Agriculture, Forestry and Rural Development</li> </ul>		
<b>LATVIA</b>	<ul style="list-style-type: none"> <li>Agricultural Data Centre (LDC)</li> <li>Latvian Holstein Association</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural Data Centre (LDC)</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural Data Centre (LDC)</li> </ul>
<b>LITHUANIA</b>	<ul style="list-style-type: none"> <li>Chamber of Agriculture of the Republic of Lithuania</li> <li>State Food and Veterinary Service of the Republic of Lithuania (SFVS)</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Agriculture of Lithuania (LRV)</li> </ul>	<ul style="list-style-type: none"> <li>State Animal Breeding Supervision Service (SABSS)</li> </ul>
<b>LUXEMBOURG</b>	<ul style="list-style-type: none"> <li>CONVIS – Herdbuch Service Elevage et Génétique</li> </ul>		<ul style="list-style-type: none"> <li>vit (Germany)</li> </ul>
<b>MEXICO</b>	<ul style="list-style-type: none"> <li>Asociacion Holstein de México</li> <li>Sistema Nacional de Identificación Individual de Ganado en México</li> </ul>		
<b>NEW ZEALAND</b>	<ul style="list-style-type: none"> <li>DairyNZ</li> <li>B+LNZ Genetics – Division of Beef + Lamb New Zealand</li> <li>Livestock Improvement Corp. Ltd.</li> <li>OSPRI NZ Ltd.</li> </ul>	<ul style="list-style-type: none"> <li>DairyNZ</li> </ul>	<ul style="list-style-type: none"> <li>New Zealand Animal Evaluation Limited (NZAEL)</li> </ul>
<b>NORWAY</b>	<ul style="list-style-type: none"> <li>TINE SA</li> <li>TYR</li> </ul>	<ul style="list-style-type: none"> <li>Geno SA</li> </ul>	<ul style="list-style-type: none"> <li>Geno SA</li> </ul>
<b>PAKISTAN</b>	<ul style="list-style-type: none"> <li>CABROP</li> </ul>		
<b>POLAND</b>	<ul style="list-style-type: none"> <li>Polish Federation of Cattle Breeders and Dairy Farmers (PFHBiPM)</li> <li>National Animal Breeding Centre</li> </ul>	<ul style="list-style-type: none"> <li>Polish Federation of Cattle Breeders and Dairy Farmers (PFHBiPM)</li> </ul>	<ul style="list-style-type: none"> <li>National Research Institute of Animal Production (NRIAP)</li> </ul>
<b>PORTUGAL</b>	<ul style="list-style-type: none"> <li>Associação Nacional para o Melhoramento dos Bovinos Leiteiros (ANABLE)</li> <li>Direção-General da Alimentação e Veterinária (DGAV)</li> </ul>	<ul style="list-style-type: none"> <li>Associação Nacional para o Melhoramento dos Bovinos Leiteiros (ANABLE)</li> </ul>	<ul style="list-style-type: none"> <li>Universidade do Porto (CIBIO)</li> </ul>

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Country	ICAR members	Interbull Service Users	National Genetic Evaluation Centres
<b>ROMANIA</b>	<ul style="list-style-type: none"> <li>Asociatia Aberdeen Angus Romani</li> <li>Asociatia Crescatorilor de Vaci Baltata Romaneasca tip Simmental</li> <li>Asociația Generală a Crescătorilor de Taurine din România</li> <li>Asociatia Pastorul Crisana</li> </ul>		
<b>SERBIA</b>	<ul style="list-style-type: none"> <li>Institute for Animal Husbandry University of Novi Sad</li> </ul>		
<b>SLOVAK REPUBLIC</b>	<ul style="list-style-type: none"> <li>Breeding Services of the Slovak Republic (PSSR)</li> </ul>	<ul style="list-style-type: none"> <li>Breeding Services of the Slovak Republic (PSSR)</li> </ul>	<ul style="list-style-type: none"> <li>Breeding Services of the Slovak Republic (PSSR)</li> </ul>
<b>SLOVENIA</b>	<ul style="list-style-type: none"> <li>Biotechnical Faculty, Zootechnical Department, University of Ljubljana</li> </ul>	<ul style="list-style-type: none"> <li>Biotechnical Faculty, Zootechnical Department, University of Ljubljana</li> </ul>	<ul style="list-style-type: none"> <li>Biotechnical Faculty, Zootechnical Department, University of Ljubljana</li> </ul>
<b>SOUTH AFRICA</b>	<ul style="list-style-type: none"> <li>SA Stud Book and Animal Improvement Association</li> <li>Centre for Animal Breeding and Genetics, ARC Animal Improvement Institute</li> </ul>	<ul style="list-style-type: none"> <li>SA Stud Book and Animal Improvement Association</li> </ul>	<ul style="list-style-type: none"> <li>SA Stud Book and Animal Improvement Association</li> </ul>
<b>SOUTH KOREA</b>	<ul style="list-style-type: none"> <li>Dairy Cattle Improvement Centre</li> <li>Korea Animal Improvement Association</li> </ul>	<ul style="list-style-type: none"> <li>National Institute of Animal Science (RDA)</li> </ul>	<ul style="list-style-type: none"> <li>National Institute of Animal Science (RDA)</li> </ul>
<b>SPAIN</b>	<ul style="list-style-type: none"> <li>Federación Española de Asociaciones de Ganado Selecto (FEAGAS)</li> </ul>	<ul style="list-style-type: none"> <li>Federación Española de Asociaciones de Ganado Selecto (FEAGAS)</li> </ul>	<ul style="list-style-type: none"> <li>Confederation of Spanish Holstein Associations (CONAFE)</li> </ul>
<b>SWEDEN</b>	<ul style="list-style-type: none"> <li>Rådgivarna i Sjuharad</li> <li>Skånesemin ek för</li> <li>Växa Sverige (Swedish Dairy Association)</li> </ul>	<ul style="list-style-type: none"> <li>Växa Sverige (Swedish Dairy Association)</li> </ul>	<ul style="list-style-type: none"> <li>Nordic Cattle Genetic Evaluation (NAV)</li> </ul>
<b>SWITZERLAND</b>	<ul style="list-style-type: none"> <li>Association of Swiss Cattle Breeders (ASR)</li> </ul>	<ul style="list-style-type: none"> <li>Association of Swiss Cattle Breeders (ASR)</li> </ul>	<ul style="list-style-type: none"> <li>Qualitas AG</li> </ul>
<b>TAIWAN</b>	<ul style="list-style-type: none"> <li>Livestock Research Institute</li> </ul>		
<b>THAILAND</b>	<ul style="list-style-type: none"> <li>Silicon Craft Technology Public Company Ltd.</li> </ul>		
<b>THE NETHERLANDS</b>	<ul style="list-style-type: none"> <li>Coöperatie CRV u.a.</li> <li>Dutch Organisation for Cattle Improvement (NVO)</li> </ul>	<ul style="list-style-type: none"> <li>Coöperatie CRV u.a.</li> </ul>	<ul style="list-style-type: none"> <li>Coöperatie CRV u.a.</li> </ul>
<b>TUNISIA</b>	<ul style="list-style-type: none"> <li>Ministère de l'Agriculture, Office de l'Élevage et des Pâturages (OEP)</li> </ul>		
<b>TURKIYE</b>	<ul style="list-style-type: none"> <li>Cattle Breeders' Association of Turkey</li> </ul>		
<b>UKRAINE</b>	<ul style="list-style-type: none"> <li>Agency for Animal Identification and Registration</li> </ul>		

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Country	ICAR members	Interbull Service Users	National Genetic Evaluation Centres
<b>UNITED KINGDOM</b>	<ul style="list-style-type: none"> <li>• AHDB Dairy</li> <li>• Scotland's Rural College (SRUC)</li> <li>• Cattle Information Service (CIS)</li> <li>• Holstein UK</li> <li>• National Milk Records plc</li> <li>• Quality Milk Management Services Ltd.</li> <li>• Royal Jersey Agricultural &amp; Horticultural Society</li> <li>• World Guernsey Cattle Federation</li> <li>• United Dairy Farmers Ltd.</li> <li>• World Holstein Friesian Federation</li> </ul>	<ul style="list-style-type: none"> <li>• AHDB Dairy</li> </ul>	<ul style="list-style-type: none"> <li>• Scotland's Rural College (SRUC)</li> </ul>
<b>UNITED STATES</b>	<ul style="list-style-type: none"> <li>• AgSource</li> <li>• National Dairy Herd Information Association (NDHIA)</li> </ul>	<ul style="list-style-type: none"> <li>• National Association of Animal Breeders (NAAB)</li> </ul>	<ul style="list-style-type: none"> <li>• Council on Dairy Cattle Breeding (CDCB)</li> <li>• Holstein Association USA</li> </ul>
<b>URUGUAY</b>	<ul style="list-style-type: none"> <li>• Instituto Nacional para el Mejoramiento Lechero (INML)</li> <li>• Sistema Nacional Información Ganadera (SNIG)</li> </ul>	<ul style="list-style-type: none"> <li>• Instituto Nacional para el Mejoramiento Lechero (INML)</li> </ul>	<ul style="list-style-type: none"> <li>• Instituto Nacional de Investigación Agropecuaria (INIA)</li> </ul>