

INTERBULL CENTRE

ANNUAL OPERATING PLAN 2021



JANUARY 2021

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1 ABOUT INTERBULL

OUR MISSION To enhance livestock genetic improvement through international data exchange and best methods development.	OUR VISION To be the worldwide network providing information services for the genetic improvement of livestock.
Interbull comprises Interbull Centre, an operational unit that provides services to its members and service users, and is governed by the Interbull Steering Committee, which is a permanent sub-committee of the International Committee for Animal Recording (ICAR).	OUR OBJECTIVE 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.

2 INTRODUCTION

The Interbull 2020-2023 Strategic Plan outlines the changes Interbull envisages during the next three years. The plan sets out how Interbull will perform its activities towards its mission to enhance livestock genetic improvement through international data exchange and best methods development by focusing on six strategic goals.

- Meeting future data service needs
- Defining a new traits pipeline
- Providing international evaluations in the genomic era
- Continuously improve core services
- Strengthening governance
- Driving branding and marketing

This Annual Operating Plan describes Interbull's focus activities, projects, and outputs for achieving its goals. The plan specifies the forecast expenditure on the activities and projects that will deliver on the 2020-2023 Strategic Plan during the 2021 calendar year.

Interbull continues to engage with representatives from the Interbull Steering Committee (SC), the Interbull Technical Committee (ITC), ICAR, the Interbull Centre, and Interbeef as well as key Interbull service users to develop the research, services and capability that will deliver against these strategic goals.

INTERBULL STRATEGY 2020 -2023

OUR VISION: To be the worldwide network providing information services for the genetic improvement of livestock.



Meeting future data service needs

OBJECTIVES

- Maintain existing data exchange services
- Expand data sharing
- Understand and meet future data needs

ACTIVITIES

- Deliver and improve data exchange services
- Conduct a needs analysis
- Expand services where a compelling business case exists
- Collaborate with big data users



Defining a new traits pipeline

OBJECTIVES

- Identify key decision factors
- Define the service need
- Define and maintain relevant business models and fee structures

ACTIVITIES

- Appoint a Working Group
- Identify key decision factors for implementing any trait
- Define infrastructure needed and programs /methodology
- Develop business model, Business Plan and appropriate fee structure



Providing international evaluations in the genomic era

OBJECTIVES

- Provide international genomic information
- Develop a system where all data can be used in one single step model
- Develop new methodologies

ACTIVITIES

- Provide input into genomic evaluation and SNPMap implementation
- Develop system for optimal use of genomic and conventional information
- Develop new methodologies and validations



Continuously improving core services

OBJECTIVES

- Maintain high levels of service user satisfaction
- Maintain relevant and accurate methods and tools

ACTIVITIES

- Assess customers' satisfaction, needs and demands
- Regularly review and adjust methods and tools
- Regularly review results and update programming if required



Strengthening governance

OBJECTIVES

- Responsive and transparent decision-making
- Maintain a fit-for-purpose governance structure

ACTIVITIES

- Document and review existing governance model
- Better define relationship between ICAR and Interbull groups
- Ensure Interbull Centre is appropriately resourced
- Ensure best-practice systems, processes and reporting are in place



Driving branding and marketing

OBJECTIVES

- A clearly understood value proposition for Interbull
- Timely and sufficient communication and marketing

ACTIVITIES

- Better define services offered
- Clearly define the value proposition
- Specify target markets or audiences
- Develop a communication and marketing plan
- Stakeholder surveys or interviews where appropriate

Customer orientated

Accurate

Unbiased

Independent

Integrity

Transparent

Cost-effective

Innovative & leading-edge services

3 PRIORITIES FOR 2021

Interbull's highest priority is the delivery of its current services. If there is a lack of resources, the focus will be on ensuring high-quality service delivery, which may cause a delay or rescheduling of other activities or projects. In order to have uninterrupted services it is important to build the capability and capacity so that more than one person can provide each of the services.

"The 'HIGH' priorities for 2021 have been identified as:

SERVICES DELIVERY

- **High-quality delivery of Interbull Centre's services** is critical to its success. All of Interbull Centre's current services are hence identified as 'HIGH'.
- **Training of Interbull Centre Staff:** In order to have uninterrupted services it is important to build the capability and capacity so that more than one person can provide each of the services.

STRATEGIC GOAL 1 - Meeting future data service needs

- **Release GenoEx-GDE 2.0** - Improve the user experience by developing/implementing high-priority web interface features; Improve the quality of the Service (i.e. cross-referencing ICAR DNA WG recommendations on genotypes quality control or connecting GenoEx-GDE to IDEA, by developing/implementing database features).
- **Release GenoEX-PSE 2.0** - Implementation of new sex, breed, and percentage contribution features for GenoEX-PSE.
- **Launch EUrc – PREP Database** - Database populated with Dairy Production (PROD) and Beef Adjusted Weaning Weights (AWW) information; Standardize and review set of questions for additional dairy and beef traits; User interface available for uploading and looking up of information.

STRATEGIC GOAL 2 - Defining a new traits pipeline

- **Establish "New Traits Pipeline" Principles** - Establish a new WG and identify the key decision factors and process for introducing new traits.

STRATEGIC GOAL 3 - Providing international evaluations in the genomic era

- **snpMACE** - Finalize software; Prepare necessary user's documentation; Validation analyses finalised; Issue a data call Brown Swiss and Holstein.
- **Genomic Pre-selection & Future MACE** - Complete MACE software enhancements.

STRATEGIC GOAL 4 - Continuously improve core services

- **Genomic-free EBV: WG recommendations released to customers** - Organise a webinar to inform customers about Genomic-free EBV Working Group recommendations.
- **Post-Processing WG** - Apply new post-processing windows in January 2021 Test Run.
- **IG2.0** - Definition of new project's agreement; GenoEx-GDE introduced in InterGenomics workflow; Implement Interbull Method for Genomic Reliability in InterGenomics-Brown Swiss.
- **InterGenomics-Brown Swiss; InterGenomics-Holstein** - Cross-reference Service's quality checks with ICAR DNA Working Group recommendations.
- **GenTORE – international evaluation for "Age at Slaughter" results released and integrated with Interbeef** - Trait "Age at slaughter" stored in IDEA database; Interbeef workflow reviewed and updated for inclusion of such new trait.
- **EUrc – ICAR-Interbull guidelines** - Review and update minimum requirements for existing ICAR-Interbull guidelines.
- **EUrc – stand-alone validation** - Provide conventional validations for national evaluations of breeds registered in EU member states.

STRATEGIC GOAL 5 - Strengthening governance

- **Document and review the existing Interbull governance model** – Complete a governance review.
- **Implementation of new ICAR-SLU agreement**.
- **Review of the Terms of Reference** - Steering Committee agreement on necessary changes to the Terms of Reference.

STRATEGIC GOAL 6 - Driving branding and marketing

- **Customer-focused description of services** - All key Interbull, Interbeef, EUrc, and GenoEx services clearly described.
- **Value proposition for each of Interbull's core services described** - Value propositions for core services clearly defined.
- **Communication with stakeholders** - Targeted Communication: Communicate and engage with stakeholders through meetings, workshops, etc; Broad Communication: Distribute newsletters and Maintain websites up-to-date and relevant; Alternative Communication: Develop and deliver alternatives for communication.

4 ANNUAL OPERATING PLAN FOR 2021

The 'Priority' assessment is based on the following 'traffic light' system, where green has the highest priority:

HIGH	<ul style="list-style-type: none"> Must have this requirement to meet the business needs. The must requirements are non-negotiable Critical to the current delivery timeframe in order for the project or organisation to be a success
Medium	<ul style="list-style-type: none"> Should have this requirement if possible, but project or organisational success does not rely on it Important but not necessary for delivery in the current delivery timeframe They are often not as time-critical or there may be another way to satisfy the requirement so that it can be held back until a future delivery timeframe
low	<ul style="list-style-type: none"> Could have this requirement if it does not affect anything else in the project or organisation Desirable but not necessary, e.g. could improve the user experience or customer satisfaction for little development cost These will typically be included if time and resources permit

The 'Effort' assessment is based on a 'traffic light' system where green constitutes the least effort.

minor	<ul style="list-style-type: none"> Under 4 weeks total time requirement
Moderate	<ul style="list-style-type: none"> 4 to 8 weeks
SIGNIFICANT	<ul style="list-style-type: none"> Greater than 8 weeks

Activities that depend on external activities have been included and have been identified in *italics*.

4.1 SERVICES

High-quality delivery of Interbull Centre's services is critical to its success. All of Interbull Centre's current services are hence identified as 'HIGH'. Delivery of the services accounts for approximately 60% of Interbull Centre resources. Most services require a significant amount of resources.

SERVICE	EFFORT	PRIORITY
MACE	SIGNIFICANT	HIGH
GMACE	SIGNIFICANT	HIGH
InterGenomics	SIGNIFICANT	HIGH
Interbeef	SIGNIFICANT	HIGH
European Union Reference Centre	SIGNIFICANT	HIGH
Validation Services	SIGNIFICANT	HIGH
GenoEx-PSE	Moderate	HIGH
Exchange of Genetic Traits	minor	HIGH
Communication, including Organisation of Meetings	SIGNIFICANT	HIGH
ICAR Services (DNA Interpretation Centre Accreditation)	Moderate	HIGH

4.3 Research and Development

STRATEGIC GOAL 1 Meeting future data service needs		OBJECTIVES 1A. Maintain existing data exchange services 1B. Expand data sharing 1C. Understand and meet future data needs		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
1.1 Continue to deliver and improve data exchange services to meet Interbull user needs	1.1.1 Release GenoEx-GDE 2.0	1.1.1 a) Improved User Experience by developing and implementing high-priority Web Interface Features	SIGNIFICANT	HIGH
		1.1.1 b) Improved Quality of the Service by developing and implementing additional Database Features i.e. cross-reference ICAR DNA WG recommendations on genotypes quality control; connect GenoEx-GDE to IDEA	SIGNIFICANT	HIGH
		1.1.1 c) Use of GenoEx-GDE extended to additional Users (InterGenomics-Holstein, Interbeef)	minor	Medium
	1.1.2 Release GenoEx-PSE 2.0	1.1.2 a) Implementation of new sex, breed, and percentage contribution features for GenoEx-PSE	minor	HIGH
		1.1.2 b) Implementation of Parentage Discovery features for GenoEx-PSE <i>Conditional on external activity: "Parentage Discovery" to be part of ICAR's DNA Data Interpretation Accreditation</i>	minor	Medium
		1.1.2 c) 2: Interbull Centre to provide technical part of the accreditation <i>Conditional on external activity: Procedure and software for "Parentage Discovery" as part of ICAR's DNA Data Interpretation Accreditation developed</i>	Moderate	Medium
	1.1.3 Launch EUrc – PREP Database	1.1.3 a) Database populated with Dairy Production (PROD) and Beef Adjusted Weaning Weights (AWW) information	SIGNIFICANT	HIGH
		1.1.3 b) Standardise and review set of questions for Dairy and Beef traits	SIGNIFICANT	HIGH
		1.1.3 c) User interface available for uploading and looking up of information	SIGNIFICANT	HIGH
	1.1.4 Genetic Traits Exchange	1.1.4 a) Expand Genetic Traits Exchange to additional breeds and associations <i>Conditional on external activities</i>	Minor	low
1.2 Conduct a needs analysis to understand future data exchange requirements	No deliverables or outcomes in 2021			
1.3 Meet future data needs of customers through data science principles and collaboration with other big data users	No deliverables or outcomes in 2021			

STRATEGIC GOAL 2 Defining a new traits pipeline		OBJECTIVES 2A. Identify the key decision factors 2B. Define the service need 2C. Define a business model and the relevant fee structure		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
2.1 Appoint a "New Traits Pipeline Working Group"	2.1.1 Establish "New Traits Pipeline" principles	2.1.1 a) WG to identify the key decision factors and process for introducing new traits	Moderate	HIGH
		2.1.1 b) Define the service need and the required pipeline for a new trait	minor	low
2.2 Business Funding Models Task Force	2.2.1 Business Funding Model for traits to be introduced	2.2.1 a) Define (verify existing or develop a new) business model, business plan and appropriate fee structure for new traits	minor	low
2.3 Assess database modifications		2.3.1 Assess necessary database and related software modification for inclusion of new type of traits (i.e. repeatability traits)	Moderate	HIGH

STRATEGIC GOAL 3 Providing international evaluations in the genomic era		OBJECTIVES 3A. Provide international genomic information 3B. Develop a system where all data can be used in one single step model 3C. Develop new methodologies		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
3.1 Provide international genomic information that can be used as input into genomic evaluation	3.1.1 snpMACE	3.1.1 a) Finalise software	minor	HIGH
		3.1.1 b) Prepare necessary user's documentation	minor	HIGH
		3.1.1 c) Validation analyses finalised (1)	Moderate	HIGH
		3.1.1 d) Issue a data call Brown Swiss and Holstein	minor	HIGH
		3.1.1 e) Pilot run performed (2)	Moderate	Medium
		3.1.1 f) Business Model developed for services	minor	Medium
3.2 Develop a system for the optimal use of genomic and conventional information	3.2.1 Genomic Pre-selection & Future MACE	3.2.1 a) Complete MACE software enhancements	SIGNIFICANT	HIGH
	3.2.2 Towards single step genomic evaluation in Interbeef	3.2.2 a) Issue a data call	minor	low
3.3 Develop new methodologies and validations to handle the impact of genomic pre-selection on international and national evaluations	3.3.1 New conventional validation (Beef)	3.3.1 a) Get survey completed by members. WG to develop first test of model validation	minor	Medium
	3.3.2 New conventional validation (Dairy)	3.3.2 a) Set of new methodologies finalised by WG	Moderate	Medium
	3.3.3 Technical strategy for next 5 years	3.3.3 a) Technical-strategic (ITC/SAC) meeting convened	minor	Medium

STRATEGIC GOAL 4 Continuously improve core services		OBJECTIVES 4A. Assess service user satisfaction and needs 4B. Review and adjust methods and tools		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
4.1 Frequently assess customer satisfaction, needs, and demands regarding Interbull's core services and service levels	4.1.1 Management review output: Recommendations from the 2020 customers' satisfaction survey marked as approved in the 2020 management review are delivered by the end of the 2021 year	4.1.1 a) IDEA: Prepare a document with information on statistical tests performed by the verify programs. Provide information on how to save outputs as PDF	minor	Medium
		4.1.1.b) IDEA: update documentation on potential duplicates describing ways to only select specific records	minor	Medium
		4.1.1.c) IDEA – Potential duplicate page: open information related to parents in a new window	minor	Medium
		4.1.1 d) IDEA ped: list of animals updated as alias available in IDEA accessible to all users from a given organisation	Moderate	Medium
		4.1.1 e) Webpage: include file formats for PSE and GDE, review how they are displayed	minor	Medium
		4.1.1 f) Beef: produce and maintain converting programs from flat files to XML also for new traits	minor	Medium
4.2 Regularly review and adjust methods and tools to account for changes in data and/or in underpinning assumptions	4.2.1 Genomic-free EBV: WG recommendations released to customers	4.2.1 a) Organise a webinar to inform customers about WG recommendations.	minor	HIGH
	4.2.2 Post-Processing WG	4.2.2 a) New post-processing windows applied in January 2021 Test Run	Moderate	HIGH
	4.2.3 IG2.0	4.2.3 a) IG2.0: new project agreement.	minor	HIGH
		4.2.3 b) GenoEx-GDE introduced in InterGenomics workflow	minor	HIGH
		4.2.3 c) Implementation of Interbull Method for Genomic Reliability in InterGenomics-Brown Swiss	minor	HIGH
	4.2.4 InterGenomics -Brown Swiss; InterGenomics -Holstein	4.2.4 a) Cross-referencing Service's quality checks with ICAR DNA WG recommendations	minor	HIGH
	4.2.5 GenTORE – international evaluation for "Age at Slaughter" results released and integrated with Interbeef	4.2.5 a) Trait "Age at slaughter" stored in IDEA database	minor	HIGH
		4.2.5 b) Interbeef workflow reviewed and updated for inclusion of such new trait	SIGNIFICANT	HIGH
		4.2.5 c) First test run results delivered Conditional on external activity at ICBF:: Estimating genetic parameters for "Age at Slaughter"	minor	Medium
	4.2.6 Interbeef Genetic Evaluation of Carcass Trait	4.2.6 a) Implementation of carcass evaluation in Interbeef test run in April 2021	Moderate	Medium

	4.2.7 Interbeef VCE WG: Improve VCE processes	4.2.7 a) Review extraction process for VCE	Moderate	Medium
		4.2.7 b) Streamlining of VCE parameter integration	Moderate	Medium
		4.2.7 c) Improve VCE parameters exchange with partners	minor	Medium
	4.2.8 Infrastructure improvement: efficiency and availability	4.2.8 a) Increased infrastructure efficiency	SIGNIFICANT	Medium
		4.2.8 b) Increased availability of infrastructure		
	4.2.9 EUrc - ICAR-Interbull guidelines	4.2.9 a) Review and update minimum requirements for existing ICAR-Interbull guidelines	Moderate	HIGH
		4.2.9 b) Update ICAR-Interbull guidelines with additional topics	Moderate	low
	4.2.10 EUrc - stand-alone validation	4.2.10 a) Provide conventional validations for national evaluations of breeds registered in EU member states.	Moderate	HIGH
	4.2.11 Identify potential emerging problems in relation to genetic and genomic evaluations, and provide contingency plans	4.2.11 a) Identify and potential emerging problems in relation to genetic and genomic evaluations	Minor	HIGH
		4.2.11 b) Provide contingency plans		

STRATEGIC GOAL 5 Strengthening governance		OBJECTIVES 5A. Develop faster, more transparent decision-making 5B. Maintain a fit-for-purpose governance structure		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
5.1 Shorten the duration of decision-making processes and communicating decisions	5.1.1 Evaluate decision-making processes and Interbull Centre resourcing to support	5.1.1. Complete review (as part of 5.2 and 5.3)		
5.2 Ensure the governance structure is suitable for delivery of Interbull services and for providing direction to Interbull Centre	5.2.1 Document and review the existing Interbull governance model	5.2.1 a) Complete a governance review, including identification of gaps and areas for improvement	SIGNIFICANT	HIGH
5.3 Better define the relationship between ICAR (C'tees and WGs), SLU, Steering Committee, IB Centre and IB Business Meeting delegates	5.3.1 Implementation of new ICAR-SLU agreement	5.3.1 a) New ICAR-SLU Agreement signed and implemented	Minor	HIGH
	5.3.2 Review of the Terms of Reference	5.3.2 a) Steering Committee agreement on necessary changes to the Terms of Reference	Moderate	HIGH
5.4 Implement agreed changes	Implementation depends on findings in 5.1, 5.2 and 5.3	Implementation may occur after 2021		

STRATEGIC GOAL 6 Driving branding and marketing		OBJECTIVES 6A. Clearly define Interbull's value proposition 6B. Improve communication and marketing		
FOCUS ACTIVITIES	DELIVERABLES IN 2021	2021 TARGET / OUTCOMES	EFFORT	PRIORITY
6.1 Better define services that are on offer	6.1.1 Customer focused description of services	6.1.1 a) All key Interbull, Interbeef, EUrc, and GenoEx services clearly described.	Moderate	HIGH
6.2 Clearly define the value proposition of Interbull's core services	6.2.1 Value proposition for each of Interbull's core services described	6.2.1 a) Value propositions for core services clearly defined	Moderate	HIGH
6.3 Specify target markets or audiences through identifying who uses which methodologies	6.3.1 Description of potential target markets/audiences	6.3.1 a) Potential target markets/audiences identified and described	Moderate	Medium
	6.3.2 Interbeef seminar	6.3.2 a) Contribute with ICAR in organising a seminar to promote Interbeef	minor	Medium
6.4 Communication with stakeholders	6.4.1 Communication with stakeholders	6.4.1 a) Targeted Communication: Communicate and engage with stakeholders through meetings, workshops, etc.	SIGNIFICANT	HIGH
		6.4.1 b) Broad Communication: Distribute newsletters and Maintain websites up-to-date and relevant	SIGNIFICANT	HIGH
		6.4.1 c) Alternative Communication: Develop and deliver alternatives for communication	Moderate	HIGH
	6.4.2 Draft communication and marketing plan written	6.4.2 a) Endorsement by the Steering Committee of a draft communications and marketing plan	minor	Medium
6.5 Stakeholder surveys or interviews, where appropriate	6.5.1 Conduct surveys and interviews as necessary to support work on 6.1-6.4	6.5.1 a) Necessary surveys and interviews conducted to inform and support the other key focus activities	Moderate	low

5 ACRONYMS

AWW	Adjusted Weaning Weight
BSW	Brown Swiss
EBV	Estimated Breeding Values
EUrc	European Union reference centre
GenoEx	International Genotype Exchange Platform: a database situated in the Interbull Centre for the storage and exchange of genomic data.
GenoEx-GDE	Genomic Data Exchange on the GenoEx Platform: A service provided by the Interbull Centre through the GenoEx Platform that allows users to exchange genomic data
GenoEx-PSE	Parentage SNP Exchange on the GenoEx Platform: A service provided by the Interbull Centre through the GenoEx Platform for exchanging standardised sets of SNPs for genotyped animals to facilitate parentage analysis activities.
GenTORE	GENomic management Tools to Optimise Resilience and Efficiency - a European Union funded project within the Research and Innovation Program H2020.
GDE	Genomic Data Exchange
GMACE	Genomic MACE : International Genomic Evaluation Methodology used at Interbull Centre
GREL	Genomic Reliability Calculation
HOL	Holstein
ICAR	International Committee for Animal Recording www.icar.org
ICBF	Irish Cattle Breeding Federation
IDEA	Interbull Data Exchange Area
IG2.0	InterGenomics 2.0 : Second stage of InterGenomics with additional focus on Quality Assurance.
Interbeef	ICAR's Interbeef WG, for the international evaluation of beef cattle. Interbeef evaluations are performed at the Interbull Centre
INTERBULL	International Bull Evaluation Services www.interbull.org
InterGenomics	International Genomic Evaluation Service performed at the Interbull Centre for the Brown Swiss and Holstein breeds
ITB	Interbull
ITBC	Interbull Centre
ITC	Interbull Technical Committee
MACE	Multiple Across Country Evaluation : International Genetic Evaluation Methodology used at Interbull Centre
NGEC	National Genetic Evaluation Centre
PDF	Portable Document Format
PREP Database	Database with information on Performance Recording, Evaluation and Publication of national cattle populations.
PSE	Parentage SNP Exchange
SAC	Interbull Scientific Advisory Committee
SC	Interbull Steering Committee
SLU	Sveriges lantbruksuniversitet : Swedish University of Agricultural Sciences
SLURM	Simple Linux Utility for Resource Management
SNP	Single Nucleotide Polymorphisms
snpMACE	A meta-analysis to estimate SNP effects across countries
TF	Task Force
TMACE	Truncated MACE : Service provided by the Interbull Centre to assist countries with improving the national genomic prediction and validation.
ToR	Terms of Reference
VCE	Variance Component Estimation
WG	Working Group
XML	Extensible Markup Language