

Genotype Exchange Parentage SNP Exchange **(GenoEx-PSE)**

Service Agreement Contract

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Service Agreement Contract

Between

SERVICE ICAR, as a legal subsidiary of the International Committee for Animal Recording, with head office located in Rome 00198 on Via Savoia at no. 78, registered in the Register of Companies of Rome (RM) at number 753481008, VAT no. IT067534810008, hereinafter referred to as “**ICAR**”;

And

INTERBULL CENTRE, with head office located within the Department of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Undervisningsplan, E1-27 PO Box 7023, 750 07 Uppsala, Sweden, hereinafter referred to as “**ITBC**”;

And

The organisation _____, with head office located at _____, hereinafter referred to as “**the Service User**”.

The **Service User**, **ICAR** and **ITBC** are together referred to as the “**Parties**” and each as a “**Party**”.

Service Agreement Premise

- The International Committee for Animal Recording (**ICAR**) holds marks and brands in the field of animal husbandry with regards to measuring the production of milk, meat and all products originating from livestock as well as the technology related to animal-rearing in general.
- **ITBC** is the operational unit of Interbull and Interbeef currently providing routine computations of international genetic/genomic evaluations of dairy and beef cattle populations, under the responsibility of the ICAR Permanent Subcommittee “Interbull” and the ICAR Working Group “Interbeef”, respectively. **ITBC** is located within the Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden.
- At the national level, organizations in charge of parentage verification have been successfully exchanging the means to verify parentage amongst themselves for decades. However, the exchange of material internationally, whether through microsatellite results or blood types, has been manual and bilateral, requiring constant interaction with foreign counterparts and manual handling. These organisations have also been adopting new technologies into their work for decades. Now, genotyping technology based on Single Nucleotide Polymorphisms (SNPs) is being adopted by these organizations, and there are new opportunities to streamline and automate the exchange of SNPs useful for parentage analysis.
- The **Service User** is an organisation that has traditionally been in charge, or is deemed to be in charge for the intent of this service Agreement, of parentage certification in an **ICAR** Member Country. A country may have more than one authorized **Service User** as determined by the stakeholders in that country. Such an authorized **Service User** may contract the genotype processing for parentage analysis to another organization, referred to as the **Contracted Service Provider**.

- In view of the global benefits associated with an international platform for the exchange of SNP data, **ICAR** and **SLU** have provided financial support for **ITBC** to purchase and install the BC|SNPmax Data Management System from BioComputing Platforms in Finland (www.bcplatforms.com). While this data management system offers substantial flexibility in terms of services that could be offered to Interbull and/or **ICAR** members, this current contract is solely related to the exchange of SNPs useful for parentage analysis services within dairy and beef cattle breeds.
- **GenoEx-PSE** simply streamlines the process that has gone on for decades by organizations that have been in charge of parentage certification in populations of dairy and beef cattle.
- Therefore, **ICAR**, **ITBC** and the **Service User** (or the **Contracted Service User** if so designated by the **Service User**) have decided to proceed to the signing of this service Agreement contract.
- This Agreement supersedes all prior Agreements and constitutes a complete expression of all Agreements reached to date between the Parties in relation to **GenoEx-PSE**.

The above said and considered an integral and substantial part of this Agreement, **THE PARTIES HEREBY AGREE TO AND STIPULATE THE FOLLOWING:**

1 Definitions and Interpretations

- 1.1 In this Agreement, unless the context otherwise requires, the following expressions shall have the following meaning:

“Agreement” means this service contract Agreement (which expression shall be deemed to include its Schedules and any part thereof).

“Code of Practice” means the then current Guidelines as described in the **GenoEX-PSE** Code of Practice documented and maintained by the Interbull Centre.

“Effective Date” means the date of signing or the date of the launch of the **GenoEx-PSE** Service, whichever is the latter.

“Parentage Analysis” refers to the general process of analyzing SNPs from DNA using data accessed through the **GenoEx-PSE** Service, which may include parentage verification, parentage discovery and microsatellite imputation.

“Representative” means the representative of each Party as specified in respect of each Party in Schedule X or his/her replacement as may be notified to **ITBC** from time to time.

“Service Fee” means the annual fee payable by the **Service User** as determined from year to year in accordance with this Agreement.

“Service User” refers to the authorized **Service User** as outlined in this Agreement or its **Contracted Service Provider**, if so designated by the authorized **Service User**.

“Third Party” means any person, group, company, organisation or other entity of any nature whatsoever which is not a Party to this Agreement.

- 1.2 In this Agreement, the following interpretations shall apply:

- (a) the headings in this Agreement are for ease of reference only and shall not affect the interpretation or meaning of this Agreement;

- (b) the singular shall include the plural and vice versa and, unless the context otherwise requires, references to words in one gender include references to the other gender;
- (c) the expressions “include”, “includes”, “including”, “in particular” and similar expressions shall be construed without limitation;
- (d) words such as “hereunder”, “hereto”, “hereof” and “herein” and other words commencing with “here” shall, unless the context clearly indicates to the contrary, refer to the whole of this Agreement and not to any particular section or clause thereof;
- (e) a reference to a Party shall mean any of the individual Parties (including the individual Service Users) to this Agreement, as appropriate, together with their respective permitted successors and assigns;
- (f) nothing in this Agreement shall affect any statutory rights or provisions granted by mandatory statutory law or regulatory authority, which cannot be waived or limited by contract. In the event and to the extent only of any conflict or ambiguity between the terms of this Agreement and mandatory statutory law or regulatory authority, then the latter shall prevail;
- (g) each Party shall comply with any express obligation in this Agreement to comply with any document, statute, order, enactment, regulation or other similar instrument that is referenced in this Agreement;
- (h) no provisions of this Agreement shall be interpreted as requiring or permitting any act or omission by either Party which is contrary to any mandatory statutory law or regulatory authority; and
- (i) in the event that an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favouring or disfavouring any Party by virtue of the authorship of the provisions of this Agreement.

2 Purpose

1. The **Service User** hereby confers to **ITBC**, which upon execution of this Agreement accepts the responsibility of facilitating and streamlining the work of organizations in charge of parentage verification by establishing and maintaining a **GenoEx-PSE** database for the storage and exchange of SNP data at **ITBC**.
2. The **GenoEx-PSE** database and service is not a replacement for national authorities or historic providers of parentage verification.
3. The current Agreement explicitly does not include the provision of services that perform parentage analysis in its own right by **ITBC**, nor does it seek to enable new entrants to gain easy access to parentage SNP unless otherwise agreed upon at the national level.

3 Underlying Principles

1. **GenoEx-PSE** is a tool to facilitate only the exchange of SNP useful for parentage analysis, which may include parentage verification, parentage discovery and/or microsatellite imputation.
2. **GenoEx-PSE** does not include the possibility for **ITBC** to carry out parentage analysis. Any such new service in the future would require approval from **ICAR** as well as Interbull and/or Interbeef and have a separate service agreement established and signed.

3. The SNP information exchanged via **GenoEx-PSE** must only be used for parentage analysis and other uses, including the estimation of genomic predictions, are absolutely forbidden and will be considered as a breach of this Agreement as described in Clause 11.3.
4. **GenoEx-PSE** is entirely a voluntary initiative allowing various countries to enter when comfortable. Once the service is initiated, all SNP genotypes and associated data uploaded to **GenoEx-PSE** shall be available for downloading by any **Service User**. In the event of any termination of this Agreement (as outlined in Section 11), all SNP genotypes existing within the **GenoEx-PSE** database shall remain there and continue to be accessible for future downloading by any authorized **Service User** at the time of termination but not by any subsequent new **Service User**. In accordance with the Interbull Code of Practice associated with **GenoEx-PSE**, specific erroneous data, including SNP genotypes, may be deleted or otherwise flagged as not accessible by the **Service User**.
5. The full member organization(s) of **ICAR** within each country shall inform **ICAR** of the authorized organization(s) responsible for parentage verification/certification and the associated population of animals (i.e.: breed, herdbook vs non-herdbook status). **ICAR** shall compile the list of authorized organization(s) within each country but will not act as judge in the case of a dispute within individual countries about providing parentage services. Such disputes must be settled at the national level for participation in **GenoEx-PSE** services. Within each country, it is possible to have multiple **Service Users** for non-herdbook animals of a given breed but normally only one **Service User** can be designated for herdbook animals of a given breed unless multiple organizations are officially recognized in the country for parentage certification of herdbook animals of the given breed.

4 Service Eligibility

1. Access to the **GenoEx-PSE** service is granted only to qualifying organizations as described in this Clause 4 of the Agreement. By the signing of this contract, **ICAR** and the **Service User** verify that the **Service User** is a qualifying organization for the **GenoEx-PSE** service.
2. Organizations deemed at the national level to be in charge of parentage certification in each of the **ICAR** member countries, or otherwise providing parentage verification and/or certification services, qualify as a authorized **Service User** for the purposes of this Agreement. The list of such authorized organizations by country shall be compiled and maintained by **ICAR**. The number of such organizations in each country depends, among other things, on the number of breeds, and the rules governing the pedigree (herdbook) or non-pedigree (non-herdbook) animals in any specific country.
3. Organizations that, in their capacity as the official body in charge of genetic evaluation services in each of the **ICAR** member countries, and are under contract as a **Contracted Service Provider** with one or more qualifying organizations identified in point 2 above for providing parentage analysis services, qualify as a **Service User** for the purposes of this Agreement. In such cases, each authorized organization identified in point 2 above must inform **ICAR** of such a contractual arrangement, which therefore would allow the designated genetic evaluation centre access only to SNP data from **GenoEx-PSE** required to perform parentage analysis services for the population (i.e.: breed within country/region) of animals limited to that authorized organization. **ICAR** shall compile and maintain the list of such a **Contracted Service Provider** associated with each authorized **Service User** by country.
4. Laboratories that are accredited by **ICAR/ISAG** for providing parentage verification services and are under contract as a **Contracted Service Provider** with one or more organizations identified in point 2 above for providing parentage analysis services, qualify as a **Service User** for the purposes of this Agreement. In such cases, each authorized

organization identified in point 2 above must inform **ICAR** of such a contractual arrangement, which therefore would allow the designated laboratory access only to SNP data from **GenoEx-PSE** required to perform parentage analysis services for the population (i.e.: breed within country/region) of animals limited to that authorized organization. **ICAR** shall compile and maintain the list of such a **Contracted Service Provider** associated with each authorized organization by country.

5 Number of SNP Exchanged

1. The exchange of SNP genotypes required for parentage analysis allows for flexibility in terms of the number of SNP to be included.
2. The minimum requirement for parentage verification shall be those recommended by ISAG (approximately 200) and the **GenoEx-PSE** Expert Group shall also define a larger number of SNP useful for parentage discovery involving multiple breeds of dairy and beef cattle, as well as additional SNP required for the imputation of microsatellite markers. The list of SNP to be exchanged within the **GenoEx-PSE** may be updated from time to time in accordance with the **GenoEx-PSE** Code of Practice of the Interbull Centre.
3. The **Service User** shall determine which group of SNP (i.e.: parentage verification versus parentage discovery versus microsatellite imputation) that they, or its **Contracted Service Provider**, will upload into and download from the **GenoEx-PSE** database.
4. Only a **Service User** uploading any additional SNP for parentage discovery and/or for use of microsatellite marker information shall have access to downloading those same SNP submitted by other organizations.

6 Service User Rights and Obligations

6.1 Service User Rights

1. As defined under Clause 4 Service Eligibility above, each organization authorized to use the **GenoEx-PSE** service shall have full access to the data it uploads to the associated database at **ITBC**, including:
 - Access to **GenoEx-PSE** for uploading and downloading SNP genotypes for animals, including parents, associated with its own designated breed population at the national level.
 - Access to **GenoEx-PSE** for downloading the SNP genotypes required to perform parentage analysis services for animals under its responsibility/authority, which will primarily be males in A.I. but may include other males and potential dams from other countries, especially embryo transfer donor dams. The group of SNP included in the genotypes for downloading must be consistent with the group of SNP uploaded, depending on whether the parentage services are restricted to parentage verification or also include parentage discovery and the use of microsatellite marker information.

6.2 Service User Obligations

1. The **Service User** agrees to use the data only for parentage analysis. Other uses, especially for genomic predictions, are strictly prohibited.
2. The **Service User** commits to uploading the most complete data possible, especially the SNP genotypes defined for each category outlined in Clause 5, on a regular basis with the minimum frequency being every four months. **ITBC** shall implement internal data verification tools to verify the frequency and completeness of all uploaded data.

3. Using the defined electronic process, the **Service User** shall report to the authorized organization in the animal's country of birth, any pedigree conflicts identified through data received via the **GenoEx-PSE** service.
4. The **Service User** agrees to follow **ICAR** rules and regulations related to the **GenoEx-PSE** services including policies established by Interbull and/or Interbeef.
5. The **Service User** agrees to follow **ICAR/ISAG** accreditation rules and regulations.
6. The **Service User** agrees to follow the **ICAR** quality assurance standards for the SNP and microsatellite data and parentage analysis, as established by the relevant **ICAR** bodies.
7. All SNP data accessed by the **Service User** via **GenoEx-PSE** must not be forwarded, shared or exchanged with any third party organization except for other authorized **Service Users**.
8. Breach of any of the above obligations may lead to the termination of this Agreement as described in Clause 11.3.

7 Exclusions

For sake of clarity, the following are explicitly excluded from the **GenoEx-PSE** services under this Agreement:

- The **Service User**, and any Third Party associated with the **Service User**, is strictly prohibited to use SNP data accessed through this Agreement for any use other than parentage analysis.
- The combined group of all SNP for possible exchange will not lead to accurate imputation for inclusion for genomic predictions and, in any event, any such use of the exchanged SNP genotypes is strictly prohibited.

8 Resolution of Data Conflicts

1. The **GenoEx-PSE** service shall include a defined process for reporting data conflicts back to those organizations involved with the submission of any genotype involved with the conflict. The following describes the types of data conflicts that are initially considered but others may be added by the **GenoEx-PSE** Expert Group as needed:
 - Conflicts arising from different SNP and/or microsatellite data being submitted for the same animal. In such cases, the data quality assurance measures recommended by the relevant **ICAR** bodies (i.e.: DNA and/or Parentage Working Groups) will be used to resolve the conflicts, which may involve the Service Users that submitted the data involved with the conflict.
 - Conflicts arising when the SNP and/or microsatellite data is inconsistent with the reported information for the animal's pedigree. In general, the integrity of animal pedigree information lies in the hands of the authorized organization in the country of birth of the animal. In principle, all parentage conflicts, and parentage discovery results when available, should be communicated directly to the authorized organization (as compiled by **ICAR**) in the animal's country of birth by the organization that identified the parentage conflict. The resolution of such conflicts will remain the responsibility of the authorized organization in the animal's country of birth and any modified pedigree information would subsequently flow to Interbull and/or Interbeef services, if applicable.
2. The **Service User** agrees to handle such data conflicts as stipulated in the **GenoEx-PSE** Code of Practice of the Interbull Centre.

9 Service Fees

1. The service fee structure for the use of the **GenoEx-PSE** service shall be established by **ICAR** based on recommendations by the Interbull Steering Committee.
2. Following recommendations from the Interbull Steering Committee, **ICAR** shall have the right to modify such service fees and service fee structure, as needed from time to time in the future.
3. The general aim of the established fee structure is that **ITBC** shall cover its costs associated with the development and maintenance of the **GenoEx-PSE** database and software, as well as the provision of any related services.
4. A service fee is to be paid by each organization with service eligibility to use **GenoEx-PSE** that signs this Agreement and the signatory **Service User** shall pay the designated annual service fee to **ITBC**. In the event that multiple authorized **Service Users** in a given country designate a common **Contracted Service Provider** in accordance with this Agreement, a single service fee shall be payable by the **Contracted Service Provider**, that shall be deemed as the **Service User** for this Agreement.
5. The current service fee has been set as a fixed annual fee of 1 000 Euro for each organization that accesses the **GenoEx-PSE** services and database.
6. The first service fee is payable to **ITBC** within 30 days of signing this Agreement or within 30 days after the launch of the **GenoEx-PSE** service by **ITBC**, whichever is the latter.
7. Future service fees shall be included on an annual invoice issued by **ICAR** or **ITBC** to facilitate administration of the **GenoEx-PSE** service fee structure by the Parties.

10 Expanded Services in the Future

1. The current **GenoEx-PSE** database and services is the first of various possible services that can be offered using the BC|SNPmax Data Management System installed at **ITBC**.
2. The expansion of services, both in terms of applications and scope, will depend on the interests and demand of the members of **ICAR**, Interbull and Interbeef.
3. Future services would be offered on a voluntary basis and would only occur if, and only if, the national authorities/service providers decide to request such services from **ICAR** or **ITBC**.
4. Two specific areas of potential interest in the coming years include (a) **ITBC** offering parentage analysis services directly, with an associated service fee, over and above the concept of the **GenoEx-PSE** service outlined in this Agreement, and (b) expansion of the **GenoEx-PSE** service to include the exchange of higher density SNP genotypes for the purpose of genomic predictions in beef breeds and/or dairy cattle breeds with a more limited population size.
5. This current Agreement does not provide any additional rights to the **Service User** for any such future services that may be offered. A separate Agreement will be required to have access to such additional services.

11 Duration, Renewal and Termination

1. This Agreement has a term of one year from the date of signing and will automatically be renewed each year unless either party wishes to terminate it in accordance with Clauses 11.2 or 11.3 of this Agreement.

2. Each party has the right to terminate this Agreement, at any time, including prior to its annual renewal date, by written communication to the other parties with an advanced notice of at least 3 (three) months.
3. In the event of any breach of the terms, conditions and obligations of this Agreement by any party, this Agreement shall be terminated with an advanced notice of at least 30 (thirty) days.
4. Termination of this Agreement in accordance with 11.2 or 11.3 will result in the loss of access to the **GenoEx-PSE** database and services and all existing data within **GenoEx-PSE** will remain there and accessible to other authorized **Service Users** at the time of termination but not to any subsequent new **Service User**. Immediately upon termination of this Agreement, any data previously accessed by the **Service User** from the **GenoEx-PSE** database must be removed from all databases associated with the **Service User** and any further use of such data is strictly prohibited including the subsequent use for parentage analysis.

12 Disputes

This contract is subject to the regulation of Italian law. Any and all disputes that may arise in connection with this contract, including its validity, interpretation, execution and/or termination shall be resolved under the exclusive jurisdiction of the Court of Rome and with translations in English performed by a professional translator.

For any issues not expressly established in this contract, the rule of law applicable to relationships and the cases outlined by Articles 2222 and subsequent of the Italian Civil Code and to the extent compatible with the rules of the civil code in matters of contracts, obligations and agreements are valid.

13 Execution

This Agreement may be executed via facsimile or electronically in .pdf format and in counterpart copies, each of which shall be deemed to be an original but all of which together constitute one and the same agreement.

14 Acceptance and Signature

The undersigned acknowledge and accept the terms and conditions of this Agreement and are legally authorized to sign on behalf of the respective Party.

For **SERVICE ICAR** and **International Committee for Animal Recording**, herein referred to as “**ICAR**”;

_____	_____	_____
Name and Title	Signature	Date

For the **INTERBULL CENTRE**, herein referred to as “**ITBC**”;

_____	_____	_____
Name and Title	Signature	Date

For _____, herein referred to as “**Service User**”;

_____	_____	_____
Name and Title	Signature	Date