



ICAR Rules and Guidelines for SNP-based Genotyping required for Parentage Analysis in Cattle

These Rules contain the **minimum requirements** for accreditation of SNP-based DNA genotyping accreditation required for parentage analysis in cattle.

NB: Please note that from 2021 applications for accreditation of SNP based parentage analysis in cattle can only be applied for through the ICAR parentage analysis accreditation for DNA Data Interpretation Centres.

Please see the following link: <https://www.icar.org/index.php/certifications/certification-and-accreditation-of-dna-genetic-laboratories/two-new-dna-based-services/dna-data-interpretation-centres/>

1) LABORATORY IDENTIFICATION

The applicant must be clearly identified by providing the following:

- a. Name of the laboratory,
- b. Institution if relevant,
- c. Address and country, and
- d. A contact person at the lab and all information necessary for getting in touch with her/him quickly.

2) EDUCATION AND TRAINING OF LAB SUPERVISOR AND OPERATORS

The minimum requirements for education and training of the laboratory supervisor and senior operator are:

- a. Bachelor degree, or higher, in a scientific discipline for the laboratory head or supervisor.
- b. At least five years experience in molecular diagnostics for the laboratory senior operator.

Experience is considered a key factor in data production and in the interpretation of results.

3) EQUIPMENT

- a. Equipment used to run and score SNPs must be described, as well as the methods used.
- b. The year of purchase and last revision must be provided – this allows ICAR to evaluate the appropriateness of the technology being used and ensure each lab is following a proper maintenance program that should enable it to generate high quality data.
- c. Yearly revision is considered a minimum requirement.

4) CERTIFICATION

- a. No certification is required prior to 2022.
- b. Please note that applications made for granting of ICAR accreditation from 2022 onwards will require ISO 17025 accreditation as a minimum requirement.

5) PARTICIPATION AND PERFORMANCE IN RING TESTS

- a. The participation and performance in ISAG ring (comparison) tests must be disclosed and certificates provided, when available. Applicants must also sign a release allowing ISAG to directly disclose their ring test results to the ICAR DNA Working Group.
- b. Participation in the most recent ISAG ring test is considered a minimum requirement at this time.



- c. A Committee of Experts will decide performance thresholds for each ring test with due consideration for the structure of the ring test and the average performance of laboratories in the ring test that year.

6) SNP MARKERS

- a. The name of all SNPs genotyped on all animals (marker set I) and of the additional markers assayed (marker set II) must be declared, as well as the number of animals typed in at least the last two years.
- b. It is a minimum requirement to use the 200 SNP panel recommended by ISAG (see Annex VI) on all animals genotyped.
- c. To ensure sufficient experience within the lab, genotyping 500 animals per year is set as a minimum requirement for accreditation..

7) MARKER NOMENCLATURE

- a. Nomenclature of markers must be described.
- b. ISAG nomenclature is required for the ISAG SNP marker set.