

Council on Dairy Cattle Breeding Genetic Evaluation Methods Group (GEM)

Terms of Reference

1. Background

The Genetic Evaluation Methods Group (GEM) provides independent expert advice to CDCB on dairy genetic evaluation methods and practices. It serves as the expert committee reviewing new research developments and proposals for developing or changing the CDCB genetic evaluations.

GEM members have expertise in quantitative genetics, statistical genetics, dairy data analysis and genomic methods.

2. Purpose

GEM exists to provide independent, objective, and impartial advice and strategic guidance on the to the CDCB Board of Directors and staff on matters related to dairy genetic evaluations. The groups' role is to provide input throughout the development, evaluation, validation, and refinement of genetic evaluation methodologies or procedures, rather than only during the initial planning stages or when reviewing results near completion. Its charge is to make recommendations that contribute to a highly accurate and comprehensive, and scientifically sound genetic evaluation system. The GEM leverages the voluntary contributions of recognized scientific experts to strengthen the scientific foundation and long-term development of the CDCB genetic evaluation system.

3. Term

These Terms of Reference shall become effective on August 19, 2026 and shall remain in effect until amended or terminated by the CDCB Board of Directors.

4. Membership

The CDCB Board of Directors shall appoint up to nine individuals to serve on the Genetic Evaluation Methods (GEM) Committee during its April Board meeting. Members shall serve two-year terms beginning on May 1 of the year of their appointment and ending on April 30 two years later.

GEM members serve as volunteer scientific advisors in support of CDCB's mission. Members are appointed because of their recognized scientific and technical expertise and contribute their time and knowledge without compensation.

The CDCB Board Chair shall appoint one GEM member to serve as Committee Chair. The Chair shall serve a one-year term and may be reappointed for one additional consecutive term.

Given the specialized knowledge and experience required for these positions, there is no limit on the number of consecutive terms a member may serve.

Prior to appointment, CDCB staff shall verify that nominees satisfy the eligibility requirements established in these Terms of Reference.

To be eligible for appointment, a GEM member must meet the following qualifications:

- Hold a graduate degree in quantitative genetics or a related field.
- Have demonstrated expertise in the development, evaluation, or application of genetic evaluation methodologies.
- Be familiar with statistical methodologies and computational approaches used in dairy cattle genetic evaluations.

The Committee shall consist of:

- Up to seven representatives from the scientific community, nominated by CDCB staff.
- One representative of the artificial insemination industry, nominated by the National Association of Animal Breeders (NAAB).
- One representative of the breed associations, nominated by the Purebred Dairy Cattle Association (PDCA).
- The CDCB Chief Research and Development Officer, serving as an ex officio member, with no voting rights.

5. Accountability

The GEM is an advisory, non-executive committee that reports to the CDCB Board of Directors.

GEM recommendations are advisory in nature and are intended to support CDCB's scientific and technical decision-making. Responsibility for adopting and implementing changes to the genetic evaluation system remains with CDCB.

6. Scope of Review

The GEM shall evaluate genetic evaluation methodologies, research findings, technical proposals, and evaluation results exclusively on their scientific and technical merits. In conducting its reviews, the Committee shall consider factors such as scientific validity, methodological soundness, statistical performance, biological relevance, accuracy,

robustness, reproducibility, and the expected contribution to the quality and integrity of the CDCB genetic evaluation system.

The GEM shall not consider commercial, political, organizational, or sector-specific interests when formulating its recommendations. Likewise, the Committee shall not assess the potential business, operational, or stakeholder implications of adopting a methodology or procedure. Those considerations are the responsibility of CDCB management, other advisory committees, and the CDCB Board of Directors as part of the organization's governance and decision-making processes.

Accordingly, all recommendations of the GEM shall be based solely on scientific evidence, technical expertise, and professional judgment.

7. Roles and Responsibilities

GEM

The GEM shall:

- Serve as the expert advisory committee responsible for evaluating research findings, technical proposals, methodological developments, and evaluation results related to the CDCB genetic evaluation system.
- Evaluate the scientific validity, accuracy, robustness, and expected impact of proposed changes to the CDCB genetic evaluation system.
- Identify limitations, emerging needs, and opportunities to improve the efficiency, accuracy, and long-term sustainability of the CDCB genetic evaluation system, and recommend research and development priorities to address them.
- Review and provide recommendations on scientific standards, methodologies, and best practices applicable to genetic evaluations.
- Identify emerging scientific and technological developments that may enhance the CDCB genetic evaluation system.
- Provide independent, objective, impartial, and scientifically sound recommendations to support the continuous improvement of the CDCB genetic evaluation system.

Members

Each GEM member shall:

- Act in the best interests of CDCB and the integrity of its genetic evaluation system, independent of personal, institutional, organizational, commercial, or sector-specific interests.
- Evaluate all methodologies, research findings, technical proposals, and evaluation results solely on their scientific and technical merits.
- Recognize that members nominated by stakeholder organizations serve as independent scientific advisors to the Committee and not as representatives or advocates of their nominating organizations or sectors.

- Base recommendations on scientific evidence, technical expertise, and professional judgment.
- Disclose any actual or potential conflicts of interest that could affect the member's objectivity.
- Prepare for and actively participate in all scheduled meetings and other Committee activities.
- Respect differing scientific opinions and contribute constructively to Committee deliberations.
- Maintain the confidentiality of all non-public information discussed or reviewed by the Committee.
- Execute and comply with the Committee's confidentiality agreement, including refraining from disclosing or using unpublished genetic evaluation information for personal, organizational, or financial benefit.

Chair

The Chair shall:

- Schedule and preside over Committee meetings.
- Develop meeting agendas in consultation with CDCB staff and ensure that supporting materials are distributed in advance of meetings.
- Facilitate productive, objective, and scientifically focused discussions.
- Seek consensus whenever practical and ensure that differing technical viewpoints are appropriately documented when consensus cannot be reached.
- Communicate the Committee's recommendations to CDCB staff in a timely manner.
- Ensure that the Committee's recommendations are clearly documented and supported by their scientific and technical rationale.

CDCB Staff

CDCB staff shall:

- Provide administrative and logistical support to the Chair and the Committee as needed.
- Coordinate meeting scheduling and distribution of meeting materials.
- Maintain Committee records and meeting minutes.
- Communicate the Committee's recommendations and supporting documentation to the CDCB Board of Directors, as appropriate.
- Provide the technical and administrative support necessary for the Committee to fulfill its responsibilities.

8. Meetings

GEM shall meet as necessary to fulfill its purpose and responsibilities. Meetings shall be scheduled by the Chair in consultation with CDCB staff. Additional meetings may be convened as required to review emerging scientific developments or priority initiatives.