Addendum A: Conceptual Framework for a Request for Proposals (RFP)

Purpose

The Committee recommends that the Board consider commissioning an independent, evidence-based assessment of the dilute (d) gene in Labrador Retrievers. A structured Request for Proposals (RFP) process would allow the Club to obtain objective, scientifically grounded information to inform future policy decisions.

This approach recognizes that questions surrounding dilution involve not only historical and breed-standard considerations, but also well-defined genetic mechanisms and documented health associations. Independent analysis may assist the Board in evaluating these issues within a broader scientific and population-level context.

Scope of Work

Proposals should address one or more of the following areas:

1. Genetic Characterization of the Dilute Locus

- Analysis of the D locus corresponding to the melanophilin (MLPH) gene
- Identification and characterization of known dilute variants (e.g., d^1, d^2, d^3)
- Confirmation of inheritance patterns (autosomal recessive, dd expression)
- Evaluation of interaction between the dilute locus and established Labrador color loci (e.g., MC1R, TYRP1)

As established in the veterinary genetics literature, dilute expression results from disruption of normal melanosome transport, leading to reduced pigment intensity and altered coat coloration .

2. Population Genetics and Prevalence

- Estimation of the frequency of DD, Dd, and dd genotypes within the Labrador population
- Analysis of pedigree patterns and potential founder effects
- Evaluation of whether dilute alleles represent recent introduction or amplification of rare variants
- Modeling of long-term population impact under varying breeding scenarios

Available evidence suggests that dilute variants were not historically documented within the foundational Labrador gene pool and may reflect either introduction from outside the traditional population or selective amplification of a rare variant.

3. Health and Dermatologic Implications

- Comprehensive review of veterinary literature on **Color Dilution Alopecia (CDA)**
- Assessment of the relationship between dilute genotype and hair shaft abnormalities, follicular damage, and dermatologic disease
- Evaluation of variability in clinical expression across breeds and within Labrador Retrievers

- Consideration of population-level health implications associated with increasing prevalence of the dilute genotype

The literature consistently associates dilution with structural abnormalities of the hair shaft and an increased risk of dermatologic disease, although expression may vary and is influenced by additional genetic and environmental factors .

4. Registry, Identification, and Traceability

- Evaluation of current and potential methods for identifying dilute and carrier status through DNA testing
- Assessment of feasibility and implications of incorporating genetic testing into litter registration processes
- Consideration of data integrity, traceability, and long-term record accuracy

Modern DNA testing can reliably distinguish DD, Dd, and dd genotypes, providing a foundation for improved transparency and informed breeding decisions .

5. Comparative Breed Analysis

- Review of breeds in which dilution is historically recognized (e.g., Weimaraner, Doberman Pinscher)
- Assessment of how long-standing presence of dilution within a breed population may influence health outcomes
- Evaluation of differences between established dilute breeds and breeds in which dilution is more recently observed

Comparative analysis may provide insight into how population history and selective breeding influence both phenotype and disease expression.

Deliverables

Proposals should include:

- A written report summarizing findings and conclusions
- Description of methodology and data sources
- Analysis of limitations and areas requiring further study
- Where appropriate, recommendations for practical application or further investigation

Qualifications of Respondents

Respondents should demonstrate expertise in one or more of the following areas:

- Veterinary genetics
- Population genetics
- Canine dermatology
- Animal breeding and registry systems

Affiliation with recognized academic institutions, veterinary schools, or established research organizations is preferred.

Evaluation Criteria

Proposals may be evaluated based on:

- Scientific rigor and methodology
- Relevant experience and qualifications
- Feasibility and clarity of proposed work
- Ability to produce objective, well-supported findings

Intent and Use

This RFP framework is intended to assist the Board in obtaining independent, scientifically grounded information regarding the dilute genotype in Labrador Retrievers. It does not presuppose any specific policy outcome, but rather supports informed decision-making through objective analysis.

The Committee views this as a complementary step that may enhance understanding of the genetic, health, and population-level implications discussed throughout this report.