Innovative Animal Health
askppg@orivet.com
orivet.com

Fact Sheet for Breeders: Understanding Heterozygosity Score

What is Heterozygosity?

- A dog inherits **two copies** of each gene—one from each parent. Within these genes are small DNA markers called **SNPs** (Single Nucleotide Polymorphisms) that can **vary** between the copies.
- Homozygous means both alleles are the **same** (e.g. A/A).
- Heterozygous means the two alleles **differ** (e.g. A/G).
- The **heterozygosity score** shows an estimate of how much genetic variation your dog has.

How the Score is Calculated

Heterozygosity Score =
(Number of Heterozygous SNPs) / (Total SNPs Scored)

- Our analysis includes **476** informative markers distributed across the genome selected for diversity assessment.
- **Example:**
  - Total SNPs analyzed: 476
  - Heterozygous SNPs: 134
  - Score = 134 ÷ 476 = 0.282 → **28.2%**

Score Range	Interpretation
< 25%	Lower diversity
25-35%	Moderate diversity (typical in purebreds)
> 35%	Higher diversity (often in outcrosses or mixed breeds)

What this Score is NOT:

- It is **not** a direct measure of health, intelligence, or behavior.
- It **cannot** diagnose specific diseases.
- A higher score ≠ "better dog," and a lower score ≠ "unhealthy dog."
- It's **one tool** to discuss diversity alongside pedigree, health testing, and breeding goals.

For Breeders:

- Combine the score with breed-specific guidance (club COI norms, outcross projects).
- Aim for balanced diversity while protecting breed traits and avoiding known disease risk matings.
- Littermates can have different heterozygosity scores—each puppy gets a different genetic shuffle.