

Recap : 2023-10-20

□ New Model : Infinite/Infinitesimal model

$$y_{ij} = \mu_i + u_i + e_{ij}$$

Annotations for the equation:

- $\mu_i$ : Known environment (herd, season, age, ...)
- $u_i$ : breeding value of animal  $i$
- $e_{ij}$ : unknown part of environment, plus dominance epistasis

infinite number of loci in the genome

(Later : Genomic selection : polygenic model  
large but finite number of loci)

□ Decomposition of  $u_i$  into parent average plus mendelian sampling term ( $m_i$ )

$$u_i = \frac{1}{2} u_s + \frac{1}{2} u_d + m_i$$

Annotations for the equation:

- $u_i$ : breeding value of animal  $i$
- $u_s$ : breeding value of  $s$
- $u_d$ : breeding value of animal  $d$

Animals  $s$  and  $d$  are parents of  $i$