lm(...)

- Limitation with Fixed Linear Effect Models (FLEM) is that factors cannot be "random". A FLEM contains only fixed effects, except for the random residual term(e).

- In Genetic Model, breeding values (u) have to be treated as random effects, because we had seen that they are defined as deviations and they have a pre-defined variance-covariance structure.

  ⇒ Use a Mixed Linear Effect Model (MLEM).

  MLEM can accomodate additional random effects, besides the random residual error term.

- Model: $y = X\beta + Zu + e$ → random ~~residuals~~ error terms
  - $X\beta$ → fixed effects (sex, herd, season...)
  - Zu → random breeding values

- In a MLEM, the expected values and the variance-covariance structure of the random terms must be specified