

## Recap

Predictions of breeding values using  
Linear Mixed Effect Models (LME).

□ Model:

$$y = X\beta + Zu + e$$

$y$ : Observations

$\beta$ : fixed effects

$u$ : random effects  $\rightarrow$  breeding values

$e$ : random residuals

□ Example: Sire Model  $\rightarrow$  Dairy Cattle

- Replaced  $u$  by  $s$  ( $y = X\beta + Zs + e$ )

$$y = X\beta + Z\underline{u_s} + e$$

vector of breeding  
values for sires

⊕ Estimate fixed effects and  
predict breeding values for sires, simultaneously

⊖ Dams do not get breeding values.