Adult merino ewes can be bred for live weight change to be more tolerant to climate change
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Objective

To investigate genetic variation in live weight change in environments with variable feed supply during the year to identify sheep that are more resilient.

Random regression of live weight over days in the year

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\text{live weight} \sim \text{fixed effects} + \text{random effects}
\]

- year: additive genetic (3rd order)
- lambs born: permanent environmental (1st order)
- lambs reared: heterogeneous residual variance
- 4th order fixed curve for time within year

Conclusions

- Sheep can be bred to lose less weight on poor feed or gain more weight on good feed
- The variance components of live weight depend on the time of measurement