

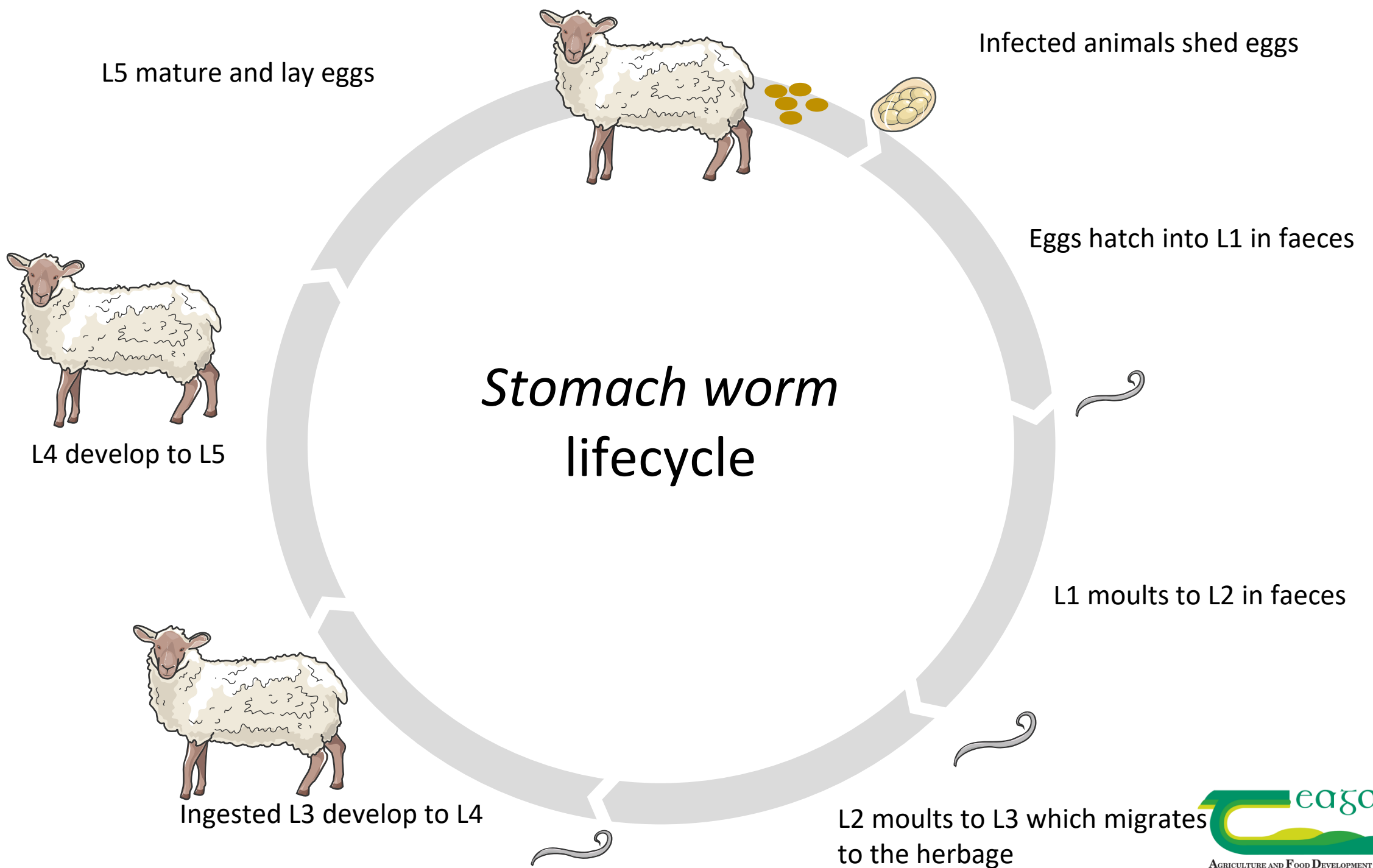
OVIFEC: Developing genetic parameters for worm resistance in sheep

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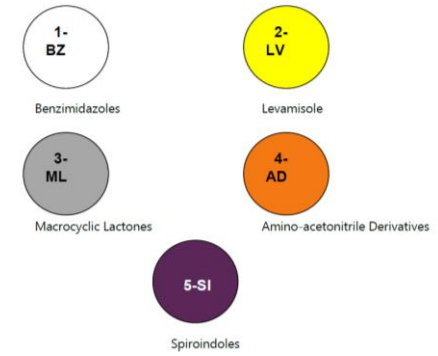


Gastrointestinal nematodes

- The most important production-limiting disease of lambs
 - Reduce feed intake
 - Loss of protein in the gut
 - Gut damage
 - Anaemia (*Haemonchus*)
 - Ill-thrift/death
- Many different species
- Typically controlled with anthelmintics
- Resistance to the commonly used wormers widespread

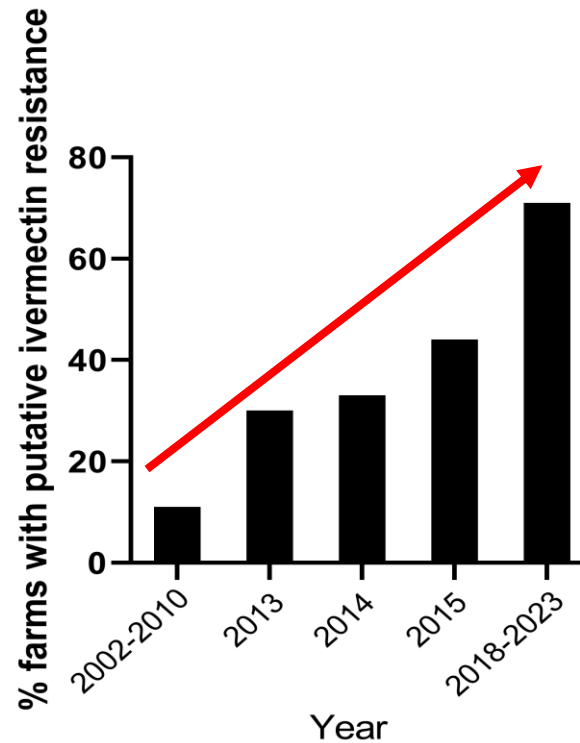


Farms with Anthelmintic Resistance



2018-2023

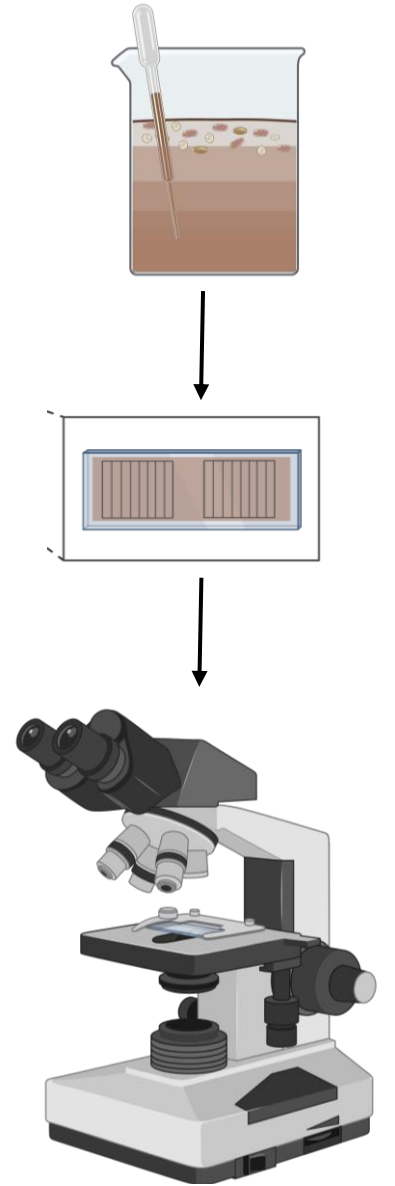
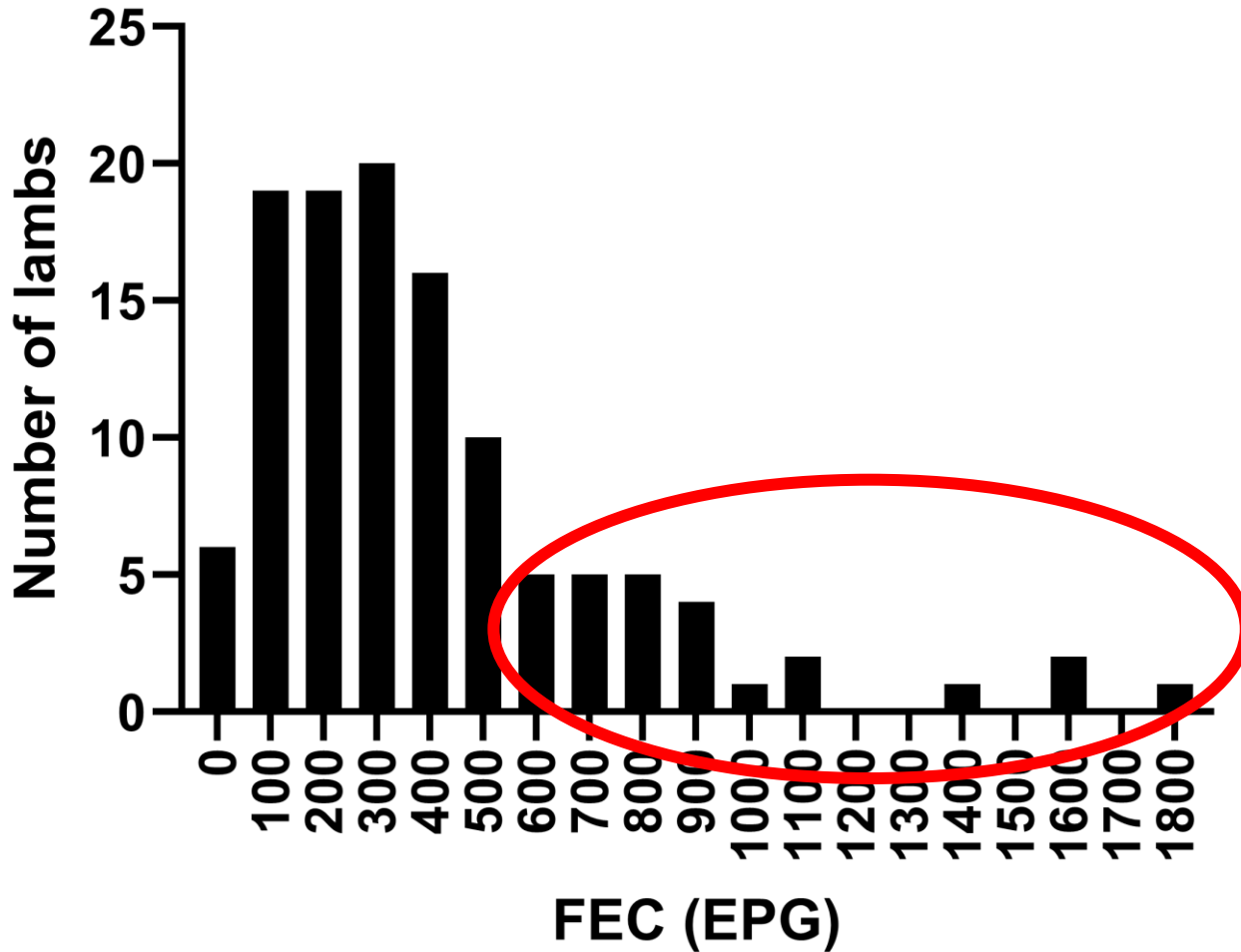
	White (1-BZ)	Yellow (2-LV)	Clear(3-ML)
Resistance	100%	45%	74%



Need to Reducing Reliance on wormers

- Grazing management
 - Mixed grazing/mixed age group grazing
 - Silage aftergrass
- Nutrition
- Bioactive crops
- **Breeding for host resistance**

FEC Distribution within a flock



Pasture Larval Burden

Low FEC

High FEC



300 epg X 600 g



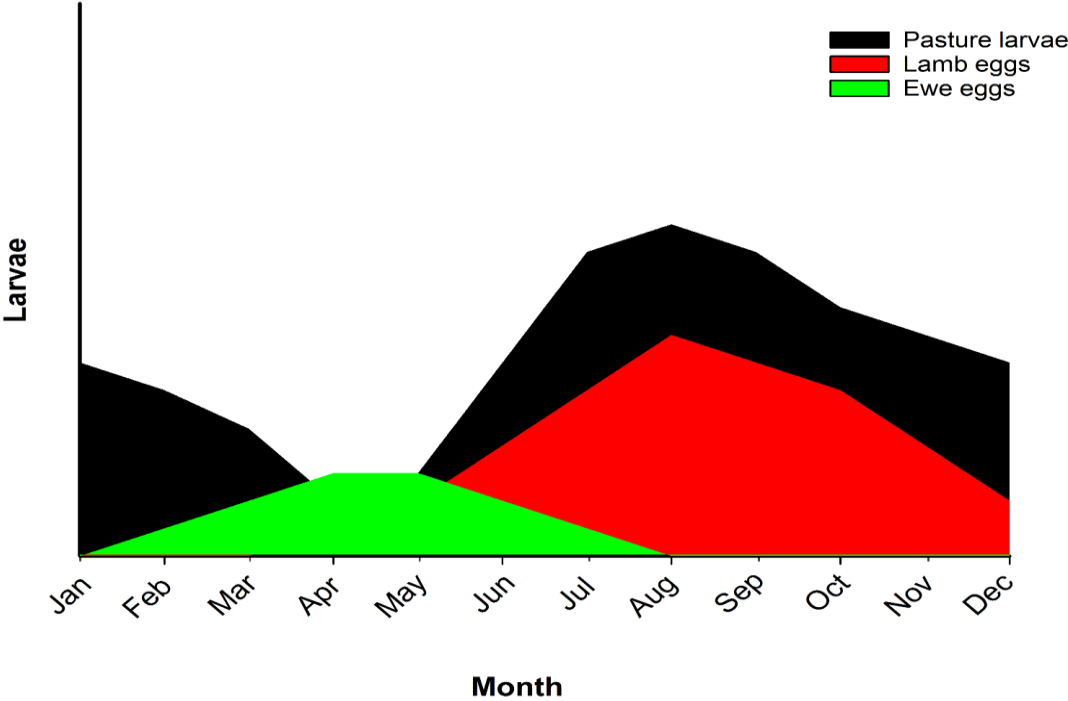
180,000 eggs/day



800 epg x 600 g

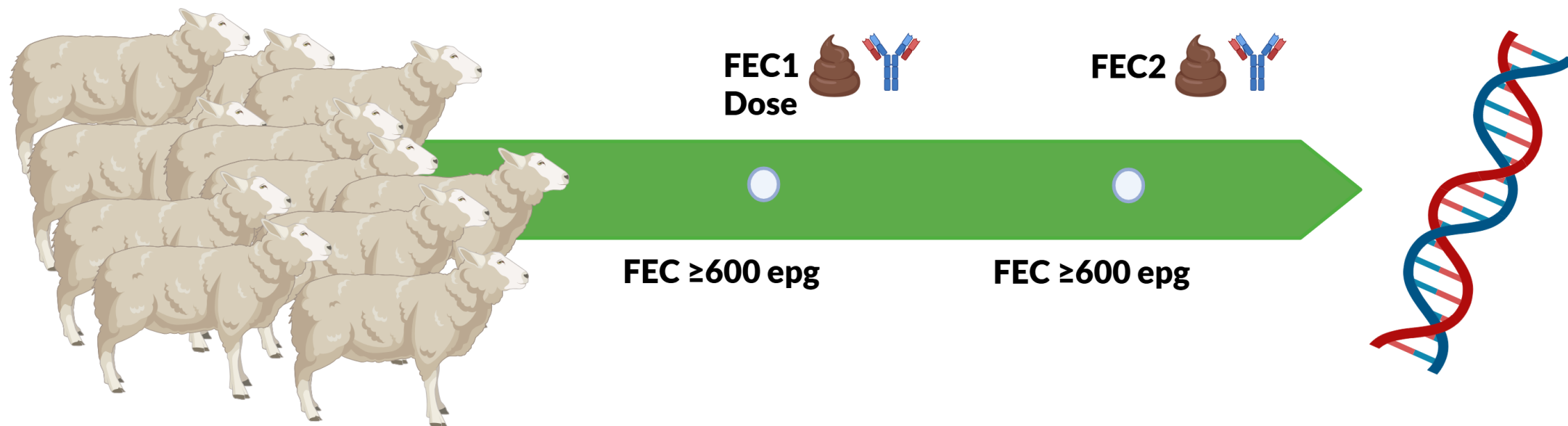


480,000 eggs/day



Phenotyping

CPT flocks
Research flocks



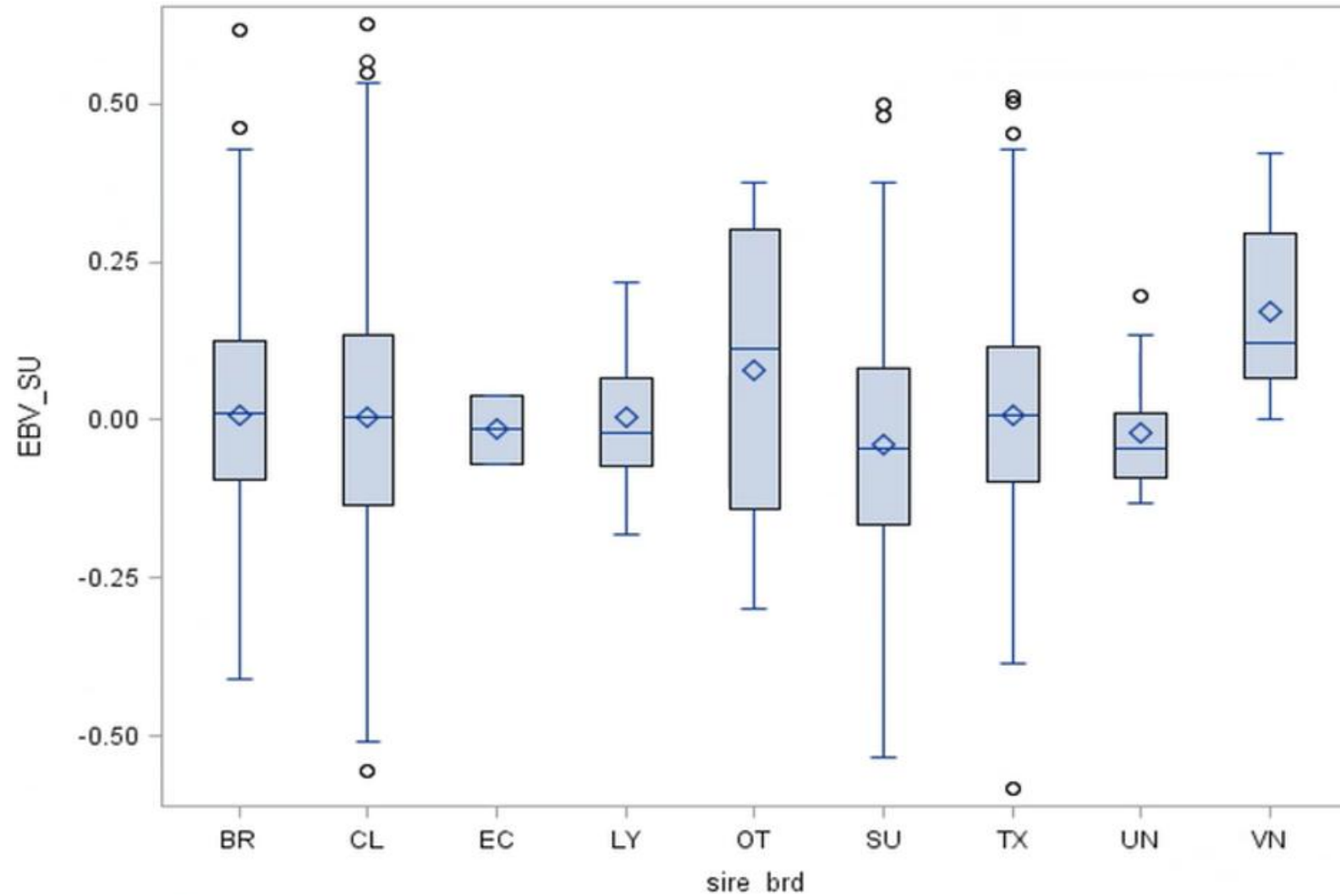
Genetic parameters

- Are the same genes influencing FEC1 and FEC2?
 - Genetic correlation between FEC1 and FEC2 = 0.96

Can use a single FEC measure in future

- How much of the of the variation between lambs is explained by genetics?
 - **Heritability = 6.6%**
- Large within breed variation for selection to act on
- Will we continue to phenotype?
 - **Ongoing phenotyping of CPT and research flocks to train the index**

Within breed variation



Conclusions

- Anthelmintic resistance is a major threat to grass-based lamb production
- Tools that reduce reliance on wormers are urgently required
- Breeding for low FEC sheep can reduce wormer requirement
 - Directly – Resistant animals harbour fewer worms
 - Indirectly - Resistant animals shed fewer eggs on pasture thus reducing the pasture larval burden
- Combining phenotyping with genotyping = maximise genetic gain

Acknowledgements

- Participating farmers
- Sheep Ireland staff
- Teagasc staff
- Department of Agriculture, Food and the Marine

