Basic Genetic Terminology as Applied to Merino Breeding

Produced for the CRC for Premium Quality Wool undergraduate program by; Dr. Brad Crook, The University of New England.
Repeatability

Phenotypic variation in fleece weight

100 1

RANK RANK

AGE 1

AGE 2

Brad Crook
Heritability

Phenotypic variation in fleece weight

But what % is due to GENETIC variation?

What % of superiority is passed to progeny?

CRC

for

Premium

Quality

Wool

© 1999, Wool CRC

www.woolwise.com

Brad Crook
Selection Differential

Phenotypic variation in fleece weight

Selection differential

Selected individuals
Phenotypic variation in GFW

EBV\textsubscript{GFW} = h^2\textsubscript{GFW} \times \text{predicted superiority}

Information on genetic merit of individual
Genetic Correlation

The extent to which two traits are controlled by the same set of genes.

To what extent will selection of individuals of high performance for trait 1, give rise to progeny of high performance for trait 2?
Phenotypic variation in GFW

Phenotypic variation in FD

Genetic correlation between FW and FD

\[ \text{EBV}_{GFW} = h^2_{GFW} \times \text{predicted superiority FW} \]

\[ f \text{ (predicted superiority FD)} \]
Selection Index

$EBV_{GFW} \times REV_{GFW}$

$EBV_{FD} \times REV_{FD}$

$EBV_{BW} \times REV_{BW}$

OVERALL GENETIC MERIT (in $)

Relative to average (100)

Rank

Brad Crook