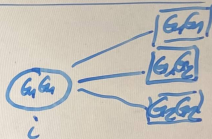Definition of a Breeding Value for animal i:

Breeding Value (BV) of animal i is twice the difference between the mean of the offspring of animal i and the population mean:

$$BV = 2(\mu_i - \mu)$$ where μ: Population mean
μ_i: mean of offspring of animal i.

☐ Animal i (with respect to locus G) has one of three possible genotypes: G_1G_1, G_1G_2, G_2G_2

Mates of i

☐ Animal i has genotype G_1G_1:

Animal i	$f(G_1) = p$	$f(G_2) = q$
$f(G_1) = 1$	$f(G_1G_1) = 1 \cdot p$	$f(G_1G_2) = 1 \cdot q$

No G_2G_2 offspring $\Rightarrow f(G_2G_2) = 0$