Summary: Breeding Values BV_{ij}

Genotype	Breeding value
G_1G_1	$2q\alpha$
G_1G_2	$(q-p)\alpha$
G_2G_2	$-2p\alpha$

$\alpha = a + (q-p)d$

if $d = 0$
$\Rightarrow \alpha = a$

- Breeding values are population-specific (only valid for one population / one breed) because they depend on allele frequencies
- Expected values

$$E[BV] = f(G_1G_1)\cdot BV_{11} + f(G_1G_2)\cdot BV_{12} + f(G_2G_2)\cdot BV_{22}$$
$$= p^2 \cdot 2q\alpha + 2pq(q-p)\alpha + q^2(-2p\alpha)$$
$$= 2p^2q\alpha + 2pq\alpha - 2p^2q\alpha - 2pq^2\alpha$$
$$= 0$$