

a Inbreedy depression $\Delta M = M_0 - M_F$
 where M_0 is the population mean in the
 base population and M_F is the population
 mean in a population with an inbreedy
 coefficient of F :

$$M_F = (p_0^2 + p_0 q_0 F) \cdot a + (2p_0 q_0 - 2p_0 q_0 F) d \\ - (q_0^2 + p_0 q_0 F) \cdot a$$

$$= p_0^2 a + p_0 q_0 F \cdot a + 2p_0 q_0 d - 2p_0 q_0 F d \\ - q_0^2 a - p_0 q_0 F \cdot a$$

$$= (p_0^2 - q_0^2) a + 2p_0 q_0 d - 2p_0 q_0 F d$$

$$= \underbrace{(p_0^2 - q_0^2) a + 2p_0 q_0 d}_{M_0} - 2p_0 q_0 F d$$

$$= M_0 - 2p_0 q_0 F d \Rightarrow \Delta M = M_0 - M_F = 2p_0 q_0 F d$$