

□ Assumptions:

- N individuals (diploid)
- $2N$ gametes (haploid)

• Probability that gametes carry alleles identical: $\frac{1}{2N} \Leftrightarrow$ inbreeding coefficient F

□ Generation 1:

$$F_1 = \frac{1}{2N}$$

□ Generation 2:

$$F_2 = \left[\frac{1}{2N} \right] + \left(1 - \frac{1}{2N} \right) \cdot F_1$$

ibd in matings of generation 1

↓
alleles identical by descent from new mating between gametes

□ Assume: $\Delta F = \frac{1}{2N} \Rightarrow F_2 = \Delta F + (1 - \Delta F)F_1$