HANDOUT II.1: Wahlund Effect Example

• Two subpopulations:

$p_1 = 0.4$, $p_2 = 0.8$: $\bar{p}=(0.4 + 0.8)/2 = 0.6$

$q_1 = 0.6$, $q_2 = 0.2$: $\bar{q} = 1 - \bar{p}=0.4$

Site/Genotype	AA	Aa	aa
1	$p_1^2=0.4^2=0.16$	$2p_1q_1 =2(.4)(.6)= 0.48$	$q_1^2=(0.6)^2=0.36$
2	$p_2^2=0.8^2=0.64$	$2p_2q_2 =2(.8)(.2)= 0.32$	$q_2^2=(0.2)^2=0.04$
Average	$\overline{p^2} = 0.4$	$\overline{2pq} = 0.4$	$\overline{q^2} = 0.2$
Expected	$\bar{p}^2=(0.6)^2 = 0.36$	$2\bar{p}\bar{q}=2(0.6)(0.4) = 0.48$	$\bar{q}^2=(0.4)^2 = 0.16$