

POPULATION GENETICS PROBLEM #1

A population geneticist studying the mating system of *Lupinus perennis* collected the following genotype information on a set of maternal plants and seedlings:¹

Maternal genotype	Offspring genotype		
	A_1A_1	A_1A_2	A_2A_2
A_1A_1	204	158	—
A_1A_2	119	257	80
A_2A_2	—	103	79

Using these data answer the following questions:

1. Are the maternal genotypes in Hardy-Weinberg proportions?
2. Is the allele frequency in pollen that participates in successful fertilizations independent of the genotype of the maternal plant?
3. Is the allele frequency in maternal plants equal to the allele frequency in pollen that participates in fertilization?

¹She didn't really. I simulated these data.