PBG 431 Plant Genetics recitation

Linkage mapping population in bean

Use of linkage analysis allows plant breeders and geneticists to understand how genes are arranged in chromosomes. Cross-over events between two non-sister chromatids lead to recombination. The recombination information can be used for linkage map construction using phenotype data, genotype data or both. The size of the population used to construct a linkage map is very important. Small populations could be subject to sampling error. In the bean example, a population of 100 individuals was scored for disease resistance and seed color.

1. Dr. Myers gave you two sets of seeds (resistant and susceptible) and inside each set there were two colors of seed. Explain how we did the analysis to confirm:
   1. One gene was controlling resistance and one gene was controlling color seed.
   2. The two genes are linked.