

Project 1

The following homework assignment should be submitted in writing no later than Monday, 29/12/09. Each student should submit his/her own work.

Optimal Designs for the Intercross In class we considered the optimal design for the backcross mapping population. In this project you are required to carry out a similar investigation for the intercross design.

1. Use the same costs of breeding and genotyping that was given for the case of the backcross.
2. Consider the additive model ($\delta = 0$) and statistic Z_α . Find the optimal design for the given cost constraint. Note that the parameter of recombination for this statistic is $\beta = 0.02$ and that the non-centrality parameter is given by

$$\mathbb{E}[Z_\alpha] = (n^{1/2}\alpha)/(2^{1/2}\sigma_y) .$$

3. Write a report of your study that is composed of an introduction section, a methods section, a section of results and a discussion. As part of the discussion you should compare the results you got for the intercross with the results for the backcross.