“Selective Genotyping and Phenotyping Strategies in a Complex Trait Context”

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Abstract:

Selective genotyping and selective phenotyping strategies are used to reduce the cost of genetic studies. In experimental crosses (where two or more strains are mated to form a segregating population), the efficiency of these strategies has been evaluated in simplified settings where a single locus contributes to the phenotype, and when the phenotype is normally distributed. Complex traits, where multiple loci contribute to the trait, possibly epistatically, are incompatible with this simplified setting; additionally such traits may not be normally distributed. Therefore, we investigate the effectiveness of selective genotyping and phenotyping in the context of complex traits. Our approach is based on a general framework of calculating the expected information content of experimental strategies.