

PREFACE

These problems have been prepared specifically for use with *Introduction to Quantitative Genetics* (2nd edn). Though most of the problems will be intelligible without reference to the book, many of the solutions will not be easy to follow without it because frequent reference is made to the numbered equations and occasionally to some of the Figures. The problems are arranged in order of the chapters in the book, and there is a problem on all the main points in each chapter. Some of the problems are based on the data and solutions of earlier problems. Students are therefore advised to keep their working and solutions for later use; this will save the repetition of calculations. The problems are of varied difficulty, the more difficult ones being mainly toward the end of each chapter. I hope that all students will find some that they can solve immediately and some also that will tax their ingenuity to the full.

When problems are based on imaginary data the arithmetic can be made easy but the exercise tends to be dull. So I have based the problems on real data wherever I could in order to make them more interesting and more realistic. In consequence, however, the arithmetic seldom works out simply and a pocket calculator will be needed for most of the problems.

The solutions given contain fairly full explanations of how the problems are solved and give all the main steps in the calculations. Standard statistical procedures, however, are not fully explained. The statistical calculations required are χ^2 tests of 'goodness of fit'; mean, variance and standard error of the mean; correlation and regression coefficients; analysis of variance. I have tried to ensure that there are no rounding errors in the solutions, and the steps in the calculations are given with as many decimal places as are needed for this purpose. Sampling errors in the data have for the most part been ignored and the solutions are sometimes given with more precision than is justified by the data.

I am very greatly indebted to Dr W. G. Hill for many suggestions about the problems and their solutions; his advice has been invaluable. I am very grateful also to Dr Paul M. Sharp for many helpful suggestions and for checking all the solutions; to Professor N. W. Simmonds for comments on the problems concerning plants; and to many other colleagues for suggestions, particularly about sources of suitable data. The responsibility for any errors that remain is

mine alone. I should be grateful to readers if they will tell me of any errors that they find.

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