

Preface

Genetic linkage maps play an important role in many branches of biological research. The specific calculations involved in the construction of genetic maps ask for dedicated computer software. When using this software, the construction of genetic maps looks simple: just press a few buttons and you get a map. However, things are not as simple as they look. The various computations are based on a fair amount of theory from genetics, probability, statistics and optimization. We felt the need to explain this theory and write a special textbook dedicated to the construction of genetic maps. We think it is essential reading for those who want to construct reliable genetic maps.

Ever since the late 1980s, when the first RFLP projects started in Wageningen, we have been involved in linkage analysis with molecular genetic markers. By the mid-1990s, we started teaching short courses on the construction of genetic maps. Currently, our course covers 3 days of lectures and practicals. This book is a complete rewrite of our course reader. The book is aimed at the biologist with an interest in the construction of genetic maps. For a proper understanding, knowledge of genetics, probability and statistics at the undergraduate level is required.

Writing this book would not have been possible without the cooperation of many colleagues, especially the geneticists and plant breeders of Wageningen University and Research Centre. We are very grateful to Dr Hans de Jong, Professor of Cytogenetics at Wageningen University, for his comments and suggestions on the chapter about meiosis.

We dedicate this book to the memory of the late Professor Piet Stam. For a long time, he was a great inspiration to both of us. For J.W.V.O., this started as early as 1976 when he attended Piet's course on population genetics at the Agricultural University in Wageningen. For J.J., it really started in 1990 when Piet joined the group of geneticists and statisticians at the Centre for Plant Breeding and Reproduction Research (now part of Wageningen University & Research Centre). Piet Stam was a very enthusiastic scientist who contributed significantly to genetics. We name just two of his papers: 'Interference in genetic crossing over and chromosome mapping' (*Genetics*, 1979, 92, 573-94), and 'Construction of

integrated genetic linkage maps by means of a new computer package: JoinMap' (*The Plant Journal*, 1993, 3, 739–44). We owe much to him for his inspiration and knowledge.

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