

Preface

With the discovery of RNAi pathways and the histone code, epigenetics has become a popular and fast evolving research topic. Plant science has made a number of elementary contributions to this field, and the common elements of epigenetic systems have linked research groups interested in plant, fungal and animal systems.

This volume provides a comprehensive update on epigenetic mechanisms and biological processes in plants, illustrating the wider relevance of this research to work in other plant science areas and on non-plant systems. Directed at researchers and professionals, together with postgraduate students, it discusses recent advances in our knowledge of basic mechanisms and molecular components that control transcriptional and post-transcriptional silencing. An understanding of these mechanisms is essential for plant researchers who use transgenic lines for stable expression of a recombinant construct or for targeted inactivation of an endogenous gene. These aspects should be of special interest to the agricultural industry.

The volume also illustrates the relevance of epigenetic control systems to gene regulation and plant development, examining paramutation, genomic imprinting and microRNA-based gene regulation mechanisms. Finally, it demonstrates the significance of epigenetic systems to viral defence and genome organisation.

The depth and level of detail now attainable in individual research areas has encouraged a specialisation in the biological sciences that has often inhibited fruitful interaction across species or subject boundaries. By treating plant epigenetics as a group of basic molecular phenomena of wider relevance to the plant and non-plant research communities alike, it is hoped that this volume will help to establish new collaborations between research teams from different subject areas.

I would like to thank the authors who have contributed to this volume for their enthusiasm and commitment to the project.

P. Meyer