

Preface

With the emerging recognition that agriculture needs to approach sustainability, the plant–soil–water interactions become of paramount importance in crop systems. In this scenario, roots arise from a minor to a major role in the understanding of plant growth and development. Novel technologies allow us to scan genomes in the fastest way ever, and there is not a day without further developments leading to cheaper and more precise genotyping techniques. However, the complexity of underground metabolism and the responses of root systems to a variety of stresses call for improvements in phenotyping as well as genotyping techniques.

The idea of organizing a book on Root Genomics dates as back as early 1990s in the graduate benches of Purdue University. The fascination with a system so important for the plant but yet so unknown served as both an incentive and a challenge to pursue this line of research. In 2002, an important opening for root biology occurred when the late Dr. Mike Gale, *FRS*, agreed to include a workshop in Root Genomics at the Plant and Animal Genome Meetings, held yearly at San Diego, CA. Since 2003, this workshop has generated fruitful discussions and created new paths for root research. Many speakers from different countries shared their experience in root genomics, regardless if they were working with model or crop species. One of the speakers, Rajeev Varshney, was very impressive in his enthusiasm and determination to target important aspects of drought stress. Sharing the same enthusiasm for studying roots and stress responses was crucial to put the idea of this book forward. Many of the authors have presented their work in the Root Genomics Workshop, but all were chosen by their significant contributions to agricultural and plant sciences and their common efforts for a better world. We are grateful to all the authors who not only provided a timely review of the published research work in their area of expertise but also shared their unpublished results to offer an updated view. We also appreciate their cooperation in meeting the deadlines, revising the manuscripts and in checking the galley-proofs.

We are thankful to Dr Jeff L. Bennetzen, who as a brilliant geneticist was a great role model and a friend (ACO) that has indirectly inspired this line of research. We thank Dr. Ronald Phillips, a major pioneer in the field of plant genetics and

genomics and the father of many ideas that influenced modern plant sciences, for writing the foreword.

Both of us also recognize that the editorial work for this book took away precious time that we should have spent with our respective families. ACO acknowledges the efforts of his parents, Glauco and Izabel, for providing an atmosphere of learning and investigative thought during his young years, his wife Carla for her continuous encouragement, patience, and friendship, and his children Victoria (Vickie) and Eduardo (Dudu). Similarly, RKV acknowledges the help and support of his wife Monika and his children Prakhar (Kutkut) and Preksha (Nanu) who allowed their time to be taken away to fulfill RKV's editorial responsibilities in addition to research, managerial, and other administrative duties at ICRISAT and Generation Challenge Programme (GCP).

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