
Preface

Recent years have witnessed significant progress in the area of crop genomics mainly due to advances in next-generation sequencing and high-throughput genotyping. Such advances are driving genomics-assisted breeding (GAB), a discipline that has grown tremendously during the past decade, particularly for its applications to improve crop productivity and quality. This quantum leap has been possible through the continuous effort and dedication of those engaged in the translation of the findings of genomics research into improved genotypes and populations. As we anticipate a further reduction in genotyping/sequencing cost, translational genomics is expected to become a more integral part of crop breeding.

Biotic stress is one of the major factors behind crop losses. While a number of reports have been available on genomics approaches such as deciphering marker-trait association either through linkage or association mapping, some success stories have also been reported in recent years on translational aspects of this genomics research in crop breeding. However, the ever-changing and dynamic world of causal organisms of diseases and pests pose serious challenges to crop specialists to identify new resistant alleles and to target disease and pest resistance as well as to accelerate development of superior lines with enhanced resistance to biotic stresses. Therefore, there was an urgent need for a book in which translational genomics activities for resistance to key pests and diseases, success stories completed and in progress, and useful take-home messages from

GAB efforts in different crops would be compiled. Along these lines, the 16 chapters of *Translational Genomics for Crop Breeding, Volume 1: Biotic Stresses* include not only details on the aforementioned issues but also address perspectives and challenges in translational genomics for developing superior varieties and lines with enhanced resistance to biotic stresses.

We thank the authors (Appendix I) of different chapters for their commendable effort in summarizing the published and unpublished research and putting all the pieces together in a well-knitted, up-to-date manner, for the benefit of the research challenge in hand. In addition, the cooperation they have extended in terms of timely completion and revision of chapters is greatly appreciated. While editing this book, the strong support received from many other colleagues (Appendix II) willing to review the chapters is equally appreciated. Their constructive comments and suggestions have been instrumental in further improving the contents.

The editors are also grateful to colleagues and staff from their respective laboratories who helped complete the editing of the two volumes in parallel with their demanding responsibilities. In particular, Manish Roorkiwal, B. Manjula, Pawan Khera, and Mahendar Thudi helped RKV with the editorial work. The editors also wish to thank their respective families, as the editorial work for this book took away precious moments they should have spent together with their families. RKV is thankful to his wife Monika for her constant encouragement and

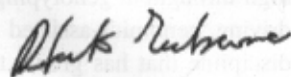
support, and to Prakhar (son) and Preksha (daughter) for their love and cooperation. Similarly, RT is equally thankful to his wife Kay for her support and editorial help. RKV would also like to extend his sincerest thanks to Dr. William D. Dar, Director General, ICRISAT, for his guidance and support in completing this book. The cooperation and help received from Justin Jeffries, Anna Ehlers, Kelvin Matthews, Erin Topp of Wiley Publishers, and Shikha Sharma of Aptara Corp. during various stages of development and completion of this book are gratefully acknowledged. RKV would also like to mention that the book was edited during the tenure of RKV as Director, Center of Excellence in Genomics (CEG), ICRISAT, Hyderabad (India), Theme Leader – Comparative and Applied Genomics (CAG), Generation Challenge Programme (GCP) and Adjunct positions at the University of Western Australia, Crops Research Institute of Guangdong Academy of

Agricultural Sciences (GAAS), China and BGI-Hongkong Research Institute, China.

We hope that this book will be helpful and useful as a ready guide to students, young researchers, crop specialists, GAB and translational genomics practitioners, and policy makers for developing crops more resilient to biotic stress.



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