

TABLE OF CONTENTS

Chapter 1	
Plant Cell Culture	1
Friedrich Constabel	
Chapter 2	
Basic Principles of Freezing Injury to Plant Cells: Natural Tolerance and Approaches to Cryopreservation	13
Harold T. Meryman and Robert J. Williams	
Chapter 3	
Cryobiology of Isolated Protoplasts: Applications to Plant Cell Cryopreservation	49
Peter L. Steponkus	
Chapter 4	
Biophysical and Ultrastructural Studies of Membrane Alterations in Plant Cells During Extracellular Freezing: Molecular Mechanisms of Membrane Injury	61
J. Singh and R. W. Miller	
Chapter 5	
Cryoprotective Compounds in the Viable Freezing of Plant Tissues	75
Bernard J. Finkle, Maria Elena Zavala, and Jane M. Ulrich	
Chapter 6	
Meristem Culture and Germplasm Preservation	115
K. K. Kartha	
Chapter 7	
Cryopreservation of Shoot-Tips of Fruit Trees and Herbaceous Plants	135
Akira Sakai	
Chapter 8	
Cryopreservation of Potato Meristems	159
G. G. Henshaw, J. F. O'Hara, and J. A. Stamp	
Chapter 9	
Low Temperature and Freeze-/Vacuum-Drying Preservation of Pollen	171
Leigh E. Towill	
Chapter 10	
Cryopreservation of Seed Germplasm for Genetic Conservation	199
Phillip C. Stanwood	
Chapter 11	
Cryopreservation of Embryos	227
Y. P. S. Bajaj	
Chapter 12	
Cryopreservation of Cultured Plant Cells and Protoplasts	243
Lyndsey A. Withers	
Index	269