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Kodoth Prabhakaran Nair


Combating Global Warming

The Role of Crop Wild Relatives for Food
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This book, written under very trying circumstances, is dedicated to my wife, Pankajam, a Nematologist trained in Europe, but, one who gave up her profession, and, instead, chose to be a home maker, more than four decades ago, when we had our son and daughter. She is my all, and, she sustains me in this difficult journey, that life is



India's great President late Dr. A. P. J. Abdul Kalam launching the book "**ISSUES IN NATIONAL AND INTERNATIONAL AGRICULTURE**", authored by Prof. Kodoth Prabhakaran Nair, in Raj Bhavan, Chennai, Tamil Nadu, India

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Addendum

During the final stages of completing this manuscript, we lost Charlie, our beloved canine pet, due to a brief illness in the evening of February 24, 2019. The joy he brought us, during his life, is irreplaceable. May his soul rest in peace.

Contents

| | | |
|----------|---|----|
| 1 | Introduction | 1 |
| 1.1 | Global Warming and Evolution of Wild Cereals | 13 |
| 1.1.1 | Domestication: The Bedrock of Evolution | 14 |
| 1.1.2 | The Progenitors of Cultivated Barley and Wheat | 14 |
| 1.1.3 | Performance of Wild Cereals Juxtaposed to Three Decades of Global Warming | 15 |
| 1.1.4 | Evolution of Wild Cereals During the Last Three Decades in Israel | 15 |
| 1.1.5 | Phenotypic and Genotypic SSR Results | 17 |
| 1.1.6 | Effect of Global Warming on Phenotypic and Genotypic Turnover of Wild Emmer Wheat and Wild Barley in Israel | 18 |
| | References | 19 |
| 2 | Wild Cereal Cultivation in Israel—Global Warming: An Important Link | 21 |
| 2.1 | Rice—Its Progenitors and Domestication | 23 |
| 2.1.1 | Rice—Its Domestication Traits | 24 |
| 2.1.2 | Rice Domestication—Conflicts Between Natural Selection and Human Selection | 24 |
| | References | 25 |
| 3 | Climate-Evolution—The Interrelationship | 27 |
| | References | 27 |
| 4 | The Adaptation Range of Wild Crop Species to Fluctuations in Climate Change | 29 |
| 4.1 | Strategies of Genetic Diversity | 30 |
| | References | 31 |

| | | |
|-----------|--|----|
| 5 | Importance of Crop Wild Relatives | 33 |
| | References | 33 |
| 6 | A Crop-Wise Comparison of Domestic Gene Pool with Wild Relatives on Ecogeographic Diversity | 35 |
| | 6.1 Wheat | 35 |
| | 6.2 Barley | 36 |
| | 6.3 Rice | 37 |
| | References | 39 |
| 7 | Relevance of Wild Relatives in Other Crops in Plant Breeding Programs | 41 |
| | References | 42 |
| 8 | Conservation Research and Crop Wild Relatives Use | 43 |
| | 8.1 How Does Climate Change Affect Crop Wild Relatives (CWR)? | 43 |
| | References | 44 |
| 9 | The Threats to Crop Wild Relatives | 45 |
| | 9.1 CWR—Is There a Red List? | 46 |
| | References | 47 |
| 10 | Gene Flow Between Cultivated Plants and Their Wild Relatives | 49 |
| | References | 51 |
| 11 | In Situ Conservation Research in CWR | 53 |
| | References | 54 |
| 12 | Ex Situ Conservation Research in CWR | 57 |
| | References | 59 |
| 13 | Utilizing CWRs in Major Food Crops to Combat Global Warming | 61 |
| | 13.1 Wheat | 61 |
| | 13.1.1 <i>Oryza Sativa</i> | 63 |
| | 13.1.2 <i>Zea Mays</i> | 63 |
| | 13.1.3 <i>Solanum Tuberosum</i> | 64 |
| | 13.1.4 <i>Cicer Arietinum</i> | 64 |
| | 13.1.5 <i>Lens Culinaris</i> | 65 |
| | 13.1.6 Utilization of Wild Relatives in the Breeding of Tomato and Other Major Vegetables | 65 |
| | 13.2 Conclusion | 74 |
| | References | 75 |

| | | |
|-----------|--|-----|
| 14 | The CWR of Minor Fruit Crops | 79 |
| | 14.1 The Potential of Honeysuckle | 79 |
| | 14.1.1 The Other Fruits of Siberia | 80 |
| | References | 81 |
| 15 | Ecosystem Services of Crop Wild Relatives | 83 |
| | 15.1 Principles Involved | 84 |
| | 15.2 The Impact of Climate Change on Biodiversity of CWR | 85 |
| | 15.3 Ecosystem Services of CWRs Functional Biodiversity | 87 |
| | References | 88 |
| 16 | Predictive Characterization of CWRs | 91 |
| | References | 92 |
| 17 | CWR and Pre Breeding in the Context of the International Treaty of Plant Genetic Resources for Food and Agriculture (PGRFA) | 93 |
| | 17.1 Conservation and Management of Plant Genetic Resources for Food and Agriculture (PGRFA) in Wild Ecosystems | 93 |
| | Reference | 94 |
| 18 | Pre Breeding by Utilizing CWR | 95 |
| | 18.1 ITPGRFA Benefit-Sharing Fund | 97 |
| | Reference | 100 |
| 19 | Economics of CWR Under Climate Change | 101 |
| | 19.1 Quantifying the Economic Value of CWR Under the Impact of Climate Change | 104 |
| | References | 107 |
| 20 | Conservation Economics of CWR | 109 |
| | References | 111 |
| 21 | The Millennium Seed Bank—Their Conservation Roles and the Svalbard Global Seed Vault | 113 |
| | 21.1 Project Activities of MSBP and SGSV on CWR | 115 |
| | 21.2 The Millennium Seed Bank (MSB) | 116 |
| | References | 117 |
| 22 | The Svalbard Global Seed Vault | 119 |
| | References | 120 |

Chapter 1

Introduction



Global warming is a reality man has to live with. This is a very important issue to recognize, because, of all the parameters that affect human existence, on planet earth, it is the food security that is of paramount importance to life on earth and which is most threatened by global warming. Future food security will be dependent on a combination of the stresses, both biotic and abiotic, imposed by climate change, variability of weather within the growing season, development of cultivars more suited to different ambient conditions, and, the ability to develop effective adaptation strategies which allow these cultivars to express their genetic potential under the changing climate conditions. These may appear as challenges which may be impossible to address because of the uncertainty in our ability to predict future climate. However, these challenges also provide us the opportunities to enhance our understanding of soil–plant–atmosphere interaction and how one could utilize this knowledge to enable us achieve the ultimate goal of enhanced food security across all areas of the globe.

Those plant species which are very closely related to field crops, including their progenitors, which have the potential to contribute beneficial traits for crop improvement, such as, resistance to an array of biotic and abiotic stresses, and to enrich the gene pool, leading ultimately to enhanced plant yield, thereby aiding humanity's relentless search for production of more food to meet the ever growing needs of a burgeoning population, are called "Crop Wild Relatives" (CWRs). In fact, CWRs are known to have tremendous potential to sustain and enhance global food security, thereby contributing enormously to humanity's well-being. Therefore their search, characterization, and conservation in crop breeding programs assume great importance. Viewed against the recent global climate upheavals in global climate change, the task becomes all the more important. Against the background of the disastrous after effects, especially the alarming environmental hazards of the highly soil extractive farming, euphemistically known as the "green revolution", of the 1960s, the task assumes much cruciality. Global warming is a real threat to humanity *vis-a-vis* crop production. Anthropogenic release of green house gases is fast affecting climate change leading to global warming. This is bound to increase soil organic matter decomposition and aggravate soil water deficits in the years to come. Greater