

Climate Change and Temperate Fruit Production: Opportunities, Challenges and Mitigation Strategies

Haseeb Ur Rehman, Faheem Jeelani,
Farheen Naqash and Mansoor Hussain

SKUAST-K, Shalimar

Abstract—Climate change is a change of climate over comparable period of time that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere. There are many projections how our climate will look like; temperature projections predict an increase from 1, 4 up to 6, 4 °C by the year 2100 while CO₂ concentration might increase to 850 ppm. The effect of global warming is now visible in many parts of the world. Impacts of climate change are complex as they can be both direct and indirect, the biggest casualty being natural resources such as agriculture and allied sector. Climate change has pronounced effect on dormancy and chilling requirement, phenology, occurrence of spring frosts and other climatic vagaries, pollination, insufficient available water, pest and disease incidence, fruit set, yield, fruit quality, shift in cultivation, post harvest quality and many more. Insufficient chilling greatly influences flower initiation and fruit colouration along with deterioration in fruit texture, taste and poses problems like scab disease, premature leaf fall and infestation of red spider mite in temperate fruits. To sustain the productivity, modification of present horticultural practices and greater use of greenhouse technology, development of new cultivars of temperate fruit crops tolerant to high temperature, resistant to pests and diseases, short duration and producing good yield under stress conditions, as well as adoption of hi-tech horticulture, judicious management of natural resources, use of GIS to match cultivars with the projected suitable production locations, development of suitable dormancy and chilling models, altering orchard microclimate and use of rest breaking chemicals will be the main strategies to meet this challenge.