



Effect of Climate Change on Plantation Crops

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Abstract

Change in time and space patterns of precipitation, temperature, and wind is regarded as climate. Climate and weather plays a major role in crop distribution and crop productivity. Crop habit depends on genotype and phenotype which is decided by climate. The crop phenology is sensitive to vagaries in weather and it differs from crop to crop. Oil palm is more vulnerable to climate change due to excessive dependence on ground water. For every 1°C rise in temperature the water requirement is estimated to increase by 10%. Higher temperatures can reduce or even halt photosynthesis, prevent pollination and anthesis decrease number of female inflorescences and abortion of bunches leading to bunch failure. Reduction in yields, variation in flowering, fruit setting, nut development and kernel quality, higher incidence of pests and diseases in cashew is due to climate change. Water deficit during the critical stages of fruit development also brings about a high risk of black beans, small beans in coffee. Rainfall, temperature, and CO₂ plays critical role in tea production. If temperature > 30°C and < 5°C lowers the production in tea.

Keywords: climate, plantation crops and genotype

In view of food and nutritional security of growing population which is expected to be 9.5 billion at the end of 2050, with global, regional and national dialogues for mitigation and adoption strategies for climate change. Occurrence of drought and floods, change in rainfall pattern and sudden change in temperatures, which will have great impact on the growth pattern of plant, flowering, fruiting and yield and quality of produce, susceptible to pest and diseases. The impact of climate change and handling the challenges of climate change in terms of adaptation and mitigating strategies are the main objective of discussion.

Horticulture crops have different response to the environmental factors some may benefit from higher amount of carbon dioxide, while flowering and fruiting may not occur, some crops may extend in area due to less occurrence of frost, while some crops may shift from mid hills to upper hills. Therefore,

understanding the impacts of environmental conditions in a given crop under specific situation becomes inevitable in horticulture as most of the horticultural crops are long duration or perennial in nature.

Climate refers to time and space patterns of precipitation, temperature, and wind according to "IPCC, 2007" climate change refers to a change in the state of climate that can be identified by change in mean and/or the variability of its properties, and that it persist for an extended period. The carbon dioxide, methane, nitrous oxide, sulphur dioxide etc. Form green house gas (GHGS) pools in the atmosphere. Increase in GHGS is responsible for global climate

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