

Control of Abiotic Factors in Greenhouse

Jnana Bharati Palai*, Subhankar Purohit, Samapika Dalai and Sagar Maitra

Center for Smart Agriculture, Centurion University of Technology and Management, Odisha-761211

*Corresponding author: jnana@cutm.ac.in

Abstract

The extended increment of the total populace, combined with the contracting territory of cultivable land needed to fulfill future requirement of foods, is creating enormous pressure on limited agrarian assets. As an option in contrast to customary cultivating strategies, crops can be developed in protected conditions, for example, in greenhouses. These are normally more beneficial and use assets more effectively than traditional cultivating and are presently accepting a lot of consideration particularly in metropolitan and peri-metropolitan regions. However, creation of congenial environmental conditions inside protected structures irrespective to outside atmospheric condition is difficult and needs different approaches. In this chapter, the techniques of control of different abiotic factors like light, temperature, humidity, and CO₂ affecting crops cultivated under greenhouse condition have been addressed. It also includes information related to use of sensors to control the climatic factors.

Keywords: Greenhouse, light, temperature, humidity, CO₂, sensors

1. Introduction

In the course of recent years, the idea of augmenting a practical yield for every unit territory has been the essential objective of agribusiness and agriculture ventures, because of populace development, environmental change, shortage of water, shrinkage of farm land and biotic and abiotic worries to crops (Lambin and Meyfroidt 2011; FAO 2016; Fedoroff 2016). More than 66% of the total populace will be urbanized by 2050 (Benis and Ferao 2018), while the accessible arable land is extended to diminish by 33% (FAO 2016). Agriculture is the mainstay of economic growth for many developing countries like India and in most of the cases age-old technologies are adopted. During recent times, the protected cultivation as well as