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Chapter

5

Irrigation and Fertigation in Protected Cultivation

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Abstract

Production of crops is a challenging task, with crops continually exposed to adverse weather conditions. In deciding the rate of crop production, weather and climatic conditions play an important role. However, there is no scope for any restrictions during times when global food security is heavily dependent on crop production. The quest for solutions has therefore culminated in farm management activities involving agriculture in a controlled environment. In a controlled climate, greenhouse farming is one of the essential variants in farming. Greenhouses are mainly intended to provide optimal growing conditions and to protect crops from adverse weather and different pests. In recent decades, the application of plant protection agents by irrigation systems such as herbicides, fungicides, insecticides, growth regulators and biocontrol agents has increased rapidly. In this work description of irrigation and fertigation systems used in greenhouse are presented.

Keywords: Drip irrigation, efficient water use, fertigation, greenhouse

1. Introduction

Protected cultivation is defined as a technique in which the microclimate around the plant is fully, partially or altered in order to protect the crop from adverse weather. It facilitates soil moisture conservation and the effective use of energy, primarily solar energy. It is required for higher returns, year-round farming, improved crop quality, off-season production, assured output, self-employment for educated rural youth in the agricultural sectors, lower residues of pesticides, managed pollination, weather vagaries, easier conservation of plants and free cultivation of weeds. Protected cultivation of high-value crops has emerged as the leading most crucial technology to ensure high production, improved quality and financially viable returns as markets