

Protected Cultivation of Horticultural Crops: Increases Productivity per Unit of Area and Time

Authors : Deepak Loura

Abstract : The most contemporary method of producing horticulture crops both qualitatively and quantitatively is protected cultivation, or greenhouse cultivation, which has gained widespread acceptance in recent decades. Protected farming, commonly referred to as controlled environment agriculture (CEA), is extremely productive, land- and water-wise, as well as environmentally friendly. The technology entails growing horticulture crops in a controlled environment where variables such as temperature, humidity, light, soil, water, fertilizer, etc. are adjusted to achieve optimal output and enable a consistent supply of them even during the off-season. Over the past ten years, protected cultivation of high-value crops and cut flowers has demonstrated remarkable potential. More and more agricultural and horticultural crop production systems are moving to protected environments as a result of the growing demand for high-quality products by global markets. By covering the crop, it is possible to control the macro- and microenvironments, enhancing plant performance and allowing for longer production times, earlier harvests, and higher yields of higher quality. These shielding features alter the environment of the plant while also offering protection from wind, rain, and insects. Protected farming opens up hitherto unexplored opportunities in agriculture as the liberalised economy and improved agricultural technologies advance. Typically, the revenues from fruit, vegetable, and flower crops are 4 to 8 times higher than those from other crops. If any of these high-value crops are cultivated in protected environments like greenhouses, net houses, tunnels, etc., this profit can be multiplied. Vegetable and cut flower post-harvest losses are extremely high (20-0%), however sheltered growing techniques and year-round cropping can greatly minimize post-harvest losses and enhance yield by 5-10 times. Seasonality and weather have a big impact on the production of vegetables and flowers. The variety of their products results in significant price and quality changes for vegetables. For the application of current technology in crop production, achieving a balance between year-round availability of vegetables and flowers with minimal environmental impact and remaining competitive is a significant problem. The future of agriculture will be protected since population growth is reducing the amount of land that may be held. Protected agriculture is a particularly profitable endeavor for tiny landholdings. Small greenhouses, net houses, nurseries, and low tunnel greenhouses can all be built by farmers to increase their income. Protected agriculture is also aided by the rise in biotic and abiotic stress factors. As a result of the greater productivity levels, these technologies are not only opening up opportunities for producers with larger landholdings, but also for those with smaller holdings. Protected cultivation can be thought of as a kind of precise, forward-thinking, parallel agriculture that covers almost all aspects of farming and is rather subject to additional inspection for technical applicability to circumstances, farmer economics, and market economics.

Keywords : protected cultivation, horticulture, greenhouse, vegetable, controlled environment agriculture

Conference Title : ICASFS 2023 : International Conference on Agriculture and Sustainable Food Systems

Conference Location : Sydney, Australia

Conference Dates : August 24-25, 2023