

## **Microclimate suitability for green and coloured sweet pepper hybrids in open and protected structures in sub-tropical humid climate of West Bengal**

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### **ABSTRACT**

A study was undertaken for two consecutive seasons (autumn-winter) to evaluate the performance of three green, red and yellow-fruited sweet pepper hybrids in open field and under two protected structures (50% green shade net house and naturally-ventilated polyhouse) to understand the microclimate suitability for maximizing the productivity of these hybrids under sub-tropical humid climatic condition of eastern India. In this climatic condition, naturally-ventilated polyhouse was most suitable for enhancing fruit yield of both green and coloured fruited hybrids. Open field condition was not suitable for both yellow and red-fruited hybrids. Though green-fruited hybrids could be grown in open field condition, fruit yield was more than double under polyhouse. Shade net house could not be considered as a suitable protected structure for sweet pepper in this climatic condition because of reduced light intensity and high relative humidity inside it causing low fruit set and high incidence of bacterial wilt disease. Maximum/minimum temperature 30°C to 33°C / 14°C to 17°C with comparatively reduced light intensity of 35,000 to 55,000 lux, prevention of adverse effect of low night temperature during winter and  $\leq 60$  per cent relative humidity condition during flowering, fruit set and fruit development period inside the naturally ventilated polyhouse were most suitable growing conditions for getting maximum productivity of both green and colour-fruited hybrids of sweet pepper.

**Key words:** Polyhouse, shade net, sweet pepper hybrid, microclimate, insect-pest.