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**Abstract:** Tomato and Bell pepper are the important vegetable crops grown all over the world. These crops were found to be affected by a number of diseases which caused substantial economic losses in yield. Observation recorded during Kharif, 2007 showed *Cercospora* leaf spot, *Septoria* leaf spot, Powdery mildew, leaf curl *Fusarium* fruit rot and blossom end rot to be the major diseases prevalent in polyhouse, shade net and open field. The causal organisms were identified based on morphological features. *Cercospora* leaf spot of bell pepper appeared during the 2nd week of September in polyhouse, shade net and open field and its intensity gradually increased till the harvest of the crop. Maximum apparent infection rate of 0.246 unit/day in polyhouse, 0.233 unit/day in shade net and 0.188 unit/day in open field were calculated. *Septoria* leaf spot of tomato appeared during the 2nd week of September in shade net and open field. The disease did not appear in the polyhouse. Maximum apparent infection rate of 0.193 unit/day and 0.211 unit/day on var. Suraksha and Punjab Kesari respectively in shade net were calculated. In open field the maximum infection rate of 0.164 unit/day and 0.214 unit/day on var. Suraksha and var. Punjab Kesari in shade net were calculated. Powdery mildew of bell pepper appeared during 2nd week of November in polyhouse only. The disease did not appear in shade net and open field. Maximum apparent infection of 0.217 unit/day was calculated during peak period of disease development. Leaf curl appeared during the 2nd week of Sep. in polyhouse, shade net and open field and its intensity increased gradually till the harvest of the crop. Maximum infection rate of 0.199 unit/day in polyhouse, 0.220 unit/day in shade net and 0.220 unit/day in open field were calculated. Average relative humidity of 88.42 to 61.36 per cent, average temperature of 54.60C – 16.90C, average rainfall 31.9mm, average sunshine hours 44.35 lux and average wind velocity 2.21km/hr. during the peak period of disease development favoured *Cercospora* leaf spot, *Septoria* leaf spot and leaf curl diseases. Average relative humidity of 87.04 to 54.87 per cent, average temperature of 21.240C – 7.370C, average rainfall 0.008mm, average sunshine hours 61.75 lux and average wind velocity 1.87km/hr. favoured powdery mildew of bell pepper. The vegetative growth and fruit yield in polyhouse and shade net was higher as compared to that in open field conditions. The fruit yield in polyhouse and shade net was 2.6 and 1.8 times more as compared to open field in bell pepper crop. In tomato, the fruit yield of var. Suraksha in polyhouse and shade net was 7.6 and 1.5 times more as compared to open field. In var. Punjab Kesari the fruit yield was 1.5 times and 4.4 times higher in polyhouse and shade net as compared to open field. The correlation regression analysis among different environmental parameters of epiphytotic revealed that minimum relative humidity, minimum temperature, rainfall and wind velocity showed significant negative effect on the disease development. Multiple regression equation of the above mentioned diseases with weather variables exhibited strong relationship among different components of epiphytotic. The coefficient of multiple determination (R<sup>2</sup>) indicated that the combined effect of different weather variables favoured the disease development causing upto 80-95 per cent variations in the disease intensity. In antagonism, all the three antagonists, *T. harzianum*, *T. viride* and *G. viren* overgrew the colony of *C. capsici*, *S. lycopersici* and *Fusarium* sp. In dual culture, among antagonists, *T. harzianum* parasitized the test pathogens earliest. Out of the six fungicides evaluated Carbendazim (200ppm), Hexaconazole (200ppm), Carbendazim + Mancozeb (1000ppm) and Mancozeb (2000ppm) completely inhibited the growth of *C. capsici*, *S. lycopersici* and *Fusarium* sp.

**Description:** Occurrence of major diseases of bell pepper and tomato under low cost polyhouse

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