

Influence of weather variables on the development of pearl millet downy mildew

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ABSTRACT

The present study was undertaken during 2016 to 2018 to find out the effect of different weather variables on the initiation and development of downy mildew in pearl millet in Punjab. The maximum temperature ranged from 32.8°C to 36.9°C and minimum temperature ranged from 17.2°C to 27.8°C during the crop season. The correlation analysis showed significant negative correlation of maximum temperature ($r = -0.665^*$), minimum temperature ($r = -0.776^{**}$), wind speed ($r = -0.898^{**}$), rainfall ($r = -0.625^{**}$) and non-significant negative correlation of evening relative humidity ($r = -0.523$) with downy mildew incidence. The positive correlation with morning relative humidity ($r = 0.871^{**}$) was significant and sunshine hours ($r = 0.321$) were non-significant with per cent disease incidence. A multiple regression model was developed using two years (2016 and 2017) data to predict the occurrence of downy mildew with $R^2 = 0.981$, indicating that all weather parameters contributed 98.1 per cent towards disease development. The model was validated with 2018 data which shows that equation can be used in the disease forecasting for taking timely actions for control measures.

Keywords: Downy mildew, pearl millet, *Sclerospora graminicola*, disease incidence, weather variables