

## Correlation of Cotton (Hybrid NHH 44) bacterial blight intensity with meteorological Parameters

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### SUMMARY

Cotton hybrid of NHH 44 was grown during the year 2002-03 and 2003-04 at Marathwada Agricultural University Campus, Parbhani and farmer's field at Asola, District Parbhani (Maharashtra). Observations of bacterial blight were recorded from the occurrence of the disease till harvest of the crop. Observations of the meteorological parameters 4 and 7 days prior to bacterial blight intensity and their cumulative sum at these stages were correlated with bacterial blight disease intensity.

At farmers field at 4 and 7 days before disease intensity per cent, relative humidity (a.m. and p.m.), minimum temperature (°C), per cent mean relative humidity, rainfall (mm) and wind velocity (kmph) were positively and significantly correlated with bacterial blight intensity during the year 2002-03 and 2003-04. At 7 days before observation of disease maximum temperature, bright sunshine (hrs) were positively and significantly correlated with bacterial blight intensity for protective and unprotective crop during the year 2002-03.

Key words : Correlation, cotton, bacterial blight intensity, meteorological parameters.

**B**acterial blight of cotton is one of the important diseases of cotton prevalent in almost all the cotton growing areas of India Srinivasan, (1994). Disease is endemic in Marathwada region resulting in huge losses Meshram *et al.*, (1998); Mishra and Krishna, (2001) and Patil *et al.*, (2001) and (2003).

Several workers in past have correlated bacterial blight intensity with weather parameters. Verma and Singh (1971) considered relative humidity above 75 % and early raining as highly favourable factors for disease development. Similarly, high relative humidity for favouring disease development has been shown by Khan *et al.* (1999) and Chattanawar *et al.* (2002). Also a temperature ranging between 20 to 32°C has been reported to favourable for disease development (Khan *et al.* 1999; Chattanawar *et al.*, 2002). In the light of these studies efforts have been made in present study to correlate intensity of bacterial blight with weather variables in cotton variety PA 183 for two years i.e. 2002-2003 and 2003-04.

### MATERIALS AND METHODS

Two plots of cotton hybrid NHH 44 were raised at Meteorology Department of Marathwada Agricultural University Campus, Parbhani having gross area of 25 x 20 metres each. One of the plots did not receive any fungicidal application. The other plot was protected with recommended fungicidal application (Copper oxychloride 0.25 %). In farmers field at Asola village, only protected plot was grown. Crop was sown at the spacing of 90 x 60 cm<sup>2</sup>. Experimental plots were applied with recommended fertilizers i.e. 80 kg N (two split doses) + 40 kg P<sub>2</sub>O<sub>5</sub> and 40

kg K<sub>2</sub>O/ha. The plots were kept weed free by regular hoeings and hand weedings. Insecticidal (dimethoate, metasystox, endosulfan, quinalphos) application was made to protect these plots from insect damage. Bacterial blight intensity was recorded in 0 to 4 scale as described by Raj (1998). Per cent disease intensity was computed on the basis of observations recorded on 5 plants at random from each plot. Observations were continued from occurrence of disease till 180 days of crop growth i.e. crop harvest, at weekly interval. The cotton hybrid NHH 44 plots at Marathwada Agricultural University, Parbhani and on farmers field were sown on 29.6.2002 and 4.7.2003 during 2002-03 and 2003-04, respectively. Daily observations of meteorological parameters such as minimum and maximum temperature (°C), RH (% a.m.), RH (% p.m.), rainfall (mm), wind velocity (kmph), bright sunshine (hrs) were recorded at Meteorological Laboratory located near to Experimental Plot at Marathwada Agricultural University, Parbhani during crop growth period. Same observations were considered for experimental plot on farmers field which was about 8 kms away from this site. From these observations minimum temperature/day, minimum relative humidity/day, etc. were computed.

Correlations between meteorological parameters and intensity of bacterial blight in farmers field and at MAU, Parbhani in protected and unprotected plots were calculated with the help of computer software designed for such studies. Considering incubation period of bacterial blight and expressions of symptoms, meteorological parameters existing at 4 and 7 days prior to observations of bacterial blight intensity were correlated with bacterial blight

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