Research Article

Effect of Weather Variables on Makhana Leaf Spot and Development of Geo-phytopathological Model for its Forecasting in the Koshi Zone of Bihar

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Abstract

Impact of weather variables *viz*., temperature, humidity and rainfall on the development of leaf spot disease of makhana in the Koshi Zone of Bihar has taken under investigation, while the crop season (March-August), 2019 and 2020. The studies stated that maximum leaf spot severity of 16.75and 17.67 per cent was showed in mid-July, 2019 and 2020, respectively. However, the disease severity was minimum during April 2019 and 2020. Disease severity reached its plateau, when the respective mean temperature and RH was 32.7 C and 85.5 per cent in June-August, 2019. Similar trend of plateau was seen in June-August, 2020, when the respective mean temperature and RH was 35.2 C and 86.9 per cent. The respective average rainfall recorded in 2019 and 2020 favoring the maximum severity were 138.5 and 148.0 mm. The correlation of leaf spot severity with weather variables was strong positive relation, which was 0.983 with the mean temperature, 0.965 with the mean relative humidity and 0.959 with rainfall at 1 per cent level of significance. Regression analysis also supported the mentioned value of weather variables as an optimum value responsible for leaf spot disease. A geo-phytopathological model (HTR = MRH / MT) for the forecast of leaf spot in makhana was developed as per congenial mean temperature and mean relative humidity.

Key words: Correlation, geo-phytopathological, leaf spot, makhana, model, weather variables

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