

Research Article

Epidemiological Investigations on Whip Smut of Sugarcane and Elucidation of Sugarcane Genotypes for Possible Resistance

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Abstract

In two year survey (2016 & 2017), ten varieties (including plant and ratoon) *i.e.* CoM 265, Co J 64, Co 7219, Co 8014, Co 94012, CoM 261 (33.5%), Co 0238, Co VSI 8005, CoS 88230 and CoK 8001 were found to affected severely (>10 to 33.5 per cent) by whip smut (*Sporisorium scitamineum*) of sugarcane at different locations in Madhya Pradesh. Out of ninety one plus one check under inoculated field condition (two consecutive years), only twenty two clones, nine (early) *i.e.* Co 08001, Co 10027, CoM 10081, CoT 10366, Co 11004, CoM 11081, CoT 11366, CoM 12083, CoT 12366 and thirteen (mid late) *i.e.* CoN 10073, CoT 10368, CoT 10369, CoVC 10061, PI 10131, Co 11005, Co 11007, Co 11021, Co 11023, Co 12014, Co 12019, Co 12021, CoN 12073 were found to be resistant and others were exhibited moderately resistant to highly susceptible reactions against whip smut of sugarcane, respectively. All the infected genotypes were also observed for per cent cane yield reduction which has varied from 3.2 to 28.1 and 7.3 to 43.1 in moderately resistant to high susceptible genotypes for plant and ratoon, respectively. Regression analysis revealed that per unit increase in smut incidence in plant crop caused cane yield reduction by 0.938 and 1.33 per cent in plant and subsequent ratoon, respectively. As per the weather data, whip emergence was found to be higher in the range of average max temp, min temp and RH of 35.7 - 42.9 C, 25.8- 27.8 C and 25.2- 67.8 per cent in primary cycle and of 30.7- 35.2 C, 15.9 -23.4 C and 54.8-69.6 per cent in secondary cycle, respectively. In this, maximum temp and minimum temp were found to be significantly positively correlated with whip emergence.

Key words: Meteorological factor, resistance, sugarcane, whip smut, yield losses

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