

Field Screening of some Tomato Genotypes against Borer Pest under Terai Agroecological Conditions of West Bengal

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Abstract—In India, West Bengal is an important state for vegetable production including tomato (*Lycopersicon esculentum* Mill). In respect of food and nutritional security, vegetables play an important role in Indian Agriculture. Among the vegetables, tomato is the important solanaceous vegetable which contributes the major portion of our daily diet. Like other crops, tomato is also attacked by the different insect pests. The crop loss caused by several insect pests could be minimized through complete understanding incidence pattern of different insect pests, sources of resistant or tolerant varieties against insect species/biotypes etc. Hence, the present investigation was undertaken to screen out six important tomato genotypes for resistance/ tolerance against fruit borer under terai agroecological conditions of West Bengal. Experiment was carried out at Instructional Farm of Uttar Banga Krishi viswavidyalaya, Pundibari, Cooch Behar, West Bengal, from December'2016 to April 2017. Six tomato genotypes viz. Patherkuchi, Ruby, NS501, Roja cherry, Romeo and Priya were screened against *Helicoverpa armigera* and *Spodoptera litura* under field conditions. Genotypes were designated as less susceptible (LS), moderately susceptible (MS), highly susceptible (HS) and tolerant /resistant (T/R) types depending on their reactions to insect infestation. The pest first appeared on the crop at 15 days after transplanting and the peak was reached in the third to fourth week of March in most of the genotypes. The maximum temperature ($r= 0.602$), minimum temperature ($r= 0.557$) and sunshine hour ($r=0.071$) showed positive correlation, whereas maximum relative humidity ($r= -0.003$) minimum relative humidity ($r= -$

0.156) and rainfall ($r = -0.150$) showed negative correlation with fruit borer incidence. Results showed that none of test genotypes were found either as tolerant or resistant against both the borer pest. In terms of relative susceptibility against *Helicoverpa* & *Spodoptera*, the tomato genotypes could be arranged in the following sequence (higher to lower): NS 501 > Ruby > BSS 908 (Priya) > Romeo > Roja > Patherkuchi and NS 501 > Ruby > Romeo > Roja > BSS 908 (Priya) > Patherkuchi respectively. Here Patherkuchi was found less susceptible and others were moderately susceptible (Roja cherry, Romeo, Priya and Ruby) to highly susceptible (NS501). The outcome of the present study could be useful for using less susceptible and moderately susceptible genotypes for incorporation in the crop rotation scheme. Further, the less susceptible variety (Patherkuchi) may be further characterized using molecular tools.