Uttar Pradesh J. Zool. 30(2) : 201-203, 2010 ISSN 0256-971X

SCREENING OF TOMATO VARIETIES/ HYBRIDS AGAINST FRUIT BORER, *HELICOVERPA ARMIGERA* (HUBNER)

S.P. KURL AND ANIL KUMAR
DEPARTMENT OF ZOOLOGY, M.M.(PG) COLLEGE,
MODINAGAR-201 204, INDIA
(e-mail : sp-kurl@yahoo.com)

Seven tomato varieties/ hybrids *viz.* Pusa Ruby, Dev, S.King, Raja, Kesri, G.Kuber and Pusa early dwarf were screened against fruit borer, *Helicoverpa armigera* (Hubner) during 2004-06. Results revealed that none of these varieties/ hybrids escaped from fruit borer attack. However, there were significant differences amongst the varieties in larval populations and percent fruit damage. Pusa Ruby and Pusa early dwarf were the less susceptible hybrids whereas Dev and G.Kuber were the most susceptible to fruit borer. The rest of varieties were moderately susceptible to *H. armigera.*

Key words: Hybrid varieties, Tomato damage, *Helicoverpa armigera.*

INTRODUCTION

Tomato (*Lycopersicon esculentum* L.) is one of the most important vegetable crop cultivated for its fleshy fruits. This is grown all over India covering maximum area in Uttar Pradesh (Parihar & Singh, 1985). Tomato crop attacked by several arthropod pests out of them the fruit borer, *Helicoverpa armigera* (Hubner) is an important key pest of agricultural crops all over the world. It is polyphagous in nature and caused 20% to 80% losses in fruit yield of tomato. Now-a-days it has become a very serious pest of tomato crop. Keeping this in view, seven tomato varieties/ hybrids were screened against fruit borer, *H. armigera* in western Uttar Pradesh.

MATERIALS AND METHODS

To screen tomato varieties/ hybrids against fruit borer, *Helicoverpa armigera* (Hubner) seven tomato varieties namely Pusa Ruby, Dev, S.King, Raja, Kesri, G.Kuber and Pusa early dwarf were planted in randomized block design in plot size of 5.4 X 3.0m with three replications in Meerut regions of western Uttar Pradesh. The varieties were transplanted in the 1st fortnight of January during 2004-06. Crops were raised as per normal agronomical practices and allowed to have a natural infestation of the pest. The larval population of *Helicoverpa armigera* was recorded on 100 plants of each variety in each replication. At picking the damaged fruit of all varieties/ hybrids were counted and also waited against healthy fruits. The present fruit damage (by number and by weight) was calculated.

RESULTS AND DISCUSSION

Results on larval population and percent fruit damage in seven varieties are presented in Table I, indicated that none of the variety escaped from fruit borer attack. However, there were significant differences amongst the varieties.

During 2004, differences in larval population and percent fruit damage in varieties were significant. However, variety Pusa Ruby and Pusa early dwarf supported less to the

Table 1 : Screening of tomato varieties/ hybrids against *H. armigera* during 2004-06.

Variety	Larvae/ m. row				Fruit damage (%)			
	2004	2005	2006	Ave.	2004	2005	2006	Ave.
Pusa Ruby	1.98 (1.73)[a]	2.10 (1.76)	1.95 (1.72)	2.01 (1.73)	14.8 (22.63)b	17.3 (24.58)	15.6 (23.26)	15.9 (23.50)
Dev	5.21 (2.49)	5.33 (2.51)	4.60 (2.37)	5.05 (2.46)	34.3 (35.85)	35.9 (36.61)	34.4 (35.91)	34.9 (36.21)
Raja	3.56 (2.13)	3.93 (2.22)	3.34 (2.08)	3.61 (2.15)	21.8 (27.83)	24.7 (29.80)	21.0 (27.27)	22.5 (28.32)
Kesri	4.00 (2.23)	4.63 (2.38)	3.15 (2.04)	3.93 (2.22)	30.3 (33.40)	31.7 (34.27)	20.3 (26.78)	27.4 (31.56)
S.King	3.91 (2.22)	4.00 (2.23)	3.64 (2.15)	3.85 (2.20)	24.5 (29.00)	26.9 (31.17)	27.7 (31.76)	26.4 (30.91)
G. Kuber	4.33 (2.31)	4.91 (2.43)	4.05 (2.24)	4.43 (2.33)	25.1 (30.07)	27.2 (31.44)	30.1 (33.27)	27.5 (31.63)
PED	2.53 (1.88)	2.73 (1.93)	2.45 (1.76)	2.57 (1.89)	19.4 (26.13)	23.9 (29.26)	19.5 (26.20)	20.9 (27.20)
Se(m)±	(0.02)	(0.02)	(0.05)	(0.03)	(0.13)	(0.77)	(0.14)	(0.08)
CD at 0.05%	(0.06)**	(0.06)**	(0.15)**	(0.09)**	(0.40)**	(2.37)**	(0.43)**	(0.25)**

a : Denotes the $\sqrt{x+1}$ values; **b** : denotes the angular values; ** : significant at 1%;
Ave : Average.

larval population (1.98 and 2.53 larvae/ m. row) resulted low percent fruit damage (14.8% and 19.4%, respectively). Both varieties were statistical at par followed by Raja (3.56 larvae/ m. row and 21.8% fruit damage) and S.King (3.91 larvae/ m. row and 24.5% fruit damage). In the remaining varieties the larval population and percent fruit damage ranged from 4.0 to 5.21 larvae/ m. row and from 30.3% to 34.3%, respectively.

In 2005, differences in larval population and percent fruit damage in varieties were significant. The lowest number of larvae (2.1 larvae/m. row) and percent fruit damage (17.3%) was observed in Pusa Ruby which was statistical at par with Pusa early dwarf (2.73 larvae/ m. row and 17.3% fruit damage). While it was highest in Dev (5.33 larvae/ m. row and 35.9% fruit damage) followed by G.Kuber, S.King and Raja in which the incidence of fruit borer ranged from 3.93 to 4.91 larvae/ m. row and from 21.8% to 27.2% fruit damage.

The similar results were also obtained during the year 2006. The intensity of attack of fruit borer was comparatively low in this year. The less number of larvae (1.95 and 2.45/m. row) were recorded in Pusa Ruby and Pusa early dwarf resulted low percent fruit damage (15.6 and 19.6%, respectively). While the number of larvae and percent of fruit

damage (4.6 larvae/ m row and 34.4%) was more in Dev which was statistical at par with G.Kuber and in the rest of the varieties the larval population and percent of fruit damage was ranged from 3.15 to 3.64 larvae/ m. row and from 20.3 to 27.7%, respectively (Table I).

On the basis of three years results, Pusa Ruby and Pusa early dwarf were the less susceptible and Dev and G.Kuber were the most susceptible to fruit borer. The rest of the varieties were moderate susceptible. The differences in fruit damage were also reported by Sharma *et al.* (1999), Chaudhuri *et al.* (2000) and Sahu *et al.* (2005). Thakur & Singh (2000) reported that variety Pusa Ruby (11.37% fruit damage) was moderately resistance to fruit borer.

ACKNOWLEDGEMENT

The Principal, M.M. College, Modinagar is gratefully acknowledged for providing necessary laboratory facilities to undertake the present study.

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