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Screening of some genotypes of brinjal for their relative resistance against shoot and fruit borer (*L. orbonalis*)

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Abstract

Studies were carried out on screening of some genotypes of brinjal for their relative resistance against shoot and fruit borer (*Leucinodes orbonalis* Guenee) on brinjal (*Solanum melongena* L.) at Regional Horticultural Research Station Farm, NAU, Navsari during 2011-12. The results revealed that out of fourteen genotypes of brinjal lowest per cent shoot damage by *L. orbonalis* (2.26%) was recorded on genotype JBGL-10/20 and minimum per cent damaged fruits were found in genotype AB-9/5 (6.44%). Among all genotypes AB-8/5 recorded highest (21.42 q/ha) yield.

Keywords: Brinjal, varietal screening, *L. orbonalis*

Introduction

Brinjal, Eggplant or Aubergine is an important vegetable crop in tropical and sub-tropical countries particularly in India, Japan, Indonesia, Bulgaria, Italy, France, USA and several African countries. Shoot and fruit borer (*L. orbonalis*) larva bores into young growing shoots. As a result, growing point is killed. Dropping of the wilted shoot is a typical symptom of the damage. Immediately after fruit setting, the larva attacks on young fruits. The damaged fruits become useless for human consumption. Loss on yield due to this pest was reported up to 40 to 45 per cent by (Singh, 2000 and Krishna *et al.*, 2001). The studies on screening of fourteen genotypes of brinjal i.e AB-07/2, AB-8/6, AB-8/5, AB-8/14, AB-9/1, AB-10/4, AB-10/14, JBG-6/7, JBG-8/6, JBR-8/8, JBGL-10/20, JBJL-10/197, JBJL-10/203 and JDNB-19 for their relative resistance against jassid and whitefly on brinjal (*Solanum melongena* L.) were conducted during the year 2011-12 at Regional Horticultural Research Station Farm, NAU, Navsari. The observations on *L. orbonalis* on brinjal were recorded on the basis of per cent infested shoot and fruits throughout the crop period. The shoot infestation will be recorded from second week after transplanting on five randomly selected plants in each plot, while for fruit infestation, the harvested fruits of each plot observed carefully at every picking.

The data presented in Table-1 revealed that none of the genotypes of brinjal were found free from attack of *L. orbonalis*. However, lower shoot damage (2.26%) was recorded on genotype JBGL-10/20 which was at par with the genotypes AB-8/14, JBJL-10/197, JBNB-19, AB-8/5, AB-9/1, and AB-10/4 (2.42, 3.15, 3.31, 3.41, 3.71 and 4.11%). While, moderate shoot damage (4.43%) was recorded on genotype AB-10/14 which was at par with AB-8/6 and JBG-6/7 (4.44 and 4.60%). However, genotype AB-07/2 (11.61%) showed highest shoot damage which was at par with the genotype JBJL-10/203 (8.70%). Among all genotypes, AB-8/5 recorded minimum fruit damage (6.44%) which was at par with the genotypes JBGL-10/20 (7.55%), JBJL 10/197 (9.05%), JBNB-19(9.73%) AB-8/14 (9.79%) and AB-9/1 (11.18%). While genotype AB-10/4 (13.17%) recorded moderate per cent of fruit damage which was at par with the AB-10/14 (14.63%), AB-8/6 (14.96%), JBG-6/7 (15.23%) and JBG-8/6 (15.66%). Maximum fruit damage was recorded in AB-07/2 (25.10%) which was at par with the JBR-8/8 (22.08%) and JBJL- 10/203 (23.82%). In past, Jat *et al.* (2003) screened 10 brinjal varieties for resistance to shoot and fruit borer, among them variety Arka kusumakar (3.28%) was found resistant.

From the result (Table-2) it can be seen that the genotype AB-8/5 recorded highest (21.42 q/ha) yield which was at par with the genotypes JBGL-10/20 (20.67q/ha), JBJL-10/197 (19.99 q/ ha), JDNB-19 (19.75 q/ha) and AB-8/14 (19.13 q/ha). Whereas genotype JBJL 10/203 recorded lowest (8.01 q/ha) yield of brinjal which was found at par with AB-07/2 (9.30 q/ha). However, genotypes, AB-9/1, AB-10/4, JBG-6/7 and JBG-8/6 recorded 17.34, 17.16, 16.92 and 15.80 q/ha respectively they were at par with each other and also the genotypes AB-8/6, AB-10/14 and JBR-8/8 recorded 15.08, 14.34 and 13.08 q/ha yield remained middle in order.

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Overall it can be concluded that lowest shoot damage (2.26%) was recorded on genotype JBGL-10/20 which was at par with the genotypes AB-8/14, JBJL-10/197, JBNB-19, AB-8/5, AB-9/1, and AB-10/4 (2.42, 3.15, 3.31, 3.41, 3.71 and 4.11% respectively) and AB-8/5 recorded minimum fruit damage (6.44%) which was at par with the genotypes JBGL-10/20

(7.55%), JBJL 10/197 (9.05%), JDNB-19 (9.73%) AB-8/14 (9.79%) and AB-9/1 (11.18%). Among all genotypes AB-8/5 recorded highest (21.42 q/ha) yield which was at par with the genotypes JBGL-10/20 (20.67q/ha), JBJL-10/197 (19.99 q/ha), JDNB-19 (19.75 q/ha) and AB-8/14 (19.13 q/ha).

Table 1: Screening of some genotypes of brinjal for their relative resistance against shoot and fruit borer (*L. orbonalis*).

Sr. No.	Genotypes	Shoot damage (%)	Fruit damage (%)
1	AB-07/2	19.89	30.04
		(11.61)*	(25.10)
2	AB-8/6	12.09	22.50
		(4.44)	(14.96)
3	AB-8/5	10.62	14.60
		(3.41)	(6.44)
4	AB-8/14	8.89	18.10
		(2.42)	(9.79)
5	AB-9/1	11.05	19.31
		(3.71)	(11.18)
6	AB-10/4	11.68	21.21
		(4.11)	(13.17)
7	AB-10/14	12.07	22.23
		(4.43)	(14.63)
8	JBG-6/7	12.25	22.52
		(4.60)	(15.23)
9	JBG-8/6	12.43 (4.69)	23.10 (15.66)
10	JBR-8/8	15.67 (7.80)	27.93 (22.08)
11	JBGL-10/20	8.56 (2.26)	15.90 (7.55)
12	JBJL-10/197	10.19 (3.15)	17.38 (9.05)
13	JBJL-10/203	17.09 (8.70)	29.19 (23.82)
14	JDNB-19	10.42 (3.31)	18.03 (9.73)
	S. Em.±	1.19	1.78
	C.D. at 5%	3.46	5.17
	C.V. %	16.68	14.29

*Figures in parenthesis is original value while those outside are arcsine transformed value

Table 2: Yield of different brinjal genotypes

Sr. No.	Genotypes	Yield (q/ha)
1	AB-07/2	9.30
2	AB-8/6	15.08
3	AB-8/5	21.42
4	AB-8/14	19.13
5	AB-9/1	17.34
6	AB-10/4	17.16
7	AB-10/14	14.34
8	JBG-6/7	16.92
9	JBG-8/6	15.80
10	JBR-8/8	13.08
11	JBGL-10/20	20.67
12	JBJL-10/197	19.99
13	JBJL-10/203	8.01
14	JDNB-19	19.75
	S. Em.±	1.16
	C.D. at 5%	3.35
	C.V. %	12.31

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