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Research Note

Screening of pigeonpea varieties for resistance against *Helicoverpa armigera* (Hübner) Hardwick

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ABSTRACT : A field experiment was conducted to screening of pigeonpea varieties for resistance against *Helicoverpa armigera* (Hübner) Hardwick at Junagadh Agricultural University Campus, Junagadh (Gujarat) during *Kharif-Rabi* season of 2006-07. Among twenty varieties/ genotypes of pigeonpea were tested for relative susceptibility to this pest, none of them was found free from infestation of the pest. The genotype LRG-41, BSMR- 853, SKNP - 0224, DT-23, SKNP – 0226, JSM-7, BP-1-72 and SKNP-0217 were found less susceptible to *H. armigera.* However, the genotype ICPL-87 found highly susceptible to *H. armigera* and it was followed by BSMR-736, GT-100, GT-1, BDN-2, GT-101, ICPL-87119, BP-1-34, BP-1-96, BP-1-03 and BP-1-62.

KEY WORDS : Pigeonpea, *Helicoverpa armigera* (Hübner) Hardwick, Varietal screening, Resistance

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Pigeonpea [*Cajanus cajan* (Linnaeus) Millsp.] is one of the important legume crops due to its nutritional and industrial values. In Gujarat, it is cultivated in the area of about 2651 hectares with the production of about 2942 metric tonnes of grain and productivity of 1110 kg/ha (Anonymous, 2008a). A preliminary survey around Junagadh revealed that the *Helicoverpa armigera* (Hübner) Hardwick has been observed as a key pest of pigeonpea in this area. Excessive use of chemical insecticides not only causes the economical burden on farmers but also produces the harmful side effects on the environment as well as human beings. Therefore, use of resistant varieties is advocated in integrated pest management due to its economy, wide adaptability and environmental safety. Thus, identifying promising donors of resistance is fundamental to any scheme aimed at evolving high yielding varieties endowed with resistance to key insect pests. The information on screening of pigeonpea varieties for resistance against *H. armigera* under Junagadh condition is meager and hence, the present investigation was carried out at Junagadh.

To study the relative susceptibility of various pigeonpea genotypes against *Helicoverpa armigera* (Hübner) Hardwick, a field experiment was conducted during *Kharif-Rabi* 2006-07 at Instructional farm, Junagadh Agricultural University, Junagadh. Fifteen genotypes (Table 1) were tested for this purpose. Each genotype was grown in plot of two rows of five meter length with 90 cm × 20 cm spacing and replicated twice. All the agronomical practices were followed as per recommendations to raise the crop. Weekly observations on larval population were recorded from five randomly selected plants from each genotype after appearance of pest. The counts were continuing till the pest disappeared. The average larval population per plant was worked out and data were

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statistically analyzed for determining the relative susceptibility of pigeonpea varieties.

Infestation:

Results presented in Table 1 reveals that none of the genotypes was found free from infestation of the pest. The mean *H. armigera* population ranged from 1.90 to 4.02 larvae per plant on different pigeonpea varieties/genotypes. Among the twenty varieties /genotypes under test, LRG 41 was found the least susceptible (1.90 larvae/plant) and it was at par with genotypes BSMR- 853, SKNP - 0224, DT-23, SKNP – 0226, JSM-7, BP-1-72 and SKNP-0217 with 2.01, 2.09, 2.12, 2.20, 2.43, 2.57 and 2.64 larvae per plant, respectively. The genotype ICPL-87 was found highly susceptible with 4.08 larvae per plant and it was at par with BSMR-736, GT-100, GT-1, BDN-2, GT-101, ICPL-87119, BP-1-34, BP-1-96, BP-1-03 and BP-1-62 with 3.98, 3.82, 3.78, 3.73, 3.58,3.49,3.44,3.38, 3.36 and 3.01, larvae per plant, respectively. The remaining genotype BP–1– 54 were found moderately susceptible to *H. armigera* by registering 2.80 larvae per plant.

Per cent pod damage:

The data presented in Table 1 reveal that none of the genotypes was found free from incidence of *H. armigera* damage. However, among all the genotype/varieties of pigeonpea, LRG-41 was recorded lower per cent pod damage due to *H. armigera* (16.26 %) which was at par with BSMR-

Table 1: Mean population and per cent pod damage of *H. armigera* on different genotypes/varieties of pigeonpea

Sr. No.	Genotype/variety	Mean no. of larvae/plant	Mean per cent pod damage by *H. armigera* at harvest
1.	ICPL-87	2.24* (4.02)	34.39 (31.91)
2.	ICPL-87119	2.12 (3.49)	29.31 (23.96)
3.	BSMR-736	2.23 (3.98)	33.71 (30.80)
4.	LRG-41	1.70 (1.90)	23.78 (16.26)
5.	BSMR-853	1.73 (2.01)	25.64 (18.72)
6.	GT-1	2.19 (3.78)	32.80 (29.34)
7.	GT-100	2.20 (3.82)	32.41 (28.73)
8.	GT-101	2.14 (3.58)	29.67 (24.51)
9.	BDN-2	2.17 (3.73)	32.09 (28.22)
10.	JSM-7	1.85 (2.43)	26.16 (19.44)
11.	SKNP-0217	1.91 (2.64)	26.45 (19.85)
12.	SKNP-0224	1.76 (2.09)	25.97 (19.18)
13.	SKNP-0226	1.79 (2.20)	24.90 (17.73)
14.	BP-1-03	2.09 (3.36)	29.57 (24.36)
15.	BP-1-34	2.11 (3.44)	31.00 (26.53)
16.	BP-1-54	1.95 (2.80)	30.37 (25.55)
17.	BP-1-62	2.00 (3.01)	29.83 (24.75)
18.	BP-1-72	1.89 (2.57)	28.62 (22.94)
19.	BP-1-96	2.09 (3.38)	28.81 (23.23)
20.	DT-23	1.77 (2.12)	25.64 (18.72)
	S.E.+	0.10	1.54
	C.D. at 5%	0.30	4.42
	C.V. %	9.04	9.22

* √ x+1 transformed value, Figures in the parentheses are retransformed values

853 (16.77 %), SKNP-0226(17.73 %), DT-23(18.72 %), SKNP-0224 (19.18 %), JSM-7(19.44 %) and SKNP-0217(19.85 %) pod damage respectively, The highest pod damage was recorded on genotype ICPL – 87(31.91 %) which was at par with BSMR-736, GT-1, GT-100, BDN-2, BP-1-34 and BP-1-54 with 30.80, 29.34, 28.73, 28.22, 26.53 and 25.55 per cent pod damage, respectively. The remaining genotype BP-1-72, BP-1-96, BP- 1 - 62, ICPL-87119, BP -1- 03 and GT-101, were found moderately susceptible to *H. armigera* by registering 22.94 to 24.51 per cent pod damage, respectively.

According to Durairaj *et al*. (2003) and Anitha *et al*. (2006), the incidence of pest and pod damage was comparatively higher in genotypes ICPL-87. Minimum per cent pod damage by pod borer complex was found in genotype H 200-47 and SKNP-217 (Anonymous, 2006). The genotype LRG-41 of pigeonpea was found least susceptible to *H. armigera* (Anonymous, 2008b). Thus, the results obtained through present investigations are more or less in accordance with earlier reports.

Thus, from above results we can concluded that the genotypes LRG-41, BSMR- 853, SKNP - 0224, DT-23, SKNP – 0226, JSM-7, BP-1-72 and SKNP-0217 were proved less susceptible against *H. armigera.*

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