The Andhra Agric. J 55 (1): 112-114, 2008.

Research Note

Response of Certain Pigeonpea Entries against Legume Pod Borer, *Helicoverpa armigera*

Key words: Pigeonpea genotypes, *Helicoverpa armigera*, Screening, Resistance

Pigeonpea (*Cajanus cajan*) is an important pulse crop of Andhra Pradesh. The crop is attacked by number of pests, of which pod borer, *Helicoverpa armigera* is the most important insect pest on pigeonpea causing cosiderable yield losses extending even upto 100 per cent in some years. Several approaches like manipulation of cultural practices, host plant resistance, use of bio agents, chemical control etc. are employed to contain the pest. However, none of these are effective when imposed singly and hence compatible/suitable strategies need to be integrated (Kameswara Rao *et al.,* 2005). In the current era of Integrated pest management, identification and use of resistant varieties assume importance as a crucial component of IPM. Several workers have earlier screened pigeonpea entries against *H. armigera* and identified lines with moderate resistance to this pest (Nanda *et al.,*1996, Durairaj and Ganapathy, 1997, Lal and Rathore, 1999, Tripathi and Purohit, 1985).

The present study was conducted to screen seven medium duration pigeonpea entries (JKM 189, BDN 708, PRG 100, BDN (2), ICP 8863, WRG 53, WRG 56) against *H. armigera* during *kharif*, 2003 at Agricultural Research Station, Warangal. The experiment was laid in randomized block design with three replications and the test entries were sown on 7-7-03, in 14.4 m^2 plots in 4 rows with 90 cm x 20 cm spacing. The entries were raised in clay loam soil under rainfed conditions by following all the recommended package of practices without any plant protection measures. The crop was harvested on 13-2-04. The incidence of *H. armigera* was monitored from flower bud initiation onwards. Damage due to H. armigera was assessed by observing the pest incidence, number of eggs and larvae on five randomly selected plants from each plot during peak infestation. Observations on number of days to 50% flowering and days to maturity were also recorded. Pod damage was taken on pods collected from 5 plants selected at random leaving the border rows, at the time of harvest. Seed yield/plot was also recorded. The data on oviposition, larval abundance, pod damage and yield were statistically analysed .

Perusal of data given in the table indicated that during the crop growth, oviposition by *H. armigera* ranged from 3.67 to 16.33 eggs while larval abundance ranged from 5.00 to 19.33 larvae per 5 plants. Lowest oviposition (3.67 eggs/ 5 plants) was observed in WRG - 56 while highest egg load (16.33 eggs) was seen in the entry ICP 8863. However, larval infestation was lowest in ICP 8863 (5 larvae) as compared to other entries and check BDN (2) which recorded higher larval population.

Pod damage ranged from 6.92% to 20.15%. The lowest pod damage was noticed in WRG-53 and WRG-56 followed by JKM 189 (9.15%) whereas highest pod damage (20.15%) was observed in the check entry BDN (2). The entries WRG-53, WRG-56 showed significantly lower pod damage and were at par with each other. Maximum yield was obtained in WRG-53, and was significantly superior over other entries (24.69 q/ ha) followed by WRG-56 with an yield of 15.98 q/ ha.

The results showed that the varieties on which lower oviposition rates were observed during peak flowering i.e., WRG-56, JKM-189. BDN-708 (3.67 to 5.67 eggs) have not recorded lower larval rates subsequently at pod development stage. Higher egg load and lower larval infestation was observed in the entry ICP 8863. The differences could be due to difference in crop phenology or due to existence of different resistance mechanisms. Existence of all the four mechanisms of resistance *viz*., antixenosis, antibiosis, tolerance and avoidance were reported in pigeonpea (Dua *et al.,* 2005). Lower egg laying and lower pod damage were observed in entries like WRG-56 ,WRG-53 and JKM-189.

The study indicated that WRG-53, WRG-56 and JKM-189 suffered least from *H. armigera* damage (less than 10%) and can be recommended against pod borer.

Table 1: Response of certain pigeonpea cultivars against legume pod borer, *Helicoverpa armigera*

Cultivar	Phenology		No.of eggs/ 5 plants	No.of larvae/ 5 plants	Per cent pod damage	Yield q/ha
	Days to 50 % flowering	Days to maturity				
JKM-189	155	172	5.67^{ab}	11.67^{b}	9.15^{b} (3.10)*	11.76^{cd}
BDN-708	150	170	5.33^{ab}	14.33^{bc}	13.74^{c} (3.76)	6.65^{a}
PRG-100	90	145	13.00^{d}	16.33^{cd}	13.88^{c} (3.74)	10.55^{cd}
BDN(2)	110	170	11.33^{cd}	19.33^{e}	20.15^{e} (4.54)	9.20^{b}
ICP-8863	155	172	16.33^{e}	5.00^{a}	16.70^{d} (4.14)	9.61^{bc}
WRG-53	113	181	9.67^{c}	18.67^{de}	6.92^{a} (2.72)	24.69^{f}
WRG-56	123	188	3.67^{a}	18.33^{de}	7.05^{a} (2.68)	15.98^{e}
F-Test			S	S	S	S
SEm±			1.008	0.933	0.294	0.797
CV(%)			18.79	10.91	14.42	10.93
CD (P=0.05)			3.11	2.87	0.91	2.45

* The figures in parentheses are $\sqrt{x+0.5}$ transformation

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(Received on 28.06.2007 and revised on 22.08.2007)