SHORT COMMUNICATION

Relative Susceptibility of Maize Single Cross Hybrids to Pink Stem Borer (*Sesamia inferens* Walker)

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Among all cereal crops in India, maize has recorded the maximum the growth rate in terms of area, production and productivity. However, productivity of maize in India (2.10 t/ha) is quite low as compared to world average (4.08 t/ha). One of the major causes of low productivity in maize is the damage done to the crop by borers at various stages of crop growth. Pink borer (*Sesamia inferens*) is an important pest during winter season in peninsular India. The grain yield losses due to *S. inferens* in different maize genotypes range from 25.7-78.9% (Chatterji *et al*., 1969). For resistance breeding, evaluation of breeding materials for their resistance is very much essential. An attempt has been made to determine the level of resistance against pink borer among single cross hybrids from CIMMYT.

The experimental material was comprised of a set of 45 single cross hybrids from CIMMYT along with two susceptible checks, *viz*., Basi local and DHM 105; and one resistant check, CM 500. The experiment was carried out in randomized block design with two replications during *rabi* 2005-06 at Hyderabad in 2.5 m row plots with inter and intra-row spacing of 75 cm and 20 cm, respectively. Each 10-12 days old maize seedling was infested with 12-15 neonate larvae. The leaf injury ratings (LIR) on 1-9 scale were recorded thirty days after infestation according to Rao (1983). The mean LIR were subjected to analysis of variance using Windostat software version 8.0.

Analysis of variation (ANOVA) showed significant variance among the genotypes in terms of response to pink borer attack. LIR scores of the 45 single crosses involving CIMMYT CA and P31 C4S5B-23-#-4-BBB-B-B lines and resistant and susceptible checks are presented in Table 1. The hybrids were grouped into four categories based on LIR: i) Least susceptible-LIR less than resistant check, CM 500, ii) Moderately susceptible -LIR above the resistant check and less than susceptible check 1, iii) Susceptible-LIR between susceptible check 1, Basi local and susceptible check 2, DHM 105, iv) Highly susceptible- LIR above the susceptible check 2.

It was found that the cross CAO 0102 x CA14502 (4.5) was least susceptible having the LIR less than the resistant check CM 500 (5.2). Four crosses , namely, CAO 3139 x CA14502 (5.80), CA14701 x CA 14502 (5.50), CA 14502 x P31 C4S5B-23-#-4-BBB-B-B (5.9) and P31 C4S5B-23-#-4-BBB-B-B x CAO3116. The remaining 3116 (5.4) were found to be moderately susceptible. The single crosses, namely, CA 14514´P31C4S5B-23-#-#-4-BBB-B-B, CA0 3141´CAO 0102, CA 14502´CAO 3116, P31 C4S5B-23-#-#-4-BBB-B-B´CA03118, CA 14509´CA14701, CA 14502´CAO 3118 were susceptible with LIR between 6.2 and 6.9. The remaining thirty four crosses were highly susceptible. CAO3139 x P31 C4S5B-23-#-4-BBB-B-B and CA14514 x CA 14502 recorded highest leaf injury rating of 9.0 on 1-9 scale. The least susceptible cross CAO 0102 x CA 14502 and the moderately susceptible crosses CAO 3139 x CA14502 (5.80), CA14701 x CA 14502(5.50), CA 14502 x P31 C4S5B-23-#-4-BBB-B-B (5.9) and P31 C4S5B-23-#-4-BBB-B-B x CAO3116 could be used directly in the areas where pink stem borer is a problem or utilized in the derivation of new lines adaptable to this environment. These crosses with moderate levels of resistance to pink borer will serve well keeping in view the need of the resource poor farmers and the ecological consequences of chemical control. The same views were opined by Bergvinson *et al.* (2002). In earlier studies Panwar *et al*. (2001) reported two genotypes resistant against *C. partellus*, while Sekhar *et al*. (2004) identified seven sources of resistance against S. *inferens.*

Table 1. Relative susceptibility of yellow single cross hybrids to pink stem borer

S.No.	Pedigree	Mean LIR (1-9 scale)
	Least susceptible	
1	CAO 0102´CA 14502	4.5
	Moderately susceptible	
2	P31C4S5B-23-#-#-4-BBB-B-B´ CAO 3116	5.4
3	CA 14701´CA14502	5.5
4	CAO 3139´CA 14502	5.8
5	CA 14502´P31 C4S5B-23-#-#-4-BBB-B-B	5.9
	Susceptible	
6	CA 14514´P31C4S5B-23-#-#-4-BBB-B-B	6.0
7	CA0 3141´CAO 0102	6.1
8	CA 14502´CAO 3116	6.5
9	P31 C4S5B-23-#-#-4-BBB-B-B´CA03118	6.6
10	CA 14509´CA14701	6.7
11	CA 14502´CAO 3118	6.8
	Highly susceptible	
12	CA 14514´CAO 3118	6.9
13	CAO 3141´CA 14502	6.9
14	CA14701´P31C4S5B-23-#-#-4-BBB-B-B	7.0
15	CAO 3139´CAO 0102	7.1
16	CAO 3139´CAO 3118	7.1
17	CA 145141´CAO 3141	7.1
18	CA 14514´CA 14701	7.1
19	CAO 3141´CA14701	7.1
20	CA 14509´P31 C4S5B-23-#-#-4-BBB-B-B	7.1
21	CA 14509´CAO3118	7.1
22	CAO 3139´CA 14701	7.2
23	CAO 0102´P31C4S5B-23-#-#-4-BBB-B-B	7.2
24	CA 14514´CAO 0102	7.3
25	CA 14509´CA 14502	7.3
26	CAO 03139´CA 14514	7.5
27	CAO 3139´CAO 3116	7.6
28	CAO 0102´CAO 3116	7.6
29	CAO 3141´CAO 3118	7.8
30	CAO 3139´CAO 14509	7.9
31	CA 14514´CAO 3116	7.9
32	CA 03141´CAO 14509	8.1
33	CAO 0102´CA 14701	8.1
34	CA 14509´CAO 3116	8.2
35	CAO 0102´CAO 3118	8.2
36	CAO 3116´CAO 3118	8.2
37	CA 14509´CAO 0102	8.4
38	CAO 3139´CAO 3141	8.5
39	CA 14514´CAO 14509	8.6
40	CAO 3141´P31C4S5B-23-#-#-4-BBB-B-B	8.7
41	CAO 3141´CAO 3116	8.7
42	CA 14701´CAO 3116	8.8
43	CA 14701´CAO 3118	8.8
44	CAO 3139´P31C4S5B-23-#-#-4-BBB-B-B	9.0
45	CA 14514´CA 14502	9.0
46	CM 500 (Resistant check1)	5.2
47	BASI LOCAL (Susceptible check 1)	6.0
48	DHM 105 (Susceptible check 2)	6.9

SE (D) 1.3
CD (0.05) 2.7

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