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Screening of *rabi* sorghum genotypes against shoot bug, *Peregrinus maidis* (Ashmead)

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ABSTRACT

The field trial was carried out during *rabi* season of 2004-05 at the Regional Agricultural Research Station, Bijapur, Karnataka, India. Totally eighty lines were screened against shoot bug under field conditions. Each genotype was sown in two rows of 3.5 m length with a spacing of 60 x 15cm with two replications. Varietal susceptibility to shoot bugs was assessed, by scoring number of shoot bugs (both adults and nymphs) per plant on these five plants at 45 days after emergence of the crop when the population was at its peak. The results revealed that, among the genotypes screened against shoot bug, the lines *viz*., 61508, 61526, 61543, 61544, 61576, 61582, 61587, 61588, 61589, 61590, 61592, 61595, 61596, 61607, 61608, 61611, 61612, 61613, CK 60B, Swati, and RS 29 were promising against shoot bug by recording lower population (less than 2 shoot bugs/plant). The entries, 61504, 61506, 61516, IS 37190, DSV 4, DSV 5, Hathi kunta and M 35-1 were highly susceptible by recording higher population (10.3 to 12.5 shoot bugs/ plant).

Key words: Sorghum, Shoot bug, *Peregrinus maidis*, Resistance, Screening.

INTRODUCTION

Sorghum is vulnerable to over 150 insect species from sowing to the final crop harvest (Sharma, 1985). Among the different insect pests of sorghum the shoot bug, *Peregrinus maidis* (Ashmead) (Homoptera : Delphacidae) previously considered to be of minor importance, but now with the introduction of new sorghum genotypes of different maturity periods in certain parts of Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu has become a serious pest. According to Hosamani and Chittapur (1997), shoot bug can cause a crop loss to an extent of 41 per cent. Both macropterous and brachypterous nymphs and adults suck the sap from the leaves by congregation in the plant whorl and inner sides of the leaf sheath. Severe attack of shoot bug results in leaf chlorosis, stunted growth, shriveled and chaffy grains (Prabhakar *et al.*, 1981). The top leaves start drying first, but leaf death gradually extends to older leaves and some times, death of the whole plant occurs (Teetes *et al*. 1983). Severe infestation at boot leaf stage results in twisting of top leaves thus preventing the emergence of panicles (Agarwal *et al.*, 1978). Further, the honey dew excreted by nymphs and adults favours the growth of sooty mould fungus (*Capnodium* sp.) which inhibits the photosynthetic activity. It was also reported as a vector of sorghum stripe disease (SStD) and the other hosts of shoot bug include maize, bajra, sugarcane, ragi and other grasses (Peterschmitt *et al.*, 1991).

MATERIALS AND METHODS

The field trial was carried out during *rabi* season of 2004-05 at the Regional Agricultural Research Station, Bijapur, Karnataka, India. Sixty five entries received from National Research Centre for Sorghum, Hyderabad and fifteen entries from Senior Sorghum Breeder, Regional Agricultural Research Station, Bijapur were used for screening against shoot bug, *P. maidis*. Totally eighty lines were screened against shoot bug under field conditions. The list of entries is given in table1. Each genotype was sown in two rows of 3.5 m length with a spacing of 60 x 15cm with two replications on 4-10-2004. All the recommended package of practices was followed except plant protection measures. Five plants in each genotype were selected randomly for observations. Varietal susceptibility to shoot bugs was assessed, by scoring number of shoot bugs (both adults and nymphs) per plant on these five plants at 45 days after emergence of the crop when the population was at its peak.

RESULTS AND DISCUSSION

The results of screening of sorghum lines against shoot bug are furnished in the table 1. Among the genotypes screened against shoot bug, the lines *viz*., 61508, 61526, 61543, 61544, 61576, 61582, 61587, 61588, 61589, 61590, 61592, 61595, 61596, 61607, 61608, 61611, 61612, 61613, CK 60B, Swati, and RS 29 were promising against shoot bug by recording lower population (less than 2 shoot bugs/plant). The entries, 61504, 61506, 61516,

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Table 1: Shoot bug population on different sorghum lines.

S. No.	Entry	No. of shoot bugs/plant	S. No.	Entry	No. of shoot bugs/plant
1.	61504	10.9	42.	61578	2.7
2.	61505	4.9	43.	61579	4.3
3.	61506	12.1	44.	61580	2.0
4.	61507	2.6	45.	61581	2.2
5.	61508	1.6	46.	61582	1.1
6.	61510	5.4	47.	61587	1.4
7.	61511	6.4	48.	61588	1.5
8.	61512	4.9	49.	61589	1.4
9.	61515	5.9	50.	61590	1.9
10.	61516	11.3	51.	61592	1.3
11.	61519	3.9	52.	61595	1.4
12.	61520	2.8	53.	61596	1.0
13.	61521	3.9	54.	61602	4.7
14.	61522	7.0	55.	61605	5.0
15.	61523	5.5	56.	61606	4.1
16.	61524	2.0	57.	61607	0.9
17.	61525	4.5	58.	61608	1.8
18.	61526	1.1	59.	61610	2.1
19.	61527	3.8	60.	61611	0.9
20.	61528	6.4	61.	61612	0.9
21.	61530	8.4	62.	61613	0.9
22.	61532	8.5	63.	CK 60B	0.9
23.	61533	4.1	64.	296B	3.1
24.	61540	2.3	65.	104B	8.5
25.	61543	1.3	66.	M 31-2B	2.5
26.	61544	1.9	67.	SPV 1626	5.4
27.	61547	5.2	68.	M 148-138	6.3
28.	61548	2.3	69.	RS 615	7.2
29.	61551	5.3	70.	IS 37190	12.1
30.	61556	4.5	71.	JP 1-1-5	9.3
31.	61557	9.4	72.	Swati (SPV-504)	0.5
32.	61558	7.9	73.	DSV 4	12.5
33.	61559	7.7	74.	DSV 5	10.3
34.	61562	5.2	75.	SFR 7	7.3
35.	61566	4.7	76.	M 35-1	11.5
36.	61567	5.0	77.	Hathi Kunta (S)	10.2
37.	61568	5.6	78.	RS-29 (R)	1.9
38.	61569	6.1	79.	IS-2312	4.1
39.	61570	7.4	80.	DJ-6514	4.2
40.	61573	4.9		S. Em. ±	0.9
41.	61576	1.3		C. D. (5%)	2.6

IS 37190, DSV 4, DSV 5, Hathi kunta and M 35-1 were highly susceptible by recording higher population (10.3 to 12.5 shoot bugs/plant). The rest of the entries (*viz*., 61505, 61507, 61510, 61511, 61512, 61515, 61519, 61520, 61521, 61522, 61523, 61524, 61525, 61527, 61528, 61530, 61532, 61533, 61540, 61547, 61548, 61551, 61556, 61557, 61558, 61559, 61562, 61566, 61567, 61568, 61569, 61570, 61573, 61578, 61579, 61580, 61581, 61602, 61605, 61606, 61610, 296B, 104B, M 31-2B, SPV 1626, M 148-138, RS 615, JP 1-1-5, SFR 7, IS 2312, DJ 6514) recorded shoot bug populations between 2 to 10 per plant which could be considered as susceptible ones. The results are in agreement with Mote and Shahane (1993 and 1994) and Subbarayudu (2002) with respect to M 35-1 and Swati.

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