STUDY ON COMPARATIVE PERFORMANCE OF FINE SLENDER RICE GENOTYPES AGAINST RICE GALL MIDGE IN THE NORTHERN HILL REGION OF C.G.

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Abstracts : A part from food, rice is intimately involved in the culture as well as economy of many societies. The cultivation of rice is done under more diverse conditions than any other food crop, ranging from irrigated to rainfed ecology and upland to deep water conditions. In world, rice has occupied an area of 154 million hectares, with a total production of 476 million tonnes and productivity 2949 kg ha^{-1} (Anonymous, 2012). India has largest area among rice growing countries and enjoys the second rank in production. India has 45.5 million hectares, total cultivated area under rice, with the production of 105.31 million tonnes and productivity 2393 kg ha^{-1} (Anonymous, 2013 a). Chhattisgarh state is popularly known as "rice bowl of India" because maximum area is covered under rice during *Kharif* and contribute major share in national rice production. It has geographical area of 13.51 million hectares of which 5.9 million hectares area is under cultivation. Rice occupies an area around 3.61 million hectares, with the production of 5.48 million tonnes and productivity 1517 kg ha^{-1} (Anonymous, 2013b).

Keywords : Hill region, Genotypes, Rice

INTRODUCTION

The productivity of rice in Chhattisgarh is comparatively lower than the national average. This is due to several constraints which are responsible for such low productivity rice in the region. Among these, insect pests are one of the most important factors limiting the rice production. There are more than 100 species of insect pests of rice but only about 20 of them are of major economic importance (Pathak and Khush, 1979). The losses due to insect pests during vegetative phase (50 percentage) contributes more to yield reduction than the reproductive phase (30 percentage) or ripening phase (20 percentage) as reported by Gupta and Raghuraman (2003). In Chhattisgarh region various rice pests cause losses up to 20 percentages every year to rice crop. Which gall midge, *Orseolia oryzae* (Wood-Mason), The Asian rice gall midge, *Orseolia oryzae* (Wood-Mason), Diptera: Cecidomyidae, is the most important pest and causes extensive damage. (Jagadeesha Kumar *et. al.*, 2009). It is an important pest from the seed bed to maximum tillering stages of the rice crop. Yield loss assessments in field with up to 30% tiller infestation suggest that for each 1% increase in tiller infestation, a farmer can expect to lose 2-3% grain yield, (Nacro *et al*., 1996). In Chhattisgarh rice gall midge is locally called "gangai". The extent of losses it cause has been recorded from as low as a few kilograms to as high as 25 q/ha (Kittur and Agrawal, 1983). The major active period of these insect is September to October. In rice gall midge, maggot is the destructive stage and the feeding maggot causes the conversion of leaf sheath to galls often referred as 'onion shoots' or 'silvershoots' (Hidaka, 1974 and Hill, 1987) and it also causes the production of secondary tillers which may themselves become infested. In India, gall midge is a serious pest of irrigated and shallow water rice ecosystem (Lai *et al*., 1984). In Chhattisgarh region gall midge caused 30 to 40 per cent losses in yield in susceptible varieties of paddy (Anonymous, 2010).

Therefore, **"**study on comparative performance of fine slender rice genotypes against rice gall midge in the northern region of C, G.**"** is undertaken for the present investigation

MATERIAL AND METHOD

Site and Climate

Ambikapur is an important rice growing tract of Chhattisgarh and comes under the northern hill region of Chhattishgarh in India. The general climate condition of Surguja is Eastern plateau and hilly region with average rainfall 1422.8 mm.

Experimental details

Place of experiment	:	Ajirma Research Farm RMD CARS, Ambikapur.
Crop	:	Rice
Date of sowing	:	11-07-2013
Date of transplanting	:	01-08-2013
Season	:	Kharif, 2013
Design	:	Randomized Block Design
Replications	:	03

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No. of entries : 60
Plot size : 4.5m x 0.8m
Spacing : 20 x 15 cm
Fertilizer dose : 100:50:30 Kg/ha.

Table 1. Rice genotype for screening.

S. No	Designation	Cross combination	S. No.	Designation	Cross combination
1	Chandrahasini	(Check)	22	R 1625-1211-2-765-1	Denteshwari / Tarori Basmati
2	IET 21053 (NDR9542)	(Check)	23	R 1629-112-2-67-1	HMT x Jira Shankar
3	Indira Sona	(Check)	24	R 1630-1237-2-827-1	SR 12 / Laxmi Bhog
4	Indira Sugandhit Dhan-1	(Check)	25	R 1630-32-1-21-1	IR 71703-221-1-5-2 x Laxmibhog
5	IR 83376 B-B110-3	(Check)	26	R 1648-2663-2-2862-1	R 1072-360-1-1 x Poornima
6	IR 64	(Check)	27	R 1656-2821-1-3245-1	Swarna x Jira Shankar
7	IR 84887-B-15	MLT 11-24	28	R 1656-3173-1-415-1	Danteshwari x Elaychi
8	Mahisugandha	(Check)	29	R 1656-430-10-1965-1	Swarna x Jira Shankar
9	R 1519-815-1-646-1	Rastic Br 240-47 / Charder	30	R 1656-46-2-41-1	Swarna x Jira Shankar
10	R 1521-950-6-843-1	R 1521-950-6-843-1	31	R 1661-1372-1-601-1	R 1004-5552-1-1 x Nagri Dubraj
11	R 1536-1170-5-140-1	R302-111 / Ganga Baru	32	R 1661-605-84-1	R 1004-5552-1-1 x Nagri Dubraj
12	R 1536-136-1-77-1	R 1536-136-1-77-1	33	R 1664-59-1-46-1	R 1004-5552-1-1 x Swarna
13	R 1545-184-3-22-1	Pusa Basmati x Chinni Kapoor	**34**	R 1664-59-2-47-1	R 1004-5552-1-1 x Swarna
14	R 1553-1369-2-252-1	Mahamya / Nidhee	**35**	R 1667-1032-1-98-1	R 1060-1674-1-1 x Chandrahasini
15	R 1588-7-1-1-1	R 1102-2795-3 x Nidhee	**36**	R 1670-1151-1-119-1	Samleshwari x Poornima
16	R 1595-14-1-6-1	Pusa Basmati x Chini Kapoor	**37**	R 1670-3975-1-485-1	Samleshwari x Poornima
17	R 1595-17-1-8-1	Pusa Basmati x Chini Kapoor	**38**	R 1675-1844-2-1257-1	R 1037-649-1-1 x Mahamaya
18	R 1595-17-3-10-1	Pusa Basmati x Chini Kapoor	**39**	R 1688-2150-5-2060-1	R 975-897-1-1 x Tarori Basmati
19	R 1599-594-2-305-1	MTU 1010 x Mahamaya	**40**	R 1695-2155-1-270-1	Danteshwari x Poornima
20	R 1607-28-3-19-1	IR 71703-221-1-5-2 x Jira Shankar	**41**	R 1698-168-1-76-1	Danteshwari x Elaychi
21	R 1607-321-1-34-1	SR 12 x Chinni Kapoor	**42**	R 1698-3644-3-4696-1	Danteshwari x Elaychi
S. No	**Designation**	**Cross combination**	**S. No.**	**Designation**	**Cross combination**
43	R 1700-2240-4-2295-1	Danteshwari x Amrit Bhog	**52**	R 1819-469-2-137-1	Shyamla x MR 219
44	R 1700-302-1-156-1	Denteshwari x Amrit Bhog	**53**	R 1819-473-1-139-1	Shyamla x MR 219
45	R 1730-501-3-250-1	Poornima x Indira Sugandhit Dhan-1	**54**	R 1926-1013-2-595-1	R1130-80-1-52-1xHURFG 4-6
46	R 1738-504-3-255-1	IR 64x Pusa Basmati	**55**	R 1656-3181-1-420-1	Swarna x Jira Shankar
47	R 1747-4941-1-515-1	Rastic Br 240-47 x Shaym Jira	**56**	R 1938-620-1-163-1	Abhaya x B 644-FMR-6-0-0
48	R 1750-937-1-530-1	BG380-2xAmrit Bhog	**57**	R1629-234-5-1882-2	HMTx Jira Shankar
49	R 1757-540-3-286-1	IR 64x Bishanu Bhog	**58**	R1700-308-3-170-1	Denteshwari x Amrit Bhog
50	R 1779-320-1-111-1	Danteshwari x WGL 320100	**59**	TN 1	(Check)
51	R 1804-399-1-134-1	R 979-1528-2-1 x Gopal Bhog	**60**	Vishnu bhog	(Check)

Sixty rice genotypes were screened against gall midge infestation based on the percentage of silver shoots. These varieties were sown on 11-07-2013 and were transplanted into the main field after 21 days. Regular crop practices were followed in the main field. When there was severe infestation of gall midge, observations like total number of plants, damaged plants, total number of tillers and total number of silver shoots were recorded. The observations for silver shoot appearance were taken at 30 and 50 days after transplanting (DAT). In each paddy genotypes, 10 plants were observed for silver shoots.

Data processing

Data were proceeding by following calculation of the silver shoots and standard evaluation system of gall midge damage.

$$\text{Percentage Silver shoots} = \frac{\text{Total number of silver shoots}}{\text{Total number of tillers}} \times 100$$

Observation of plants was taken on the basis of plant damage symptoms (0-9 scale).

Table 2. Standard evaluation systems for evaluating rice for resistant to gall midge (IRRI 2002)

Score*	Rating	Damage percentage range (% SS)
0	Highly resistant	No damage
1	Resistant	1-5 percent
3	Moderately resistant	5-10 percent
5	Moderately susceptible	10-15 percent
7	Susceptible	15-25 percent
9	Highly susceptible	More than 25 percent

*Mean score of plant damage was calculated.

The observations on pest incidence of gall midge were recorded at tillering stage and heading stage.

RESULT AND DISCUSSION

Rice Gall Midge (*Orseolia oryzae*) at 30 DAT

Sixty rice genotype were evaluated against rice gall midge, out of which twenty five were found free from gall midge infestation in fist group showed zero percentage infestation at 30 days after transplanting (DAT) viz. Chandrahasini, IET 21053 (NDR9542), , Indira Sugandhit Dhan-1, R 1521-950-6-843-1, R 1536-136-1-77-1, R 1553-1369-2-252-1, R 1588-7-1-1-1, R 1648-2663-2-2862-1, R 1664-59-1-46-1, R 1664-59-2-47-1, R 1675-1844-2-1257-1, R 1688-2150-5-2060-1, R 1698-168-1-76-1, R 1700-2240-4-2295-1, R 1700-302-1-156-1, R 1747-4941-1-515-1, R 1757-540-3-286-1, R 1779-320-1-111-1, R 1804-399-1-134-1, R 1926-1013-2-595-1, R 1938-620-1-163-1, R 1656-3181-1-420-1, R1629-234-5-1882-2, R1700-308-3-170-1and Indira Sona. In second group Vishnu bhog (ch) is showing significantly and independently minimum silver shoot percentage (1.10%). In third group ten genotype were found significantly at par they are designated with percent damage of rice gall midge as R 1625-1211-2-765-1(2.67%), R 1656-430-10-1965-1(2.72%), R 1738-504-3-255-1(2.83%), R 1661-1372-1-601-1(2.86%), R 1670-3975-1-485-1(2.90%), R 1661-605-84-1(2.94%), R 1630-32-1-21-1(3.02%), R 1656-46-2-41-1(3.24%), IR 83376 B-B110-3 (ch)(3.42%) and R 1545-184-3-22-1(3.45%). In fourth group twelve genotypes were found significantly similar with each other and showed silver shoot percent damage ranged from 3.61% to 4.51% These genotypes are R 1599-594-2-305-1(3.59%), R 1595-17-3-10-1(3.61%), R 1695-2155-1-270-1(3.63%), R 1595-14-1-6-1 (3.69%), R 1630-1237-2-827-1(3.76%), R 1667-1032-1-98-1(3.79%), IR 64(ch)(4.10%), R 1519-815-1-646-1(4.22%), IR 84887-B-15(4.23%), R 1819-473-1-139-1(4.41%), R 1607-28-3-19-1(4.45%), and R 1629-112-2-67-1(4.45%). In fifth group six genotypes were found significantly at par with each other namely; R 1607-321-1-34-1(4.49%), R 1595-17-1-8-1(4.53%), R 1819-469-2-137-1(4.53%), R 1536-1170-5-140-1(4.54%), R 1670-1151-1-119-1(4.55%) and R 1656-3173-1-415-1(5.00%). In sixth group five genotypes were found significantly at par are as given i.e. R 1730-501-3-250-1(5.43%), R 1750-937-1-530-1(6.46%), R 1698-3644-3-4696-1(5.67%), R 1656-2821-1-3245-1(5.69%) and Mahisugandha (5.87%). In seventh group only one entry i.e. susceptible (check) TN 1 showed maximum silver shoots percentage (7.25%) at 30 DAT. are significantly different from all the entries evaluated in the experiment.

Rice Gall Midge (*Orseolia oryzae*) at 50 DAT

At 50 days after transplanting out of sixty genotypes twenty five were found free from rice gall midge infestation in first group showed zero percentage damage. These genotypes namly, Chandrahasini (ch.), IET 21053 (NDR9542) (ch.), Indira Sugandhit Dhan-1(ch), R 1521-950-6-843-1, R 1536-136-1-77-1, R 1553-1369-2-252-1, R 1588-7-1-1-1, R 1648-2663-2-2862-1, R 1664-59-1-46-1, R 1664-59-2-47-1, R 1675-1844-2-1257-1, R 1688-2150-5-2060-1, R 1698-168-1-76-1, R 1700-2240-4-2295-1, R 1700-302-1-156-1, R 1747-4941-1-515-1, R 1757-540-3-286-1, R 1779-320-1-111-1, R 1804-399-1-134-1, R 1926-1013-2-595-1, R 1938-620-1-163-1, R 1656-3181-1-420-1, R1629-234-5-1882-2, R1700-308-3-170-1 and Indira Sona (ch). In the second group Vishnu bhog (ch.) showed minimum silver shoots percentage (2.28%). which was significantly different from rest of the genotypes.In third group six entries were observed significantly at par viz. IR 83376 B-B110-3 (ch.) (7.71%), IR 64 (ch.) (7.42%) , R 1738-504-3-255-1(8.04%), R 1595-14-1-6-1(8.24%), R 1607-28-3-19-1(9.03%), R 1625-1211-2-765-1(9.08%) In fourth group nine entry were found significantly similar with each other namely, R 1656-430-10-1965-1(9.39%), R 1661-1372-1-601-1(9.84%) , IR 84887-B-15(9.91%) , R 1595-17-3-10-1(10.17%) , R 1656-46-2-41-1(10.78%) , R 1670-3975-1-485-1(9.78%) , R 1661-605-84-1(10.38%) ,R 1667-1032-1-98-1(10.79%) , R 1630-1237-2-827-1(11.25%) .

In fifth group eight entries were found significantly at par , they are designated with percent damage of rice gall midge as, R 1519-815-1-646-1(11.40%) , R

1595-17-1-8-1(11.40%), R 1629-112-2-67-1(11.88%) , R 1536-1170-5-140-1(11.98%) , R 1630-32-1-21-1(12.22%), R 1545-184-3-22-1(12.25%) , R 1599-594-2-305-1(12.87%) , and R 1670-1151-1-119-1(13.35%) . In sixth group eight entries were found significantly similar with each other i.e. R 1695-2155-1-270-1(14.93%), R 1730-501-3-250-1(15.37%), R 1607-321-1-34-1(15.77%), R 1698-3644-3-4696-1(15.81%), R 1819-469-2-137-1(16.19%), R 1656-3173-1-415-1(16.97%), R 1656-2821-1-3245-1(17.05%) and R 1819-473-1-139-1(17.58%). In seventh group three entries were found significantly at par with each other viz. Mahisugandha (Ch.) (18.29%), R 1750-937-1-530-1(20.07%) and TN 1 Susceptible (Ch.) (28.66%).

Table 3. Average percentage Silver Shoots at 30 Day After Transplanting.

NO.	Name of Entry/genotypes	Parentage	Percentage silver shoots	Scale (0-9)	Reaction Pattern
1	Chandrahasini	(Check)	0.00 (2.87)	0	HR
2	IET 21053 (NDR9542)	(Check)	0.00 (2.87)	0	HR
3	Indira Sona	(Check)	0.00 (2.87)	0	HR
4	Indira Sugandhit Dhan-1	(Check)	0.00 ((2.87)	0	HR
5	IR 83376 B-B110-3	(Check)	3.42 (10.52)	3	MR
6	IR 64	(Check)	4.10 (11.52)	3	MR
7	IR 84887-B-15	MLT 11-24	4.23 (11.72)	3	MR
8	Mahisugandha	(Check)	5.87 (13.97)	5	MS
9	R 1519-815-1-646-1	Rastic Br 240-47 / Charder	4.22 (11.77)	3	MR
10	R 1521-950-6-843-1	R 1521-950-6-843-1	0.00 (2.87)	0	HR
11	R 1536-1170-5-140-1	R302-111 / Ganga Baru	4.54 (12.22)	3	MR
12	R 1536-136-1-77-1	R 1536-136-1-77-1	0.00 (2.87)	0	HR
13	R 1545-184-3-22-1	Pusa Basmati x ChinniKapoor	3.45 (10.60)	3	MR
14	R 1553-1369-2-252-1	Mahamya / Nidhee	0.00 (2.87)	0	HR
15	R 1588-7-1-1-1	R 1102-2795-3 x Nidhee	0.00 ((2.87)	0	HR
16	R 1595-14-1-6-1	Pusa Basmati x ChiniKapoor	3.69 (10.99)	3	MR
17	R 1595-17-1-8-1	Pusa Basmati x ChiniKapoor	4.53 (12.23)	3	MR
18	R 1595-17-3-10-1	Pusa Basmati x ChiniKapoor	3.61 (10.82)	3	MR
19	R 1599-594-2-305-1	MTU 1010 x Mahamaya	3.59 (10.87)	3	MR
20	R 1607-28-3-19-1	IR 71703-221-1-5-2 x Jira Shankar	4.45 (12.05)	3	MR
21	R 1607-321-1-34-1	SR 12 x ChinniKapoor	4.49 (12.12)	3	MR
22	R 1625-1211-2-765-1	Denteshwari / Tarori Basmati	2.67 (9.32)	3	MR
23	R 1629-112-2-67-1	HMT x Jira Shankar	4.45 (12.08)	3	MR
24	R 1630-1237-2-827-1	SR 12 / LaxmiBhog	3.76 (11.12)	3	MR
25	R 1630-32-1-21-1	IR 71703-221-1-5-2 x Laxmibhog	3.02 (9.91)	3	MR
26	R 1648-2663-2-2862-1	R 1072-360-1-1 x Poornima	0.00 (2.87)	0	HR
27	R 1656-2821-1-3245-1	Swarna x Jira Shankar	5.69 (13.71)	5	MS
28	R 1656-3173-1-415-1	Danteshwari x Elaychi	5.00 (12.83)	3	MR
29	R 1656-430-10-1965-1	Swarna x Jira Shankar	2.72 (9.39)	3	MR
30	R 1656-46-2-41-1	Swarna x Jira Shankar	3.24 (10.29)	3	MR
31	R 1661-1372-1-601-1	R 1004-5552-1-1 x NagriDubraj	2.86 (9.65)	3	MR
32	R 1661-605-84-1	R 1004-5552-1-1 x NagriDubraj	2.94 (9.76)	3	MR
33	R 1664-59-1-46-1	R 1004-5552-1-1 x Swarna	0.00 (2.87)	0	HR
34	R 1664-59-2-47-1	R 1004-5552-1-1 x Swarna	0.00 (2.87)	0	HR
35	R 1667-1032-1-98-1	R 1060-1674-1-1 x Chandrahasini	3.79 (11.13)	3	MR
36	R 1670-1151-1-119-1	Samleshwari x Poornima	4.55 (12.23)	3	MR
37	R 1670-3975-1-485-1	Samleshwari x Poornima	2.90 (9.74)	3	MR
38	R 1675-1844-2-1257-1	R 1037-649-1-1 x Mahamaya	0.00 (2.87)	0	HR
39	R 1688-2150-5-2060-1	R 975-897-1-1 x Tarori Basmati	0.00 (2.87)	0	HR
40	R 1695-2155-1-270-1	Danteshwari x Poornima	3.63 (10.89)	3	MR
41	R 1698-168-1-76-1	Danteshwari x Elaychi	0.00 (2.87)	0	HR
42	R 1698-3644-3-4696-1	Danteshwari x Elaychi	5.67 (13.72)	5	MS
43	R 1700-2240-4-2295-1	Danteshwari x AmritBhog	0.00 (2.87)	0	HR
44	R 1700-302-1-156-1	Denteshwari x AmritBhog	0.00 (2.87)	0	HR
45	R 1730-501-3-250-1	Poornima x Indira Sugandhit Dhan-1	5.43 (13.42	5	MS
46	R 1738-504-3-255-1	IR 64x Pusa Basmati	2.83 (9.61)	3	MR
47	R 1747-4941-1-515-1	Rastic Br 240-47 x ShaymJira	0.00 (2.87)	0	HR
48	R 1750-937-1-530-1	BG380-2xAmrit Bhog	6.46 (14.63)	5	MS
49	R 1757-540-3-286-1	IR 64x BishanuBhog	0.00 (2.87)	0	HR
50	R 1779-320-1-111-1	Danteshwari x WGL 320100	0.00 (2.87)	0	HR
51	R 1804-399-1-134-1	R 979-1528-2-1 x GopalBhog	0.00 (2.87)	0	HR
52	R 1819-469-2-137-1	Shyamla x MR 219	4.53 (12.16)	3	MR
53	R 1819-473-1-139-1	Shyamla x MR 219	4.41 (12.04)	3	MR
54	R 1926-1013-2-595-1	R1130-80-1-52-1xHURFG 4-6	0.00 (2.87)	0	HR
55	R 1656-3181-1-420-1	SwarnaxJira Shankar	0.00 (2.87)	0	HR
56	R 1938-620-1-163-1	Abhaya x B 644-FMR-6-0-0	0.00 (2.87)	0	HR
57	R1629-234-5-1882-2	HMTxJira Shankar	0.00 (2.87)	0	HR

58	R1700-308-3-170-1	Denteshwari x AmritBhog	0.00 (2.87)	0	HR
59	TN 1	Susceptible (Check)	7.25 (15.56)	5	MS
60	Vishanubhog	(Check)	1.10 (5.91)	3	MR
	SEm±		**0.463**		
	CD (5%)		**1.298**		

Figures in parentheses are Angular transformed values.
DAT- Days after transplanting, SS- Silver shoot (tiller basis), Score= 0-Highly resistant (0% SS),2- Resistant (<1% SS), 3- Moderately resistant (1-5% SS), 5- Moderately susceptible (5-10%SS),7-Susceptible (10-25% SS), 9- Highly susceptible (25% SS).

Table 4. Average Percentage Silver Shoots at 30 Day after Transplanting (IRRI ratings)

Scale (0-9)	Score (Silver shoot)	Category	Number of entries	Name of entries
0	No damage	Highly Resistant	25	Chandrahasini, IET 21053 (NDR9542), Indira Sugandhit Dhan-1, R 1521-950-6-843-1, R 1536-136-1-77-1, R 1553-1369-2-252-1, R 1588-7-1-1-1, R 1648-2663-2-2862-1, R 1664-59-1-46-1, R 1664-59-2-47-1, R 1675-1844-2-1257-1, R 1688-2150-5-2060-1, R 1698-168-1-76-1, R 1700-2240-4-2295-1, R 1700-302-1-156-1, R 1747-4941-1-515-1, R 1757-540-3-286-1, R 1779-320-1-111-1, R 1804-399-1-134-1, R 1926-1013-2-595-1, R 1656-3181-1-420-1, R 1938-620-1-163-1, R1629-234-5-1882-2, R1700-308-3-170-1,and Indira Sona.
1	Less than 1%	Resistant	0	-Nil-
3	1-5%	Moderately Resistant	28	IR 83376 B-B110-3, IR 64, IR 84887-B-15, R 1519-815-1-646-1, R 1536-1170-5-140-1, R 1545-184-3-22-1, R 1595-14-1-6-1, R 1595-17-1-8-1, R 1595-17-3-10-1, R 1599-594-2-305-1, R 1607-28-3-19-1, R 1607-321-1-34-1, R 1625-1211-2-765-1, R 1629-112-2-67-1, R 1630-1237-2-827-1, R 1630-32-1-21-1, R 1656-430-10-1965-1, R 1656-46-2-41-1, R 1661-1372-1-601-1, R 1661-605-84-1, R 1667-1032-1-98-1, R 1670-1151-1-119-1, R 1670-3975-1-485-1, R 1695-2155-1-270-1, R 1738-504-3-255-1, R 1819-469-2-137-1, R 1819-473-1-139-1, Vishanubhog
5	5-10%	Moderately Susceptible	7	Mahisugandha, R 1656-2821-1-3245-1,R 1656-3173-1-415-1, R 1698-3644-3-4696-1, R 1730-501-3-250-1, R 1750-937-1-530-1, TN 1,
7	10-25%	Susceptible	0	-Nil-
9	More than 25%	Highly Susceptible	0	-Nil-

Table 5. Average Percentage Silver Shoots at 50 Days after Transplanting

NO.	Name of Entry	Parentage	Percentage Silver Shoots	Scale (0-9)	Reaction Pattern
1	Chandrahasini	(Check)	0.00 (2.87)	0	HR
2	IET 21053 (NDR9542)	(Check)	0.00 (2.87)	0	HR
3	Indira Sona	(Check)	0.00 (2.87)	0	HR
4	Indira Sugandhit Dhan-1	(Check)	0.00 (2.87)	0	HR
5	IR 83376 B-B110-3	(Check)	7.71 (15.93)	5	MS
6	IR 64	(Check)	7.42 (15.76)	5	MS
7	IR 84887-B-15	MLT 11-24	9.91 (18.28)	5	MS
8	Mahisugandha	(Check)	18.29 (25.29)	7	S
9	R 1519-815-1-646-1	Rastic Br 240-47 / Charder	11.40 (19.66)	7	S
10	R 1521-950-6-843-1	R 1521-950-6-843-1	0.00 (2.87)	0	HR
11	R 1536-1170-5-140-1	R302-111 / Ganga Baru	11.98 (20.18)	7	S
12	R 1536-136-1-77-1	R 1536-136-1-77-1	0.00 (2.87)	0	HR
13	R 1545-184-3-22-1	Pusa Basmati x Chinni Kapoor	12.25 (19.86)	7	S
14	R 1553-1369-2-252-1	Mahamya / Nidhee	0.00 (2.87)	0	HR
15	R 1588-7-1-1-1	R 1102-2795-3 x Nidhee	0.00 (2.87)	0	HR
16	R 1595-14-1-6-1	Pusa Basmati x Chini Kapoor	8.24 (16.61)	5	MS
17	R 1595-17-1-8-1	Pusa Basmati x Chini Kapoor	11.40 (19.68)	7	S
18	R 1595-17-3-10-1	Pusa Basmati x Chini Kapoor	10.17 (18.52)	7	S
19	R 1599-594-2-305-1	MTU 1010 x Mahamaya	12.87 (20.93)	7	S
20	R 1607-28-3-19-1	IR 71703-221-1-5-2 x Jira Shankar	9.03 (17.38)	5	MS
21	R 1607-321-1-34-1	SR 12 x ChinniKapoor	15.77 (23.36)	7	S
22	R 1625-1211-2-765-1	Denteshwari / Tarori Basmati	9.08 (17.46)	5	MS
23	R 1629-112-2-67-1	HMT x Jira Shankar	11.88 (20.10)	7	S
24	R 1630-1237-2-827-1	SR 12 / LaxmiBhog	11.25 (19.56)	7	S
25	R 1630-32-1-21-1	IR 71703-221-1-5-2 x Laxmibhog	12.22 (20.40)	7	S
26	R 1648-2663-2-2862-1	R 1072-360-1-1 x Poornima	0.00 (2.87)	0	HR

27	R 1656-2821-1-3245-1	Swarna x Jira Shankar	17.05 (24.33)	7	S
28	R 1656-3173-1-415-1	Danteshwari x Elaychi	16.97 (24.27)	7	S
29	R 1656-430-10-1965-1	Swarna x Jira Shankar	9.39 (17.81)	5	MS
30	R 1656-46-2-41-1	Swarna x Jira Shankar	10.78 (19.09)	7	S
31	R 1661-1372-1-601-1	R 1004-5552-1-1 x NagriDubraj	9.84 (18.21)	5	MS
32	R 1661-605-84-1	R 1004-5552-1-1 x NagriDubraj	10.38 (18.72)	7	S
33	R 1664-59-1-46-1	R 1004-5552-1-1 x Swarna	0.00 (2.87)	0	HR
34	R 1664-59-2-47-1	R 1004-5552-1-1 x Swarna	0.00 (2.87)	0	HR
35	R 1667-1032-1-98-1	R 1060-1674-1-1 x Chandrahasini	10.79 (19.04)	7	S
36	R 1670-1151-1-119-1	Samleshwari x Poornima	13.35 (21.35)	7	S
37	R 1670-3975-1-485-1	Samleshwari x Poornima	9.78 (18.13)	5	MS
38	R 1675-1844-2-1257-1	R 1037-649-1-1 x Mahamaya	0.00 (2.87)	0	HR
39	R 1688-2150-5-2060-1	R 975-897-1-1 x Tarori Basmati	0.00 (2.87)	0	HR
40	R 1695-2155-1-270-1	Danteshwari x Poornima	14.93 (22.69)	7	S
41	R 1698-168-1-76-1	Danteshwari x Elaychi	0.00 (2.87)	0	HR
42	R 1698-3644-3-4696-1	Danteshwari x Elaychi	15.81 (23.38)	7	S
43	R 1700-2240-4-2295-1	Danteshwari x AmritBhog	0.00 (2.87)	0	HR
44	R 1700-302-1-156-1	Denteshwari x AmritBhog	0.00 (2.87)	0	HR
45	R 1730-501-3-250-1	Poornima x Indira Sugandhit Dhan-1	15.37 (23.05)	7	S
46	R 1738-504-3-255-1	IR 64x Pusa Basmati	8.04 (17.10)	5	MS
47	R 1747-4941-1-515-1	Rastic Br 240-47 x ShaymJira	0.00 (2.87)	0	HR
48	R 1750-937-1-530-1	BG380-2xAmrit Bhog	20.07 (26.56)	7	S
49	R 1757-540-3-286-1	IR 64x BishanuBhog	0.00 (2.87)	0	HR
50	R 1779-320-1-111-1	Danteshwari x WGL 320100	0.00 (2.87)	0	HR
51	R 1804-399-1-134-1	R 979-1528-2-1 x GopalBhog	0.00 (2.87)	0	HR
52	R 1819-469-2-137-1	Shyamla x MR 219	16.19 (23.70)	7	S
53	R 1819-473-1-139-1	Shyamla x MR 219	17.58 (24.90)	7	S
54	R 1926-1013-2-595-1	R1130-80-1-52-1xHURFG 4-6	0.00 (2.87)	0	HR
55	R 1656-3181-1-420-1	SwarnaxJira Shankar	0.00 (2.87)	0	HR
56	R 1938-620-1-163-1	Abhaya x B 644-FMR-6-0-0	0.00 (2.87)	0	HR
57	R1629-234-5-1882-2	HMTxJira Shankar	0.00 (2.87)	0	HR
58	R1700-308-3-170-1	Denteshwari x AmritBhog	0.00 (2.87)	0	HR
59	TN 1	Susceptible (Check)	28.66 (23.22)	9	HS
60	Vishanubhog	(Check)	2.28 (8.39)	3	MR
	SEm±		**0.634**		
	CD (5%)		**1.778**		

Figures in parentheses are Angular transformed values.
DAT- Days after transplanting, SS- Silver shoot (tiller basis), Score= 0-Highly resistant (0% SS),2- Resistant (<1% SS), 3- Moderately resistant (1-5% SS), 5- Moderately susceptible (5-10%SS),7-Susceptible (10-25% SS), 9- Highly susceptible (25% SS).

CONCLUSION

The present investigation indicate that on the basis of reaction pattern scale (0-9), twenty five genotypes/ varieties infestation range were found zero percentage highly resistant , Non were found resistant twenty eight were found moderately resistant and seven were found in the category of moderately susceptible at 30 days after transplanting. Whereas at 50 days after transplanting similar findings were recorded in genotypes category of highly resistant and moderately resistant ,but in the category of moderately susceptible ten genotypes were grouped while in susceptible category thirteen genotypes were found ,they shows the increasing percent damage in this category. However in highly susceptible check i.e. TN 1 recorded (Table no.4.1.3 and 4.1.4) thus against rice gall midge out of sixty genotypes of fine slender type could be utilized. Similar result to this were reported by Several workers kandalkar *et al*.,1991, Bentur et al.,1994, Bentur et al.,2003,Hussain and Bora.,1996,Meher et al.,2009,Mukherjee et al.,1996,Ogah et al., 2012,Rahman *et al.*, 1991, Rao *et al.*, 2002, Rao and Kandalkar, 1992, Sahu *et al.*, 1996, Saroja *et al.*, 1992, Setty *et al.*, 1994, Tan *et al.*, 1993, Tomar and Prasad, 1992.

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