

changes in available N status, it is possible to monitor the N fertility status of soil from the initial analysis as revealed from study.

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MANAGEMENT OF RICE GALL MIDGE *Orseolia oryzae* (WOOD-MASON) WITH REFERENCE TO TIME OF PLANTING AND VARIETAL RESISTANCE

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The incidence of rice gall midge was maximum when CO 40 was planted on 1st September during samba season and when IR 20 was planted on 16th September during thaladi season. The incidence was less when the plantings were made during August or October. Of the 41 varieties tested, IET 3231 was free from gallmidge infestation while CR 1009, IR 20, Jaya, CO 25, CO 40 and Panke] recorded 5.91, 9.13, 9.80, 13.22, 14.83 and 34.69% respectively.

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Gall midge, *Orseolia oryzae* (Wood-Mason) is one of the major pests of rice causing upto 76.2% silvershoots in Madurai, Tamilnadu (Natarajan and Jayaraj 1983). The pest is serious in other places also as it causes a maximum of 40.1% silvershoots in Thailand (Weerawooth katanyukul *et al.* 1980); 65% in Uttarpradesh (Rizvi and Singh, 1980) and 75% in Andrapradesh (AICRIP, 1969). The larvae feeding within the culm base cause the formation of galls or silvershoots. Gall formation is caused by the suppression of leaf primordial differentiation in the growing point and the development of radial ridges from the innermost leaf primordium followed by leaf sheath elongation (Shin-Foon Chiu, 1980).

The present study was taken up to find out the reaction of this pest to different varieties and also to know the appropriate time of transplanting to reduce the pest attack.

MATERIALS AND METHODS

i) TIME OF PLANTING

Five plantings were made at fortnightly intervals commencing from second fortnight of August in Samba season and three plantings were made starting from second fortnight of September in thaladi season at Tamilnadu Rice Research Institute, Aduthurai during 1981-82. The varieties CO 40 and IR 20 were planted during Samba and thaladi seasons respectively in 50 m² plots, replicated

four times. Gall midge incidence was assessed on 25 hills selected at random in each plot by recording the number of galled tillers and total tillers at 15 days interval starting from one month after transplanting.

ii) VARIETAL RESISTANCE

Thirty Six prerelease cultures and five ruling varieties were grown in 20 m² plots and replicated thrice during samba, 1981. Recommended agronomic practices were followed and the plots were left unprotected against pests. Gallmidge incidence was assessed at 60 days after planting as this crop at this age is more prone to infestation in this region. The incidence was assessed by observing the number of galled tillers and total tillers on ten hills selected at random in each plot. The percentage infestation was worked and the rating was done as per standard evaluation system (IRRI, 1980) adopted for rice.

RESULTS AND DISCUSSION

i) TIME OF PLANTING

The results showed that the maximum incidence was during samba season on the crop planted on September 1 and 16 followed by those planted on August, 16 (Fig 1). The incidence was minimum when CO 40 was planted during October. During thaladi season, maximum incidence was noticed on

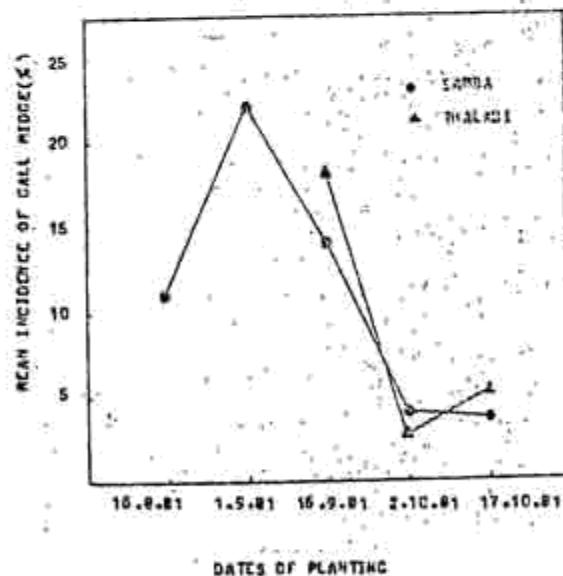
Table 1 Influence of time of planting on the incidence of rice gall midge

S. No.	Date of planting	Variety	Age of the crop at peak incidence	Mean gall midge incidence (%)
1	16.8.81	CO 40	85	10.98 c
2	1.9.81	CO 40	70	21.76 d
3	16.9.81	CO 40	55	13.92 c
4	2.10.81	CO 40	40	4.10 b
5	17.10.81	CO 40	30	3.68 a
6	16.9.81	IR 20	55	18.01 d
7	2.10.81	IR 20	40	2.70 a
8	17.10.81	IR 20	30	5.21 b

Means followed by same letter are not significantly different at 0.05% level.

the crop planted on September 16, and less infestation was noticed in subsequent plantings. The crop planted during September suffered severely by this pest in both the seasons (Table 1). The studies by Rizvi and Singh (1980) revealed that the incidence was more from late August to Mid-October whereas the infestation was highest in October on the crop planted during August (Jena and Patnaik, 1983). In the present studies, it was noticed that the incidence increased upto September planting and thereafter a decrease in infestation. It was also noticed that 55-70 days old crop in samba and 30-55 days old crop in thaladi were prone to gall midge infestation during November. The rainfall during Octo-

FIG. 1 INCIDENCE OF GALL MIDGE DURING SAMBA AND THALADI SEASONS



ber might have led to increased infestation by gall midge during November. Studies by Sundararaju (1986) also indicated the population of this

Table 2 Mean incidence of gall midge on rice varieties

S. No.	Variety	Parentage	Duration	Infestation%	Scale
1	IET 3231	IR 8 x Siam 29	135	0.00	0
2	IET 6010	IR 8 x W 1263	127	0.56	1
3	IET 6290	Leaung x IR 8	135	0.85	1
4	IET 6282	Leaung x IR 8	130	4.36	3
5	IET 6074	Vijaya x Ptb 21	130	2.31	3
6	IET 5975	OR 1-135 x W 1263	130	4.96	3
7	CR 1009	Pankaj x Jagannath	160	5.91	5
8	IR 20	IR 262 x TKM 6	135	9.13	5
9	Jaya	T (N) 1 x T 141	125	9.80	5
10	AD 8183	CO 25-30 Kr gamma	165	10.13	5
11	IET 6686	IR 2042 x CR 94-11	135	10.39	5
12	IET 5914	Sona x Mashuri	140	10.69	5
13	IET 6276	CR 70-80-2 x Pankaj	141	12.94	5
14	IET 5656	Sona x RPW 6-13	155	12.94	5
15	CO 25	ADT 10 x CO 4	170	13.22	5
16	IET 6267	Pankaj x Vijaya	146	14.01	5
17	CO 40	IR 8 x CO 25	165	14.83	5
18	IET 5883	CR 63-5218-1 x Pankaj	148	14.98	5
19	IET 6262	CR 70-80-2 x Pankaj	145	16.42	5
20	IET 5742	Imp. Sab x Sona	135	17.26	7
21	IET 6271	Pankaj x Jagannath	141	17.68	7
22	Jagannath	Mutant of T 141	150	18.02	7
23	IET 6212	RP 31-49-2 x Patni-23	135	19.85	7
24	AD 7496	IR 8 x Co 25 x IR 20	165	20.28	7
25	IET 6265	Pankaj x Vijaya	135	20.35	7
26	IET 6266	CR 63-5218-1 x Pankaj	141	20.53	7
27	IET 6669	Pankaj x RP 5-32	142	20.65	7
28	IET 5882	CR 63-5218-1 x Pankaj	149	20.99	7
29	IET 6314	RP 31-49-2 x LMN	140	21.00	7
30	IET 7041	*	140	21.20	7
31	IET 6261	Pankaj x Vijaya	135	21.55	7
32	NLR 9672	Bulk H.9 x Millikunnings	160	22.33	7
33	IET 6279	CR 70-80-2 x Pankaj	145	22.73	7
34	IET 5890	CR 70-80-2 x Pankaj	150	23.22	7
35	IET 6466	Dasal x IR 20	135	23.62	7
36	AD 3488	AD 10783 x Ptb 15	165	23.99	7
37	IET 6658	*	145	26.18	7
38	IET 6657	Nina x T [N] 1	145	26.67	7
39	IET 6987	*	135	28.55	7
40	IET 6144	Bala x Co 13	125	31.09	7
41	Pankaj (Check)	Peta x Tongai Rotam	150	34.69	7

* Parentage not known

CD=11.66

pest reached a peak during September, about two months after peak rainfall. In the present studies, the gall midge infestation was heavy during November especially on the crop planted during September. Hence, transplanting during September may be avoided to minimise the gallmidge incidence both in samba and thaladi seasons.

ii) VARIETAL RESISTANCE :

Of the 41 varieties, only one variety viz., IET 3231 recorded nil incidence while five varieties recorded less than 5.00% incidence. Thirteen varieties recorded an incidence of above 5.

00% but less than 16.00% with a scale of 5. All other varieties registered an incidence of above 16.00% with a maximum of 34.69% in the susceptible check 'Pankaj'. All these varieties were rated '7' (Table 2). The cultures having less than 5% silve shoots may be utilized for resistance breeding programmes. The studies reveal that transplanting in August and October for samba and thalad seasons respectively will reduce the damage by gall midge, in addition growing resistant/moderately resistant varieties will go a long way in minimizing the damage and yield loss.

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