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Screening of Rice Genotypes for Resistance against Leaffolder

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Abstract

Initial field screening in station trials (2021-2024) followed by evaluation under All India Coordinated Research Programme on Rice (AICRPR) (2022 to 2023) revealed ten Pattambi entries *viz*., RP5564 PTB 2-4-1-5, 0614-13-15-7-1-2, RP5564 PTB 2-4-2-1-2, RP5564 PTB 1-4-2, 0614-13-15-7-1-1, RP5564 PTB 1-4-1. RP5564 PTB 1-3. 0614-1-6-21-1-2, 0614-1-6-21-1-4 and RP5564 PTB 2-4-2-1-1 were found resistant to rice leaf folder in station trials and multilocational trials were promising in fifteen locations across India during the test period. Six entries *viz*., RP 5564 PTB 2-4-2-1-2, RP 5564 PTB 1-4-2, RP 5564 PTB 2-4-2-1-1, 0614-1-6-21-1-2, RP 5564 PTB-1-3 and RP 0614-13-15-7-1-2 were found promising against both stem borer and leaffolder.

Keywords: Stem borer, leaffolder, station trials, screening trial, AICRPR

Introduction

Rice (*Oryza sativa* L.) is a monocotyledonous crop, belongs to the family Poaceae and genus Oryza with 22 wild species. Being the staple crop for half of the world population, it is one of the most important cereal crops (Pandit *et al*., 2020). It comprises 80% carbohydrates, 8% protein, 3% fat, and 3% fiber (Chaudhari *et al*., 2018). The rice plant is subjected to attack by more than 100 species of insects, of which 20 species are of economic importance, resulting in yield losses of 20-30% every year (Chatterjee *et al*., 2017). Yellow stem borer, *Scirpophaga incertulas* (Walker) and Leaffolder (*Cnaphalocrocis medinalis* Guenée) of rice are considered as prime devastators responsible for major economic loss (Chatterjee and Mondal, 2014; Chatterjee *et al.*, 2017). Host plant resistance is a relationship between the plant-feeding insects and their host plants (Painter, 1951). Insect-resistant plant varieties or genotypes not only decrease insect pest populations but also complement other eco-friendly pest management strategies (Rani *et al*., 2020). Plant traits that facilitate direct defenses have been demonstrated to reduce insect growth rates by diminishing the digestibility and nutritional quality of plant tissues (Belete, 2018). Cultures JS1, 3, 5, and 7 showed tolerance to both the Stem borer and Leaffolder, while Cult M9 exhibited field tolerance to multiple pests, including the Stem borer, a mixed population of planthoppers, and the Leaffolder (Karthikeyan *et al.*, 2024). This study was undertaken to evaluate more promising Pattambi cultures against two major pests like rice stem borer and leaffolder.

Materials and Methods

Sixteen Pattambi cultures were screened with TN 1 as susceptible check during the six seasons, *viz., Kharif* 2021, 2022 and 2023 in the first crop season and *Rabi* 2021-22, *Rabi* 2022-2023 and *Rabi* 2023-2024 in the second crop season against rice stem borer and rice leaffolder in fields of the Regional Agricultural Research Station, Kerala. The entries were planted with one row of 20/21 hills at a spacing of 20 x 15 cm and observations were taken on per cent damaged leaves for the leaffolder at 45 and 60 DAT. The ten promising Pattambi entries were evaluated for two seasons during the period from 2022 to 2023 at 18 locations across India in the Leaffolder screening trial

under All India Coordinated Research Project on Rice (Entomology). At all the locations, data was considered when the field incidence was very high and at ICAR-IIRR, the stem borer damage was supplemented with the release of larvae. The observation were made on tiller damage for stem borer by counting ten randomly selected hills per entry for dead heart at vegetative stage and white ears at reproductive stage similarly for leaffolder observation made on ten randomly selected hills per entry on counting damaged leaves. The data were analyzed statistically by Randomized Block design (RBD) and means were compared at CD at 0.05% level.

Results and Discussion

Station trials at Pattambi

Leaffolder

The pooled analysis of the first crop seasons (*Kharif* 2020, 2021 and 2022) under station trials among sixteen entries tested, six /ten Pattambi entries *viz*., RP5564 PTB 2-4-1-5, 0614-13-15-7-1-2, RP5564 PTB 2-4-2-1-2, RP5564 PTB 1-4-2, 0614-13-15-7-1-1, RP5564 PTB 1-4-1. Four entries, namely, RP5564 PTB 1-3, 0614-1-6-21-1-2, 0614-1-6-21-1-4 and RP 5564 PTB 2-4-2-1-1 showed low leaf folder damage ranging from 1.84 (0614-1-6-21-1-2) to 4.01 per cent (RP 5564 PTB 2-4-2-1-1) and 3.48 (0614-13-15-7-1-2) to 5.00 per cent (RP 5564 PTB 2-4-2-1-1) while other entries *viz*.,RP 5490 PTB 1-1-2, 0615 PTB 01-23-21, 0627 PTB 2-14-1, 0614 PTB 7-8-24, 0615 PTB 01-23-21, 0615-11-20-8-2 and RP 5517 PTB 1-1-1-1-1 showed higher leaf damage ranging from 4.81 (0615 PTB 01-23-21) to 7.92 per cent (RP 5517 PTB 1-1-1-1-1) and 3.68 (RP 5490 PTB 1-1-2) to 7.59 % (RP 5517 PTB 1-1-1-1-1)damaged leaves at 45 and 60 DAT, respectively. Thecheck entry TN 1 showed leaf damage of14.80 and 17.37 per cent at 45 and 60 DAT, respectively **(Table 1).**

Table 1: Incidence of leaf folder in different entries at Station trial in Pattambi (Pooled Analysis of *Kharif* 2020, 2021 and 2022)

Designation	Parentage	Leaf folder damaged leaves (%)	
		%DL	%DL
		45DAT	60DAT
RP5564 PTB 2-4-1-5	RP Bio 226 X IRGC 71598 X MTU1010	3.86 (0.20)	4.62 (0.21)
0614-13-15-7-1-2	Pranava X Vellari	2.00 (0.14)[a]	3.48 (0.19)
RP5564 PTB 2-4-2-1-2	RP Bio 226 X IRGC 71598 X MTU1010	3.00 (0.16)[a]	3.50 (0.19)
RP5564 PTB 1-4-2	RP Bio 226 X IRGC 71598 X MTU1010	2.23 (0.15)[a]	3.78 (0.19)
0614-13-15-7-1-1	Pranava X Vellari	3.68 (0.19)	4.51 (0.21)
RP5564 PTB 1-4-1	RP Bio 226 X IRGC 71598 X MTU1010	3.09 (0.18)	3.61 (0.19)
RP5564 PTB 1-3	RP Bio 226 X IRGC 71598 X MTU1010	3.51 (0.19)	5.31 (0.23)
0614-1-6-21-1-2	Pranava X Vellari	1.84 (0.14)	3.95 (0.20)
0614-1-6-21-1-4	Pranava X Vellari	2.70 (0.17)	3.70 (0.19)
RP 5564 PTB 2-4-2-1-1	RP Bio 226 X IRGC 71598 X MTU1010	4.01 (0.20)	5.00 (0.23)
RP5490 PTB 1-1-2	Sampada/IRGC 11010 x Sampada	5.95 (0.25)	3.68 (0.19)
0627PTB-2-14-1	Swetha x Kuruka	5.84 (0.24)	8.40 (0.19)
0614PTB-7-8-24	Pranava x Vellari	7.10 (0.27)	6.30 (0.26)
0615-PTB01-23-21	Pranava x Chettadi	4.81 (0.22)	6.94 (0.27)
0615-11-20-8-2	Pranava x Chettadi	5.62 (0.24)	6.04 (0.25)
RP 5517 PTB 1-1-1-1-1	Sampada/IRGC30938/Triguna	7.92 (0.29)	7.59 (0.28)
TN1		14.80 (0.39)	17.37 (0.43)
	C. D (0.05)	0.05	0.05

DAT- Days after transplanting, DL- Damaged leaves, Values in brackets are arcsine transformed values

During the second crop season of *Rabi* 2020-21, 2021-22 and 2022-23, similar results were obtained with pooled analysis of all three crop seasons with ten entries,*viz*., RP5564 PTB 2-4-1-5, 0614-13-15-7-1-2, RP5564 PTB 2-4-2-1-2, RP5564 PTB 1-4-2, 0614-13-15-7-1-1, RP5564 PTB 1-4-1. RP5564 PTB 1-3, 0614-1-6-21-1-2, 0614-1-6-21-1-4 andRP 5564 PTB 2-4-2-1-1 showing low incidence of leaffolder ranging from 2.80 (0614-13-15-7-1-2) to 4.53 per cent (RP5564 PTB 1-4-1 and RP5564 PTB 1-3) at 45 DAT and 2.38(0614-1-6-21-1-2) to 4.20 per cent (RP5564 PTB 2-4-1-5) damaged leaves at 60 DAT while other tested entries showed higher leaf damage ranging from 4.81/4.36 (0614- PTB 7-8-24/0627 PTB 2-14-1) to 7.84 per cent (0615-11-20-8-2) at 45 DAT and 7.80 /3.35(0627 PTB 2-14-1) to 9.07 per cent (0614 PTB 7-8-24) at 60 DAT while check entry (TN 1) suffered highest per cent leaf damage of 20.53 and 18.03 per cent at 45 and 60 DAT,respectively **(Table 2).**

Table 2: Incidence of leaf folder in different entries at Station trial in Pattambi (Pooled Analysis of *Rabi* 2020-21, 2021-22 and *Rabi* 2022-23)

Designation	Parentage	Leaffolder damage	
		%DL	%DL
		45DAT	60DAT
RP5564 PTB 2-4-1-5	RP Bio 226 X IRGC 71598 X MTU1010	4.18 (0.20)	4.20 (0.21)
0614-13-15-7-1-2	Pranava X Vellari	2.80 (0.17)	3.41 (0.18)
RP5564 PTB 2-4-2-1-2	RP Bio 226 X IRGC 71598 X MTU1010	4.19 (0.21)	3.71 (0.19)
RP5564 PTB 1-4-2	RP Bio 226 X IRGC 71598 X MTU1010	4.11 (0.20)	3.25 (0.18)
0614-13-15-7-1-1	Pranava X Vellari	3.80 (0.10)	3.79 (0.20)
RP5564 PTB 1-4-1	RP Bio 226 X IRGC 71598 X MTU1010	4.53 (0.21)	4.13 (0.20)
RP5564 PTB 1-3	RP Bio 226 X IRGC 71598 X MTU1010	4.53 (0.21)	2.47 (0.16)
0614-1-6-21-1-2	Pranava X Vellari	3.41 (0.18)	2.38 (0.15)
0614-1-6-21-1-4	Pranava X Vellari	4.25 (0.21)	3.50 (0.19)
RP 5564 PTB 2-4-2-1-1	RP Bio 226 X IRGC 71598 X MTU1010	4.35 (0.21)	4.17 (0.21)
RP5490 PTB 1-1-2	Sampada/IRGC 11010 x Sampada	4.36 (0.20)	3.35 (0.19)
0627-PTB-2-14-1	Swetha x Kuruka	7.83 (0.28)	7.80 (0.28)
0614-PTB-7-8-24	Pranava x Vellari	4.81 (0.21)	9.07 (0.30)
0615-PTB-01-23-21	Pranava x Chettadi	5.23 (0.23)	8.37 (0.29)
0615-11-20-8-2	Pranava x Chettadi	7.84 (0.28)	8.10 (0.29)
RP 5517 PTB 1-1-1-1-1	Sampada/IRGC30938/Triguna	6.75 (0.26)	7.67 (0.28)
TN1		20.53 (0.47)	18.03 (0.43)
	CD (0.05)	0.05	0.05

DAT- Days after transplanting, DL- Damaged leaves, Values in brackets are arcsine transformed values

AICRPR Trial

Field evaluation of 25 entries at 14 locations, replicated thrice in Leaf Folder Screening Trial (LFST) during *Kharif* 2022 under AICRPR revealed that 22 entries were promising in 2-6 tests out of 14 valid field tests. In the first year of testing, RP5564 PTB 1-4-2 was found promising in 6 of the 14 valid tests while three/four entries, *viz.,* BPT 3182, 0614-13-15-7-1-2, RP5564 PTB 2-4-1-5, and 0614-13-15-7-1-1 were promising in 5 out of 14 valid field tests. BPT 3068, RP5564 PTB 1-4-1 and BPT 3085 was/were found promising in 4 valid field tests out of 14 while four/seven entries, *viz*., RP5564 PTB 1-3, 0614-1-6-21-1-2, RP5564 PTB 2-4-2-1-1 and 0614-1-6-21-1-4 were promising in 3 valid field tests and one entry, RP5564 PTB 2-4-2-1-2 found promising the rest of the entries in 2 out of 14 valid field tests **(Table 3).**

Table3: Reaction of Pattambientries against leaf folderunder Leaf folder screening trial during *kharif*, 2022 at different locations in India (AICRPR Progress Report 2022)

Designation	Parentage	Leaf folder damaged leaves (%)														
		ADT	BPT	CHT	CHN	CTC	KKL	KUL	LDN	MLN	NVS	NWG	PTB	RNR	NLR	NPT
		80DAT	80DAT	47DAT	84DAT	60DAT	80DAT	60DAT	60DAT	98DAT	60DAT	60DAT	60DAT	87DAT	50DAT	14DAT
RP5564 PTB1-4-2	**RP Bio226 X IRGC 71598 X MTU1010**	**11.2**	**12.8**	**21.1**	**12.9**	**24.2**	**19.8**	**28.2**	**37.7**	**18.3**	**5.6**	**18.6**	**18.2**	**10.9**	**22.6**	**6**
BPT 3182	BPT 2231/MTU 1075	25.8	14.1	21.7	9.2	17.2	29.8	27	44.2	18.1	0.0	17.9	23.9	16.6	9.6	5
0614-13-15-7-1-2	**Pranava X Vellari**	**19.6**	**5.2**	**20.2**	**11.8**	**11.0**	**17.9**	**31.7**	**34.2**	**17.5**	**5.7**	**29.5**	**20.2**	**17.6**	**12.8**	**5**
RP5564 PTB 2-4-1-5	**RP Bio 226 X IRGC 71598 X MTU1010**	**15.8**	**5.7**	**21.7**	**13.8**	**9.7**	**25.3**	**26.1**	**32.8**	**16.6**	**0.0**	**34.3**	**23.5**	**8.0**	**15.9**	**5**
0614-13-15-7-1-1	**Pranava X Vellari**	**10.9**	**6.9**	**21.5**	**12.8**	**14.5**	**28.6**	**22.4**	**36.7**	**17.1**	**6.6**	**29.2**	**29.1**	**12.8**	**13.4**	**5**
BPT 3068	MLR 34449 / Ramappa	21.7	10.8	19.8	10.8	11.3	29.5	18.8	37.5	20.1	6.4	28.2	31.6	22.9	8.5	4
RP5564 PTB 1-4-1	**RP Bio 226 X IRGC 71598 X MTU1010**	**6.8**	**8.9**	**21.7**	**12.3**	**14.4**	**26.6**	**26.9**	**35.5**	**20.7**	**15.1**	**28.2**	**21.3**	**15.2**	**9.9**	**4**
BPT 3085	BPT5204/MTU 1075	29.2	17.0	22.7	15.2	8.7	20.9	19.7	32.9	16.5	26.3	17.7	25.5	31.7	26.3	4
RP5564 PTB 1-3	**RP Bio 226 X IRGC 71598 X MTU1010**	**10.8**	**10.6**	**21.6**	**11.8**	**22.2**	**31.4**	**25.2**	**31.5**	**17.4**	**9.6**	**23.2**	**24.3**	**24.2**	**18.2**	**3**
BPT 3077	BPT5204/MTU 1075	27.3	15.7	19.6	14.5	17.3	30.1	26.3	37.7	17.2	6.0	19.0	20.9	23.2	12.6	3
0614-1-6-21-1-2	**Pranava X Vellari**	**33.6**	**7.5**	**20.3**	**13.8**	**21.4**	**26.7**	**28.0**	**32.7**	**15.5**	**5.8**	**28.2**	**23.0**	**15.1**	**13.9**	**3**
RP5564 PTB 2-4-2-1-1	**RP Bio 226 X IRGC 71598 X MTU1010**	**20.1**	**4.4**	**21.9**	**15.1**	**7.2**	**20.3**	**27.2**	**35.6**	**21.8**	**5.3**	**20.2**	**21.4**	**11.1**	**30.3**	**3**
BPT 3130	BPT5204/MTU 1075	41.6	19.9	21.9	11.4	18.5	30.4	17.1	41.9	20.7	5.6	37.4	25.7	27.5	8.3	3
0614-1-6-21-1-4	**Pranava X Vellari**	**44.1**	**16.9**	**21.5**	**13.9**	**24.1**	**36.8**	**17.5**	**34.7**	**17.9**	**10.3**	**30.4**	**23.2**	**22.7**	**10.3**	**3**
NPK 46	Swarna / O nivara BIL	32.2	28.4	19.1	15.7	21.7	32.1	29.0	36.4	17.5	0.1	37.8	25.4	24.4	7.6	3
BPT 3135	BPT 5204 / MTU 1001	27.6	18.0	20.6	14.6	27.5	26.8	24.3	40.7	19.8	6.7	30.6	24.5	26.1	17.6	2
BPT 3148	RP Bio 226/IRGC 23385/Nidhi/ MTU 1081	26.8	20.6	22.9	10.9	19.9	18.3	24.4	33.5	17.6	19.3	30.1	20.8	26.7	10.9	2
NWGR 16032	Gurjari /NWGR 3015	45.9	39.7	22.5	11.4	24.7	20.1	30.7	35.9	18.2	4.1	24.9	25.1	20.6	13.8	2
RP5564 PTB 2-4-2-1-2	**RP Bio 226 X IRGC 71598 X MTU1010**	**21.1**	**4.7**	**20.9**	**11.8**	**20.1**	**28.4**	**32.1**	**35.6**	**14.0**	**18.1**	**25.9**	**24.8**	**15.3**	**12.7**	**2**
NPK 24	Swarna / O nivara BIL	8.3	18.2	21.7	10.2	17.7	29.9	18.9	38.0	20.0	15.3	40.0	20.8	14.0	12.8	2
BPT 3113	BPT 2270 / NLR 145	33.3	11.3	19.9	11.6	26.2	28.9	26.2	39.6	19.9	14.6	34.4	26.2	22.1	14.5	2
BPT 3192	BPT5204/MTU 1075	32.9	12.0	22.0	15.6	30.6	25.9	24.3	34.8	17.9	13.8	25.5	26.1	25.8	11.1	2
BPT 3239	BPT5204/MTU 1075	26.8	11.8	19.4	12.5	37.6	35.6	23.5	36.9	25.6	7.3	29.7	21.7	21.9	11.5	1
W 1263	Resistant Check	7.9	9.5	10.3	10.3	11.8	18.2	17.8	29.2	15.0	0.1	14.7	21.7	13.5	9.3	10
TN1	Susceptible Check	40.3	33.5	20.5	15.5	22.2	27.6	27.8	46.8	17.1	31.3	42.6	22.8	30.8	15.7	
Minimum Damage		6.8	4.4	10.3	9.2	7.2	17.9	17.1	29.2	14.0	0.0	14.7	18.2	8.0	7.6	
Maximum Damage		45.9	39.7	22.9	15.7	37.6	36.8	32.1	44.2	25.6	26.3	40.0	31.6	31.7	30.3	
Average damage in Trial		24.3	13.8	20.7	12.7	19.1	26.6	24.7	36.1	18.4	8.7	27.3	23.7	19.6	13.9	
Promising Level		15	10	15	10	15	20	20	20	20	15	20	20	10	10	
Number Promising		6	8	1	1	8	4	6	0	18	19	5	1	1	6	

ADT-duthurai, BPT-Bapatla, CHT-Chatha, CHN-Chinsurah,CTC- Cuttack, KKL-Karaikal, KUL-Kaul, LDN-Ludhiana, MLN-Malan, NVS-Navsari, NWG Nawagam, PTB-Pattambi, RNR-Rajendranagar, NLR-Nellore, NPT: Number of promising test entries

In the second year of testing under AICRPR (*Kharif* 2023), the maximum damage in the test entries varied between 15.1 and 54.5% whereas the average damage in the trial ranged from 7.6 to 39.5%. Data analysis revealed that 23 entries as promising in 4-9 tests of 15 valid field tests. Nominations from Pattambi were promising at many locations whose parentage includes RP Bio226/IRGC 71598/MTU 1010. RP5564 PTB 2-4-2-1-1 was found promising in 9 out of 15 valid field tests. Three entries, *viz*., RP5564 PTB 1-4-1, RP5564 PTB 2-4-1-5 and 0614-1-6-21-1-2 were promising in 8 out of 15 valid field tests. Entries, 0614-13-15-7-1-1, 0614-13-15-7-1-2 and RP5564 PTB 1-4-2 were found promising in 7 tests out of 15 valid tests. RP5564 PTB 2-4-2-1-2 and 0614-1-6-21-1-4 were promising in 6 out of 15 valid field tests. Entry, RP5564 PTB 1-3 was/were promising in 5 out of 15 field tests. The resistant check, W 1263 was promising in 11 out of 15 valid field tests **(Table 4).**

Table 4: Reaction of different entries against leaf folder under Leaf folder screening trial at different locations (AICRPR Progress Report 2023)

Designation	Parentage	BPT	ADT	CHT	CHN	CTC	KJT	KUL	LDN	MLN	MSD	NLR	NVS	NWG	PTB	RNR	NPT
		60	60	48	70	80	80	38	80	97	90	30	80	60	75	95	(15)
W 1263	Resistant Check	13.4	15.5	18.2	4.7	14.3	11.7	19.9	17.4	19.1	8.3	12.2	0.0	18.8	20.2	2.3	11
RP5564 PTB 2-4-2-1-1	**RP Bio 226 X IRGC 71598 X MTU1010**	**11.5**	**1.9**	**16.2**	**8.3**	**13.9**	**11.6**	**20.6**	**34.4**	**24.3**	**8.3**	**22.3**	**4.4**	**19.7**	**30.8**	**6.5**	**9**
RP5564 PTB 1-4-1	**RP Bio 226 X IRGC 71598 X MTU1010**	**14.3**	**4.5**	**17.9**	**9.2**	**22.6**	**13.5**	**21.3**	**25.3**	**20.5**	**7.6**	**9.2**	**8.7**	**19.8**	**34.7**	**8.0**	**8**
RP5564 PTB 2-4-1-5	**RP Bio 226 X IRGC 71598 X MTU1010**	**8.4**	**2.7**	**16.1**	**10.5**	**23.7**	**14.6**	**19.8**	**24.7**	**17.0**	**9.4**	**8.5**	**11.0**	**19.7**	**25.5**	**9.8**	**8**
0614-1-6-21-1-2	**Pranava X Vellari**	**14.3**	**9.6**	**18.6**	**9.5**	**34.9**	**10.6**	**18.7**	**33.3**	**16.3**	**9.3**	**11.0**	**2.0**	**33.7**	**40.4**	**7.4**	**8**
BPT 3077	BPT5204/MTU 1075	9.6	8.1	21.4	9.3	25.8	12.1	19.9	37.0	18.9	8.4	17.2	5.7	30.6	45.5	7.3	7
BPT 3148	RP Bio 226/IRGC 23385/ Nidhi/ MTU 1081	13.2	6.7	20.3	7.0	16.1	10.5	24.3	35.7	17.8	9.4	9.8	20.8	30.8	36.7	9.5	7
0614-13-15-7-1-1	**Pranava X Vellari**	**10.5**	**6.1**	**18.1**	**8.2**	**18.0**	**10.5**	**20.8**	**19.7**	**17.5**	**17.7**	**11.0**	**22.6**	**32.6**	**32.4**	**4.8**	**7**
0614-13-15-7-1-2	**Pranava X Vellari**	**8.4**	**6.9**	**15.8**	**34.2**	**20.7**	**12.8**	**20.0**	**18.7**	**19.0**	**12.7**	**9.3**	**0.0**	**39.4**	**31.5**	**9.1**	**7**
RP5564 PTB 1-4-2	**RP Bio 226 X IRGC 71598 X MTU1010**	**10.0**	**4.3**	**17.8**	**9.7**	**34.2**	**12.5**	**22.4**	**19.4**	**19.2**	**8.5**	**17.6**	**24.7**	**33.4**	**26.5**	**8.5**	**7**
NPK 24	Swarna / O nivara BIL	17.3	15.7	16.2	9.0	15.6	10.9	18.3	27.2	19.9	8.5	16.3	14.9	40.5	35.9	8.4	7
BPT 3113	BPT 2270 / NLR 145	11.6	8.9	21.0	12.2	15.0	10.5	19.0	41.3	20.7	9.8	14.9	9.6	35.1	38.5	14.8	6
BPT 3130	BPT5204/MTU 1075	15.2	4.9	19.1	8.7	15.0	12.7	20.6	25.1	20.9	9.8	12.5	13.8	33.2	42.2	8.7	6
RP5564 PTB 2-4-2-1-2	**RP Bio 226 X IRGC 71598 X MTU1010**	**12.5**	**6.0**	**15.7**	**10.3**	**33.3**	**13.3**	**20.6**	**37.6**	**13.9**	**7.3**	**16.0**	**16.3**	**19.5**	**31.4**	**8.0**	**6**
0614-1-6-21-1-4	**Pranava X Vellari**	**14.7**	**10.3**	**16.8**	**7.6**	**34.2**	**11.1**	**18.7**	**25.3**	**21.8**	**10.0**	**8.6**	**8.1**	**45.6**	**44.7**	**12.7**	**6**
NPK 46	Swarna / O nivara BIL	21.9	8.9	18.8	8.8	27.1	10.6	19.8	31.9	17.8	7.9	14.5	13.7	38.3	54.5	15.8	6
BPT 3135	BPT 5204 / MTU 1001	14.1	6.1	22.7	9.2	35.1	11.3	23.7	36.7	21.3	9.6	18.8	10.7	31.8	46.3	8.5	5
BPT 3182	BPT 2231 / MTU 1075	12.3	5.3	21.5	9.2	25.1	12.3	22.7	19.9	19.1	9.6	10.3	16.5	33.5	41.4	8.2	5
BPT 3085	BPT 5204 /MTU 1075	18.6	7.7	17.8	9.7	37.2	15.1	20.7	20.2	16.2	9.2	13.7	11.1	19.4	46.7	10.4	5
NWGR 16032	Gurjari /NWGR 3015	12.1	15.3	20.0	9.3	33.8	12.2	21.5	33.6	18.7	8.0	26.7	8.6	35.8	44.0	9.3	5
RP5564 PTB 1-3	**RP Bio 226 X IRGC 71598 X MTU1010**	**11.0**	**6.5**	**20.7**	**8.9**	**26.0**	**12.5**	**19.5**	**24.7**	**18.4**	**8.2**	**13.2**	**26.0**	**29.1**	**31.7**	**9.9**	**5**
BPT 3239	BPT5204/MTU 1075	16.2	3.0	23.0	6.8	26.4	13.0	25.5	40.2	28.3	9.2	12.5	12.4	33.8	45.9	10.0	4
BPT 3068	NLR 34449 / Ramappa	19.4	7.5	22.8	9.4	25.5	12.0	23.2	20.5	20.4	11.2	12.7	0.0	19.7	49.8	10.7	4
BPT 3192	BPT5204/MTU 1075	15.4	11.9	22.3	9.6	16.0	12.5	21.2	38.9	17.7	8.7	16.1	12.4	36.5	43.8	8.4	4
GR-11													38.4	42.6			
TN1	Susceptible Check	29.2	14.3	20.0	7.0	37.4	16.1	21.4	40.4	30.7	7.8	18.0	37.9	43.3	52.4	14.4	
Minimum Damage		8.4	2.7	15.7	6.8	15.0	10.5	18.3	18.7	13.9	7.3	8.5	0.0	19.4	25.5	4.8	
Maximum Damage		21.9	15.7	23.0	34.2	37.2	15.1	25.5	41.3	28.3	17.7	26.7	38.4	45.6	54.5	15.8	
Average damage in Trial		13.7	7.6	19.3	10.3	25.5	12.2	21.0	29.0	19.2	9.5	13.6	13.4	31.9	39.5	9.5	
Promising Level		10	10	20	10	20	12	20	20	15	10	10	10	20	25	10	
Number Promising		4	19	16	21	8	10	9	5	1	21	5	10	7	1	19	
Total Entries Tested		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	

*BPT-Bapatla, ADT-duthurai CHT-Chatha, CTC-Cuttack, CHN-Chinsurah, KJT-Kajrat, KUL-Kaul, LDN-Ludhiana, MLN-Malan, MSD-Masoda ,NLR-Nellore. NVS-Navsari, NWG-Nawagam, PTB-Pattambi, RNR-Rajendranagar,

During *kharif* 2024, the field evaluation of 35 entries, including susceptible and resistant checks replicated twice at 22 locations in the Leaf Folder Screening Trial (LFST) in AICRPR testing revealed that 14 entries were promising in 4-6 tests out of 15 valid field tests. In the first year of testing, RP5490 PTB 1-1-2 was promising in 6 out of 15 valid tests and at par with the resistant check, W1263. Eight entries were promising in 4 out of 15 tests (Table 5). Similar studies recorded the lowest leaf folder infestation in RP 5588 (0.57%) followed by DRRH 2 (0.76%), CR 2274-2-33-1 (0.88%) and RP 5588-B-B-B-B-116 (0.93%) (Chatterjee *et al*., 2016). Rice culture NLR 3542 recorded resistant reaction against leaf folder by recording 8.68 and 4.80% leaf damage during *Kharif* 2017 and 2018, respectively, with a grade 1. Devaraj *et al*., (2024) identified the genotypes ADT 45, ADT 46, ADT 54, Salem Senna, Karuppu Kavuni, Mottakar, Anna (R) 4, TRY 1, TRY 3 and Kalsaras resistant to leaf folder.

Conclusion

Field screening for three seasons identified ten Pattambi entries *viz*., RP5564 PTB 2-4-1-5, 0614-13-15-7-1-2, RP5564 PTB 2-4-2-1-2, RP5564 PTB 1-4-2, 0614-13-15-7-1-1, RP5564 PTB 1-4-1. RP5564 PTB 1-3. 0614-1-6-21-1-2, 0614-1-6-21-1-4 and RP5564 PTB 2-4-2-1-1 as resistant to rice leaf folder in both station trials and multi-locational trials across India under AICRPR-Entomology programme. were promising in fifteen locations across India.

Authors contribution

KK, screened the cultures at Pattambi against stem borer and leaffolder. FKV and BKR were involved in the development of the material. CHPV designed the LFST trial for multilocation testing in AICRPR and analysed the data. KKand CHPV wrote the manuscript. All authors read and approved the manuscript.

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