

Trait Specific Germplasm Identified through Multi-location Evaluation of Rice (2004 to 2008)



Compiled by:

N. K. Gautam
Jyoti Kumari
Ashok Kumar
H.L. Raiger
M. Dutta
K.C. Bansal



Germplasm Evaluation Division
National Bureau of Plant Genetic Resources, New Delhi



Introduction

National Bureau of Plant Genetic Resources holds a huge collection of about 3.8 lakh germplasm accessions of agri-horticultural crops conserved in the National Gene Bank. However, majority of them have not been properly characterized and evaluated yet. A small portion of the assembled germplasm has only been characterized and evaluated and that too at one location and for a particular season. Further there is no corresponding increase in their use by the crop improvement scientists, indicating that the collections were not being used to their full potential. Thus, a very large gap exists between availability of germplasm and their actual utilization in crop improvement programme. This is because majority of them have not been properly characterized and evaluated to know their actual worth. Furthermore, there is a lack of information on a large number of accessions, particularly for traits of economic importance, which display large genotype \times environment interactions and require multilocation and replicated evaluation. Very little information is available on tolerance/resistance to biotic and abiotic stresses in the selected germplasm which are of prime importance particularly under the changing climatic scenario. Substantial knowledge of full genetic potential of the germplasm, their availability with desired traits and proper database with interactive retrieval system are essentially needed for effective utilization of germplasm in crop improvement programmes,. Therefore, proper evaluation of available germplasm for agronomic traits, biotic and abiotic stress tolerance, and quality parameters is an important activity for promotion of germplasm utilization.

Keeping these considerations in view, a programme on multi-location evaluation of germplasm of four major crops namely, rice, wheat, chickpea and pigeonpea was initiated during the X Plan period (2002-07) as **Characterization of germplasm of selected crops for specific traits through network approach (Anticipatory Research)**. Under this programme, a total of 15,525 accessions of above mentioned crops were received from the National Gene Bank and multiplied for characterization and evaluation for agronomic traits, biotic and abiotic stresses and quality traits in collaboration with Project Directorate/ Project Co-ordinators of these crops and National Active Germplasm Sites (NAGS) associated with them. The hot spot locations identified under the AICRP system were utilized for this purpose. A total number of 3502 germplasm accessions of rice were evaluated for agronomic traits, biotic and abiotic stresses and quality traits during three years (2004, 2005 and 2006). For years 2007 & 2008, promising accessions for evaluation of insect-pests only are provided. The promising accessions identified under the multilocation evaluation programme for different traits have been summarized in this bulletin. It is expected that this information would be of potential value to crop breeders as these could serve as important donors in crop improvement programmes. The information generated through integrated approach will promote effective utilization of plant genetic resources in the national system of crop improvement programme.

ACKNOWLEDGEMENT

It gives us pleasure to place before you the Trait Specific Germplasm Identified through Multilocation Evaluation of Rice during 2004 to 2008. Initially the Bureau gave importance to germplasm collection, conservation and evaluation as single location. But later on during Xth five year plan emphasis was given on multilocation evaluation not only for agronomically important morphological traits but also for screening against major disease and insect pests under natural and artificial conditions including hot spots. It is always desired that the germplasm may be evaluated under different ecologies to identify stable and region specific genotypes for their proper utilization. Promising accessions based on evaluation data on nearly 4000 germplasm accessions for agronomic evaluation and also on the basis of screening against diseases and insect pests have been identified and provided in the compiled form. This information may be useful to breeders and researchers to select desired material for further use in crop improvement programme. We express our deep sense of gratitude to the secretary DARE and Director General ICAR, and Deputy Director General (Crops Sciences), ICAR for approval of the project and making a special financial provision under EFC of NBPGR during Xth & XIth plan.

We express our sincere gratefulness to Dr. K.C. Bansal, Director, NBPGR New Delhi and S.K. Sharma, Former Director, NBPGR, New Delhi for providing useful guidance, critical inputs and all necessary facilities.

We are extremely grateful to Late Dr. S.K. Mishra, Ex-Head, Germplasm Evaluation Division, NBPGR New Delhi for his painstaking efforts and initiative for successful implementation of the programme. We thank the Head, Germplasm Conservation Division for providing the germplasm accessions from the National Genebank.

Special thanks are due to Mr. Satya Prakash, Ms. Amita, Ms. Sushila and Mr. Sandeep, for their help in data entry, computerization and compilation of this information.

Dated 25/7/2011

(Authors)

List of Contributors for Multi-location Evaluation of Rice

Aspect	Cooperating Scientist	Location
Agro-morphological	Dr. L.V. Subba Rao	DRR, Hyderabad
	Dr. G. J. N. Rao / Dr. B. C. Patra	CRRI, Cuttack
	Dr. T.S. Bharaj	PAU, Ludhiana
	Dr. M. P. Pandey	GBPUAT, Pantnagar
	Dr. R. K. Sahu / A. K. Sarawgi	IGAU, Raipur
	Dr. K. Mohanasundaram	TNAU, Coimbatore
	Dr. K. K. Sharma	AAU, Titabar
Biotic stress (Diseases)	Dr. C. S. Reddy	DRR, Hyderabad
	Dr. R. Rabindran	TNAU, Coimbatore
	Dr. S. K. Mohanty	CRRI, Cuttack
	Dr. Mukund Varier	RRS, Hazaribagh
	Dr. R.K. Goel	PAU, Ludhiana
	Dr. G.K. Sood	ARS, Malan
	Dr. M. Rajamannar	APRRI, Maruteru
	Dr. C.P.D. Rajan	ARS, Nellore
	Dr. A. P. Sinha	GBPUAT, Pantnagar
	Dr. C. Govindaraju	ARS, Ponnampet
	Dr. V.S. Thrimurthy	IGAU, Raipur
	Dr. N.Subramanian	ARS, Tirur
	Dr. M. S. Ali	AAU, Titabar
	Biotic stress (Insects)	Dr. P. Satyanarayana Reddy
Dr. P. Rama Mohan Rao		RARS, Ragolu
Dr. P. Subbirami Reddy		ARS, Nellore
Dr. P. Seshagiri Rao		RARS, Jagtial
Dr.D.K. Sidde Gowda/ Dr. D. Ranjana		RRS, Mandya
Dr. N.V. Satheesan		KAU, RS, Moncompu
Dr. V B. Sankpal		RARS, Karjat
Dr. S.K. Mukherjee		RRS, Sambalpur
Dr. K.K. Shukla, Dr. Jaswant Singh		PAU,Ludhiana
Dr. S. Suresh	TNAU, Coimbatore	

Important target traits of rice in major agro-ecological zones

	Target Traits	NPZ	NHZ	EZ	PZ	PZ
A	Agro morphological					
	Days to flowering, Plant height, No. of effective tillers, Days to maturity, Panicle length, Grains per panicle, Grain length: breadth ratio, 100grains weight, Grain yield per plant.					
		√PAU, GBPUAT	-	√CRRI, AAU	√IGKV	√TNAU, DRR
B.	Biotic stress					
(i)	Diseases					
	Blast	-	√ARS, Malan	√(Hazaribagh, CRRI)	-	√(ARS, Ponnampet, DRR, Nellore)
	BLB	√(PAU, GBPUAT)	-	CRRI	IGKV	√(DRR, APRRI, Maruteru, Nellore, Titabar)
	Sheath blight	√(PAU, GBPUAT)	-	CRRI	IGKV	√(DRR, Maruteru, Titabar)
	Rice tungro virus	-	-	√(CRRI, Cuttack)	-	√(Tirur, DRR)
(ii)	Insect pests					
	Brown plant hopper	-	-	-		√(APRRI, Maruteru, RRS, Mandya)
	Stem borer	√(PAU)	-	√Sambalpur	IGKV	√(DRR, Mandya, Karjat, Maharashtra)
	Gall midge	-	-	√(RRS, Sambalpur)	-	√(RARS, Jagtaial; Ragolu, Moncompu)
C.	Abiotic stress					
	Salinity	√		√(CSSRI, Karnal)		
	Flood tolerance (Rain fed lowland)			√		
	Drought tolerance (upland)	√	√	√	√	√
	Heat tolerance (Boro rice)			√		
	Cold tolerance (Boro rice)	-	√	√	-	-
D.	Quality parameters					
	Protein content ,Length:width ratio, Basmati Quality (Aroma), Chalkiness ,Gelatinization temperature , Amylose content, Alkali spreading value, Cooked grain length					
		√	√	√	√	√

√: Proposed traits for evaluation in specific zone

Details of locations and number of rice germplasm accessions evaluated under multi-location evaluation for various traits

Year/Evaluation	Trait	Location	Centres (No.)	Acc. No.
2004				
Agro-morphological	Agronomic	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar	7	1056
Biotic stress (Diseases)	Blast	CRRI, Cuttack; DRR, Hyderabad; RRS, Hazaribagh; ARS, Malan; ARS, Nellore; ARS, Ponnampet	6	1056
	Brown spot	PAU, Ludhiana; ARS, Nellore; ARS, Ponnampet	3	
	BLB	PAU, Ludhiana; ARS, Nellore; GBPUAT, Pantnagar	3	1056
	Rice tungro virus	CRRI, Cuttack; DRR, Hyderabad	3	1056
Biotic stress (Insect/pests)	Gall midge	RRS, Sambalpur; RARS, Jagtial; RARS, Ragolu	3	1037
	Stem borer	TNAU, Coimbatore; RRS, Sambalpur; RARS, Karjat; PAU, Ludhiana; APRRI, Maruteru; RARS, Ragolu; RRS, Mandya	7	1038
	Brown plant hopper	DRR, Hyderabad	1	835
		RRS, Mandya	1	1064
		APRRI, Maruteru	1	1032
	WBPH	DRR, Hyderabad	1	605
PAU, Ludhiana		1	1047	
2005				
Agro-morphological	Agronomic	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar	7	1224
Biotic stress (Diseases)	Blast	CRRI, Cuttack; DRR, Hyderabad; RRS, Hazaribagh ARS, Malan; ARS, ARS, Nellore; ARS, Ponnampet	6	1224
	Brown spot	PAU, Ludhiana; IGKV, Raipur; ARS, Nellore; ARS, Ponnampet	4	1224
	BLB	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar	7	1224
	Rice tungro virus	CRRI, Cuttack; DRR, Hyderabad	2	1224
Biotic stress (Insect/pests)	Gall midge	RRS, Sambalpur	1	1037
		RARS, Jagtial	1	1057
		RARS, Ragolu	1	1046
	Stem borer	TNAU, Coimbatore; RRS, Sambalpur; RARS, Karjat; PAU, Ludhiana; APRRI, Maruteru; RARS, Ragolu; RRS, Mandya	7	1038
	Brown plant hopper	DRR, Hyderabad	1	1215
		RRS, Mandya	1	925
	WBPH	DRR, Hyderabad	1	815
PAU, Ludhiana		1	1223	

2006				
Agro-morphological	Agronomic	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar	7	1222
Biotic stress (Diseases)	Blast	CRRI, Cuttack; DRR, Hyderabad; Hazaribagh ARS, Malan; Ponnampet	5	1222
	Brown spot	PAU, Ludhiana; IGKV, Raipur; Nellore; RRS, Hazaribagh	4	1222
	BLB	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar, APRRI, Maruteru	8	1222
	Rice tungro virus	TNAU, Coimbatore; CRRI, Cuttack; DRR, Hyderabad	3	1222
Biotic stress (Insect/pests)	Gall midge	RRS, Sambalpur; RARS, Jagtial; RARS, Ragolu	3	1222
	Stem borer	TNAU, Coimbatore; RRS, Sambalpur; RARS, Karjat; PAU, Ludhiana; APRRI, Maruteru; RARS, Ragolu; RRS, Mandya	7	1222
	BPH	DRR, Hyderabad; RRS, Mandya	2	1222
	WBPH	DRR, Hyderabad; PAU, Ludhiana	2	1222
2007				
Agro-morphological	Agronomic	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; GBPUAT, Pantnagar; TNAU, Coimbatore	7	130
Biotic stress (Diseases)	Blast	CRRI, Cuttack; TNAU, Coimbatore; DRR, Hyderabad; RRS, Hazaribagh; ARS, Malan; ANGRAU, ARS, Ponnampet ; ANGRAU, ARS,Nellore	7	130
	Brown spot	PAU, Ludhiana; IGKV, Raipur; RRS, Hazaribagh	3	130
	BLB	CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; APRRI, Maruteru	5	130
	Rice tungro virus	CRRI, Cuttack; DRR, Hyderabad	2	130
Biotic stress (Insect/pests)	Gall midge	RRS, Sambalpur; RARS, Jagtial; RARS, Ragolu, DRR, Hyderabad	4	130
	Stem borer	RRS, Sambalpur, RRS, Mandya, DRR, Hyderabad	3	130
	BPH	DRR, Hyderabad; RRS, Mandya	2	130
	WBPH	DRR, Hyderabad;	1	130
2008				
Agro-morphological	Agronomic	AAU, Titabar; CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; TNAU, Coimbatore; GBPUAT, Pantnagar	7	176
Biotic stress (Diseases)	Blast	CRRI, Cuttack; TNAU, Coimbatore; DRR, Hyderabad; RRS, Hazaribagh; ARS, Malan; Ponnampet ; Nellore	7	176
	Brown spot	PAU, Ludhiana; IGKV, Raipur; RRS, Hazaribagh	3	176
	BLB	CRRI, Cuttack; DRR, Hyderabad; PAU, Ludhiana; IGKV, Raipur; APRRI, Maruteru	5	176
	Rice tungro virus	CRRI, Cuttack; DRR, Hyderabad	2	176
Biotic stress (Insect/pests)	Gall midge	IGKV, Raipur; DRR, Hyderabad; RARS, Ragolu	3	176
	Stem borer	RARS, Karjat; IGKV, Raipur; DRR, Hyderabad;	3	176
	BPH	DRR, Hyderabad;	2	176
	WBPH	DRR, Hyderabad; PAU, Ludhiana	2	176
	Plant Hooper	APRRI, Maruteru	1	176

Multi-location evaluation of rice germplasm for agro-morphological traits

Traits	Location	Year	Range	Promising accessions	Best check (value)
Days to flowering	AAU, Titabar	2004	63.00-94.00	IC115866, IC114003, IC114005, IC11007, IC114009, IC114013, IC114036, IC114204, IC114313, IC114393 (< 67.0)	Luit (67.8)
		2005	78.33-139.00	IC356457, IC356432 (=78)	Prasanna (78.33)
		2006	48.76-130.00	Nil	Prasanna (49.29)
	CRR I, Cuttack	2004	65.00-112.00	Nil	Prasanna (65.00)
		2005	64.17 - 138.00	Nil	Prasanna (64.17)
		2006	52.33-150.00	Nil	Prasanna (57.33)
	DRR, Hyderabad	2004	72.00-112.00	Nil	Prasanna (72.00)
		2005	60.68-128.00	Nil	Prasanna (60.68)
		2006	64.00-141.0.	IC343998, IC340086, IC336862, IC337578, IC337593, IC335965, IC337559 (< 74.0)	Prasanna (74.62)
	GBPUAT, Pantnagar	2004	93.00-124.00	Nil	Govind (93.0)
		2005	86.00-159.00	IC114600, IC356429 (< 89.0)	Mandya Vijaya (88.75)
		2006	73.00-162.00	IC343998, IC346831, IC340081, IC344659, IC331672, IC319434, IC334029, IC321193, IC333032, IC330832 (< 84.0)	Rasi (90.5)
	PAU, Ludhiana	2004	86.00-177.00	IC114703 (= 86.0)	PR115 (94.0)
		2005	80.00-164.00	IC252058, IC252195 (< 84.0)	Prasanna (84.83)
		2006	71.00-176.00	IC332771, IC330829, IC330823, IC319434, IC337587, IC330690, IC370854, IC330834, IC330835, IC330832 (< 77.0)	Prasanna (82.86)
	IGKV, Raipur	2004	67.00-110.00	Nil	Rasi (67.0)
		2005	75.00-117.00	Nil	-
		2006	66.00-125.00	Nil	-
	TNAU, Coimbatore	2004	76.00-102.00	IC114498, IC114503 IC114505, IC114511, IC114778, IC114780, IC114784, IC114791, IC114797, IC114798 (< 77.0)	Prasanna (80.0)
		2005	72.00-99.00	IC115520, IC115579, IC116051, IC115429, IC 115514, IC115532, IC115455, IC115449, IC115519, IC114293 (< 76.0)	Prasanna (76.4)
		2006	69.00-152.00	IC352836, IC306430, IC332066, IC332998, IC334107, IC381980, IC334066, IC396787, IC343985, IC313549 (< 70.0)	Prasanna (76.33)

	Pooled over locations	2004	67.80-121.50	Nil	Luit (67.8)
		2005	76.00-122.50	Nil	Prasanna (76.01)
		2006	72.00-125.80	Nil	Prasanna (72.02)
Plant height (cm)	AAU, Titabar	2004	69.90-134.62	IC114284, IC114323, IC114025, IC115174, IC114655, IC113992, IC114776, IC113991, IC114510, IC114970 (> 125.16)	Vasumati (95.30)
		2005	73.43-197.40	IC337152, IC252114, IC114963, IC115105, IC116034, IC311130, IC332954, IC114692, IC132768, IC115401 (>185.08)	Mandya Vijaya (138.17)
		2006	57.40-203.80	IC381932, IC310484, IC330307, IC311846, IC352814, IC310033, IC352815, IC350212, IC375777, IC343501 (>193.80)	Vasumati (101.00)
	CRR, Cuttack	2004	61.60-172.40	IC115116, IC114211, IC114241, IC114081, IC114084, IC114235, IC114287, IC115134, IC113991, IC114080 (>164.72)	Mandya Vijaya (108.60)
		2005	63.40-200.00	IC115101, IC115494, IC332950, IC115031, IC350289, IC115433, IC115602, IC114195, IC114654, IC351554 (>191.60)	Mandya Vijaya (142.20)
		2006	58.00-203.44	IC394979, IC370807, IC346203, IC370806, IC370811, IC346224, IC342618, IC346221, IC372835, IC372834 (>190.0)	Mandya Vijaya (127.43)
	DRR, Hyderabad	2004	67.00-160.64	IC114030, IC114341, IC114327, IC114730, IC114331, IC114325, IC114368, IC114650, IC114631, IC114090 (>141.40)	Mandya Vijaya (107.76)
		2005	66.65-168.33	IC115847, IC114600, IC252051, IC252059, IC252069, IC125010, IC252062, IC115851, IC252046, IC115864 (>151.64)	Mandya Vijaya (89.53)
		2006	50.00-176.03	IC338903, IC340048, IC343536, IC340043, IC343470, IC370807, IC370811, IC346054, IC343524, IC343986 (>166.03)	Mandya Vijaya (92.54)
	GBPUAT, Pantnagar	2004	50.00-147.80	IC114271, IC115771, IC114272 (>130.0)	Pant Dhan 4 (130.00)
		2005	63.40-175.00	IC115292, IC114371, IC115103, IC114664, IC330029, IC350270, IC114687, IC115980, IC350386, IC346956 (>160.80)	Prasanna (117.29)
		2006	28.40-176.80	IC347634, IC375777, IC340047, IC382624, IC334112, IC320522, IC375784, IC346221, IC370807, IC330796 (>164.60)	Prasanna (136.90)
	PAU, Ludhiana	2004	78.20-192.60	IC114359, IC115004, IC114210, IC114921, IC114276, IC114417, IC114026, IC114783, IC115032, IC115907 (>178.00)	PR 115 (94.60)
		2005	60.00-189.10	IC116072, IC115698a, IC115698b, IC116060, IC115402, IC115794, IC114964, IC115539, IC115246, IC115758 (>167.00)	Mandya Vijaya (126.65)
		2006	25.00-186.00	IC381928, IC336264, IC346812, IC337065, IC330251, IC369783, IC343517, IC381932, IC757884, IC346209 (>170.20)	Vasumati (111.69)

	IGKV, Raipur	2004	71.00- 203.50	IC115883, IC115889, IC113992, IC132628, IC114261-1, IC114097, IC113991, IC114264, IC114262, IC115100 (>157.00)	Rasi and Pant Dhan 4 (117.00)
		2005	84.20- 189.80	IC114361, IC114302, IC114940, IC114435, IC346866, IC114671, IC115717, IC115387, IC114694, IC334122 (>171.50)	-
		2006	70.00- 202.00	IC372844, IC332953, IC346054, IC370811, IC330307, IC372838, IC375777, IC322064, IC332959, IC340049 (>191.70)	-
	TNAU, Coimbatore	2004	57.60- 130.00	IC115475, IC252139, IC252054, IC252193, IC132624, IC115866, IC252053, IC252142, IC115756, IC114969 (>106.60)	Mandya Vijaya (84.45)
		2005	65.00- 125.00	IC114658, IC114604, IC114602, IC114358, IC114694, IC114686, IC114495, IC115123, IC115578, IC115011 (>116.0)	Mandya Vijaya (80.27)
		2006	62.10- 194.00	IC375784, IC346877, IC340048, IC375773, IC332936, IC330203, IC340054, IC370811, IC333023, IC346054 (>165.0)	Prasanna (97.93)
	Pooled over locations	2004	62.40- 143.14	IC114345, IC114221, IC114365, IC114015- 1, IC114261-1, IC114026, IC115116, IC113991 (>130.00)	Pant Dhan 4 (123.50)
		2005	79.65- 159.24	IC115509, IC115103, IC115479, IC114302, IC350386, IC115511, IC115584, IC115105, IC114358, IC114661 (>149.25)	Mandya Vijaya (114.69)
		2006	74.16- 178.89	IC370807, IC370811, IC340048, IC340047, IC346054, IC333573, IC346221, IC338656, IC343501, IC346252 (>161.48)	Mandya Vijaya (109.92)
Number of effective tillers	AAU, Titabar	2004	3.20- 13.00	IC115621, IC114998, IC115647, IC114408, IC114544, IC114311, IC114530, IC115033, IC252173, IC115004 (>10.00)	Rasi (7.50)
		2005	3.50- 17.25	IC356437, IC356443, IC356449, IC356427, IC356423, IC332018, IC330805, IC330844, IC330833, IC343059 (>14.25)	Prasanna (10.67)
		2006	3.25- 12.50	IC332975, IC337628, IC311144, IC334131, IC336356, IC337617, IC311848, IC311852, IC311142, IC382609 (>11.25)	Rasi (7.84)
	CRRRI, Cuttack	2004	4.20- 23.90	IC115039, IC114351, IC114583, IC114572, IC114729, IC115040, IC114916, IC115122, IC114046, IC114690 (>15.60)	Prasanna (8.80)
		2005	4.00- 23.00	IC114554, IC114551, IC114260, IC114248, IC115704, IC114242, IC114245, IC114257, IC114261, IC115087 (>14.40)	Mandya Vijaya (9.77)
		2006	3.60- 23.80	IC381986, IC372140, IC375774, IC332024, IC375771, IC346229, IC343475, IC346054, IC346037, IC372180 (>20.60)	Prasanna & Rasi (11.62)
	DRR, Hyderabad	2004	4.60- 25.00	IC114325, IC114336, IC114419, IC114425, IC114835, IC114851, IC114850, IC114831, IC114834, IC114333 (>20.00)	Vasumati (12.66)
		2005	6.44- 28.33	IC115723, IC116045, IC115719, IC115740, IC115705, IC115731, IC114120, IC115972, IC115727, IC330830 (>18.00)	Vasumati (10.40)
		2006	4.67- 26.68	IC332024, IC320878, IC332013, IC381965, IC326468, IC345596, IC319524, IC330203, IC330205, IC334222 (>17.67)	Vasumati (10.69)

	GBPUAT, Pantnagar	2004	3.60- 20.40	IC114388 (=20.4)	Govind (20.40)	
		2005	7.20- 24.40	IC343064, IC334223, IC334197, IC115021, IC337557, IC356443, IC320859, IC340559, IC356429, IC326419 (>16.20)	Rasi (16.16)	
		2006	5.40- 18.80	IC326489, IC326417, IC334222, IC330840, IC326488, IC372834, IC330849, IC322073, IC320877, IC326470 (>16.80)	Rasi (16.32)	
	PAU, Ludhiana	2004	4.80- 22.00	IC252031, IC114440, IC114931, IC114979, IC125024, IC132832, IC115905, IC114547, IC115492, IC115684 (>17.00)	PR 111 (14.40)	
		2005	4.20- 24.80	IC116029, IC114143, IC252237, IC252217, IC124804, IC252214, IC115994a, IC311124, IC252079, IC252216 (>20.40)	Mandya Vijaya (11.20)	
		2006	4.80- 26.60	IC400026, IC394950, IC334150, IC394994, IC344715, IC394993, IC316278, IC343477, IC343506, IC394951 (>24.20)	PR-114 (12.20)	
	IGKV, Raipur	2004	4.00- 18.00	IC114199, IC114137, IC113993, IC114144, IC252030 (>16.00)	Rasi and Pant Dhan 4 (16.00)	
		2005	4.48- 8.40	IC114066, IC115480, IC114245, IC334146, IC114200, IC114041, IC115401, IC114320, IC115413, IC115355 (>7.80)	-	
	TNAU, Coimbatore	2004	4.00- 13.80	IC115170, IC114253, IC115173, IC115171, IC115487, IC132678, IC115140, IC115491, IC115645, IC115482 (>11.20)	CO 47 (8.66)	
		2005	3.00- 12.00	IC114179, IC114028, IC115213, IC115238, IC343055, IC115255, IC115257, IC114367, IC346898, IC114448 (>9.00)	CO 47 (8.36)	
		2006	1.00- 15.00	IC320825, IC353014, IC320824, IC352973, IC319544, IC347613, IC334032, IC344735, IC321194, IC310500 (>12.00)	Vasumati (9.17)	
	Pooled over locations	2004	5.60- 20.40	Nil	Govind (20.40)	
		2005	6.26- 12.56	IC356443, IC114245, IC343064, IC330833, IC114554, IC114143, IC115994a, IC114261, IC329996, IC114248 (>10.87)	Rasi (10.72)	
		2006	6.30- 14.75	IC326417, IC320825, IC332013, IC394951, IC334215, IC334222, IC337628, IC326137, IC400026, IC382565 (>12.98)	Vasumati (10.55)	
	Days to maturity	AAU, Titabar	2004	92.00- 130.00	IC114034, IC114006, IC114012, IC114013, IC114015-1, IC114016, IC114007, IC114009, IC114021, IC114031 (< 96.0)	Prasanna (103.0)
			2005	109.00- 181.00	IC356457, IC356432, IC330225, IC356443, IC330844, IC311002, IC337595, IC356456, IC340084, IC337567 (< 120.0)	Luit (120.33)
			2006	86.57- 169.00	Nil	Prasanna (86.57)
		CRRJ, Cuttack	2004	96.00- 144.00	Nil	Prasanna (96.0)
2005			100.00- 179.00	Nil	-	
2006			87.33- 174.00	Nil	Prasanna (87.33)	

	GBPUAT, Pantnagar	2006	105.00-175.00	Nil	-
	PAU, Ludhiana	2004	118.00-190.00	Nil	PR 115 (113.0)
		2005	108.00-213.00	IC252225, IC115158 (=108.0)	Prasanna (117.17)
		2006	107.00-180.00	IC340086, IC319434, IC370854, IC330690, IC340081, IC340397, IC330823, IC337218, IC337587, IC335965 (<111.0)	Prasanna (118.43)
	IGKV, Raipur	2004	97.00-140.00	Nil	Rasi (97.00)
	TNAU, Coimbatore	2004	103.00-135.00	IC114498, IC114027, IC114368, IC114511, IC114058, IC114298, IC114311, IC114315, IC114330, IC114491 (<105.0)	Prasanna (111.0)
		2005	102.00-129.00	IC115520 (=102.0)	Prasanna (102.0)
		2006	96.00-182.00	IC352036, IC114951 (<100.0)	-
	Pooled over locations	2004	101.00-181.00	IC115059, IC115281(<104.0)	Lachit (104.0)
		2005	112.50-151.33	IC356457, IC331656, IC356432, IC337579, IC331644, IC331770, IC330844, IC356443, IC343062, IC311849 (<116.75)	Prasanna (119.09)
		2006	97.44-161.25	Nil	Prasanna (97.44)
Panicle length (cm)	AAU, Titabar	2004	22.22-29.00	IC115186, IC114078, IC114331, IC115921, IC114401, IC115659, IC252185, IC115440, IC114969, IC114487 (>26.72)	Mandya Vijaya (22.50)
		2005	17.00-35.03	IC115770, IC332989, IC115480, IC332969, IC115942, IC332977, IC332885, IC332954, IC332940, IC252104 (>31.25)	Vasumati (28.56)
		2006	14.90-37.33	IC347606, IC382571, IC334171, IC336383, IC313549, IC336382, IC343546, IC350758, IC330307, IC382623 (>32.18)	Mandya Vijaya (23.57)
	CRR, Cuttack	2004	12.20-38.20	IC114616, IC115476, IC114403, IC114510, IC114545, IC114241, IC114078, IC114406, IC114568, IC114105 (>29.20)	Vasumati (27.20)
		2005	16.00-39.50	IC114608, IC115254, IC115479, IC114615, IC340042, IC332987, IC114385, IC114694, IC332989, IC332963 (>33.80)	Mandya Vijaya (27.02)
		2006	17.50-38.20	IC369193, IC351756, IC330005, IC394980, IC373175, IC343986, IC352871, IC347648, IC331791, IC337558 (>35.0)	Vasumati (25.03)
	DRR, Hyderabad	2004	10.06-36.60	IC114752, IC114270, IC114335, IC115659, IC114057, IC114026, IC115917, IC115921, IC114514, IC114935 (>28.00)	Jaya (24.55)
		2005	15.20-35.28	IC115959, IC115781, IC132783, IC115853, IC252135, IC340572, IC343065, IC342878, IC115770, IC340571 (>32.60)	Jaya (20.61)
		2006	15.70-37.00	IC334131, IC347606, IC331791, IC336356, IC340049, IC332051, IC331673, IC337620, IC343470, IC332059 (>33.0)	Jaya (21.25)

	GBPUAT, Pantnagar	2004	13.80- 29.00	IC115771, IC114272, IC115440, IC115507, IC114510, IC115441, IC115746, IC114459, IC115177, IC115766 (>25.60)	Pant Dhan 4 (25.00)	
		2005	16.40- 32.60	IC115398, IC115461, IC352859, IC332977, IC342877, IC114601, IC332964, IC114686, IC330225, IC311849 (>28.00)	Pant Dhan 4 (22.90)	
		2006	15.50- 37.00	IC334131, IC336356, IC342632, IC331768, IC346817, IC350818, IC382622, IC331790, IC382567, IC334209 (>32.80)	Jaya (25.35)	
	PAU, Ludhiana	2004	17.20- 32.00	IC114236, IC114884, IC115060, IC115067, IC114372, IC114782, IC114928, IC115078, IC114815, IC115074 (>29.20)	2769 (27.80)	
		2005	15.20- 33.60	IC115211, IC252064, IC115700, IC115985, IC115990, IC115738, IC114383, IC115678, IC115523, IC115495 (>29.20)	PR 115 (25.40)	
		2006	14.60- 37.40	IC400026, IC337554, IC330020, IC331652, IC396787, IC334115, IC334184, IC343518, IC334235, IC382586 (>31.60)	PR 115 (31.59)	
	IGKV, Raipur	2004	16.33- 38.00	IC115883, IC115889, IC115476, IC132653, IC115186, IC114264, IC114236, IC116093, IC124687, IC252137 (>28.67)	Jaya (25.00)	
		2005	18.60- 35.80	IC115878, IC331657, IC115429, IC115805, IC115443, IC332935, IC115569, IC333029, IC115697, IC115244 (>35.10)	-	
		2006	17.00- 35.62	IC330685, IC336355, IC330211, IC330797, IC345583, IC311870, IC340054, IC347643, IC334131, IC311861 (>33.30)	-	
	TNAU, Coimbatore	2004	11.40- 35.00	IC252200, IC252201, IC132628, IC132624, IC114232, IC114508, IC114034, IC114026, IC114980, IC252029 (>24.60)	Mandya Vijaya (21.00)	
		2005	11.00- 29.50	IC114495, IC115574, IC114402-1, IC114618, IC115558, IC114554, IC115525, IC115544, IC115536, IC114225 (>24.50)	Vasumati (20.12)	
		2006	13.00- 32.10	IC316283, IC319358, IC316312, IC310501, IC331658, IC331649, IC331646, IC311863, IC316311, IC311850 (>27.90)	Vasumati (21.03)	
	Pooled over locations	2004	14.60- 27.80	Nil	2769 (27.80)	
		2005	19.21- 29.60	IC114495, IC115770, IC332963, IC114601, IC332973, IC356442, IC332997, IC340042, IC332977, IC332905 (>27.75)	Mandya Vijaya (23.41)	
		2006	18.51- 29.85	IC338656, IC382572, IC340049, IC331768, IC370807, IC333573, IC337558, IC382623, IC382586, IC343487 (>28.89)	Jaya (22.73)	
	Grains per panicle	AAU, Titabar	2004	54.80- 246.80	IC114336, IC116093, IC124687, IC115507, IC 114631, IC115969, IC116101, IC114388, IC114683, IC114292, IC114208 (>192.20)	Jaya (111.20)
			2005	25.28- 323.00	IC114838, IC252114, IC114066, IC346830, IC346956, IC115418, IC115821, IC114685, IC115495, IC114361 (>269.75)	Mandya Vijaya (200.58)
			2006	55.25- 284.75	IC115503, IC346945, IC326224, IC372302, IC330700, IC337612, IC344676, IC343460, IC340079, IC343546 (>242.25)	Mandya Vijaya (127.92)
CRRI, Cuttack		2006	35.20- 290.00	IC336385, IC382612, IC343494, IC343489, IC336983, IC343460, IC336074, IC343468, IC334188, IC370898 (>217.00)	-	

	DRR, Hyderabad	2005	34.00-360.00	IC252237, IC114066, IC115990, IC343532, IC342877, IC114303, IC115282, IC252124, IC252128, IC115417 (>266.00)	Mandya Vijaya (215.38)	
	PAU, Ludhiana	2004	25.00-248.40	IC115134, IC114869, IC115612, IC114996, IC114914, IC114411, IC115360, IC114815, IC115504, IC114715 (>184.40)	2769 (176.00)	
		2005	15.20-235.40	IC115849, IC252069, IC115675, IC114242, IC114634, (>197.33)	Mandya Vijaya (197.73)	
		2006	8.20-320.00	IC343488, IC334173, IC340079, IC343512, IC340074, IC343499, IC344803, IC326459, IC343547, IC344690 (>192.20)	-	
	IGKV, Raipur	2004	39.66-313.00	IC114199, IC114311, IC115001, IC114334, IC114742, IC116093, IC114732, IC115645, IC115488, IC114208 (>204.33)	Vasumati (138.37)	
		2005	27.00-259.00	IC115187, IC343458, IC115243, IC115224, IC330845, IC340563, IC343497, IC334146, IC114066, IC115805 (≥190.80)	-	
	TNAU, Coimbatore	2005	33.00-180.00	IC252088, IC252105 (>178.00)	CO-47 (177.67)	
		2006	51.00-250.00	IC320843, IC330836, IC350790, IC325163, IC346040 (>201.00)	Mandya Vijaya (200.58)	
	Pooled over locations	2004	57.34-231.65	IC116093, IC115001, IC114199, IC114208, IC114311, IC114334, IC124687, IC114336, IC116101, IC252198 (>184.10)	2769 (176.00)	
		2005	74.78-226.00	IC114066, IC115187 (>202)	Mandya Vijaya (197.62)	
		2006	39.00-252.25	IC343460, IC336983, IC343488 (>250)	Mandya Vijaya (164.25)	
Grain length: breath ratio	AAU, Titabar	2004	1.85-5.17	IC114018, IC114718, IC114625, IC114743, IC114979, IC114653, IC115345, IC115310, IC115339, IC115757 (>4.35)	Vasumati (3.70)	
			2005	1.90-5.30	IC115970 (5.30)	Vasumati (5.08)
			2006	1.76-5.61	IC382582, IC326491, IC326447, IC382608, IC382622, IC337617, IC326455, IC382624, IC352924, IC382629 (>4.89)	Vasumati (3.91)
	CRR, Cuttack	2004	1.69-5.23	IC115951, IC115340 (>4.86)	Vasumati (4.86)	
			2005	1.23-5.05	IC115269, IC326419, IC356437, IC356447, IC326425 (>4.60)	Vasumati (4.61)
			2006	1.00-5.50	IC382628, IC382577, IC382582, IC382572, IC382568, IC382624, IC382627, IC382580, IC382620, IC342635 (>5.05)	Vasumati (3.90)
	GBPUAT, Pantnagar	2005	2.00-5.25	IC115456, IC332922, IC326419, IC114101, IC350386, IC115690, IC115356, IC115705, IC115163, IC115740 (>4.30)	Pant Dhan 4 (4.11)	
			2006	1.20-5.30	IC382629, IC326447, IC382627, IC382623, IC326417, IC382565, IC381950, IC326491, IC382583, IC382578 (>4.40)	Jaya (4.07)

	PAU, Ludhiana	2004	1.56- 4.18	IC115308, IC114018, IC114214, IC115746, IC114284 (>3.84)	PR 111(3.84)	
		2005	1.38- 4.55	IC115789, IC115442, IC115957, IC252136, IC115565, IC115956 (>4.12)	Vasumati (4.12)	
		2006	1.36- 5.20	IC344659, IC352924, IC382622, IC381975, IC350186, IC382582, IC351779, IC382628, IC382577, IC326475 (>4.34)	Vasumati (4.30)	
	IGKV, Raipur	2005	1.38- 5.20	IC332898, IC356447, IC332922, IC346947, IC252100, IC115770, IC326419, IC356419, IC116045, IC334197, IC356449 (>4.34)	-	
		2006	0.97- 5.54	IC343503, IC382628, IC382630, IC326479, IC382619, IC326491, IC352924, IC326417, IC382621, IC330790 (>5.00)	-	
	TNAU, Coimbatore	2004	1.38- 4.50	IC114312, IC114377, IC114449, IC125029, IC114979, IC114019, IC114653, IC114214, IC115680, IC114231 (>4.00)	Vasumati (3.91)	
		2005	1.60- 5.00	IC356448, IC252113, IC356449, IC356447, IC334146, IC252087, IC356441, IC346952, IC336389, IC114846 (>4.00)	Vasumati (3.74)	
		2006	1.60- 4.00	IC336379, IC346222, IC350081, IC352934, IC350078, IC352916, IC381928, IC346215, IC346219, IC369783 (>3.50)	Vasumati (3.08)	
	Pooled over locations	2004	1.83- 4.27	IC114018 (=4.27)	Vasumati (4.16)	
		2005	2.32- 4.20	Nil	Vasumati (4.20)	
		2006	1.93- 4.81	IC382582, IC326491, IC382629, IC326447, IC382628, IC382608, IC382577, IC382621, IC382578, IC326417 (>4.32)	Vasumati (3.70)	
	100 grain weight (g)	AAU, Titabar	2004	1.10- 3.40	IC115526, IC114237, IC114338, IC114272, IC114328, IC114331, IC114592, IC114972, IC115304, IC114238 (>3.00)	Rasi (2.20)
			2005	1.00- 3.75	IC352859, IC332882, IC115467, IC115101, IC115872, IC316275, IC115459, IC332888, IC332889, IC115997 (>3.20)	Basu (2.60)
			2006	1.00- 3.60	IC319488, IC319435, IC330307, IC40033, IC381985, IC333018, IC311861, IC363760, IC353014, IC334380 (>3.25)	Rasi (2.35)
		CRRJ, Cuttack	2004	1.07- 3.44	IC252154, IC114039, IC115176, IC115526, IC115753, IC114972, IC114150, IC115307, IC114272, IC114393 (>3.21)	Jaya (2.60)
2005			0.90- 3.77	IC115101, IC115233, IC115523, IC115267, IC115231, IC252113, IC115551, IC115509, IC332882, IC332883 (>3.40)	Jaya (2.35)	
2006			0.93- 3.63	IC353014, IC381981, IC340573, IC350759, IC346826, IC343501, IC337149, IC334231, IC396778, IC352915 (>3.28)	Jaya (2.40)	
DRR, Hyderabad		2004	1.00- 3.56	IC115629, IC115668, IC252140, IC115906, IC115923, IC115526, IC115633, IC114912, IC115611, IC114968 (>3.30)	Jaya (2.43)	
		2005	0.80- 3.76	IC336366, IC114936, IC115101, IC114098, IC322882, IC115471, IC352859, IC346857, IC342900, IC115467 (>3.42)	Jaya (2.03)	
		2006	0.88- 3.68	IC332622, IC352924, IC114951, IC326418, IC372068, IC340080, IC342889, IC332998, IC330319, IC333018 (>3.20)	Jaya (2.09)	

	GBPUAT, Pantnagar	2005	0.70- 3.60	IC115267, IC316275, IC332919, IC124804, IC332875, IC115432, IC115301, IC115269, IC115471, IC115270 (>2.80)	Pant Dhan 4 (2.62)	
		2006	1.00- 3.70	IC319488, IC342867, IC330315, IC346922, IC346884, IC346814, IC347672, IC343477, IC381977, IC381953 (>303.00)	Pant Dhan 4 (2.55)	
	PAU, Ludhiana	2004	1.18- 3.32	IC114210, IC115020, IC115283, IC115186 (>3.02)	PR 113 (2.96)	
		2005	0.80- 3.35	IC115148, IC115936, IC115163, IC115157, IC115816, IC115162, IC115394, IC115087, IC115700, IC114307 (>2.78)	PR115 (2.38)	
		2006	0.62- 3.70	IC332020, IC331771, IC382627, IC363760, IC332953, IC347612, IC331767, IC381985, IC337621, IC337544 (>2.83)	PR-113 (2.75)	
	IGKV, Raipur	2004	1.10- 3.53	IC115176, IC114651, IC115166, IC252204, IC114972, IC115100, IC114592, IC114039, IC115058, IC115309 (>3.33)	Jaya(2.26) Prasanna (2.26)	
		2005	1.04- 4.27	IC252119, IC114617, IC115533, IC115442, IC116034, IC114813, IC115550, IC340558, IC115443, IC114963 (>4.01)	-	
		2006	1.00- 3.58	IC311125, IC330251, IC332056, IC330430, IC346847, IC319435, IC381981, IC330315, IC340081, IC353014 (>3.33)	-	
	TNAU, Coimbatore	2004	1.03- 3.51	IC114039, IC115176, IC114271, IC114388, IC114080, IC114327, IC115313, IC114204, IC114263, IC114340 (>2.99)	CO 47 (2.47)	
		2005	0.92- 3.62	IC337155, IC340545, IC332893, IC252228, IC115232, IC343534, IC114694, IC312370, IC115269, IC114113 (>3.30)	CO 47 (2.34)	
		2006	0.92- 3.70	IC352924, IC320533, IC372068, IC342889, IC372845, IC332049, IC350758, IC337593, IC340072, IC340353 (>3.13)	Rasi (2.10)	
	Pooled over locations	2004	1.11- 3.06	IC115176, IC114039, IC115526 (>3.00)	PR 113 (2.96)	
		2005	1.21- 3.26	IC115101, IC332882, IC115226, IC352859, IC114113, IC115233, IC115269, IC115471, IC114971, IC115148 (>2.90)	Jaya (2.11)	
		2006	1.23- 3.09	IC363760, IC319435, IC330315, IC333018, IC353014, IC342889, IC347617, IC337621, IC330307, IC381981 (>2.83)	Jaya & Rasi (2.05)	
	Grain yield per plant (g)	AAU, Titabar	2004	4.00- 27.40	IC252053, IC252140, IC252152, IC252050, IC252178, IC114690, IC252134, IC114288, IC115072, IC252143 (>20.00)	Jaya (11.60)
			2005	4.00- 35.00	IC352859, IC330816, IC252117, IC356427, IC336381, IC332977, IC346832, IC356441, IC115097, IC115143 (>26.00)	Mandya Vijaya (25.67)
			2006	5.00- 35.00	IC400033, IC342640, IC 336361, IC 333030, IC 356426, IC311848, IC 320555, IC 311863, IC 334175, IC 382610 (>30.00)	Jaya (12.30)
		CRRRI, Cuttack	2004	5.47- 37.30	IC114357, IC114572, IC115372, IC113997, IC114570, IC114333, IC114563, IC114571, IC115330, IC114488 (>35.53)	Vasumati (35.50)
			2005	2.80- 36.70	IC115758, IC115759, IC252074, IC114957, IC252121, IC252049, IC115088a, IC115802, IC115080, IC115762 (>28.83)	Mandya Vijaya (19.37)
2006			1.60- 27.13	IC334321, IC350759, IC350276, IC346854, IC346039, IC346833, IC336385, IC343539, IC356424, IC346894 (>21.74)	Rasi (13.88)	

DRR, Hyderabad	2004	6.50-36.00	IC114360, IC114351, IC115905, IC114338, IC114429, IC 114514, IC114735, IC114764, IC114887 (>30.00)	Jaya (20.49)
	2005	5.00-48.20	IC114661, IC114658, IC114664, IC330842, IC343073, IC114643, IC114774, IC115284, IC343067, IC342877 (>41.40)	Jaya (13.45)
	2006	2.00-34.65	IC340074, IC340048, IC337589, IC337583, IC342623, IC346231, IC346890, IC337586, IC342624, IC337611 (>25.40)	Jaya (12.34)
GBPUAT, Pantnagar	2005	0.66-20.18	IC115549, IC311126, IC115282, IC115442, IC336371, IC115455, IC114379, IC114269, IC353013, IC336375 (>15.22)	Pant Dhan 4 (8.64)
	2006	1.20-28.20	IC316312, IC320872, IC330804, IC320875, IC334207, IC334068, IC331638, IC311863, IC337616, IC330788 (>20.90)	Pant Dhan 4 (12.45)
PAU, Ludhiana	2004	4.71-26.82	IC114962, IC114935, IC114911, IC114974, IC114364, IC114031, IC114890, IC114418, IC115932, IC114209(>25.15)	2769 (25.15)
	2005	2.45-28.92	IC115673, IC115997, IC114274, IC114225, IC116100, IC252083, IC116026, IC252049, IC115593, IC115697 (>20.80)	PR 111 (13.87)
	2006	3.02-27.49	IC334370, IC400592, IC320888, IC330703, IC334315, IC337548, IC330832, IC398712, IC405707, IC332023 (>21.58)	PR 116 (14.80)
IGKV, Raipur	2004	4.26-37.41	IC114126, IC114793, IC114138, IC114144, IC252054, IC252152, IC113992, IC113990, IC114412, IC114250 (>23.00)	Mandya Vijaya (22.90)
	2005	4.82-42.50	IC115095, IC332922, IC115796, IC115785, IC344163, IC114028, IC115764, IC115828, IC115815, IC115806 (>36.41)	-
	2006	4.00-39.27	IC333182, IC3305695, IC346938, IC333030, IC332054, IC332678, IC334107, IC336080, IC334375, IC334318 (>35.81)	-
TNAU, Coimbatore	2004	4.87-16.05	IC115927, IC114231 (>12.28)	CO 47 (12.28)
	2005	4.50-39.00	IC356419, IC115079, IC336393, IC114468, IC346853, IC347604, IC347597, IC115007, IC356421, IC346874 (>30.00)	CO 47 (11.72)
	2006	1.60-29.50	IC346231382629, IC330257, IC326284, IC346877, IC311860, IC331640, IC330807, IC331641, IC342630 (>20.00)	Prasanna (12.13)
Pooled over locations	2004	6.90-25.15	Nil	2769 (25.15)
	2005	7.24-27.23	IC115759, IC115762, IC343073, IC346832, IC115802, IC332941, IC115583, IC115758, IC252121, IC115576 (21.13-27.23)	Jaya (14.34)
	2006	6.65-21.05	IC311863, IC340074, IC337608, IC346231, IC340079, IC330695, IC347611, IC400033, IC311848, IC346884 (18.70-21.05)	Jaya (12.29)

Evaluation of rice germplasm for biotic stresses at hot spot locations

Diseases	Location	Year	Promising accessions (susceptibility index)	Best check (value)
Leaf blast	Cuttack	2004	None	IR 64 (1) B40 (9)
		2005	IC351689, IC377557, IC252073, IC322861, IC114857, IC352896, IC114838, IC330421, IC114860332955 (≤ 2)	Rasi (6) HR 12 (7)
		2006	IC320875, IC326488, IC330319, IC330430, IC331792, IC334315, IC331747, IC381980 (≤ 2)	Ajay (5), HR 12(7)
	Hyderabad	2004	None	Rasi(1) HR 12(9)
		2005	IC351689, IC114995, IC332885, IC330421, IC332955, IC114265, IC356419, IC332971 (≤ 1)	Rasi(1) HR 12(9)
		2006	IC320875, IC330319, IC330430, IC352857 (≤ 1)	Rasi (3) HR 12 (9)
	Hazaribagh	2004	IC115032, IC113991, IC114725, IC115441, IC115017, IC114294, IC113999, IC252036 IC114283, IC114000 (≤ 4)	-
		2005	IC351689, IC337557, IC252073, IC114857, IC114995, IC 114838, IC345593, IC332971 (≤ 2)	Rasi (3), HR 12(9)
		2006	IC316311, IC319356, IC320875, IC326488, IC326489, IC330430, IC337608, IC351747 (0)	Rasi (4) HR 12 (7)
	Malan	2004	IC114335, IC252036, IC114283, IC115724 (≤ 3)	RP 2421(1) T 23 (9)
		2005	IC351689, IC337557, IC252073, IC352861, IC352896, IC356419, IC330842 (≤ 2)	IR64 (2) HR12 (9)
		2006	IC316279, IC319356, IC320875, IC326488, IC346489, IC330430, IC331792, IC351747, IC381980 (≤ 2)	Rasi (7) HR12 (9)
	Nellore	2004	IC113996, IC114294, IC114000 (≤ 2)	NLR 145 (2) BPT 5204 (8)
		2005	IC252073, IC352896, IC114860, IC115465, IC115549, IC114320, IC114087 (≤ 2)	IR 64 (4) HR12 (9)
	Ponnampet	2004	IC115032, IC113991, IC115474, IC114510, IC115441, IC113996, IC115017, IC114313 (= 0)	Hemavati (8) IET 7191(4)
		2005	IC351689, IC337557, IC252073, IC352861, IC114857, IC114995, IC332885, IC352896, IC114838, IC330421 (= 0)	Rasi (0) HR12 (9)
		2006	IC316279, IC316311, IC319356, IC326489, IC330319, IC330430, IC331792, IC334315(= 0)	Rasi (5) HR12 (9)
	Pooled over locations	2004	None	HR12 (9) Rasi (1)
		2005	IC351689, IC337557, IC252073, IC352861 (≤ 1.8)	HR12 (8.6) IR64 (1.8)
		2006	IC316279, IC316311, IC319356, IC320875, IC326488, IC326489, IC330319, IC330430, IC331792, IC334315 (≤ 2.0)	HR12 (8.2) Rasi (5.0)
	Brown spot	Ludhiana	2004	IC114970, IC114972, IC115099, IC115330, IC114998 , IC 115310, IC 115349, IC 115618(≤ 3)
2005			IC311128, IC115851, IC311176, IC252227, IC332018 (≤ 3)	IR64 (9) HR12 (7)
2006			IC356434, IC346204, IC350094, IC381922, IC372180, IC373195 (≤ 5)	Rasi (9) HR12 (7)
Nellore		2004	IC114970, IC114377, IC115058, IC115311, IC115312 (≤ 3)	NLR145 (5) BPT5204 (6)
		2005	IC114087, IC346866, IC 114396, IC330844 (≤ 3)	IR64 (3) HR 12 (3)

		2006	IC352908, IC356434, IC346204, IC350094 (≤ 3)	Rasi (3) HR 12 (5)
	Pantnagar	2004	IC114315, IC114780, IC252028, IC114970, IC114972, IC115099, IC115330, IC114377, IC114816, IC114998 (≤ 2)	Pant Dhan 6 (3)
	Raipur	2005	IC311128, IC114055, IC114087, IC311176, IC114050, IC114069, IC114075, IC114396, IC115026, IC 115466 (≤ 2)	IR64 (3) HR 12 (3)
		2006	IC352908, IC350094, IC373195, IC356435, IC346204, IC372180 (≤ 3)	Rasi (3) IR 12 (3)
	Pooled over locations	2004	IC114315, IC114780, IC252028, IC114970, IC114972, IC115099, IC115330, IC114377, IC114816, IC114998 (≤ 3)	-
		2005	IC311128, IC114055, IC114087, IC115851, IC311176, IC346866, IC114050, IC114069, IC114075, IC114396 (≤ 3.3)	IR 64 (5.0) HR 12 (4.3)
		2006	IC352908, IC356434, IC346204, IC350094, IC381922, IC381928, IC372180, IC373195 (≤ 3.8)	Rasi (4) HR 12 (5.0)
Bacterial blight	Cuttack	2005	IC356428, IC252083, IC252087, IC311124 (≤ 5)	Ajaya (7) TN 1 (9)
		2006	IC313549, IC330825, IC343399, IC343996 (≤ 7)	Ajaya (7) TN 1 (9)
	Hyderabad	2005	None	Ajaya (1) TN 1 (9)
		2006	IC330825, IC332995, IC343996 (≤ 3)	Ajaya (3) TN 1 (9)
	Ludhiana	2004	IC114340, IC252142, IC114335, IC114546, IC114653, IC252043, IC114506, IC114786, IC114787, IC115734 (≤ 3)	PR116 (3)
		2005	IC356428, IC349680 (≤ 5)	Ajaya (3) TN 1 (9)
		2006	IC313549, IC330825, IC343399, IC343996, IC345657 (≤ 3)	Ajaya (3) TN 1 (9)
	Maruteru	2005	IC311176, IC332914, IC332987, IC349680 (≤ 5)	Ajaya (5) TN 1 (9)
		2006	IC313549, IC330825, IC332995, IC343399 (≤ 7)	Ajaya (7) TN 1 (9)
	Nellore	2004	IC252142, IC114653, IC252043, IC114507, IC114786, IC114787, IC115734, IC115681 (≤ 1)	NLR145 (3) BPT 5204 (5)
		2005	IC252128, IC252087, IC332987 (≤ 3)	-
		2006	IC332995, IC343399, IC343996, IC345657 (≤ 1)	Ajaya (3) TN1 (7)
	Pantnagar	2004	IC114460 (=1)	Pant Dhan 6 (1) Rasi (7)
		2005	IC356428, IC252128, IC252083, IC332914, IC332987, IC349680 (≤ 1)	Ajaya (3) TN 1 (7)
		2006	IC313549, IC322995, IC345657 (≤ 3)	Ajaya (3) TN 1 (9)
	Raipur	2005	IC252128, IC311124, IC311176, IC332914, IC332987 (≤ 5)	Ajaya (7) TN 1 (7)
	Pooled over locations	2004	IC114340, IC252142, IC114335, IC114546, IC114653, IC252043, IC114506, IC114507, IC114786, IC114787 (≤ 4.0)	TN 1 (7)
		2005	IC356428, IC252128, IC252083, IC252087, IC311124, IC311176, IC332914, IC332987, IC349680 (≤ 5.5)	Ajaya (6) TN 1 (8.3)
		2006	IC313549, IC332995, IC343399 (≤ 5)	TN 1 (8.3) Ajaya (5)

Sheath blight	Cuttack	2005	IC115565, IC252079, IC336375, IC115970, IC115986 (≤ 3)	Swarnadhan (3) TN 1 (9)
		2006	IC330799, IC346809, IC336932, IC347669 (≤ 3)	Swarnadhan (3) TN 1 (9)
	Hyderabad	2005	IC115565, IC252079, IC336375, IC252026, IC333026, IC115986 (≤ 5)	Swarnadhan (5) TN 1 (9)
		2006	IC334150, IC344673, IC336932, IC347669, IC340573 (≤ 3)	Swarnadhan (5) TN 1 (7)
	Ludhiana	2005	IC252079, IC 330201, IC311851, IC337151 (≤ 5)	Swarnadhan (9) TN 1 (7)
		2006	IC336932, IC347669, IC342889 (≤ 5)	Swarnadhan (7) TN 1 (7)
	Maruteru	2005	IC11565, IC252079, IC330201, IC336375, IC252026, IC252229, IC115970, IC311851, IC333026 (≤ 5)	Swarnadhan (7) TN 1 (9)
		2006	IC330799, IC334139, IC334150, IC334177, IC344673, IC346809, IC336932, IC347669, IC340570 (≤ 5)	Swarnadhan (9) TN 1 (7)
	Pantnagar	2005	IC115565, IC252229, IC337151, IC346808 (≤ 4)	Swarnadhan (7) TN 1 (5)
		2006	IC334177, IC347669, IC340570, IC346037 (≤ 4)	Swarnadhan (6) TN 1 (9)
	Raipur	2005	IC115565, IC330201, IC252026, IC252229, IC115970, IC333026, IC115986 (≤ 5)	Swarnadhan (7) TN 1 (5)
		2006	IC334150, IC336932, IC347669, IC340573 (≤ 5)	Swarnadhan (7) TN 1 (7)
	Pooled over locations	2005	IC11565, IC252079, IC330201, IC336375, IC252026, IC252229, IC115970, IC311851, IC333026, IC115986 (≤ 5.7)	Swarnadhan (6.1) TN 1 (8.1)
		2006	IC330799, IC334139, IC334150, IC334177, IC344673, IC346809, IC336932, IC347669, IC340570, IC340573 (≤ 4.4)	Swarnadhan (5.7) TN 1 (7.6)
Rice tungro virus (RTV)	Cuttack	2004	IC114231, IC114880, IC114306, IC114858 (≤ 3)	Jaya (7)
		2005	None	Vikramarya (1) TN 1 (7)
		2006	IC332933, IC334377, IC336385, IC346891 (≤ 3)	-
	Hyderabad	2004	IC114880, IC114651, IC114653, IC114683, IC114703, IC114719, IC114787 (≤ 1)	-
		2005	IC115254, IC11538, IC115544, IC115570, IC115792, IC252057, IC252068, IC252216, IC316275, IC330845 (≤ 3)	Vikramarya (3) TN 1 (7)
		2006	IC330254, IC336081, IC343459, IC343487, IC343489, IC 43500, IC343508 (≤ 3)	Nidhi (3) TN 1 (9)
	Coimbatore	2006	IC310493, IC330254, IC332933, IC343997 (≤ 3)	Vikramarya (3) TN 1 (7)

	Tirur	2006	IC336081,IC334377,IC336385,IC337003, IC337527,IC343487, IC 343500,IC 343508 (≤ 0)	Nidhi (3) TN 1 (7)	
	Pooled over locations	2004	IC114231, IC114880, IC114306, IC114858, IC114651, IC114653, IC114683, IC114703, IC114719, IC114787 (≤ 3.0)	-	
		2005	IC115254, IC11538, IC115544, IC115570, IC115792, IC252057, IC252068, IC252216, IC316275, IC330845 (≤ 3.0)	Vikramarya (3) TN 1 (7)	
		2006	IC336081, IC334377, IC336385, IC343508, IC343487, IC 343500 (≤ 3)	Nidhi (3) TN 1 (7.7)	
Insect/pests	Location	Year	Promising accessions (susceptibility index%)	Best check (value)	
Gall midge	Sambalpur	2004	IC114021, IC114025, IC114027, IC114322, IC115924 ($\leq 8\%$)	-	
		2005	IC114452, IC114435, IC114594, IC114601, IC114686, IC114688, IC114693, IC114694, IC114695, IC114799 (= 0%)	TN 1 (57%)	
		2006	IC330251, IC326138, IC326284, IC330232, IC330232, IC330253, IC311771, IC333039 (=0%)	TN 1 (53.3%)	
		2007	IC114824, IC114376, IC115021, IC115076, IC331171 ($\leq 10\%$)	TN 1 (93.3%)	
	Raipur	2008	IC350211, IC381817, IC381957	-	
	Jagtial	2004	IC113990, IC113999, IC113991, IC113993, IC115440 ($\leq 19\%$)	-	
		2006	IC330251, IC326138, IC326284, IC330232, IC333039 (= 0%)	TN 1 (93.3%)	
		2007	IC114824, IC346812 ($\leq 10\%$)	TN 1 (66.7%)	
	Ragolu	2004	IC113990, IC114003, IC114013, IC114015-1, IC114017, IC114020, IC114030, IC114031, IC114277 (= 0%)	-	
		2005	IC114452, IC114435, IC114594, IC114601, IC114686, IC114688, IC114693, IC114694, IC114695, IC114799 (= 0%)	TN 1 (7%)	
		2006	IC330251, IC326138, IC326284, IC330232, IC330232, IC330253, IC311771 ($\leq 1\%$)	TN 1 (70%)	
		2007	IC114824, IC115076, IC114824, IC114376 ($\leq 3\%$)	-	
		2008	IC320834, IC346245, IC353862, IC381962	-	
	Nellore	2006	IC330251, IC326138 ($\leq 5.0\%$)	TN 1 (65%)	
	Pooled over locations	2007	IC-114824, IC114376, IC114788, IC115021, IC115076, IC331771, IC331773, IC346812, IC247617, IC342612 (Bio-I,III & IV%) ($\leq 10\%$)	-	
		2008	IC350211, IC381817, IC381957 ($\leq 10\%$)	-	
	Stem borer (White ear %)	Hyderabad	2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013 (0-5%)	TN 1 (5%)
			2006	IC345692, IC37002, IC343542, IC343991, IC346831 (0-2%)	-
			2007	IC330340	TN 1(22.3)
Karjat		2004	IC114040, IC114186, IC114279, IC114398, IC114565 (5-10%)	-	
		2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013 (0-30%)	PTB (33%)	
		2008	IC115628, IC320834, IC325158, IC332038 (5-10%)	Suraksa (16%)	
Mandya		2004	IC114040, IC114186, IC114279, IC114398, IC114565 (6-10%)	-	
		2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013 (0.0%)	TN 1 (27%)	

		2006	IC345692, IC37002, IC343542, IC343991, IC346831 (0-2%)	Phalguna (12%)	
		2007	IC322522, IC312371, IC326420 (= 0%)	TN 1(14.6)	
	Ragolu	2004	IC114040, IC114186, IC114279, IC114398, IC114565 (2-7%)	-	
		2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013 (0-10%)	TN 1(29%)	
		2007	IC347617(=1%)	TN 1 (9%)	
		2008	IC115628, IC328715, IC115462, IC115453, IC322304, IC324315 (5-7%)	TN 1 (9%)	
	Sambalpur	2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013 (0-15%)	TN 1(29%)	
		2006	IC345692, IC37002, IC343542, IC343991, IC346831 (0-2%)	-	
	Raipur	2008	IC115314, IC115729, IC316281, IC115972, IC326218 (0%)	Kavya (12%)	
	Hyderabad	2008	IC115314, IC115453, IC115729, IC320834, IC326218, IC115462 (0-1%)	Surksa (7%)	
	Pooled over locations	2005	IC320859, IC114267, IC332938, IC332972, IC349679, IC353013	-	
		2007	IC-347617, IC-330430, IC332522, IC114788, IC312371, IC326420, IC326469	-	
2008		IC-342620, IC-346048, IC-346242, IC-369571, IC-372023, IC-115045	-		
Brown plant hopper (BPH)	Hyderabad	2004	IC114020, IC114285, IC114297, IC114298, IC114364, IC114378, IC114381, IC114382, IC114391, IC114392 ($\leq 3.0\%$)	-	
		2005	IC252132, IC114520, IC115431, IC 115117, IC116066, IC252194, IC252229 ($\leq 3.0\%$)	TN 1 (9%)	
		2006	IC311865, IC319435, IC330695, 330796 ($\leq 1\%$)	PTB 33 (1.2%)	
		2007	IC346849, IC347612 ($\leq 3\%$)	TN1 (9%)	
	Mandya	2004	IC114020, IC114285, IC114297, IC114298, IC114378, IC114391, IC114392, IC114398, IC114403, IC114458 (= 0%)	-	
		2005	IC252132, IC114520, IC115431, IC 115117, IC116066, IC252194, IC252229 (0%)	-	
		2006	IC311865, IC330796 ($\leq 3.0\%$)	PTB 33 (0.0%)	
	Maruteru	2004	IC114020, IC114285, IC114297, IC114298, IC114364, IC114378, IC114381, IC114382, IC114391, IC114392 ($\leq 9.0\%$)		
	White backed plant hopper (WBPH)	Hyderabad	2004	IC114362, IC114386, IC114455-1, IC114462, IC114786 ($\leq 3.0\%$)	-
			2005	IC252132, IC114520, IC116066, IC252194, IC252229 ($\leq 1.0\%$)	MO 1 (1%)
2006			IC311865, IC319435, IC330695, IC330796 ($\leq 3.0\%$)	PTB 33 (5.2)	
Ludhiana		2004	IC114362, IC114386, IC114455-1, IC114462, IC114786 ($\leq 3.0\%$)	-	
		2005	IC252132, IC114520, IC115431, IC 115117, IC116066, IC252194, IC252229 ($\leq 3.00\%$)	Kavya (6.0%) PTB 33 (3.0%)	
		2006	IC330695, IC330796 ($\leq 3.0\%$)	PTB 33 (3.0%)	

Promising accessions for multiple disease resistance across the locations

Year	Combination of diseases	Promising accessions
2004	Leaf blast & Bacterial blight	IC114335, IC114507
	Bacterial blight & Rice tungro virus	IC114653, IC114787
2005	Blast & Brown spot	IC114087
	Blast & Bacterial leaf streak	IC114273, IC352896
	Sheath blight & Bacterial leaf streak	IC115565
	Bacterial blight & Brown spot	IC311176
2006	Blast & Rice tungro virus	IC316276, IC 333010
	Rice tungro virus & Sheath rot	IC334132

Promising accessions for multiple pests resistance across the locations

Year	Combination of pests	Promising accessions
2005	Gall midge, Stem borer, Leaf folder	IC115220, IC114936, IC115026, IC115211, IC1115550, IC320859
2008	Gall midge, Stem borer, Plant hopper	IC372023, IC114231, IC342620, IC346242, IC115045