Wild rice resistance to brown planthopper (BPH)

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We screened 30 wild rice accessions originating in South and Southeast Asia and South America and received from IRRI for resistance to BPH in the greenhouse, using the standard seedbox screening technique. Ptb 33 and TN1 were used as resistant and susceptible checks.

To break dormancy, seeds were kept at 50°C for 5 d. The lemma and palea were removed by hand and 20 seeds/ accession were sown in 15-cm-long rows in wooden seedboxes.

At 7 d after sowing, the seedlings were thinned to 15/row, infested with 8 to 10 first-instar nymphs/seedling, and covered with mylar film cages. Damage rating was done when 95% of the susceptible check plants were killed.

All 30 wild rice accessions were resistant (see table). Wild rices *O. latifolia, O. officinalis,* and *O. punctata* also were found to be resistant to BPH biotypes 1, 2, and 3 at IRRI. □

BPH resistance in wild rices. Coimbatore, India, Greenhouse, 1986.

Species	IRRI acc. no. [a]	Origin
O. latifolia	100165	Guatemala
O. latifolia	100167	Costa Rica
O. latifolia	100168	Costa Rica
O. latifolia	100169	Costa Rica
O. latifolia	100171	Guatemala
O. latifolia	100172	Guatemala
O. latifolia	100895	USA
O. latifolia	100914	Mexico
O. latijolia	100956	India
O. latifolia	100959	Mexico
O. latifolia	100962	Guatemala
O. latifolia	100963	Guatemala
O. latifolia	100964	Guatemala
O. latifolia	100965	Costa Rica
O. latifolia	100966	Panama
O. latifolia	101392	Guatemala
O. officinalis	100179	Japan
O. officinalis	100878	Thailand
O. officinalis	100896	Thailand
O. offcinalis	100948	India
O. officinalis	101074	Philippines
O. officinalis	101121	Philippines
O. officinalis	101135	Philippines
O. officinalis	101155	Malaysia
O. officinalis	101166	Philippines
O. australiensis	101144	Australia
O. australiensis	101397	USA
O. punctata	101409	Ghana
O. longistaminata	101200	Nigeria
O. alta	101395	USA
Ptb 33 (resistant check)		India
TN1 (susceptible check)		China

[a] All except the susceptible check had a damage rating of 1 by the *Standard evaluation system for rice* scale of 0-9.

Genetic Evaluation and Utilization

ADVERSE SOILS TOLERANCE

Varieties tolerant of coastal acid saline soils

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Salt-tolerant rice varieties do not perform satisfactorily when salinity is associated with soil acidity. We screened 108 varieties suitable for coastal acid saline soils (pH 3.2, ECe 2.6-4.5 dS/m) at Nirdeshkhali.

RD15 from Thailand gave the highest grain yield (see table). Local variety SR26-B, IR44, IR8067-41-1E-P1, BW100 from Sri Lanka, B2149b-Pn-26-1-1 from Indonesia, and ITA230 from Nigeria appear highly promising. □

Rice varieties' tolerance for coastal acid saline soils at Nirdeshkhali, India.

Variety	Origin	Yield [a] (t/ha)
BG35-2	Sri Lanka	1.9
BWl00	Sri Lanka	2.3
B2149b-Pn-26-1-1	Indonesia	2.3
B58b-Mr-105-2	Indonesia	1.5
IR28222-9-2-2-2-2	IRRI	1.6
IR44	IRRI	2.5
ITA230	Nigeria	2.0
Mahsuri	Malaysia	1.8
SR26-B (local check)	India	2.5
IR8067-41-IE-PI	IRRI	2.2
RD15	Thailand	3.1
1R26 (check)	IRRI	0.5
CD (5%)		0.7

[a] Mean of 3 replications.

Effect of saline irrigation water on yield

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We studied the effect of saline irrigation water on grain yield of 27 rice varieties in a randomized block design with 3 replications in 1984 kharif. Soil was clayey with pH 8.4 and EC (1:1) 1.5 dS/m. Seedlings were transplanted at 40 d. Treatments were 1 dS/m, 4 dS/m, and 6 dS/m irrigation water. Each plot received 80

kg N/ha as urea, 18 kg P/ ha as single superphosphate, and 25 kg K/ha as muriate of potash, and was irrigated to 6 cm 19 times. Rainfall was 502 mm.

At salinity level of 4 dS/ m, only BPT11563 showed a 50% yield reduction (see table). At 6 dS/ m, CSR6, CSRS, RP4-14, and CSR2 had yield reductions ranging from 31.6 to 39.1%; BPT3402, MTU8089, CSR 1, Phalguna, MTU2400, WGL44752, BPT3301, BPTll503, and MTU2077 had moderate yield reductions ranging from 40.3 to 49.6%; other varieties showed more than 50% yield reduction. □

Effect of saline irrigation water on yield at Bapatla, India.

Variety	Yield (t/ha)			Reduction (%)
	1 dS/m	4 dS/m	6 dS/m	at 6 dS/m
Phalguna	5.9	4.9	3.4	43.5
RP4-14	3.5	2.5	2.1	38.9
MTU2077	6.2	4.9	3.1	49.6
MTU2400	4.2	3.2	2.3	45.0
MTU6637	3.1	2.1	1.4	53.3
MTU8089	5.4	3.9	3.2	41.2
BPT3291	3.6	2.5	1.7	52.7
BPT3301	4.3	2.9	2.2	48.6
BPT3402	5.6	4.4	3.4	40.3
BPT5899	5.4	3.3	2.1	61.5
BPT8233	4.3	3.7	2.0	52.5
BPT8250	3.4	1.9	1.5	55.3
BPT8424	3.5	2.8	1.6	52.9
BPT9921	4.7	3.5	2.3	52.1
BPT9938	3.4	2.1	1.6	51.6
BPT9942	5.4	3.4	2.6	52.2
BPT11503	4.9	3.3	2.5	49.2
BPT11563	4.5	2.2	1.8	59.4
BPT11660	5.0	4.1	2.4	52.9
CSRl	3.3	2.2	2.0	41.2
CSR2	3.6	2.5	2.2	39.1
CSR5	3.3	2.5	2.1	37.3
CSR6	5.1	4.4	3.5	31.6
WGL44644	3.0	2.1	1.4	55.1
WGL44752	3.4	2.8	1.9	45.1
WGL44753	3.7	2.7	1.7	54.3
WGL44759	3.7	2.3	1.6	56.3
CD for varieties = 0.21				
CD for EC levels = 0.07				
CD for EC levels × varieties = 0.36				

Genetic Evaluation and Utilization
DEEP WATER

A promising rice culture for shallow waterlogged conditions

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We evaluated medium-duration rice cultures suitable for shallow waterlogged conditions (50 cm) in artificially inundated fields 1984-85 and 1985-86. Water depth was maintained at 50 cm from vegetative stage to maturity.

Of eight entries, 1ET5656 (Sona/RPW6-13) withstood submergence best (see table). IET5656 has 146 d duration and medium height (1 25 cm), and is nonlodging. Grain is medium bold with white rice.

Yields of rice cultures under waterlogging. Tamil Nadu, India, 1984-85 and 1985-86.

Culture	Mean grain yield (t/ha)	Duration (d)
IET5656	4.2	146
Co 42	3.8	147
CR 1009	3.6	155
Ponni	3.5	141
White Ponni	3.4	140
Pankaj	3.5	144
NLR9672	3.2	150
TNR1 (local check)	2.7	153

Genetic Evaluation and Utilization
DROUGHT TOLERANCE

Seedling tolerance for dehydrating wind

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We evaluated the reaction of 105 varieties to an unusual heavy, dehydrating wind during Jun-Oct 1986.

The 105 varieties from different sources were sown 2 rows each in

Rice varieties or cultures showing resistance to wind. Tamil Nadu, India.

Score	Varieties or cultures
1 10% of population with leaf tops dry	ASD1, ASD7, ASD8, ASD9, TPS1, IR28178-45-4, AS25839, CR1030, DPI831, NaagSamba, Arivikiruvai, Karuthavellai, Manjal Saradi, Thattaravellai, Vellarakkan, and TNAU80030
3 25% of population with leaf tops dry	Co 33, Co 41, IR64, TKM9, AD9246, AD85001, AS688, PL 29, ADT35, ASD5, ASD11, ASD15, IR44, IR46, IR52, IR54, IR62, Ponni, AS28883, CR1014, 1ET6711, IR2193-26-3-5-2, TM4506, TPl974, Kochi-samba, Kattisamba, Panamara-samba, Samba, Tanjore Samba, Yanaisamba, Muntakka, Kutri-chaRasali, Saradi, Ponraiyan, Kallanthattaravellai, Thulanadan, Valsaraimundan, GEB24, Co 19, and PTBl5
5 40% of population with leaf tops dry	ASD16, ADT30, ADT31, ADT33, ADT36, IET1444, IET4786, IR36, IR58, IR60, Arupatham Kuruvai, AD7486, TM8089, IR20, IR34, 1R48, Paiyur-1, W. Ponni, Bhavani, AD9408, AS2887, AS24976, BR10, BS19, C22, CR1009, IET5233, IET7301, IET7590, Channavellai, Co 40, BCPl, BPT1235, and TNAU89994
7 50% of population with leaf tops dry	IR50, PY3, Thiriveni, Co 42, Co 43, Co 44, IR5, IR8, IR42, AD14185-1, AS781/1, AS6860/1, AS6860/2, AS23972 and AS24711