which they are induced. Elucidating the functions of these proteins can lead to understanding the mechanism underlying salt tolerance. These proteins may also offer a convenient tool for molecular screening of germplasm. □

Space limitations prevent IRRN from publishing solely yield and yield component data from fertilizer field trials that are not conducted for at least two cropping seasons or at two differing sites. Publication of work in a single season or at one site is limited to manuscripts that provide either a) data and analysis beyond yield and yield components (e.g., floodwater parameters, microbial populations, soil mineral N dynamics, organic acid concentrations, or mineralization rates for organic N sources), or b) novel ways of interpreting yield and yield component data across seasons and sites.

Variability in salt tolerance of accessions of wild rice species *Oryza punctata* and *O. officinalis*

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We have started a comprehensive salt tolerance screening program for all available wild rice germplasm. In the first phase, six accessions of *O. punctata*—three diploid (2n=2x=24 BB) and three tetraploid (2n=4x=48 BBCC)—and three diploid accessions of *O. officinalis* (2n=2x=24 CC) were tested in the glasshouse. We used the gravel culture technique and natural conditions of temperature (25/15 °C day/night temperature), 10 h light, and 60% relative humidity.

We raised seedlings by planting internode cuttings of stems in plastic pots filled with gravel and Hoagland nutrient solution. The pots were placed in another plastic pot containing nutrient solution to ensure a continuous nutrient supply to the plant and easy replacement of the solution. We planted three cuttings per pot and three pots/accession per species.

When leaves started to appear, we induced artificial salinity with a mixture of Na_2SO_4 $CaCl_2$, $MgCl_2$, and NaCl at a ratio of 10:5:1:4 through a stepwise increase in electrical conductivity of 2 dS/m every other day until EC reached 12 dS/m. The entire saline solution was replaced with fresh solution semiweekly.

Details of salt tolerance screening of different accessions of 2 wild rice species at 5 periods of growth (2, 4, 6, 8, and 10 wk).

Species	Accession no.	Chromosome number and genome	Survival (% of control)				
			2	4	6	8	10
O. punctata	103897 [a]	2n = 2x = 24	0	0	0	0	0
O. punctata	103917	BB	66	66	0	0	0
O. punctata	103903 [b]		33	0	-	-	-
O. punctata	105158	2n=4x=48	100	100	66	66	66
O. punctata	101389	BBCC	100	100	100	66	33
O. punctuta	101408		100	100	66	33	0
O. officinalis	103286	2n=2x=24	100	100	66	66	33
O. officinalis	104973 [a]	CC	0	0	0	0	0
O. officinalis	105322 [b]		33	33	33	0	0
Basmati 370	Susceptible check		0	0	0	0	0
Jhona 349	Tolerant check		100	33	-	-	-

[a] Most of the plants died at EC 5-8 dS/m. [b] Most of the plants died at EC 10-11 dS/m.

Susceptible check Basmati 370 died at the onset of EC 8 dS/m; tolerant check Jhona 349 died after 4 wk of growth at EC 12 dS/m (see table). Of the three accessions of *O. officinalis,* 104973 died between EC 5-EC 8 dS/m, 105322 survived for 6 wk, and 103286 survived for 10 wk at EC 12 dS/m.

Of the diploid accessions of *O. punctata,* only 103917 survived for 4 wk, while all three tetraploid accessions survived beyond 8 wk at EC 12 dS/m. Accession 105158 survived for more than 12 wk in EC 12 dS/m. The plant was still in the vegetative phase and had only one tiller, but was healthy and green. We are not certain whether the vegetative growth was stressed by the weather during May-Aug, which is hot and dry under local conditions and a dormant period for wild rice species, or by salinity.

The study did indicate, however, that if many wild rice accessions are screened for salt tolerance, tremendous variability can be anticipated, and this can be used for salt tolerance improvement of cultivated rice varieties. As far as we are aware, this is the first report of salt tolerance in wild rice species other than *Porteresia coarctata.* Further studies are in progress. □

Integrated germplasm improvement—irrigated

PR110, a new bacterial blight (BB)-resistant rice variety for Punjab, India

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PR 106 is a predominant rice variety in the Punjab because of its high yield potential, long slender grains, and duration that fits very well into a rice - wheat crop rotation. PR106 is, however, susceptible to BB, which is the most serious rice disease in the Punjab.

The State Variety Approval Committee has approved a new BB-resistant rice variety, PR110, for cultivation in the Punjab. PR110 was developed using the backcross approach, with PR106 as recurrent parent. It inherited BB resistance from Patong 32, a tall photoperiod-sensitive variety from Malaysia. A dwarf homozygous BB-resistant F_3 line of TN1/Patong 32 was used as the female parent in the first cross with PR106, and followed by five recurrent backcrosses with PR106. PR110, from TNl/Patong 32//PR 106^{*6}, was