

al examination of pollen grains stained with I-KI solution. Percent seed set under self-pollination was evaluated by bagging the main panicles of the hybrid plants.

The pollinators were classified as: effective restorers, where fertility resto-

ration was above 80%; weak restorers or integrades where fertility restoration was 20-80%; and maintainers (nonrestorers) where fertility restoration was less than 10% (see table).

The effective restorers are being used

to produce  $F_1$  hybrids for evaluating heterosis and combining ability. A recurrent backcross that uses maintainers to transfer the genome into wild aborted (WA) cytoplasm for developing additional cms stocks is in progress. □

## GENETIC EVALUATION AND UTILIZATION

# Agronomic characteristics

## IET6148, a variety for direct seeding

*D. Jayaraj, Agricultural Research Institute, Rajendranagar, Andhra Pradesh, India*

Very early-maturing rice varieties were evaluated for direct seeding as part of the All India Coordinated Rice Improvement

Project Uniform Variety Trial I. Seed was soaked for 12 h and broadcast in puddled, leveled soil at 110 kg/ha. Water was carefully controlled for 1 week and then the crop was regularly irrigated. Trials were conducted in both kharif and rabi.

Cauvery and Tellahamsa, a popular short-duration high yielding variety, were checks. IET6148, 6149, 5860, 6155, 5858, 4106, 4107, and 6233 have been

evaluated since 1979 kharif.

IET6148, a progeny of Bala/Co 13, developed at Tamil Nadu Agricultural University, gave consistently high (5.8 t/ha) yields. During 1979 kharif IET6148 was superior to all entries and yielded 6.2 t/ha. In 1980 kharif and 1981 rabi it yielded 5.9 and 6.1 t/ha, equal with Tellahamsa. ET6148 flowers in 75 days and has short bold grain. □

## Govind, an early-maturing rice variety

*J. S. Nanda, S. C. Mani, Harpal Singh, J. P. Singh, and C. V. Singh, Plant Breeding Department, College of Agriculture, G. B. Pant University of Agriculture and Technology, Pantnagar 263145, U. P., India*

Govind, an early-maturing variety developed from the cross IR20/IR24, was recently released in Uttar Pradesh for general cultivation. Govind is a semidwarf (90 cm) variety that can be direct-seeded in rainfed fields or transplanted. It has 95- to 109-day maturity when direct-seeded in rainfed fields and 105-110 days when transplanted. Grains are long, slender, and translucent with good cooking quality and intermediate amylose content (23%).

Govind has been tested throughout Uttar Pradesh and in All India Coordinated Rice Improvement Project (AICRIP) trials for 5 years. Its performance in the AICRIP uniform variety trials is given in Table 1. Performance in the upland direct-seeded standard varietal trials and station trials (transplanting) is given in Tables 2 and 3.

Govind resists bacterial leaf blight, leaf blast, and brown leaf spot diseases and is moderately resistant to planthop-

**Table 1. Performance of Govind in AICRIP trials when direct-seeded in upland rainfed fields.**

Variety	Grain yield (t/ha)			Average	Days to 50% flowering (1980)
	1979 (mean of 23 locations)	1980 (mean of 31 locations)	1981 (mean of 17 locations)		
Govind	3.3	3.4	3.1	3.3	75
Bala	3.2	—	—	3.2	—
Cauvery	2.9	2.8	2.3	2.7	74
Akashi	—	2.8	—	2.8	69
Local check	3.4	3.3	2.5	3.1	75

**Table 2. Performance of Govind in standard varietal trials in U.P. when direct-seeded in upland rainfed field.**

Variety	Grain yield (t/ha)			Average	Days to maturity (1981)
	1980 (mean of 7 locations)	1981 (mean of 6 locations)			
Govind	2.1	2.5		2.3	96
Cauvery	2.1 <sup>a</sup>	2.0		2.1	98
N22	1.4	1.8		1.6	87

<sup>a</sup> 5 locations only.

**Table 3. Performance of Govind in U.P. when transplanted in station trials.**

Variety	Grain yield (t/ha)			Average	Days to 50% flowering (1980)
	1979 (mean of 6 locations)	1980 (mean of 9 locations)			
Govind	5.1	3.9		4.5	81
Saket 4	5.1	4.4		4.7	87

pers and leaffolders. Tests conducted by the AICRIP plant physiology section show Govind can sustain drought for 9 days during the vegetative stage. It is a low tillering variety and should use closer spacing (20 cm × 10 cm) with 2-3 seedlings/hill when transplanted. □

Ratoon rice can yield well

R. L. Nayak, M. Das, and S. S. Mandal, Agronomy Department, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya, Kalyani 741235, Nadia, West Bengal, India

Nine medium-duration rice cultivars were tested for ratoon growth and yield in a randomized block design with three replications during 1980-81 dry season in West Bengal, India. Four of the cultivars were also grown as a main crop during 1980 wet season.

The dry season crop was harvested in summer and allowed to grow as a ratoon crop during 1981-82 wet season. Nitrogen at 20 kg/ha was topdressed during early vegetative phase and pesticide was sprayed prior to flowering. No irrigation was used because 1,000 mm rainfall fell during crop growth.

Some cultivars showed good ratooning ability and matured about 14 days earlier

The International Rice Research Newsletter (IRRN) invites all scientists to contribute concise summaries of significant rice research for publication. Contributions should be limited to one or two pages and no more than two short tables, figures, or photographs. Contributions are subject to editing and abridgement to meet space limitations. Authors will be identified by name, title, and research organization.

Grain yield and days to maturity of rice grown as a main crop in wet and dry seasons and as a ratoon crop after the dry season crop. West Bengal, India, 1980–82.

Cultivar	Main crop				Ratoon crop	
	Grain yield (t/ha)		Days to maturity		Grain yield (t/ha)	Days to maturity
	Wet season	Dry season	Wet season	Dry season		
IET3273	3.4	3.9	115	130	1.8	101
IET3305		4.2		130	1.2	101
IET3306		3.4		130	0.5	101
IET3629	2.4	4.8	110	140	2.7	95
IET3630	3.1	3.9	114	130	1.5	101
IET4555		4.7		140	2.1	95
IET5857	3.3	3.1	118	130	0.4	101
Ratna		4.5		130	0.6	101
Local		3.8		130	0.7	101
CD (0.05)		0.46			0.27	

than the main wet season crop and a month earlier than the main dry season crop.

IET3629 yielded highest (2.7 t/ha) in the shortest time (95 days) (see table). Its ratoon yield was 12% higher than main crop yield in wet season and 44%

less than main crop yield in dry season. It matured 15 days (wet season) and 45 days (dry season) earlier than the main crops.

Other cultivars with good ratooning ability were IET4555 (2.1 t/ha) and IET3273 (1.8 t/ha). □

GENETIC EVALUATION AND UTILIZATION

Disease resistance

Sheath rot incidence in cultivars grown at different nitrogen levels

A. K. Misra and S. C. Mathur, Plant Pathology Division, Central Rice Research Institute (CRR I), Cuttack 753 006, Orisso, India

Incidence of sheath rot caused by *Acrocyndrium oryzae* was recorded for 26 rice cultivars that received 50, 100, 150, and 200 kg N/ha at CRR I farm during 1981 kharif. Only Pankaj showed resistance at all nitrogen levels. Six cultivars were moderately resistant, 8 were moderately susceptible, and 11 were susceptible (see table).

In general, sheath rot susceptibility

Reaction to sheath rot of 26 rice cultivars grown at different nitrogen levels, CRR I, Cuttack, India, kharif 1981.

Cultivars	Disease score <sup>a</sup> at different nitrogen levels			
	50 kg/ha	100 kg/ha	150 kg/ha	200 kg/ha
Pankaj	0	0	0	0
Resistant				
Moderately resistant				
CR294-548-1, RTM68	0	1	3	3
Jagannath, IR28, IR36	1	3	3	3
IR8	0	3	3	3
Moderately susceptible				
CR318-461	1	3	3	5
CR318-549, PR106	1	3	5	5
CR316-639-1, IR4432-664-2	1	5	5	5
IR2071-178-3, CR.316-639-2, IR4432-664-1	3	3	5	5
Susceptible				
CR318-548-7	1	3	3	7

CONTINUED ON NEXT PAGE