
Guidelines and Style for IRRN contributors

Articles for publication in the International Rice Research Newsletter (IRRN) should observe the following guidelines and style.

Guidelines

- Contributions should not exceed two pages of double-spaced typewritten text. Two figures (graphs, tables, or photos) may accompany each article. The editor will return articles that exceed space limitations.
- Contributions should be based on results of research on rice or on cropping patterns involving rice.
- Appropriate statistical analyses should be done.
- Announcements of the release of new rice varieties are encouraged.
- Pest survey data should be quantified. Give infection percentage, degree of severity, etc.

Style

- For measurements, use the International System. Avoid national units of measure (cavan, rai, etc.).
- Abbreviate names of standard units of measure when they follow a number. For example: 20 kg/ha, 2 h/d.
- Express yield data in tonnes per hectare (t/ha). With small-scale studies, use grams per pot (g/pot) or g/row.
- Express time, money, and common measures in number, even when the amount is less than 10. For example: 8 min, \$2, 3 kg/ha, 2-wk intervals.
- Write out numbers below 10 except in a series containing 10 or higher numbers. For example: six parts, seven tractors, four varieties. *But* There were 4 plots in India, 8 in Thailand, and 12 in Indonesia.
- Write out numbers that start sentences. For example: Sixty insects were put in each cage. Seventy-five percent of the yield increase is attributed to fertilizer.
- Place the name or denotation of chemicals or other measured materials near the unit of measure. For example: 60 kg N/ha, not 60 kg/ha N; 200 kg seed/ha, not 200 kg/ha seed.
- Use common names — not trade names — for chemicals.
- The US\$ is the standard monetary unit in the IRRN. Data in other currencies should be converted to US\$.
- When using acronyms, spell each out at first mention and put the specific acronym in parentheses. After that, use the acronym throughout the paper. For example: The brown planthopper (BPH) is a well-known insect pest of rice. Three BPH biotypes have been observed in Asia.
- Abbreviate names of months to three letters: Jun, Apr, Sep.
- Define in the footnote or legend any nonstandard abbreviations or symbols used in a table or figure.
- Do not cite references or include a bibliography.

Genetic Evaluation and Utilization

OVERALL PROGRESS

Spread of IR42 and IR3273-P339-2 in irrigated areas of Ghana

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IR42 and IR3273-P339-2 are very popular for irrigated cultivation in Ghana. Their spread was encouraged by WARDA on-farm trials from 1979 to 1983. Among varieties, IR42 yielded best in 5 yr at 14 locations (see table). Although IR3273-P339-2 was not among the top yielders, farmers prefer it to IR42. IR442, released in 1975 and yielding on par with IR3273-P339-2, remains popular with some farmers.

In 1983, the Afife Irrigation Project Site (830 ha) was planted primarily to IR3273-P339-2, as were 202 of 410 ha at the Asutsuare Irrigation Project Site. At Kpong Farms, 73 ha were planted to the variety.

There also was considerable interest in IR42. Because no certified IR42 seed was

Performance of IR42 and IR3273-P339-2 in WARDA on-farm trials at 14 sites, 1979-83.

Cultivar	Grain yield (t/ha)	Days to maturity	Plant height (m)
IR42	5.9	132	86
BR51-118-2	5.5	126	117
ADNY 11	5.4	116	115
IR3273-P339-2	4.9	128	90
IET2885	4.6	127	90
Checks			
Thailand	4.2	132	86
Dawhenya 3	4.9	125	116
IR442	5.1	122	94

available, about 1,000 t was imported from the Philippines with the assistance of the United States Agency for International Development and the United Nations Development Programme. Both IR42 and IR3273-P339-2 will be officially named and released at the next meeting of the Ghana Rice Varietal Release Committee. Both have good grain (small, translucent) and cooking qualities and are resistant to prevailing pests and diseases. IR42 is particularly suitable for low fertility management. □

Heritabilities in some rice crosses

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We studied the estimates of heritability (broad sense) and genetic advance for 9 rice traits in 3 F₂ populations (Kanchi/Jayanti, Ratna/Jayanti, and IET1136/Ratna) using the formulae $H = \sigma_a^2 / \sigma_A^2$ and $G_s = (k) (\sigma_A) (H)$.

The lowest estimated heritability was for grain length (25.54%) in Kanchi/Jayanti. Heritability exceeded 50% for

days-to-heading, effective tillers/plant, number of filled grains/panicle, straw weight, 100-grain weight, and yield/plant in all crosses (see table). Ratna/Jayanti had more than 50% heritability for 100-grain weight and Kanchi/Jayanti had the same percentage for plant height.

Estimates of genetic gain showed selection could double straw weight in Ratna/Jayanti. Genetic gain was minimum for panicle length (3.6% to 6.0%) in all F₂ populations. Moderately high genetic gains were found for effective tillers per plant, straw weight, and yield/plant (see table). Genetic gains were moderate for number of filled grains/panicle.

In all F₂ populations, days-to-heading and 100-grain weight showed low genetic

Heritability (broad sense) and genetic gain in rice.

Character	Cross ^a	Heritability (%)	Genetic gain (%)
Days-to-heading	1	93.5	12.2
	2	81.2	13.0
	3	92.0	12.0
Plant height	1	66.0	12.0
	2	38.0	5.0
	3	32.3	7.4
Effective tillers/plant	1	84.2	64.3
	2	87.5	80.4
	3	89.5	76.8
Panicle length	1	32.0	5.0
	2	43.0	6.0
	3	33.2	3.6
No. of filled grains per panicle	1	91.2	54.8
	2	90.5	58.7
	3	97.0	61.7
Straw weight	1	97.0	87.8
	2	90.4	100.0
	3	93.4	91.0
100-grain weight	1	89.0	28.0
	2	65.0	11.0
	3	76.4	13.5
Grain length	1	25.5	29.1
	2	79.6	10.0
	3	38.6	40.5
Yield/plant	1	90.3	86.9
	2	91.5	94.6
	3	98.5	87.4

^a 1 = Kanchi/Jayanti, 2 = Ratna/Jayanti, 3 = IET1136/Ratna.

gains and high heritability, indicating non-additive gene action. Similar gene action was observed in plant height of Kanchi/Jayanti and grain length of Ratna/Jayanti. □

NDR80, a semitall, nonlodging rice

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At NDUAT we developed NDR80, a semitall, nonlodging, stiff-strawed rice with 115-d maturity. It averages 100 cm tall and is resistant to most foliage diseases. This line has high yield potential and adaptability for irrigated cultivation in India (see table). It has long bold grains with white kernels and has yielded consistently more than check varieties and other new rices. Semitall height helps

Performance of NDR80 (IET7626) in 1982 and 1983 wet season in All India Coordinated Rice Improvement Program trials in India.

Location	Grain yield (t/ha)			CD
	1982			0.05
	NDR80	Ratna	Rasi	
Aduthurai	5.4	2.5	2.6	0.8
Coimbatore	3.5	3.3	3.2	0.7
Hyderabad	5.8	5.4	5.1	1.1
Cuttack	2.5	1.2	1.6	0.8
Jeypore	5.4	4.3	4.9	1.4
Karimganj	4.2	3.2	3.6	0.7
Agartala	3.7	2.7	3.1	0.2
Faizabad	5.2	3.1	5.6	1.4
Varanasi	4.6	3.4	3.5	1.1
Patna	4.1	3.0	3.8	0.5
Pantnagar	6.2	3.3	3.5	1.1
Kapurthala	6.0	2.4	3.5	0.9
Gurdaspur	5.8	4.0	4.7	0.9
Kaul	5.6	3.5	4.0	0.7
Nawagaon	6.5	5.1	6.1	0.8
Mean	5.0	3.4	3.9	
Mean d to 50% flowering	91	91	37	
	1983			
	NDR80	Rasi	IR36	
Mannuthy	4.8	3.3	3.9	1.3
Pattambi	3.1	1.8	3.0	0.9
Aduthurai	5.8	4.4	5.2	0.4
Coimbatore	4.6	5.5	5.3	0.9
Pondichery	4.5	2.3	3.8	1.3
Cuttack	4.6	1.8	3.6	0.8
Chinsurah	3.7	1.8	3.1	1.0
Karimganj	3.3	2.2	3.1	0.4
Raipur	3.0	1.8	2.9	0.8
Rewa	4.1	2.5	4.0	0.3
Kanke	2.4	2.1	2.5	0.6
Faizabad	4.7	3.1	3.6	0.9
Varanasi	2.5	2.0	2.8	0.9
Pantnagar	4.1	3.4	2.8	1.1
Kaul	4.8	3.0	3.3	1.2
Banswara	5.9	3.9	5.3	1.2
Kota	4.9	3.0	4.7	1.0
Karjat	2.1	1.8	2.2	0.4
Nawagaon	4.6	3.9	4.6	1.2
Mean	4.1	2.8	3.7	

it compete with weeds at early growth stages. At demonstration plots in Uttar

Pradesh, farmers have chosen NDR80 because of high grain and straw yield. □

Yield evaluation of major indigenous rice varieties grown on Cuu Long Delta

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Much of the Cuu Long Delta still is planted to indigenous rice varieties that yield 1.5-4.5 t/ha. In 1982 and 1983 we surveyed yields of major indigenous rices grown in Cuu Long and Hau Giang Pro-

vinces. Crop-cut samples were from 10 m² plots and mean yields were recorded.

In 1982 in Cuu Long, we took 407 samples of 52 varieties (Table 1). Where rice grows in fresh water, Trang Chum yielded well in fields flooded 31-70 cm deep.

Nang Cho and Nang Trich performed better in 71-cm-deep water. In fields influenced by salinity intrusion (5-8 mo freshwater regime), Lua Phi and Trang Lun yielded best.