

indicating a certain degree of GLH adaptation to the variety. Although Ptb

8 and IR42 have the same major gene for GLH resistance, the rate of

adaptation was faster on Ptb 8 than on IR42. *S*

Reaction of rices to *Sogatella furcifera* in free-choice and no-choice seedling bulk tests

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We evaluated the reactions of N22, ARC10239, ADR52, Podiwi A8, N'Diang Marie, and IR2035-117-3 to *S. furcifera* in the IRRI greenhouse in 1984. TN1 was the susceptible check.

In the free-choice test, seeds were sown in 60- × 40- × 10-cm wooden seedboxes. One row of 25 seeds per entry was sown for each of 3 replications. Seven-day-old seedlings were infested with five 2d- and 3d-instar *S. furcifera* nymphs per seedling. Damage was rated at 8 d when susceptible TN1 died and 10 d when most varieties showed hopperburn.

Reaction of rice varieties to *S. furcifera* in free-choice and no-choice tests, IRRI, 1984.

Variety	Damage rating ^a		
	Free-choice test		No-choice test
	8	10	
N22	5 (0.00) b	7 (0.57) ab	4 (-0.28) bc
ARC10239	4 (-0.38) ab	6 (0.31) a	5 (-0.05) c
ADR52	3 (-0.57) ab	3 (-0.57) a	3 (-0.46) b
Podiwi A8	4 (-0.19) b	6 (0.50) ab	7 (0.45) d
N'Diang Marie	5 (0.00) b	6 (0.38) ab	4 (-0.17) bc
IR2035-117-3	2 (-0.88) a	4 (-0.19) a	1 (-1.38) a
TN1	9 (1.49) c	9 (1.49) b	9 (1.27) e

^a Test for paired values for no-choice and free-choice at P = 0.05 = nonsignificant. Figures in parentheses are transformed score values for ranked data.

Reaction was rated by the *Standard evaluation system for rice* 0 to 9 scale (see table).

In the no-choice test, 19-d-old potted plants were covered with a 10- × 90-cm mylar cage and arranged in randomized complete block design with 5 replications. Five pair of 3-d-old *S. furcifera*

adults were released per cage. Damage was rated 21 d later (see table).

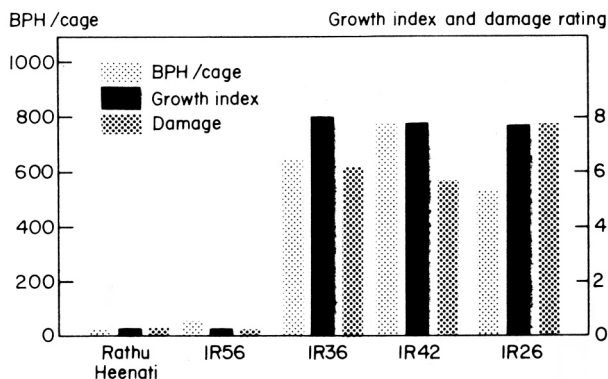
IR2035-117-3 was most resistant in both tests. At 10 d after infestation in the free-choice test, ADR52 performed as well as IR2035-117-3. TN1 was most susceptible, followed by Podiwi A8 and N22. *S*

Response of resistant rices to brown planthoppers (BPH) collected in Mindanao, Philippines

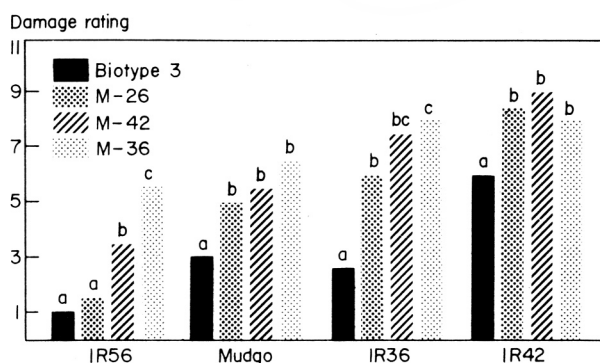
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IR36 and IR42 (with *bph 2* gene for resistance to BPH *Nilaparvata lugens*) have been extensively grown in the Philippines, Indonesia, and Vietnam for about 7 yr. In 1982, they were attacked by BPH in Mindanao, Philippines. A BPH population was collected in Mindanao and evaluated at IRRI using the standard seedbox screening, population growth development, and growth index studies. IR26 with *Bph 1*, IR36 and IR42 with *bph 2*, and Rathu Heenati and IR56 with *Bph 3* were screened for resistance.

In the population development study, 10 newly hatched nymphs were caged on 35-d-old potted test varieties. The number of BPH/cage was recorded 40 d



1. Resistance of selected varieties to Mindanao BPH, 1983.



2. Resistance of selected varieties to Mindanao BPH, 1984. M-36, M-25, and M-42 = Mindanao BPH reared on IR36, IR26, and IR42, respectively.

later. In the growth index study, 10 newly hatched nymphs were caged on 40-d-old test plants. Growth index was computed by dividing percent adult recovery by the mean developmental period on each variety. In the seedbox screening test, varieties were sown in seedboxes and 7-d-old seedlings were each infested with 8 2d- to 3d-instar nymphs. The reaction of all varieties was rated by the *Standard evaluation system for rice* when IR26 seedlings died.

The Mindanao population multiplied

on and killed IR26, IR36, and IR42 but not IR56 and Rathu Heenati (Fig. 1). Because the population had characteristics of biotype 2, which kills IR26, and of biotype 3, which kills IR36 and IR42, the population was believed to be a mixture of those biotypes. To verify that, colonies of the population were purified by rearing them separately on IR26 to maintain a biotype 2 culture and on IR36 and IR42 to maintain a biotype 3 culture. The 17th generation

of colonies grown on IR26, IR36, and IR42 were compared with those of a greenhouse culture of biotype 3 reared on ASD7.

In the seedbox screening test, both *Bph 1* (Mudgo) and *bph 2* gene (IR36 and IR42) varieties were damaged by all of the Mindanao colonies (Fig. 2), indicating that the Mindanao collection represents a biotype different from previously identified biotypes 2 and 3. *ℓ*

Genetic Evaluation and Utilization

UPLAND RICE

Relation of seedling vigor to stand establishment in some upland rice genotypes

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Seedling vigor influences early crop establishment, especially in suboptimum environments, and has been used as a criterion to measure plant establishment in several crops.

We studied the relation of seedling vigor to stand establishment in eight upland rice varieties — Kinandang Patong, Nam Sagui 19, UPLRI 5, IR43, IR20, ITA118, IR6115-1-1-1, and ITA1 16 - which represent dwarf, intermediate, and tall statures. The varieties were planted in a randomized complete block design with four replications on the IRRI upland farm on 28 Jun and 13 Jul (wet season) 1983. Each plot included eight 4-m-long rows at 25-cm spacing. Seedling rate was 100 kg/ha. We measured seedling height at 15 and 30 d after sowing, growth rate at 15-d intervals, number of seedlings/m², and plant dry weight (g/m²) 30 d after seeding. Seedling vigor was visually assessed by the *Standard evaluation system for rice* 1-9 scale.

In the laboratory we recorded 1,000-seed weight (g), seed germination, and

3d germination count (TDGC). To test seed germination, 25 seeds of each variety in 4 replications were put in petri dishes at 32° C in a germinator.

Germination counts were recorded 24, 48, 62, and 96 h after planting and germination at 72 h was expressed as TDGC. Index of germination speed and correlation coefficients were calculated using standard statistical methods.

Among the laboratory determinations, only the correlation between speed of germination and TDGC was positive and significant ($r = 0.88$). IR20, followed by Nam Sagui 19, had the highest TDGC and speed of

germination index. In the seedling vigor characters studied in the field, seedling vigor score was significantly correlated ($r = 0.95$) with seedling dry weight in the 13 Jul planting when there was mild soil moisture stress. Nam Sagui 19 had the highest seedling vigor rating (1) and also the highest seedling dry weight (50 g/m²). The study suggests the possibility of using TDGC in the laboratory as a measure to determine seed vigor and proves the usefulness of seedling vigor scoring (1-9 scale) for upland rices. Tall plants such as Nam Sagui 19 seem to have superior seedling vigor under field conditions. *ℓ*

Genetic Evaluation and Utilization

DROUGHT TOLERANCE

DJ.12.519, a promising rice cultivar for rainfed, shallow, drought-prone areas in Senegal

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We evaluated DJ.12.519 (D.25.4/Se 288D) for rainfed, shallow, drought-prone conditions at the Djibélór Agricultural Research Center

in Senegal. Its performance was tested at Djibélór and Diana-Bâ from 1981 to 1983 in station trials with Ikong Pao as a check (see table).

DJ.12.519 mean yield over 3 yr was 3.1 t/ha in Djibélór and 4.0 t/ha in Diana-Bâ. Ikong Pao yielded 2.0 t/ha and 2.7 t/ha at the stations. DJ.12.519 is a semidwarf, with high tillering ability and duration of 105-110 d. It is a good substitute for Ikong Pao, which has become susceptible to neck blast. *ℓ*