

2. Vertical development of ShB in IR64 by different isolates of *R. solani* at 2 N levels. IRRI, 1987.

IR1317 (short varieties) than in Narnpungbyeo, Ta-poo-cho-z, and IR26 (tall varieties). The results suggest that,

in addition to other factors, ShB development will be influenced by the virulence of the pathogen isolate. □

Bacterial blight (BB) in hilly regions of Nepal

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BB caused by *Xanthomonas campestris* pv. *oryzae* (Ishiyama, 1922) Dye was first observed in the terai region with the introduction of high-yielding rice varieties. Taichung Native 1 was the first

victim. Later, improved varieties IR5, Jaya, Padma, and IR24, and some local varieties were infected. This disease has been confined to hilly regions.

In a disease survey in Sep 1986, BB symptoms were observed in the Sorakhutte, Nayabazar, and Mhaipi areas (altitude about 1,238 m) of Kathmandu valley. Blighted specimens were tested in the laboratory and BB was confirmed. The disease was found in Himali, Purple, Khumal-3, and

Taichung 176 varieties. Himali and Purple were heavily infected. Infection was uniform and distributed throughout the plots. Aggregate infected area was about 1.5 ha. Although infection was severe and uniform, grain filling was not much affected, maybe because it was a late foliar infection.

The combination of rainy weather, strong winds, and moderate temperatures in Kathmandu favored rapid disease spread. Maximum and minimum temperatures Jun-Oct were 28 °C and 19 °C. Total rainfall was 1,040 mm in 87 d.

BB also was found in the western hilly regions: Khurkot, Armadi, and Shibalaya Panchayat in Parbat district; Kalika and Mulpani Panchayat, including Baglung Bazar, in Baglung district, and Ratnechour Panchayat in Myagdi district. Local varieties Gudura, Gauriwa, Jarneli, Aanadi, Aagani, and Panhela, and improved varieties Masuli and Khumal 3 were infected. Most of the incidences were in river basin areas (774 m) up to the mid-range of hills (1,084 m). Infection was mostly in shaded areas. □

Relationship between growth rate, sclerotia production, and virulence of isolates of *Rhizoctonia solani* Kuhn

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Cultures of *Rhizoctonia solani* causing sheath blight were isolated from diseased specimens of rice, grass, weeds, water hyacinth, maize, and millet from fields on the IRRI farm and in Laguna Province, Philippines. Growth rate (regression coefficient), sclerotia production (no./plate in 10 d), and cultural characteristics of 98 isolates were studied using potato dextrose agar-(PDA) medium enriched with 0.1% urea.

Virulence of 10 isolates representing different culture types, growth rate, and sclerotia production were tested on IR58

Growth rate, sclerotia production, culture type, and virulence of 10 isolates of *R. solani* ^a IIRRI, 1987.

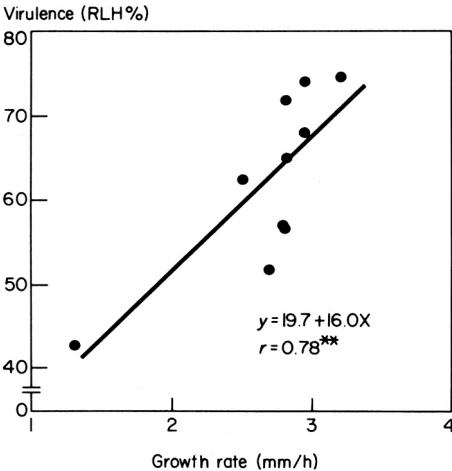
Isolate no.	Host	Culture type ^b	Growth rate ^c (mm/h)	Sclerotia (no./plate)	Virulence ^d (RLH %)
RS9-1	Rice	I	2.9 ab	55 bc	68 abc
RS16-1	Rice	III	2.5 b	55 bc	62 abc
RS26-1	Grass	IV	2.8 ab	9 d	57 bcd
RS27-1	Millet	II	3.2 a	25 cd	75 a
RS44-8	Rice	II	2.8 ab	35 bc	65 abc
RS52-2	Rice	II	2.7 ab	33 c	52 cd
RS64-4	Rice	III	2.8 ab	60 bc	57 bcd
RS68-4	Rice	V	2.9 ab	134 a	74 a
RS72-1	Rice	VI	1.3 c	22 cd	43 d
RS14-3	Rice	IV	2.8 ab	16 cd	72 ab

^aMeans of 3 replications. In a column, means followed by a common letter are not significantly different at the 5% level by DMRT. ^bAll the *R. solani* isolates were grouped into six culture types based on the colony color, growth characteristics, size and pattern of sclerotia production in PDA + 0.1% urea medium. ^cGrowth rate was calculated by regression analysis of linear growth over time. ^dVirulence measured as RLH developed in IR58 in 20 d after inoculation. $RLH \% = \frac{\text{lesion height}}{\text{plant height}} \times 100$

grown in pots in the greenhouse with 1.6 g N/30-cm pot. IR58 was inoculated at booting and lesion height and plant height were measured 20 d after inoculation.

The 10 isolates differed in growth rate, sclerotia production, and virulence (see table). Growth rate varied from 1.3 to 3.2 mm/h and sclerotia production from 9 to 134 sclerotia/plate. No

correlation between growth rate and sclerotia production ($r = 0.23$ ns) or between sclerotia production and virulence ($r = 0.37$ ns) was noted. The correlation was significant ($r = 0.78^{**}$) between growth rate and virulence measured as relative lesion height (RLH) in IR58 20 d after inoculation (see figure), but if the extreme values for RS72-1 were excluded, the correlation



Relationship between growth rate of 10 isolates of *R. solani* in agar medium and virulence measured as RLH (%) in IR58. IIRRI greenhouse, 1987.

coefficient becomes nonsignificant ($r = 0.66$ ns). The mean growth rates of the 9 other isolates (excluding RS72-1) do not differ much (2.5 to 3.2 mm/h). Virulence varied from 52 to 75%.

The most virulent isolate (RS27-1) with the highest growth rate was isolated from millet grown during the dry season in an upland field following rice. □

Control of rice pests with phosphamidon 85% WP

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Two rice varieties were planted for four seasons at Ambasamudram in 1984-85 (TKM9 in Jun-Oct and IR20 in Sep-Feb). Phosphamidon at 210 g ai/ha was sprayed in 4 treatments(see table). Gall midge onion shoots, stem borer deadhearts, green leafhoppers, and

whorl maggot leaf damage were counted 45 d after transplanting (DT) in the first planting and 30 DT in the second planting.

Spraying three times was most effective. With only 1 application, 1 spray 20 DT was most effective. □

Effect of phosphamidon 85% WP on rice insect pests in wet lowlands.^a Tamil Nadu, India, 1984-85.

Application time (DT)	1984						1985				
	Jun - Oct ^b		Sep - Feb ^c				Jun - Oct ^d		Sep - Feb ^e		
	GM (%)	Yield (t/ha)	GM (%)	GLH (no./5 sweeps)	WM (%)	Yield (t/ha)	GLH (no./5 sweeps)	Yield (t/ha)	GM (%)	SBDH (%)	Yield (t/ha)
—	5.9 b	7.0 b	26.3 c	43 b	12.4 ab	2.8 a	10.9 d	5.4 b	23.6 d	21.7 b	4.1 a
20	1.8 a	6.9 b	15.8 a	21 a	11.2 a	3.2 a	7.2 bc	5.9 b	16.2 c	16.6 a	4.5 a
40	4.6 b	7.0 b	23.7 bc	37 b	14.5 b	4.0 a	7.0 b	5.9 b	12.0 b	14.6 a	4.5 a
60	3.9 a	6.9 b	20.9 b	28 a	11.5 a	3.4 a	9.2 cd	5.9 b	10.1 ab	14.5 a	4.8 a
20,40,60	1.7 a	7.5 a	21.2 b	22 a	13.8 b	3.2 a	5.2 a	6.1 a	8.8 a	15.5 a	4.7 a

^a GM = gall midge, SBDH = stem borer deadhearts, GLH = green leafhopper, WM = whorl maggot. In a column, numbers followed by the same letter are not significantly different at the 0.05% level. ^bNo SBDH and GLH infestations. ^cNo SBDH. ^dNo GM and SBDH. ^eNo GLH and WM.