WL 28325 for control of brown spot

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WL 28325 (2, 2, dichloro 3,3-dimethyl cyclopropane carboxylic acid) is non-fungitoxic, but reportedly has altered the host's metabolism and induced the synthesis of phytoalexins, mamilactone A and B in rice. These phytoalexins inhibit Pyricularia *oryzae. Because* phytoalexins are nonspecific against pathogens, we tested WL 28325 for control of brown spot (BS) caused by *Helminthosporium oryzae* Breda de Haan.

Three highly susceptible rice varieties — Benibhog, Co 40, and Ponni — were grown in the greenhouse at 20-25°C. When seedlings were 45 days old, 3 kg WL 28325/ha was applied to the soil (2.5 mg/pot of 8 kg soil). Ten, 20, and 30 days after application, plants were spray inoculated with a highly virulent *H. oryzae* isolate at 10^6 spores/ml. Lesion development was assessed (see table).

Applying WL 28325 markedly reduced disease incidence for all varieties. The chemical effect persisted for 30 days. □

Effect of WL 28325 control of brown spot of rice.

Variety	WL 28325 application[a] (3 kg/ha)	Disease intensity[b] at different days after application		
		10 d	20 d	30 d
Benibhog	+	3.0	3.1	4.7
	−	8.0	8.1	8.2
Co 40	+	2.6	2.7	4.9
	−	6.3	6.5	7.0
Ponni	+	1.1	1.6	3.1
	−	5.9	6.4	6.8

[a] + = applied; – = not applied. [b] Assessed using the 1980 Standard Evaluation System for Rice.

Pest management and control INSECTS

Effect of moonlight on light-trap catches of brown planthopper

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Light-trap catches of many insects are affected by the efficiency of the trap in relation to moonlight. If flight activity is constant throughout the lunar cycle, catches should be lower at full moon, when light-traps are least effective.

Peak catches of brown planthopper (BPH) near full moon in three IRRI light-traps in 1976 and 1977 indicated that BPH flight behavior might be influenced by the lunar cycle. Weekly catches of BPH in the IRRI fluorescent-light traps from 1967 to 1979 (1978 data were not obtained) were analyzed for fluctuations related to the lunar cycle.

Each catch during a full moon week was compared to catches in preceding and following new moon weeks, and the number of occasions in which the new moon or full moon catch was greater was tested for significance using X^2.

The table shows X^2 values obtained when each full moon catch was compared to the following new moon catch. Results of comparisons with the preceding new moon were similar.

Chi-square heterogeneity test comparing catches during full moon and the following new moon.

Year	Full moon catch greater than new moon catch	New moon catch greater than full moon catch	N		DF	χ^2	
1979	11	1	12		1	8.333	P<0.005
1977	11	1	12		1	8.333	P<0.005
1976	12	0	12		1	12	P<0.001
1975	9	2	11		1	4.454	P<0.05
1974	5	7	12		1	0.333	ns
1973	7	5	12		1	0.333	ns
1972	10	2	12		1	5.333	P<0.025
1971	12	0	12		1	12	P<0.001
1970	5	3	8		1	0.5	ns
1969	8	4	12		1	1.333	ns
1968	7	2	9		1	2.778	ns
1967	3	4	7		1	0.142	ns
				Total	12	55.872	P<0.001
	100	31	131	Pooled	1	36.343	P<0.001
				Heterogeneity	11	19.529	ns

In 6 of the 12 years examined, there was a significant difference between BPH catches at full moon and those at new moon. Highest catches were during the full moon. This was confirmed by the 12-year data (see table),

When BPH populations were low (1967–70), or in years with large BPH catches (1973 and 1974), the numbers caught at new moon and at full moon did not differ significantly. Only in 1967 and 1974 were there more occasions when the full moon catch was smaller than that for the following new moon (see table).

The larger BPH catches near full moon probably reflect a genuine increase in flight activity during this moon phase because light-traps are least effective at that time. The findings of this study are supported by suction-trap catches at Liliw near IRRI. A general association between flight activity and moon phase might be expected because the lunar cycle and a BPH generation have similar duration; however, the relationship may diminish when there are major differences in the sizes of successive generations. When an association does occur, however, BPH dispersal and subsequent colonization of new rice crops will tend to be synchronized over large areas. □