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CHEMICAL CONTROL OF STACK BURN DISEASE OF RICE

Stack bum disease of rice incited by *Alternaria (Trichoconis) padwickii* has recently become common in some parts of Kuttanad in Kerala. On leaves, the fungus causes large, oval to circular, dark brown spots. The centre of the spot is light brown and bears small, black dots. When panicle is infected similar brown spots with black dots in the centre appear on grains.

The present study was initiated at the Rice Research Station, Moncompu, during 1984 to screen out the most effective fungicide for the control of this disease and also to fix the most suitable time of application of fungicides. The experiment was laid out in randomised block design replicated twice, with variety Jyothi. Plot size was 5 m x 2 m. The management of the crop was done according to the recommendations of the Kerala Agricultural University (Anon., 1989). Fungicides were applied at 40, 60 and 80 days after sowing (DAS) using high volume sprayer. Observations on the severity of stack burn (leaf and grain infection) were recorded from 10 plants per plot. Disease scoring was done based on standard evaluation system for rice, (IRRI, 1980).

Results of pooled analysis of data for 11 seasons showed that all the fungicides tried reduced leaf and grain infection significantly (Table 2). Minimum disease severity was observed in plots sprayed with ediphenphos @ 0.1%. The optimum time for application of fungicides was found to be 80 DAS. Maximum grain yield of 2.85 t/ha was recorded in plots sprayed with ediphenphos at 80 DAS as against 2.67 t/ha in the control plot. However, the difference in grain yield due to treatments was not significant. This may be attributed to the low disease pressure experienced during some of the seasons. Hinosan, kitazin and benlate have been earlier reported to be effective in controlling stack burn disease of rice. When seed and foliar treatments with different fungicides were tried, the effect was more pronounced in controlling sheath than grain infection. This indicated that spraying beyond 75 days might be

Table 1. Standard evaluation system scale for leaf spot and grain infection

Leaf spot		Grain infection	
Index value	% leaf area affected	Index value	% grains affected in a panicle
0	Nil	(I	Nil
1	<1	1	<1
3	1-5	3	1-5
5	6-25	5	6-25
7	26-50	7	26-50
9	> 50	9	> 50

Table 2. Severity of stack burn disease and grain yield as influenced by different fungicides (Pooled mean for 11 seasons)

Sl. No.	Fungicides	Leaf infection (0-9 scale)				Grain infection (0-9 scale)				Grain yield t/ha			
		40 DAS	60 DAS	80 DAS	Mean	40 DAS	60 DAS	80 DAS	Mean	40 DAS	60 DAS	80 DAS	Mean
1	Carbendazim (Bavistin) 0.1%	2.20	2.10	2.11	2.14	3.04	3.17	2.66	2.86	2.80	2.76	2.73	2.77
2	Ediphenphos (Hinosan) 0.1%	1.77	1.96	2.03	1.92	2.91	2.01	2.43	2.65	2.70	2.81	2.85	2.78
3	Copper oxychloride (Fytolan) 0.3%	2.05	2.10	2.01	2.05	2.91	2.87	2.52	2.73	2.68	2.76	2.81	2.75
4	Oxathin derivative (Vitavax) 0.1%	2.05	2.05	1.98	2.03	2.63	2.78	2.65	2.69	2.78	2.79	2.73	2.77
5	Captafol (Difolatan) 0.3%	2.30	2.35	2.12	2.26	2.91	2.69	2.69	2.77	2.71	2.75	2.78	2.74
6	Mancozeb (Dithane M.45) 0.4%	2.08	2.06	1.96	2.04	3.03	2.75	2.76	2.85	2.68	2.86	2.66	2.74
7	Bordeaux mixture 1%	2.44	2.17	2.27	2.29	2.88	2.74	3.22	2.95	2.68	2.71	2.67	2.68
8	Control		3.38		3.38		4.32		4.32			2.67	2.67
Mean		2.13	2.11	2.07		2.89	2.80	2.70		2.72	2.78	2.75	
CD(0.05)			0.49				0.55				NS		

required to combat the disease in the later stages of crop growth (Rajan and Nair, 1979). It may be concluded that in areas were stack bum disease occurs in a severe form spraying with ediphenphos @0.1% at 80 days after sowing is effective in controlling the disease.

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