

Short Communication

Efficacy of Fungicides against Loose Smut of Wheat under Different Agroclimatic Zones

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Vitavax (carboxin), Bavistin (carbendazim) and Raxil (tebuconazole) are the widely used seed dressers for the control of loose smut (*Ustilago segetum* var. *tritici*) of wheat in India [1, 2, 3]. However, there were varied opinions about the efficacy of these fungicides at various locations. In view of the above, a coordinated experiment was planned to find out the effect of environment on the efficacy of seed treatment against loose smut disease. The data were generated from 1995-96 to 1998-99 at various coordinating centres and reported in annual reports of National Seed Project (NSP). It was felt by the Seed Pathology Group of STR (NSP) that though the data is not properly consolidated and analysed but it gives an useful information indicating that efficacy of Vitavax and Bavistin is influenced by the locations, thus could be dug out from the annual reports of NSP and published as such in Seed Research.

The experiment was conducted initially for 2 years at Punjab Agricultural University (PAU), Ludhiana and Chaudhury Charan Singh, Haryana Agricultural University (HAU), Hisar - and later extended to other centres viz. Himachal Pradesh Krishi Vishva Vidyalaya (HPKV), Palampur; Narendra Dev University of Agriculture and Technology (NDU&T), Faizabad; Rajendra Agricultural University (RAU), Dholi; Indian Agriculture Research Institute, Regional Research Station (IARI, RRS), Karnal; and G.B. Pant

University of Agriculture & Technology (GBPUA&T), Pantnagar. Artificially inoculated seed of wheat (var. HD 2329) was used for experimentation with 4 treatments (Vitavax @ 0.2%, Bavistin @ 0.2%, Raxil @ 0.1% and untreated control) with a plot size of 2 x 2.5 m with 7 replications. The inoculated seed was prepared in the previous crop season. The fungicides for seed treatment were supplied to all the centres from single source i.e. Coordinating Unit of National Seed Project.

The data in Table 1 indicated that the Raxil was the most effective fungicide as compared to other two at all the locations. However, carboxin and carbendazim activity showed variation at different locations. At Ludhiana and Faizabad, the carboxin was as effective as the Raxil but the activity of carbendazim was considerably low; whereas, the activity of carboxin was very low at Palampur and low at Karnal as compared to Bavistin. The activity and mobility of seed dressers is known to be affected by soil type [4, 5, 6, 7, 8]. The silty clay loam soils have higher amount of clay and organic matter which have a higher adsorption and chelating effect on the organic fungicides, thus less fungicidal activity. The Gaudet *et al.* [9] while working with the seed treatments for the control of *Tilletia caries*, have shown that the activity of carboxin is affected by the environmental changes. In the present study,

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Table 1. Effect of fungicidal treatment on incidence of loose smut of wheat under different agroclimatic areas

Area	Year	Treatment				CD at 5%
		Carboxin	Carbendazim	Raxil	Control	
Ludhiana	1995-96	0.00	3.63	0.00	21.21	1.94
	1996-97	0.00	1.23	0.00	21.39	1.23
	1997-98	0.02	0.17	0.01	39.11	1.46
	1998-99	0.14	0.769	0.01	20.0	0.32
	Pooled	0.04	1.45	0.01	25.43	-
Hisar	1995-96	0.76 (7.47)	0.41 (6.70)	0.00 (5.74)	57.16(49.71)	3.07
	1996-97	0.22 (6.33)	0.26 (6.34)	0.00(5.74)	40.90 (40.28)	2.32
	1997-98	0.00 (5.74)	0.42 (6.79)	0.00 (5.74)	49.65(44.81)	4.95
	1998-99	0.01 (5.78)	0.23 (6.33)	0.00 (5.74)	35.49 (37.03)	1.11
	Pooled	0.25 (6.33)	0.33 (6.54)	0.00 (5.74)	45.8 (42.96)	-
Palampur	1997-98	7.81	1.42	0.00	54.30	-
	1998-99	3.10	0.32	0.04	18.60	-
	Pooled	5.45	0.87	0.02	36.45	-
Faizabad	1997-98	0.00	0.28	0.00	1.92	-
	1998-99	0.00	0.06	0.00	10.51	-
	Pooled	0.00	0.17	0.00	6.21	-
Dholi	1997-98	0.41	0.51	0.33	7.76	-
	1998-99	0.30	0.35	0.20	11.85	-
	Pooled	0.35	0.43	0.26	9.80	-
Karnal	1997-98	1.46	0.64	0.03	16.79	1.48
	1998-99	0.67	0.22	0.13	1.87	0.03
	Pooled	1.32	0.43	0.08	9.33	-
Pantnagar	1998-99	0.20	1.00	0.07	15.47	-

Figures in parenthesis are angular transformed values.

the activity of the carboxin was probably affected by the silty clay loam soil which is prevalent in Palampur area.

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