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Research Article

Management of powdery mildew of pea (*Pisum sativum* L.) caused by *Erysiphe polygoni*

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ABSTRACT

Powdery mildew of pea (*Pisum sativum* L.) due to (*Erysiphe polygoni* D.C.) cause much damage to the crop. An experiment was conducted in 2008-09,2009-10 and 2010-11 to know the effective fungicidal practice for management of this disease. Three foliar sprays at 10 days interval from initiation of the disease of Bayliton (0.25%) gave average minimum (5.65%) disease intensity and maximum grain yield 3.080kg/ plot (3.2m x 3.0 m). In term of cost-benefit ratio treatment (T5), three foliar sprays of Bayliton (0.25%) at 10 days interval from initiation of the disease gave (1:2.03).

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INTRODUCTION

Table pea (*Pisum sativum* L.) is an important vegetable crop for providing Protein to vegetarian population of India. It is grown as winter vegetable in plains of North India and as summer vegetable in hills. Severe losses to the table pea are caused by different pathogens such as *Erysiphe polygoni, Uromyces viciafaebae, Mycosphaerella pinodes, Ascochyto pisarum, Sclerotinia sclerotiorum, Pernospora pisi, Uromyces fabae* and *Septoria pisi.* Among them Powdery mildew caused by (*Erysiphe polygoni* D.C.) is a serious disease which is responsible for reduction in pod numbers to about 21-30 per cent and reduction in pod weight about 26-47 per cent, when the crop is infected about 100 per cent (Munjal *et.al.,* 1963). The pathogen of this disease is an obligate parasite. The conidia produced as a result of primary infection on alternate host are wind-blown, brought on to healthy leaves and other parts, hence foliar application of fungicidal chemicals strategy was taken up to control.

MATERIALS AND METHODS

The trial was conducted in three years *viz.*, 2008-09, 2009-10 and 2010-11 with nine treatments along-with control in the experimental field of Vegetable Research Farm, Kalyanpur of Chandra Shekhar Azad University of Agric. and Tech., Kanpur with individual plot size (3.2m x 3.0m). Treatments were : three foliar sprays of Tridemorph (Calixin), three foliar sprays of Flusilazole (Cursar), three foliar sprays of Tebuconazole (Folicure), three foliar sprays of Sodium bisulphate, three foliyar sprays of Bayliton, three foliar sprays of Difeneconazole (Score), three foliar sprays of Wettable sulphar, three foliar sprays of Neem oil and three foliar sprays of Carbendazim were used . Highly susceptible variety of table pea, Azad P-1 were used in all three years, 2008-09, 2009-10 and 2010-11. Disease intensity were recorded after 10 days of every spray and average were calculated separately in every years. Yield data of grain were also weighted after harvesting of the crop and average were calculated separately in every year.

RESULTS AND DISCUSSION

Perusal of three years data depicted in Table 1 revealed that treatment, three foliar sprays of Bayliton (0.25%) at 10 days interval from initiation of the disease was found significantly ($P< 0.05$) superior in respect of mean, disease intensity (5.65%), yield (3.050 kg /plot) and (1:2.03) benefit-cost ratio followed by three foliar sprays of Tridemorph (Calixin) @ (0.1%) at 10 days interval from initiation of the disease refelacted (6.59%) disease intensity, (2.950kg/plot) grain yield and (1:2.03) cost-benefit ratio. Best third treatment was three foliar sprays of flusilazole (0.1%) at 10 days interval,

Table 1 : Disease intensity, grain yield and economics of the crop

Sr. No.	Treatments	Disease intensity (%)			Mean	Yield (kg./plot)			Mean	C:B ratio
		2008-09	2009-10	2010-11		2008-09	2009-10	2010-11		
T_1	Tridemorph (Calixin) @ 0.1% three foliar sprays at	7.51	6.44	5.83	6.59	3.600	2.550	2.710	2.950	1:2.03
	10 days interval from initiation of the disease	(15.89)	(14.71)	(13.97)						
T_2	Flusilazole (Cursar) @ 0.1% three foliar sprays at 10	7.98	7.19	6.54	7.24	3.100	2.410	2.670	2.730	1:1.78
	days interval from initiation of the disease.	(16.32)	(15.55)	(14.82)						
T_3	Tebuconazole (Folicure) @ 0.1% three foliar sprays	8.35	8.14	7.65	8.05	3.400	2.260	2.480	2.710	1:1.76
	at 10 days interval from initiation of the disease.	(16.74)	(16.58)	(16.06)						
T_4	Sodium bisulphate @ 0.25% three foliar sprays at 10	14.99	12.24	11.48	12.90	2.650	1.700	2.280	2.210	1:1.53
	days interval from initiation of the disease.	(22.71)	(20.48)	(19.81)						
T_5	Bayliton @ 0.25% three foliar sprays at 10 days	7.49	5.09	4.37	5.65	3.800	2.270	3.080	3.050	1:2.03
	interval from initiation of the disease.	(15.79)	(13.05)	(12.07)						
T_6	Difeneconazole (Score) @ 0.05% three foliar sprays	10.48	9.95	9.77	10.07	2.850	2.020	2.400	2.420	1:1.94
	at 10 days interval from initiation of the disease.	(18.81)	(18.39)	(18.21)						
T_7	Wettable sulphur @ 0.3% three foliar sprays at 10	11.99	11.19	10.73	11.30	2.400	2.190	2.650	2.410	1:1.95
	days interval from initiation of the disease.	(20.18)	(19.54)	(19.12)						
T_8	Neem oil @ 0.25% three foliar sprays at 10 days	11.79	11.12	10.79	11.23	2.450	1.930	2.170	2.180	1:1.90
	interval from initiation of the disease.	(20.00)	(19.48)	(19.18)						
T_9	Carbendazim @ 0.1% three foliar sprays at 10 days	12.00	12.56	13.08	12.55	3.000	1.740	2.080	2.270	1:1.96
	interval from initiation of the disease.	(20.27)	(20.75)	(21.20)						
T_{10}	Control	37.99	22.50	21.78	27.42	2.150	1.360	1.700	1.740	1:1.82
		(38.00)	(28.31)	(27.82)						
	CD (P = 0.05)	2.73	1.82	1.80		0.85	0.52	0.58		
	CV %	5.65	4.14	4.21		12.26	10.50	10.19		

started from initiation of the disease which gave (7.24%) disease intensity, (2.730kg/plot) grain yield and (1:1.78) benefit-cost ratio. Least effective treatment were three foliar sprays of wettable sulphar (0.3%) and three foliar sprays of Neem oil (0.25%) recorded non significant difference in each treatment but these were superiour over the control in all three types of data . The application of carbendazim (0.1%) solution three times at 10 days interval from initiation of the disease gave (12.55%) disease intensity (2.080kg/plot) grain yield and (1:1.96) benefit-cost ratio. All nine treatments of different groups and Wettable sulphar were significantly superior over the control. The study indicated that three foliar sprays of Bayliton (0.25%) at 10 days interval from initiation of the disease found more effective in reducing the disease intensity, increasing the grain yield at maximum cost benefit ratio. Similar results were also reported by Banyal and Rana (2003); Upadhyay and Gupta (1994); Gupta and Shyam (1998).

Conclusion:

On the basis of above results it may be concluded that three foliar sprays of Bayliton (Triadimefon) (0.25%) at 10 days interval from initiation of the disease may be recommended for management of Powdery mildew of Pea.

REFERENCES

Banyal, D.K. and Rana, S.K. (2003). Fungicidal sprays schedule for the management of Pea powdery mildew. *J. Mycol. Pl. Pathol.,* **33**(2) : 302-304.

Gupta, S.K. and Shyam, K.R. (1998). Control of powdery mildew and rust of pea by fungicide., *Indian Phytopathol*., **51**(2): 184-186.

Munjal, R.L., Chenulu, V.V. and Hora, I.S. (1963). Assesment of losses due to powdery mildew (*Erysiphe polygoni*) on pea. *Indian Phytopathol*., **16**:260-267.

Upadhyay, A.L. and Gupta, R.P. (1994). Fungicidal evaluation against powdery mildew and rust of pea (*Pisum sativum* L.*), Annals Agric. Res.,* **15**(1) :114-116.

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