

Short communication

Fungicidal management powdery mildew (*Erysiphe polygoni*) in pea**M Loganathan, V Venkattaravanappa, S Saha and AB Rai**

Received : Dec 2010 / Accepted : Jan 2011

Pea is an important leguminous vegetable crop grown as main crop in Northern India during winter season. Powdery mildew caused by *Erysiphe polygoni* is a serious disease in pea especially during flowering and pod setting stage. Due to this disease the crop faces a yield loss of 20-30 % (Sharma and Singh 1987). In severe cases the powdery masses spread to entire crop foliage and later complete defoliation occurs. Management of this disease with chemical will help to develop integrated disease management practices. Though many fungicides are available for controlling powdery mildew disease in other crops till date there is no unequivocal fungicidal recommendation for the management of the disease in pea. With this view a set of fungicides was evaluated for their efficacy in controlling the disease under field conditions.

Two field trials were conducted with pea (cv. azad1) at Research farm, Indian Institute of Vegetable, Varanasi during rabi season of 2008-09 and 2009-10. The crop was sown in mid-November with a spacing of 10cm X 10cm. The plot size was 3mx3m. Different fungicides viz., tridemorph @ 0.1%, flusilazole @ 0.1%, tebuconazole @ 0.1%, sodium bisulphate @ 0.25%,

triadimephan @ 0.25%, difenconazole @ 0.05%, wettable sulphur @ 0.3 %, neem oil 0.25% and carbendazim 0.1% were evaluated against the disease. The treatments in the field experiment were laid down in RBD with three replications. Fungicides were sprayed when first symptoms of the disease was observed during the third week of December. Observations on disease were taken when the control (without any spray) showed maximum infection using the scale 0-5 (VPKAS 2002).

The results of field experiments revealed that powdery mildew disease intensity found to be significant less in flusilazole (0.1 %) in both the seasons (table 1). In 2008-09 and 2009-10, the percent disease index (PDI) was 9.0 and 0.1 in flusilazole as compared to untreated control of 59.0 and 54.1 respectively. This was followed by triadimefon in 2008-09 (15.2) and tebuconazole in

Table 1: Evaluation of fungicides against powdery mildew of pea (cv. azad 1) under field conditions

S. No.	Treatment	*PDI (%)		Yield (q/ha)	
		2008	2009	2008	2009
T ₁	Tridemorph @ 0.1%	20.5 ^c	1.5 ^b	2.51 ^c	16.6 ^b
T ₂	Flusilazole @ 0.1	9.0 ^a	0.1 ^a	2.81 ^a	23.3 ^a
T ₃	Tebuconazole @ 0.1%	21.6 ^d	1.4 ^b	2.64 ^b	23.3 ^a
T ₄	Sodium bisulphate @ 0.25%	39.7 ^g	17.4 ^d	2.44 ^d	11.1 ^c
T ₅	Triadimephan @ 0.25%	15.2 ^b	1.8 ^b	2.33 ^e	17.8 ^b
T ₆	Difenconazole @ 0.05%	25.2 ^e	2.0 ^b	2.50 ^c	16.6 ^b
T ₇	Wettable sulphur @ 0.3 %	16.0 ^b	3.0 ^c	2.69 ^b	21.1 ^a
T ₈	Neem oil 0.25%	25.3 ^e	21.3 ^e	2.68 ^b	8.9 ^d
T ₉	Carbendazim 0.1%	30.3 ^f	1.5 ^b	2.44 ^d	16.6 ^b
T ₁₀	Control	59.1 ^h	54.0 ^f	1.79 ^f	8.9 ^d

*Values were arc sine transformed before the analysis. In a column a mean followed by common letters are not significantly different at 5% level by DMRT

M Loganathan, V Venkattaravanappa, S Saha and AB Rai
Indian Institute of Vegetable Research,
Varanasi 221 305,
Uttar Pradesh, India

2009-10(1.4). Yield data also exhibited a similar trend with flusilazole manifesting the maximum yield of 2.81q/ha and 23.3q/ha in the consecutive seasons. The corresponding value of untreated control is 1.79q/ha and 8.9q/ha respectively. Though flusilazole is found to be a broad spectrum fungicide and effective against eye spot (*Pseudocercosprella*), mildew (*E. graminis*), rust (*Puccinia* spp), *Septoria*, *Rhynchosporium* and *Helminthosporium* diseases (Anon., 1989) and it has not been tested against powdery mildew of pea. The superior performance of flusilazole may be attributed to its ability of eradicating established fungal infections and suppressing subsequent disease development. It has a unique property of controlling the disease on unsprayed foliage through sublimation from the sprayed surface. This vapour phase action contributes to

enhanced field efficacy as is evident from the trial. In the present study, flusilazole (0.1 %) is found effective in controlling the disease in consecutive two seasons during 2008-09 and 2009-10 and may be recommended for the management of powdery mildew disease of pea

References

- Anon.(1989). Evaluation of fully approve or provisionally approved products. Annual report of Pesticides Safety Directorate, Mallard House, Kings pool, 3 Peasholme, Green York, YO1 7PX NO:11, pp1-61
- Sharma AK and Singh B (1987). Control of major pea diseases in the hill region. Indian Hort. 31 (4): 11-12.
- VPKAS (2002). Technical options for improving agricultural productivity in the north-western hill. Vivekananda Parvatiya Krishi Anusandhan Sansthan, ICAR, Almora, Uttranchal, India, pp.70.