

## CHEMICAL CONTROL OF PEA STEM FLY (*OPHIOMYIA PHASEOLI*) AND WILT COMPLEX OF PEAS

Harpal Singh and Inderjit Singh

PAU, Regional Research Station,  
Gurdaspur - 143 521, India

### ABSTRACT

For the control of stem fly and wilt complex in peas, different insecticides and fungicides individually and their combinations i.e. Formaldehyde @ 1.0% and Thimet 10G @ 10 kg/ha as soil application, Bavistan and Captan 3 g each/kg seed, Bavistan + Captan @ 1.5 g of each per kg seed, Chlorpyrifos 5 ml and Chlorpyrifos 5 ml + Captan 3 g/seed as seed treatment, Thimet 10 kg/ha as soil application + Captan 3 g/kg seed as seed treatment were tried. It was reported that in both the years the combination of Thimet 10G @ 10 kg/ha as SA + Captan 3 g/kg seed proved to be the most effective in reducing the plant mortality and increasing the crop yield followed by soil application of Thimet 10G @ 10 kg/ha alone.

Plant mortality due to the synchronous attack of pea stem fly (*Ophiomyia phaseoli*) and wilt caused by *Fusarium oxysporum* is a recurrent problem in the early sown peas in northern India. The infested plants show the presence of either stem fly pupae or galleries formed by insect (Singh *et al.*, 1989). *Fusarium oxysporum* which can cause root rot or wilt in peas is seed and a soil borne fungus (Furgalwagryzacka, 1984) and often produces discolouration of vascular bundles in stem or collar regions of the plant (Tu, 1987). Though some seed treatments for the control of the problem have been attempted (Bhalla *et al.*, 1975; Kumar, 1974; Singh *et al.*, 1981, 1989 and Dhiman *et al.*, 1993) yet the success achieved remained low due to low efficacy of insecticides or due to economic reasons. In the present study, the comparative effective-

ness of some insecticides/fungicides against the incidence of stem fly and wilt complex was evaluated under field conditions.

The studies were carried out at PAU, Regional Research Station, Gurdaspur in 1998 and 1999 with nine treatments (Table 1). The experiment was conducted in randomised block design with three replications. The plot size was 4.5m x 4.2m with inter and intra row spacings of 30 cm and 10 cm, respectively. The crop (E-6) was sown in the last week of September. The per cent of plant mortality was estimated by counting the healthy and wilted plants at five days intervals starting from the last week of October. Data on pod yield/plot was recorded at the time of harvest. Thus, data obtained on per cent plant mortality and yield were subjected to statistical analysis.

**Table 1.** Chemical control of pea stem fly and wilt complex of peas.

Treatment	Dose	Method of application	Plant mortality (%)		Yield/plot (g)	
			1998	1999	1998	1999
1	2	3	4	5	6	7
Formaldehyde	1.0%	Soil fumigation	26.76 (5.21)	26.90 (5.23)	840.00	861.33
Bavistan	3g/kg seed	Seed treatment	29.86 (5.56)	29.94 (5.53)	860.00	880.00
Captan	-do-	-do-	31.19 (5.62)	31.10 (5.59)	865.00	847.00
Bavistan + Captan	1.5g + 1.5g/ kg seed	-do-	30.34 (5.55)	30.58 (5.58)	2000.00	1983.33

(Contd.)

1	2	3	4	5	6	7
Chlorpyrifos	5 ml/kg seed	-do-	34.76 (6.15)	37.40 (6.22)	2100.00	2396.66
Chlorpyrifos + Bavistin	5 ml +3 g/ kg seed	-do-	26.14 (5.15)	28.15 (5.08)	3366.00	2136.66
Thimet 10 G	10 kg/ha	Soil application	10.53 (3.36)	10.66 (3.31)	3333.00	3423.33
Thimet 10 G + Captan	10 kg/ha + 3g/kg	Soil application + seed treat.	5.75 (2.50)	6.01 (2.60)	4266.66	4343.33
Control	-	-	46.25 (6.83)	48.33 (6.75)	747.33	775.00
CD at 0.05	-	-	(0.30)	(0.90)	293.00	130.00

Figures in the parenthesis are  $\sqrt{n+0.5}$  transformation.

All the treatments significantly decreased the per cent plant mortality as compared with the control in both the years. Irrespective of number of insecticides/fungicides and their combination used, the combination of soil application of Thimet 10G @ 10 kg/ha + seed treatment with Captan @ 3g/kg seed proved to be the most effective treatment which significantly decreased the per cent plant mor-

tality ( 5.75 and 6.01 ) in comparison to the control (46.25 and 48.33 ) in 1998 and 1999, respectively. This was followed by soil application of Thimet 10G @ 10 kg/ha alone. These treatments also increased the green pod yield significantly as compared to the control (Table 1). Similar results were reported by Dhiman *et al.* (1993).

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