EFFECT OF ROVRAL ON THE YIELD AND INCIDENCE OF *ALTERNARIA* BLIGHT OF MUSTARD

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Field experiment was conducted at Regional Agricultural Research Station, Ishurdi, Bangladesh during rabi, 1991-92 to find the effect of number of rovral sprays on incidence of *Alternaria* blight and yield of mustard cv. Tori 7. One, two, three and four sprays were applied at 10 days interval. The highest seed yield of 1483.3 kg ha^{-1} was obtained from four sprays which was statistically similar to that with three sprays.

INTRODUCTION

There are about 14 diseases occurring on mustard in our country (Hossain *et al.*, 1992). Among them, *Alternaria* blight (*Alternaria brassicae* Berk, Sacc.) is widespread and the most damaging foliar disease. The disease causes leaf blight, pod blight and seed abnormalities (Howlidar *et al.*, 1991). It has been reported to cause 30-100% crop loss due to this disease (Fakir, 1980). Earlier studies showed that the fungicide rovral 50 WP was effective against the disease (Anonymous, 1986). The present study was undertaken to determine the number of sprays to obtain the highest degree of effectivity in reducing the disease incidence and maximizing the yield.

MATERIALS AND METHODS

The experiment was conducted at Regional Agricultural Research Station, Ishurdi, Bangladesh during rabi 1991-92. Variety Tori 7 (susceptible) was used for this study. The soil was sandy clay loam with pH 6.5. The crop was sown on November 5, 1991 in 4 x 4 m^2 plots in randomised complete block design with four replications of the following treatments:

T1 = Foliar spray of rovral (0.2%) once at the first appearance of the disease.
T2 = Spraying of rovral twice at 10 days interval.
T3 = Spraying of rovral thrice at 10 days interval.
T4 = Spraying of rovral four times at 10 days interval.
T5 = Control simple water sprays at 10 days interval up to the latest spray.

The land was fertilized with 120, 80, 60, 40 and 4 kg of N, P, K, S and Zn ha^{-1}. Half of the quantity of urea and entire P, K, S, Zn were applied at the time of final land preparation. The rest of N as urea was applied in two equal splits, once at active vegetative stage (pre-flowering) and another at flowering stage. The crop was irrigated thrice at 25, 35 and 45 days after sowing. The first spray was given just after appearance of the disease and subsequent sprays were given at an interval of 10 days. Data on the incidence of *Alternaria* blight was recorded following 0-8 scoring scale (Anonymous, 1986) one week before harvest of the crop. Number of spots per siliqua was recorded from ten randomly selected plants at harvesting time. Data on seed yield $plot^{-1}$ and 1000-seed

weight. The treatment means were compared by Least Significant Difference (LSD) test (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

The incidence of disease decreased significantly with an increase of number of rovral spray (Table 1). The lowest incidence was recorded in plot receiving four sprays while the plot receiving only one spray had the highest incidence among the sprayed plots. However, the incidence in unsprayed plot, was significantly higher than all the sprayed plots. Similarly, the number of spots per siliqua was the lowest in four times sprayed plots, increases gradually as the number of sprays decreases.

1416.7 kg ha^{-1} (Table 1).

Regarding 1000-seed weight also the four spray produced mathematically the highest (3.4 g) weight which is statistically at par with that with three sprays (Table 1). Among those of the two, one and unsprayed plots, 1000-seed weight did not differ significantly. Number of seeds per siliqua ranged 15.1 to 18.3 i.e. higher the number of sprays the higher is the number of seeds per siliqua.

Rovral spray increased 3.47 to 32.03% seed yield over the control (Table 1). Although, four sprays out yielded, yet the yield increased with three sprays (28.77%) closer to the four sprays (32.02%). However, application of only one spray resulted the lowest increase in seed yield (3.47%).

Table 1. Effect of number of rovral foliar sprays on incidence of *Alternaria* blight, yield and yield components of mustard

Treatment	Disease incidence	Number of spots $siliqua^{-1}$	Number of seed $siliqua^{-1}$	1000-seed weight (g)	Seed yield (kg ha^{-1})	Yield increased over control (%)
Four sprays	2.2	8.0	18.3	3.4	1483.3	32.02
Three sprays	3.2	11.0	17.6	3.1	1416.7	28.77
Two sprays	4.2	15.7	17.0	2.7	1308.3	22.93
One spray	5.3	16.7	15.2	2.5	1066.7	3.47
Control (Water spray)	6.7	22.3	15.1	2.3	1008.3	-
CV (%)	7.28	19.06	4.76	7.37	3.67	-
LSD (0.05)	0.6	5.3	1.5	0.4	86.8	-

Seed yield of mustard increased significantly with the application of two, three and four sprays. There was no significant difference between seed yield of unsprayed and that from plots are sprayed. Although, there was no statistical difference between the seed yield of four and three sprays yet the four sprays yielded the highest (1483.3 kg ha^{-1}) while the three sprays produced

Alternaria blight of mustard is a disease against which there is no available source of resistance nor there is any other method of control except chemical spray. Studies were conducted to control the disease by spraying the crop with fungicides in which rovral was found the most effective (Ahmed, 1986). Results of the present study reveal that spraying rovral three or four times can pro-

duce maximum seed yield. Indication of earlier studies also corroborate the findings (Anonymous, 1986).

Apparently applying four or three sprays is more effective than two or one spray. In other words, spraying four or three times saved the loss of 32.03 % or 28.77% seed yield, respectively. Losses in seed yield due to this disease has been reported to be 25-46% (Kolte *et al.*, 1989). It could be concluded from the present study that the number of rovral sprays had significant effect in reducing the incidence of *Alternaria* blight, three and four sprays offered optimum. However, efficiency of higher number of sprays may be investigated further.

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