

ESTIMATION OF YIELD LOSSES TO INDIAN MUSTARD (*BRASSICA JUNCEA*) DUE TO SCLEROTINIA STEM ROT

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Sclerotinia stem rot has now days become one of the serious diseases of rapeseed-mustard in India causing considerable yield losses. Plants affected at flower initiation stage or some time earlier stages of plant growth were unable to produce seed, i.e., complete yield loss (100 per cent yield loss). Average per plant yield of diseased plants was 7.55 gram, which were affected after flower initiation and up to the completion of flowering or even after these crops stages also, while the average per plant yield of healthy plants was 15.5 gram. Percentage yield loss of mustard crop due to the disease was 50.88 per cent.

Keywords : Indian mustard; Sclerotinia stem rot; Yield losses.

Sclerotinia stem rot disease is caused by *Sclerotinia sclerotiorum* (Lib.) de Bary has now become a serious disease of rapeseed-mustard group of crops in India in recent years although its occurrence was reported by Shaw and Ajrekar¹. However, serious infection of disease was first time reported from Pusa by Saharam² and since then the malady has been observed in other parts of the country. Shukla *et al.*³ reported up to 35 percent yield loss due to this disease. However premature ripening of the affected plants may cause additional yield losses due to shattering of siliquae. Simple method of yield loss estimation has not been reported by earlier workers, therefore, an attempt has been made to evaluate the losses in yield through a simple method (on basis of hundred plant yield of various categories) by using susceptible variety namely RH-30. This will help to extension and research workers and other people to assess yield losses on field scale for prediction the production of rapeseed-mustard.

Mustard mono cropping is predominant in Bharatpur and adjoining areas. Similar situation is also prevalent at National Research Center on Rapeseed-Mustard, Bharatpur. Some of the fields develop the problem of Sclerotinia stem rot considerably during 1998-99. Infection level varied from field to field and even in a field

also. Most of the released varieties of Indian mustard are susceptible to this disease and susceptibility level varies from variety to variety. Some of the fields of the variety RH-30 were identified in the centre, where Sclerotinia stem rot infection was more Randomly one hundred plants were selected of each category at the time of physiological maturity:

I Healthy plants;

II Diseased plants (infected from flower initiation stage or later);

III Diseased plants (infection starts on or before flower initiation).

The plants were harvested separately and the yield of each plant was recorded individually. The mean yield of 100 plants in each category was calculated (Table 1). The percentage of losses incurred as a result of the disease were calculated from the yield of healthy plants

It is evident from the Table-1 that the average per plant yield of healthy plants was 15.37. No seed formation was observed when the infection started on or before flower initiation, this indicate 100 per cent yield losses in comparison to healthy plants yield. Percentage of yield loss due to disease was 50.8 per cent when plants were infected from flower initiation.

Further distinct categorization was not feasible

Table 1. Yield losses due to Sclerotinia stem rot .

Category of the plant	Average yield per plant (g)	Yield losses
Healthy plants	15.37	0.00
Diseased plants (infected from flower initiation)	7.55	50.88
Diseased plants (infection on or before flower initiation)	No seed formation	100.00

among the plants in which infection start after flower initiation to cessation of flowering, therefore, all were placed in this category. These results will useful in estimating yield losses on a field scale and finally the production of the mustard on a regional basis may also be predicted.

References

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