

Effect of Date of Sowing on Incidence of Greengram Powdery Mildew

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Abstract : Effect of date of sowing on the severity of mildew on two varieties was tested at the University of Agricultural, Sciences, Dharwad during Kharif, 1988. The crop was sown at fortnightly interval starting from June, 8. When assessed on 40th day after sowing, mildew severity was 0, 22.9, 52.3 and 56.8 per cent on KDM-1 and 0, 24.4, 49.7, and 58.1 per cent on china-mung on 1st, 2nd, 3rd and 4th fortnight, respectively.

Introduction

Powdery mildew of greengram (*Vigna radiata* (L) Wilczek) caused by *Erysiphe polygoni* DC has attained serious dimensions in Karnataka and other greengram growing states affecting grain yield markedly, due to reduction in photosynthetic activity and physiological changes (Legapsi et.al., 1978). Sivarpakasam et.al. (1981) working with greengram powdery mildew reported low incidence of powdery mildew on early sown crop and severe incidence on late sown crop. The information on the incidence of greengram powdery mildew sown at different dates and also the influence of meteorological parameters on powdery mildew development will be useful to adjust the sowing time for (i) growing good crop under very low powdery mildew pressure and (ii) screening greengram genotypes for resistance under high powdery mildew pressure under natural conditions. Hence, with these objectives, a field trial was conducted at Main Research Station, UAS, Dharwad, from June to July (1988) to assess the powdery mildew incidence on the crop and the relationship of meteorological parameters.

Material and Methods

The trial was conducted in factorial RBD with three replications. Two factors viz., four dates of sowing - June 8, June 23, July 8 and July 23 and varieties KDM-1 and China-Mung were considered. Each replication consisted of eight plots (treatment combinations). The plot size was 3.0 m x 2.4 m with 30 x 10 cm spacing. Recommended package of practices were followed to raise the crop. Observations of five plants with six leaves each i.e. two from bottom, two from middle and two from tip portion were recorded at flowering and pod maturity stage (i.e. about 40 and 65 days) after sowing using 0-5 scale where 0 = no infection, and the scores of 1, 2, 3, 4 & 5 indicated less than 1, 1-25, 26-50, 51-75 and 76-100 per cent area covered, respectively. Per cent disease index was calculated according to Sivaprakasam et al. (1981)

Results and Discussion

The results on the incidence and severity of greengram powdery mildew at different dates of sowing on varieties KDM-1 and Chinamung in relation to meteorological parameters are presented in the Table. The disease index for different sowing dates was significantly on 40 day

Table . Effect of dates of sowing on appearance and per cent severity of greengram powdery mildew

Sowing Dates	Variety	Disease appeared at (days after sowing)	flowering stage (48 DAS)	pod maturity stage (65 DAS)	Yield (q/ha)	Per cent reduction over first sowing	Mean minimum temp. (°C)	Mean maximum temperature (°C)	Relative humidity (%)	Total rainfall (mm)
D-I										
8th June	KDM-1	52	0.0 (0.0)	65.55 (54.87)	8.48	-	20.10	25.25	82.5	319.00
	China mung		0.0 (0.0)	64.99 (53.74)	8.03	-				
D-II										
23rd June	KDM-1	37	15.88 (22.94)	68.14 (54.51)	5.31	37.38	20.25	25.80	81.00	317.40
	Chinamung		17.22 (24.43)	61.29 (52.53)	5.37	33.12				
D-III										
8th July	KDM-1	22	62.59 (52.30)	69.44 (56.62)	4.79	43.51	20.10	27.00	82.00	353.60
	Chinamung		69.11 (49.75)	71.85 (58.00)	4.42	44.95				
D-IV										
23rd July	KDM-1	15	66.77 (56.89)	70.36 (57.09)	1.23	85.49	20.20	28.25	83.50	287.70
	Chinamung		68.88 (58.51)	69.44 (56.44)	0.97	87.92				
S.E.m. ±		2.06	1.15	0.20						
C.D. at 5%		4.43	-	0.61						

* Figures in parentheses show are sin values.

old crop. the appearance of the disease at different dates of sowing varied. It appeared after 52 days, 37 days, 22 days and 15 days in first, second, third and 4th sowing dates, respectively. There was no significant difference between disease index on varieties KDM-1 and Chinamung. The grain yield in all the dates of sowing was significantly different from each other i.e., it was high in earlier sown crop. The varieties KDM-1 and Chinamung did not differ significantly from each other i.e. it was high in earlier sown crop. The varieties KDM-1 and Chinamung did not differ significantly with each other for grain yield.

In order to relate meteorological parameters with incidence and severity of the disease, mean temperature, relative humidity and total rainfall during the growth period for each sowing date were recorded and presented. Mean minimum temperature (20.1°C to 20.2°C) and relative humidity of 82.5 to 83.5 per cent helped to develop the disease at faster rate and to cause an infection at earlier stages of crop growth in late sown crop.

Date of sowing is one of the cultural practices followed to minimise the loss due to disease by disease escape mechanism. Generally, early

sown crop escapes from the disease although in later stages, the disease may make its appearance without marked effect on the grain yield. In the present investigation, the data indicated that in early sown crop, the appearance of the disease was late as compared to late sown crop.

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