

## Efficacy of Some Chemicals in the Control of Blackgram *Vigna mungo* (L.) Hepper) Powdery mildew (*Erysiphe polygoni* DC.)

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Benlate, Sulphur dust and Wet Sulphur controlled the powdery mildew of black gram (*Vigna mungo* (L.) Hepper) better than other chemicals. Application of Sulphur dust and Wet Sulphur brought about an increase in yield by 47.3 and 45.9 per cent respectively and resulted a net profit of Rs. 200 and 187 per ha respectively over the control.

The incidence of powdery mildew disease of black gram (*Vigna mungo* (L.) Hepper) cause by *Erysiphe polygoni* DC. is commonly observed in Tamil Nadu. The pathogen has a wide host range. The present study reports the efficacy of certain chemicals on the control of the disease.

### MATERIAL AND METHODS

An experiment in randomized-block design, having 10 treatments with 3 replications, was laid out with Co 1 black gram, raised with a spacing of 45x15 cm.

The treatments were: Sulphur dust 25 kg/ha, Wet Sulphur 3.75 kg/ha, Benlate (methyl 1- (butyl carbomoyl)-2- benzimidazole carbamate) 0.375 kg/ha, Morestan (6 methyl-quinoxaline-2, 3-dithiol - cyclicarbonate) 0.375 kg/ha, Karathane WP (dinitro 1 methyl heptyl

phenyl crotonate) 0.5 kg/ha, Dithane Z. 78 (zinc ethylene bisdithiocarbamate) 1.5 kg/ha, Dikar (dithiocarbamate with dinitrophenyl crotonate and dinitrophenol+ Zinc ion) 0.325 kg/ha, Aureofungin (a product of *Streptomyces Cinnamomeus* var. *terricola*) 10 gm/ha and Vitavax (2, 3,-dihydro-5-5 - carboxanilido - 6 methyl-1, 4 - oxathin) 0.750 kg/ha. The chemicals except Benlate, were applied twice, once at the time of appearance of disease (about mid - November) and again a fortnight later, while Benlate was applied only once at the time of the appearance of the disease. The spray formulations were applied at 750 litres per ha and the dust formulation at 25 kg per ha. Observations on the disease intensity were recorded a fortnight after the last spray using a scale of 0.4 (as indicated below) on 100 random plants in each treatment.

Infection	Grade	Symptoms
No infection	0	No disease symptom
Poor	1	Few small spots scattered on leaves
Medium	2	50 per cent of the area of leaves covered with powdery mildew.
Heavy	3	75 per cent of the area of leaves covered with powdery mildew.
Very heavy	4	100 per cent of the area of leaves covered with powdery mildew; stem and pods also infected.

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The disease index was transformed to percentage of disease intensity. The percentage of disease control and the percentage deviation in yield were calculated.

## RESULTS AND DISCUSSION

In yield as well as in the reduction of disease intensity, all the treated plots showed significant superiority over the control plot (Table 1). Among the chemicals, Benlate proved to be significantly superior to the others, followed by Sulphur dust and wet sulphur in reducing the disease incidence. With regard to yield, the maximum was obtained with sulphur dust. This was however, on a par with the yields obtained with wet sulphur, Benlate, Morestan, Karathane Dithane Z.78 and Dikar. The economics of the chemical applications were worked out on the basis of prevailing market rates of black gram and cost of the chemicals and labour. The highest net additional profit of Rs. 200 was realised with two applications of Sulphur dust, while with wet sulphur the profit was Rs. 187 per ha compared to the control plot. Hence sulphur dust or wet sulphur can be recommended to be used for the control of black gram powdery mildew, as it is positively remunerative.

The efficacy of Benlate for the control of powdery mildews has been reported (Johnston 1969, Jhooty and Behar, 1972). Schroeder and Providenti (1969) reported a race of powdery mildew of cucurbits which was resistant to Benlate. However, the present study showed that a race of powdery mildew *Erysiphe polygoni* prevalent in this region on black gram can be effectively controlled with Benlate, Mathur *et al.*, (1972) reported that 2 sprays of Thiovit and Morestan greatly helped in controlling the powdery mildew of pea caused by *E. polygoni*. Slight phytotoxicity was observed on black gram plants treated with Morestan. However no such phytotoxicity was reported on pea plants at similar concentrations of Morestan (Mathur *et al.*, 1972).

## REFERENCES

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\*Transformed values

Chemical/ Effect	Benlate	Sulphur dust	Wet. sulphur	Kara thane	Morest- an	Dikar	Aureo fungin	Dithane Z,78	Vita- vax	Control (No. treat ment)	CD at 5%
Disease intensity	15.33	27.60	28.70	37.20	39.30	41.80	51.77	51.80	53.50	59.63	7.13
Yield Kg/ha	311	324	321	294	301	274	259	281	242	220	56
Net profit Rs/ha	125	200	187	90	113	65	—	83	—	—	—