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EFFECT OF SYSTEMIC CHEMICALS AND MUSTARD INTERPLANTING ON THE CONTROL OF *MELOIDOGYNE INCOGNITA* IN GRAPEVINE

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The root-knot nematode, *Meloidogyne* spp., occurs in horticultural crops, especially vegetables and fruits in Tamil Nadu. *Meloidogyne incognita* causes severe damage to grapevine, papaya and other fruit crops. Raski *et al.* (1965) found *M. thamesi* and *M. incognita* associated with grapevine and reported that *M. incognita* caused severe damage to the plant. The systemic nematicide aldicarb was found to reduce the root-knot nematode populations in vineyards and to increase the yield (Rajendran and Naganathan, 1978). The present study investigated the effect of granular systemic nematicides and interplanting of mustard on the control of *M. incognita* (Kofoid *et* White) Chitw. in grapevine cv. Muscat of Hamburg.

The experiment was conducted in two vineyards 5 and 7 years old. Vines showing uniform infestation of galled roots were selected and the experiment was arranged in a randomised block design replicated five times. The plot size was 3×2 m with a spacing of 1.5 m between rows and 1 m between plants. In the 7-year old vineyard systemic chemicals carbofuran 3G and phorate 10G were applied at 2 g a.i./vine in a circular band 10 cm deep and 30 cm from the stem on the day following pruning of the canes. The band of nematicide was covered with soil and irrigated. Black mustard was interplanted on the same day by broadcasting 20 g of seed/plot and the plots were irrigated together with the untreated plots. In the 5-year old vineyard the systemic chemicals carbofuran 3 G, aldicarb 10G, UC 54229 3G and disyston 5G were applied at 2 g a.i./vine as indicated above.

Root samples were collected from plots before treatment then 30 and 60 days after treatment and at harvest. The samples from each plot were thoroughly mixed and one g of roots was stained with acid fuchsin lactophenol and cleared in plain lactophenol. The number of females i.e., root-knot galls/g was counted at each sampling. Fresh fruit weights were recorded at harvest. Eventual residues of carbofuran and phorate were checked in the first harvested fruits by gas chromotography-N and Flame Photometer Detector methods.

The root-knot populations were considerably reduced by the treatments. There was a significant reduction of root galling 30 and 60 days after treatment in plots treated with carbofuran, aldicarb, disyston and UC 54229 compared with untreated (Tables I and II). There was no reduction of population in roots in the plots treated with phorate or interplanted with mustard (Table I). A significant increase in fruit weight was recorded in plots treated with all the nematicides except phorate. There were no residues of carbofuran or phorate detected in harvested fruits.

TABLE I - *Effect of nematicidal treatments and mustard interplanting on the control of* Meloidogyne incognita *in a 7-year old vineyard.*

Treatments	Females/g root				Yield kg/plot
	Initial	30 days after treatment	60 days after treatment	At harvest	
Carbofuran	36.3	58.0	70.0	109.4	14.3
Phorate	33.6	97.2	124.4	127.4	13.4
Mustard interplanting	31.0	87.4	112.0	124.2	11.5
Untreated	33.6	98.2	103.0	114.2	11.2
L.S.D. (P=0.05)	N.S.	31.0	29.8	N.S.	2.39

TABLE II - *Effect of nematicidal treatments on the control of* Meloidogyne incognita *in a 5-year old vineyard.*

Treatments	Females/g root				Yield kg/vine
	Initial	30 days after treatment	60 days after treatment	At harvest	
Carbofuran	17.8	14.6	18.0	31.0	3.6
Aldicarb	21.0	13.2	22.4	28.6	3.3
UC 54229	16.8	12.6	23.0	39.8	3.2
Disyston	16.0	17.4	27.0	44.2	3.7
Untreated	15.8	34.2	44.6	39.0	2.7
L.S.D. (P=0.01)	N.S.	7.99	8.9	N.S.	0.131

Literature cited

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