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EFFECT OF NEMATICIDAL TREATMENTS AGAINST  
*MELOIDOGYNE INCOGNITA* ON MUNG (*PHASEOLUS AUREUS*)  
AND ON BACTERIAL NODULATION

by

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Mung bean (*Phaseolus aureus* Roxb.) is an important pulse crop in India and is highly susceptible to root-knot nematode, *Meloidogyne incognita* (Kofoid *et* White) Chitwood. As little work has been done on the control of this nematode pest on pulse crops, an experiment was undertaken to determine the effect of different applications of a range of nematicides on the yield of mung bean and on bacterial nodulation.

*Materials and methods*

The experiment was undertaken in the pulse experimental area of Punjab Agricultural University, Ludhiana in a sandy loam, heavily infested with *M. incognita*. The chemicals used and their rates of application are listed in Table I. The experiment was arranged as a randomized block with plots 5 x 5 m and each treatment was replicated four times. Mung bean cv. ML-5 seeds inoculated with a lignite based culture of *Rhizobium phaseoli* were sown on 19th July, 1977. DBCP was applied in irrigation water 15 days before sowing. The granular nematicides were applied in the furrows at sowing time and a second application was made to the soil around the base of plants one month later. Nodulation and galling of the root were recorded on five randomly selected plants per plot 50 days after

Table I - Effect of some nematicides on bacterial nodulation, root-knot galling and yield of mung.

Treatment	Dosage L or kg/ha	Number of nodules per plant	Root-knot index	Yield kg/ha	% increase in yield
DBCP *	6	29.2	0.7	590	75.0
Aldicarb	2 + 0	35.2	0.7	517	53.4
Aldicarb	1 + 1	38.2	2.2	580	72.1
Aldicarb	0 + 2	29.2	1.3	510	51.3
Carbofuran	2 + 0	27.2	0.6	575	70.6
Carbofuran	1 + 1	30.2	2.3	450	33.5
Carbofuran	0 + 2	25.5	2.6	387	14.8
Fensulfothion	2 + 0	21.1	1.1	427	26.7
Fensulfothion	1 + 1	31.2	1.2	452	34.1
Fensulfothion	0 + 2	23.1	1.9	435	29.8
Control	—	23.8	2.7	337	—
C.D. at 5%	—	N.S.	0.8	138	—

\* DBCP (Nemagon 60% E.C.) applied at 6 l a.i./ha. Each granular nematicide was applied at 2 kg a.i./ha either in single application (2+0 or 0+2) or as a split application (1+1).

sowing. Galling was rated on a scale 0 (no galling) to 4 (severe galling) (Alam *et al.*, 1973). The plants were harvested on 5th October, 1977 and the yields were recorded.

### Results and discussion

DBCP was the most effective treatment with 75 per cent increase in yield and decreased galling compared with the control. Aldicarb was most effective as a split application in respect of yield but the root-knot index of this treatment was not significantly decreased. Carbofuran and fensulfothion were less effective and generally did not significantly differ from the control. None of the treatments had any significant effect on bacterial nodulation. However, the number of nodules per plant tended to be higher in the aldicarb, carbofuran and fensulfothion split treatments suggesting a stimulatory effect of the pesticides at the lower dosage. At higher dosage rates, an inhibitory effect on bacterial nodulation of leguminous plants has been observed (Singh and Prasad, 1973; Tewfik *et al.*, 1975).

## L I T E R A T U R E   C I T E D

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