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REDUCTION OF *TYLENCHULUS SEMIPENETRANS*
COBB IN CITRUS PLANTATION
WITH ALDICARB AND CARBOFURAN

by

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Slow decline of citrus caused by *Tylenchulus semipenetrans* is a major problem in Pakistan. Reports on the occurrence and damage caused by the nematode to citrus plantations in Punjab have shown it to be a serious pathogen (Brown, 1962; Akhtar and Hussain, 1968; Riaz and Khan, 1974; Maqbool, 1984). Despite the seriousness of the problem there have been no investigations on control, although the possibility of using nematicides in this country was considered (Brown, 1962). We have investigated the possibility of control with two granular nematicides, aldicarb and carbofuran.

Materials and Methods

The investigation was made in a twelve year old sweet orange cv. Mitha plantation infested with *T. semipenetrans* at Bhalwal, Punjab. The experiment consisted of five treatments arranged in a randomized block. The trees were planted at 6×6 m spacing and each plot consisted of two rows of five trees. There were three replicates of each treatment.

Two doses of aldicarb and carbofuran at 20 g a.i. and 30 g a.i./tree were applied in bands in April 1985 and thoroughly mixed into the soil, which was then irrigated. Ten samples were taken from each plot before treatment and then at 2,4 and 6 months after treatment. Nematodes were extracted from the samples by the sieving/funnel method. At harvest in the first week of October 1985, the total number of fruits and weight of fruit per tree were recorded.

Results and Discussion

Pre-treatment populations of *T. semipenetrans* averaged 5000/100g of soil and were more or less uniformly distributed throughout the plots. All the nematicidal treatments caused a significant reduction in the numbers of nematodes at 2 months after application (Fig. 1). Aldicarb of 30 g a.i./tree had the greatest effect. In the untreated soil the number of *T. semipenetrans* juveniles remained at a level of 5267/100 g throughout the six months period of the experiment. In the treated plots the numbers of juveniles increased linearly from the 2nd to the 6th month, indicating a short term nematode control in the soil.

All the treatments resulted in significantly higher yields of fruit than in the untreated control (Table I). This was achieved by an increase in the number of fruits per tree but in the aldicarb treatments the average fruit weight was also greater than the carbofuran treatment and the control. However, no significant differences in numbers of fruit and fruit weight were observed between aldicarb and carbofuran treatments. The nematicides did not completely eliminate citrus nematode from the soil but reduced populations to a low level which helped control the slow decline of citrus and achieve improved yields of fruit.

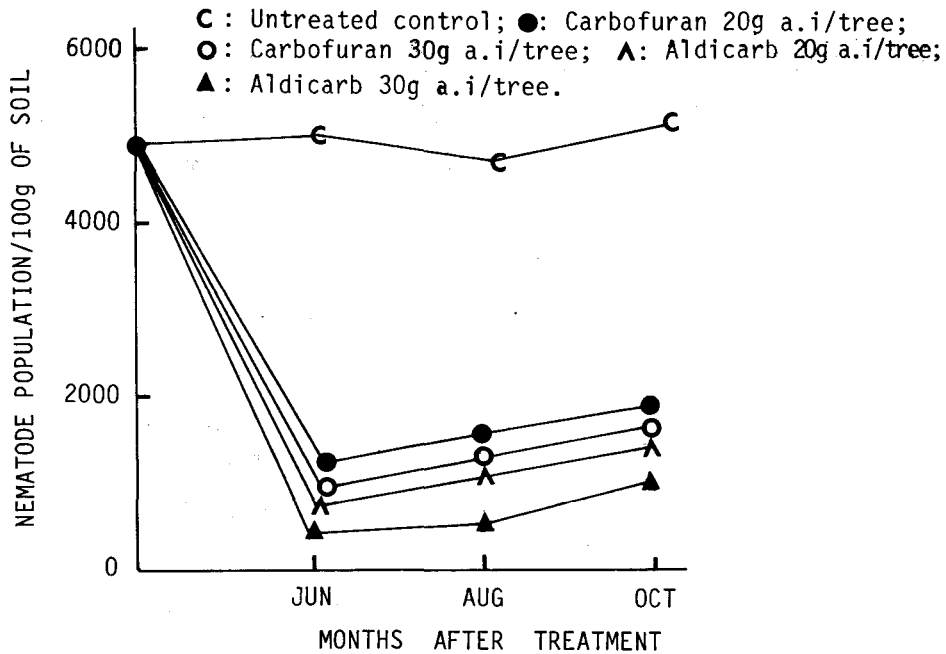


Fig. 1 - Reduction in number of *T. semipenetrans* juveniles after nematicide application.

Table I - Effect of nematicides on yield of sweet orange cv Mitha.

Treatment	Dose g a.i./plant	No. fruits/plant		Wt. fruit/plant kg	
Aldicarb	20	1064	ab	133.6	a
Aldicarb	30	1185	a	147.3	a
Carbofuran	20	940	b	102.6	ac
Carbofuran	30	1063	b	117.0	a
Control	—	800	c	84.9	bc
LSD 0.05	—	122		42.72	

Means not followed by the same letters are significantly different at least at $P=0.05$ as determined by the New Duncan multiple range test.

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