S. L. J. Tea Sci. 56 (2), 95 - 97, 1987, Printed in Sri Lanka.

CONTROL OF ROOT-LESION NEMATODE, *PRATYLENCHUS LOOSI* IN CONTAMINATED TEA NURSERY PLANTS

Nalini C. Gnanapragasam, A. S. Jebamalai and V. T. Anpalagan
(Tea Research Institute of Sri Lanka, Talawakele, Sri Lanka)

Although complete eradication of nematodes from contaminated nursery plants was not possible by chemical treatment, the treatment of nematode infested young tea plants with Fenamiphos (Nemacur-P) 5% G at the rate of 7 g per plant was observed to significantly suppress infestation up to as much as 60%. The treatment with Nemacur was also found to stimulate growth further and this was observed to be an additional bonus of such treatments.

INTRODUCTION

Since of late, several thousands of plants from nurseries in the up-country as well as the mid-country tea areas have been found to be infested with eelworms. Apart from using eelworm-infested soils and the careless handling of soil fumigants, this has often been traced to the use of eelworm contaminated water for the subsequent irrigation of nurseries (Gnanapragasam and Jebamalai, 1982).

Although many estates are now taking care to avoid such contaminated water by following the recommendations to use sedimentation tanks (Anon, 1981), they are posed with the current problem of having to discard thousands of such contaminated plants. Quite often, contrary to our recommendations, these plants have been used in the field, resulting in the subsequent inevitable poor growth and decline in new clearings as well as in the block-infilled areas.

The present investigation was undertaken to seek a means of minimising, if not eradicating such low levels of contamination in the roots of otherwise healthy nursery plants. The removel of the nematode-induced restraining factor is critical, especially during the early phase of establishment in the field.

MATERIALS AND METHODS

Six-month-old nursery plants (clone TRI 2024) were exposed to nematode infestation for a period of 6-8 months by growing them in an area heavily infested with eelworms.

At the end of this period these plants were transplanted into large cement pots (15×15×15 cm) containing 1.25 cm layer of metal at the bottom to facilitate drainage and filled with fumigated soil (fumigated with Methyl bromide) (Sivapalan, 1969). Systemic nematicides including Nemacur (Fenamiphos), Furadan (Carbofuran) and Terracur (Fensulfothion) were incorporated into the planting hole at the time of planting at the rate of 7.0 g per plant. An untreated control was also included in this experiment. Each treatment was replicated 11 times and arranged in a completely randomised block design.

The plants were irrigated daily with clean uncontaminated water and fertilised regularly with the standard young tea fertilizer mixture T 200 (Tolhurst, 1961).

At the end of one year from treatment, the plants were removed from the pots for assessment of shoot and root weight as well as for nematode count within the roots.

The roots were washed thoroughly and a 5.0 g root sample per plant was processed for nematode recovery by the method described by Hutchinson (1962).

RESULTS

The mean shoot and root weight along with the mean nematode count per gram root of the respective treatments are presented in Table 1.

TABLE 1—*Mean shoot and root weights and Nematodes per gramme roots of infested plants treated with different granular systemic nematicides.*

Treatment	*Mean Shoot Weight* (g) $\sqrt{n}$	*Mean Root Weight* (g) $\sqrt{n}$	*Mean Nematode count/g root* $\sqrt{n}$
Nemacur 5%G ..	26.25*a**	21.44*a*	22.29*a**
Terracur 5%G ..	21.53*b*	16.80*b*	32.84*b*
Furadan 3%G ..	18.44*c*	14.16*c*	31.75*b*
Control ..	19.22*bc*	15.89*bc*	34.58*b*

* Means followed by the same letter not significantly different according to Duncan's Multiple Range Test at P = 0.05

As seen from Table 1, the infested plants treated with Nemacur showed a significant increase in shoot as well as root weight compared to the rest of the treatments.

The nematode counts in the roots of the infested plants treated with Nemacur was also found to be significantly suppressed, compared to the rest of the treatments.

DISCUSSION

None of the treatments tested in the present experiment were able to completely eradicate nematodes in contaminated plants (Table 1). The prior exposure to nematode infestation was such that the plants were heavily infested at the commencement

of the experiment. However, despite such heavy pre-exposure to infestation, the treatment with Nemacur was very promising as this treatment brought about a significant suppression of the infestation in the roots and also lead to a significant growth of both roots as well as the shoots over that of the other treatments.

The above results have now opened up a new possibility of using lightly-infested nursery plants following the above nematicidal treatment, provided the clone concerned is definitely known to be tolerant to eelworms. Nematicidal treatment should be given two months prior to planting in the field and also in the planting hole at the time of planting.

These plants should be used only as infills in areas which have a recorded history of eelworm infestation. It is very necessary to have the plants initially checked by the TRI and obtain approval that they can be used, following treatment.

REFERENCES

ANON (1981). Prevention of contamination of nursery plants with eelworms through irrigation water. Advisory Circular N 5, Serial No. 4/81. *Tea Res. Inst. S.L.*

HUTCHINSON, M. T. (1962). Rehabilitating tea soils : 1—Susceptibility of plants now in use to the root-lesion nematode, *Pratylenchus loosi. Tea Q.* **33**, 138-145.

SIVAPALAN, P. (1969). Further development in the control of the root-lesion nematode (*Pratylenchus loosi*) in tea nurseries. *Tea Q.* **40**, 111-114.

TOLHURST, J. A. H. (1961). Manuring of young tea. *Tea Q.* **32**, 152-154.