

EFFICACY AND PERSISTANCE OF SOME NEMATICIDES ALTERNATIVE TO METHYL BROMIDE

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Tomato galled roots, containing ca. 270 eggs/g of *Meloidogyne incognita*, were buried in gauze bags at the depth of 15, 30 and 45 cm in a sandy loam. The commercial liquid formulation of the nematicides 1,3 dichloropropene (at the rate of 100, 200 and 300 l/ha), metam sodium (at the rate of 500, 1,000 and 1,500 l/ha), oxamyl (at the rate of 50, 100 and 150 l/ha) and fenamiphos (at the rate of 30, 60 and 90 l/ha) were applied in 10, 20 and 40 l/m² water. Control plots received only plain water (Lamberti *et al.*, 2002).

One month later bags were recovered and roots mixed with steamed soil and potted. Two tomato seeds were planted in each plastic pot. Fifty days after sowing plants were separated and aliquots of roots were macerated in blender to determine the number of eggs and juveniles.

All nematicides significantly suppressed populations of the root-knot nematode, compared to the control. However, fenamiphos was less effective than 1,3 dichloropropene, metam sodium and oxamyl which gave similar results (Table 1).

For all chemicals degree of control increased with the increase of the rate of application of the chemical and the volume of water of application. Nematicidal effect decreased as depth of nematode placement increased (Figure 1).

Pots experiments in greenhouse indicated that fenamiphos reduced consistently development of *M. javanica* in tomato roots for at least three months (Figure 2) (Lamberti *et al.*, 2000) and oxamyl development of *M. javanica* for at least 70 days (Figure 3) (Lamberti *et al.*, unpublished).

References

- Lamberti F.; T. D'Addabbo; P. Greco; A. Carella. 2002. Efficacy of the liquid formulation of some nematicides. *Med. Fac. Landbouww. Univ. Gent*, 67/2b, 2002.
Lamberti F.; N. Sasanelli; T. D'Addabbo; A. Carella. Location and persistence of fenamiphos in the control of root-knot nematodes. *Med. Fac. Landbouww. Univ. Gent*, 65/2b, 2000.

Table 1 – Control of *Meloidogyne incognita* with liquid nematicides.

Nematicide	Eggs and juveniles/g root	Statistical significance*
Control	1,736	A
1,3 Dichloropropene	389	C
Metam Sodium	329	C
Oxamyl	386	C
Fenamiphos	1,105	B

* P = 0.01, according to Duncan's Multiple Range Test

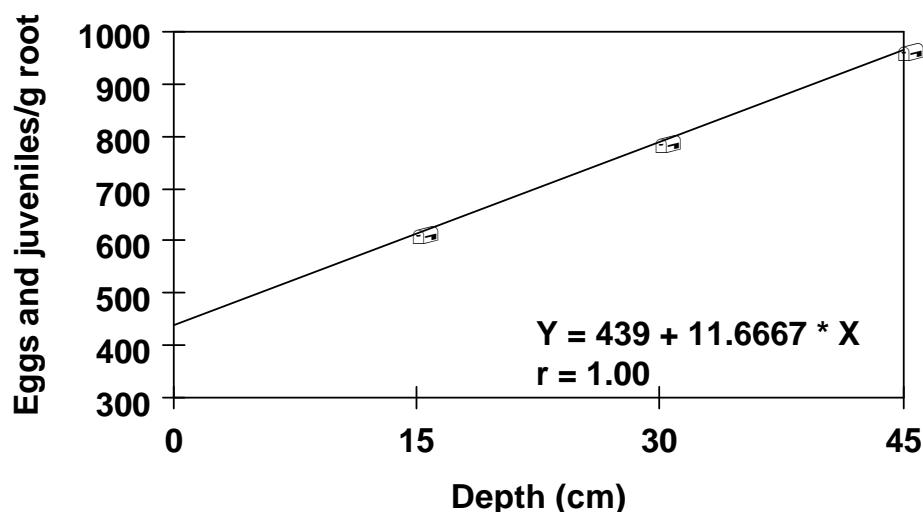


Figure 1 – Correlation between depths of nematode placement and number of eggs and juveniles occurring in tomato roots (P = 0.01).

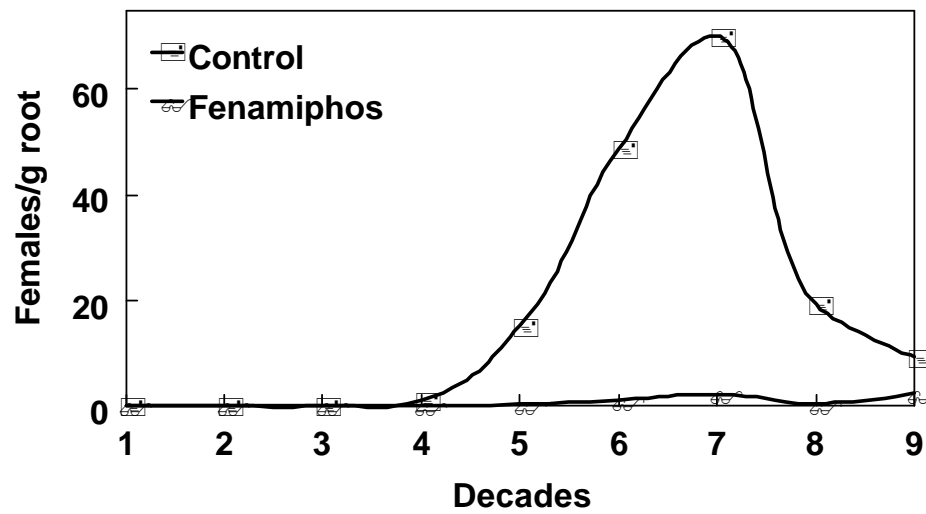


Figure 2 – Development of mature females of *Meloidogyne javanica* in tomato roots after soil applications of fenamiphos.

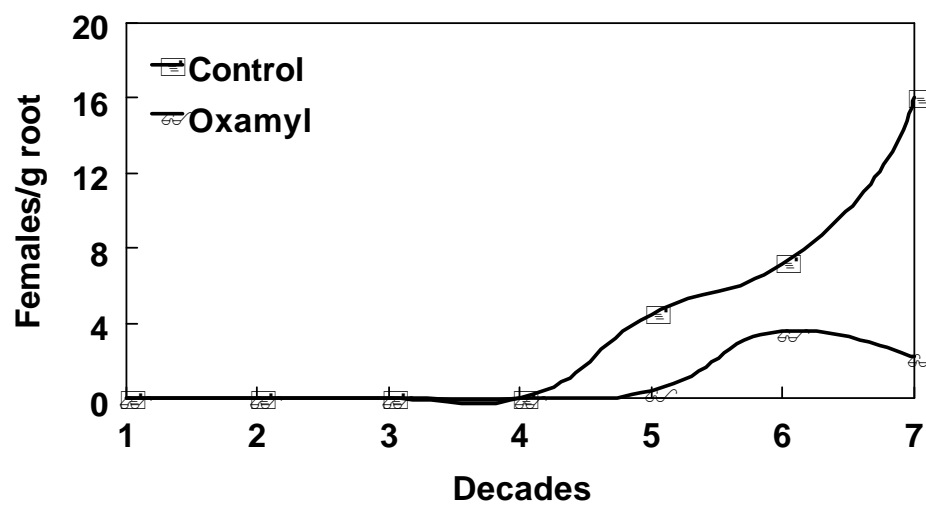


Figure 3 – Development of mature females of *Meloidogyne incognita* in tomato roots after soil application of fenamiphos.