

- Growing antagonistic plants namely *Tagetes erecta*, *T. patula* and *Crotolaria juncea* as an intercrop in banana field drastically reduces the nematode population (Fig. 5).



Fig. 5

- Application of neem cake @ 500g/ plant at planting and second after four months helps in suppressing the nematode population.
- Paring the corm surface by trimming away necrotic lesions and immersing it in hot water at 50-55°C for 30 minutes are effective to render the nematode free planting materials.
- Using the biological agents such as *Trichoderma*, VA mycorrhiza, *Glomus fasciculatum* and bacterium, *Pasteuria penetrans* are recommended to control nematodes on banana.
- Application of Carbofuran @ 30g/plant and another dose of 30g/plant, if necessary after three months of planting is recommended for the effective control of nematodes in banana.
- Complete disinfection is achieved by paring followed by a dip in monocrotophos solution at 0.5 % (14 ml in 1 liter of water) for 30 minutes and later dried under shade for 72 hours

before planting (Fig 6).



Fig. 6

- When tissue culture plants are planted apply 10g of carbofuran at planting and a 20g / plant at third and fifth months after planting

#### Host reactions

- Cavendish cultivars like Robusta, Grandnaine, Poovan, Rasthali, Ney poovan, Red banana, Virupakshi and Nendran are susceptible. Varieties like Karpooravalli, Monthan Nattupoovan, Kunnan, Pey kunnan, Pedali moongil, Yelakki bale, Pidi Monthan, Pisang Jari Buaya exhibit field tolerance.

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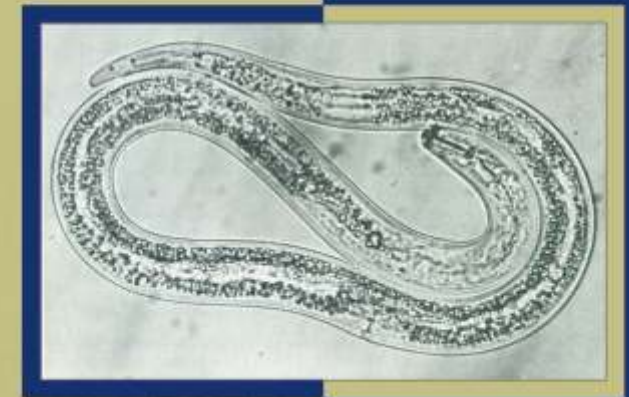
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## Burrowing Nematode of Banana

Extension Folder # 4



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## Burrowing nematode

*Radopholus similis* (Cobb, 1893) Thorne, 1949

The burrowing nematode, *Radopholus similis* is one of the most important nematode pathogens attacking banana in the inter tropical zone of production. It causes more serious damage in intensive commercial banana plantations especially Cavendish types, grown for export.

## Distribution

The burrowing nematode enjoys wide geographical distribution in the tropical and subtropical banana growing regions of the world except Africa, Central America, Israel and Taiwan. The first occurrence of this nematode was reported on banana from Palghat District of Kerala in 1966, which caused yield losses upto 41 per cent. Subsequently this nematode was reported many places of South India, Gujarat, Maharashtra, Madhya Pradesh, Uttar Pradesh, Bihar, Goa, , Manipur, Nagaland, Orissa, Assam, Tripura, Andaman and Lakshadweep Islands.

## Survival and Spread

The nematode survives in soil for eight months without host plants. It spreads rapidly from place to place through infected planting materials. The transmission of the organisms is therefore presumed to be through suckers used for propagating the crop vegetatively.

## Biology

The burrowing nematode is a migratory endoparasite which completes its life cycle

in 20-25 days in the root and corm tissues. All larval stages and females except male are infective. They invade at any portion of the root, causing more root damage and is capable of spending its entire life inside the roots.

## Symptoms

Burrowing nematode infested plants exhibit general decline, stunting, premature defoliation (Fig.1), and produce small



bunches and fruits. However, symptoms on roots and corms are more specific exhibiting small cuticular sunken lesions on young roots (Fig. 2) and on older roots, surface cracks appear.

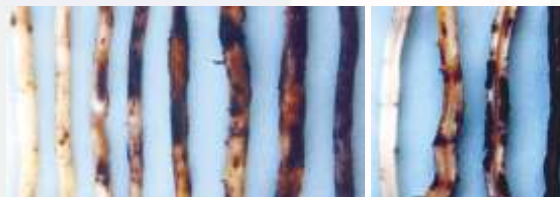


Fig. 2

Extensive reddish brown lesions appear in the cortex when cut longitudinally (Fig. 3). They cause decay and death of distal cells. The destruction of root and corm tissues reduces water and mineral uptake resulting in reduction of plant growth and development.



Fig. 3

They topple over easily during wet and windy weather because of poor anchorage (Fig. 4). Foliar symptoms of nematode damage may be similar to that of water logging, weed competition, nutrient deficiencies or other pests and diseases. Severely affected plants produce smaller bunches with ill-filled fruits.



Fig. 4

## Nematode fungal disease complex

Incidence and losses due to Panama wilt caused by *F. oxysporum* f. sp. *cabense* is enhanced in association with *R. similis*.