

PLANT PARASITIC NEMATODES

Plant parasitic nematodes feed on living roots through piercing a root cell with its stylet, injecting enzymes into the host's cell to partially digest the cell contents, then drawing back through the stylet into the nematode. Afterward, the nematode moves to the next root cell.

Plant parasitic infestation symptoms are often ambiguous and hard to diagnose due to the visual similarity to some nutrient deficiency symptoms.

Visible symptoms include yellowing, stunting, and wilting, followed by yield decline.

The most well-known plant parasitic nematodes are:

- ✓ Ring nematode
- ✓ Root lesion nematode
- ✓ Burrowing nematode
- ✓ Root knot nematode

MANAGEMENT OF COMMON PLANT PARASITIC NEMATODES

Crop rotation

Field Sanitation

Soil Solarization

2% Neem Solution

Green manuring of Sunn Hemp and Marigold in field before planting.

Synthetic Nematicides such as Vydate (Oxamyl) or Nematicide.

Managing plant-parasitic nematode populations during crop production is vital, as they reduce plant vigour and crop productivity.



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PLANT PARASITIC NEMATODES

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INTRODUCTION

Nematodes are microscopic non-segmented worms. They occupy all soil types. Generally, the soil's moisture, temperature and texture influence the ability of nematodes to move and reproduce.

Most nematodes are beneficial to plants and soil health. Some are harmful to plants.

They are classified into **non-plant parasitic** and **plant parasitic nematodes**.

Non-Plant Parasitic Nematodes

The majority of nematode species are non-plant parasite nematodes, commonly known as **"free-living"** nematodes.

These nematodes live in the soil, water and feed on organisms including bacteria, fungi, algae, insects, other nematodes and organic debris.

They have a beneficial role in the soil by maintaining a diversified soil food web.

These nematodes can control pests by attacking and killing harmful bacteria and fungus, as well as plant parasitic nematodes.

Non-plant parasitic nematodes can be divided into four principal groups based on their feeding abilities:

- ✓ **Bacterial Feeders:**
Consume bacteria as their main food source within the soil.
- ✓ **Fungal Feeders:**
Feed on fungi by penetrating and extracting contents from fungal cells.
- ✓ **Predatory Nematodes:**
Actively hunt and consume other small soil organisms, including nematodes and protozoa.
- ✓ **Omnivorous Nematodes:**
Feed on a wide range of food sources such as bacteria, fungi, algae, and other microorganisms.



Root Galls

Root Lesions

BENEFITS OF NON-PLANT PARASITIC NEMATODES

Enhance Nutrient Availability:

Improve the release of nutrients into forms that plants can readily absorb

Support Soil Ecosystem Stability:

Help maintain a balanced and functional soil environment.

Aid Microbial Movement:

Assist in distributing beneficial microorganisms throughout the soil and root zone.

Contribute to Disease Reduction:

Help lower populations of harmful organisms that affect plant health.

Boost Soil Biological Activity:

Promote a diverse and active soil food web, supporting plant growth.

Beneficial Nematodes:

- ✓ Steinernema
- ✓ Heterorhabditis
- ✓ Mononchids (Predatory)