



RESEARCH ARTICLE

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### Control Measures of Root Knot Nematodes *Meloidogyne* species in Different Field Areas of Aligarh Region

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#### INTRODUCTION:

Root knot nematodes are microscopic worms. They live in soil and feed on the roots of many plant varieties i.e. Potato, Sweet Corn, Tomato, Pepper, Watermelon, Pumpkin, Sweet Potato, Carrot, etc. Root knot nematodes are distributed worldwide and are obligate parasites of the roots of thousands of plants species including monocotyledons and dicotyledons herbaceous and woody plants. They cause injury in root tips by forming galls; it can also cause excessive branching of roots. The population depends on host crop (Sasser & Carter 1985, Siddiqui 2005). The genus *Meloidogyne* includes more than 60 species, some important species are: *M. africano*, *M. brasiliensis*, *M. coffeicola*, *M. graminicola*, *M. hapla*, *M. incognita*, *M. naasi*, *M. pini*, *M. salasi*, *M. aquatilis*, *M. floridensis*, etc. If root knot nematodes become established in deep rooted perennial crops then control of nematodes become difficult.

#### REVIEW LITERATURE:

Their main host plants are tomato, potato, arusa, koa, green onion, pineapple, barbados cherry, banana and moss rose, etc. The nematode includes both the free living and parasitic forms. They show a great diversity regarding their habits and habitats. To understand the background of root knot nematodes it is necessary to realize that Nematodes can be categorized into parasitic and free living forms. The parasitic forms observed are of the economic and social importance. Even in the parasitic forms there is a categorization into- those infecting man and animals and those infecting plants (Hussey and Grandner 1998). As the Nematodes include both free living and parasitic forms they give an idea of diversity of their habits and habitats. Root knot nematodes of genus *Meloidogyne* belongs to the family Meloidogynidae, having class- Secementea and order-Tylenchida. This genus belongs to nematoda of kingdom animalia. They exist in soil in areas with hot climates/short winters. Near about 2000 plant species are susceptible to infection by root knot nematodes. Due to this approximately 5% loss of global crops occurs (Sasser and Carter 1985).

Root knot nematodes (*Meloidogyne* spp.) are one of the three most economically damaging generation of plant parasitic nematodes of horticultural and field crops (Bhatti and Jain 1977). Root knot nematodes are obligate parasites of roots of thousands of species including monocotyledons and dicotyledons herbaceous and woody plants.

**MATERIAL AND METHODS:**

During the survey of field, we look for plants which are not growing well, during observation it was found that some plants are sicker than others. Symptoms of sick plants are stunting, yellowing, wilting, fruits are fewer and smaller. We carefully dig up some sick plants and examine the roots for the presence of galls. By digging some healthy plants we can compare their roots with those of sick plants.

Putting the sick plants with some soil from the area of digging into plastic bags for further examination. Tie the plastic bag so as soil and roots will not dry. Keeping them in shade or air-conditioned room, because exposure to direct sunlight, even for a few minutes will kill the nematodes by solarization.

**CONTROL MEASURES:**

Generally for the control of nematodes chemical nematicides are used in commercial agriculture. These are highly toxic and very expensive. These nematicides are not suitable any way for our home garden or research field. In home gardens control for root knot nematodes may involve the following techniques i.e. growing resistant varieties, good cultural practices and biological control.

**GROWING RESISTANT VARIETIES:**

Certain nematode resistant varieties for different crops are available. We should use VFN labelled varieties:

V: Verticillium wilt resistant

F: Fusarium wilt resistant

N: Root knot nematode resistant

The nematode resistant varieties perform better than susceptible varieties.

**CROP ROTATION:**

Rotation of crops with Broccoli, Cauliflower, Grain Sorghum or Millet can lower the root knot numbers. Rye may also grow as a winter cover crop for lowering the nematode population.

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