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Management of Root Knot Nematode, Meloidogyne incognita in Tuberose using Liquid Formulations of Pseudomonas fluorescens and Paecilomyces lilacinus

The yield reduction up to 20 – 40 % was noticed in the tuberose growing areas due to root knot nematode, *Meloidogyne incognita*. The infestation occurred during rainy season especially after the sucker formation. The FLDs conducted in Thirumanoor village of Panamarathupatty block of Salem Dt in an area of 4 Ha. Attempt was made to demonstrate the management of root knot nematode, Meloidogyne incognita in tuberose using liquid formulations of *Pseudomonas fluorescens* and *Paecilomyces lilacinus*. Reduction in damage due to root knot nematode was 13.5 % in demo plot as compared to 38.9 % in control.

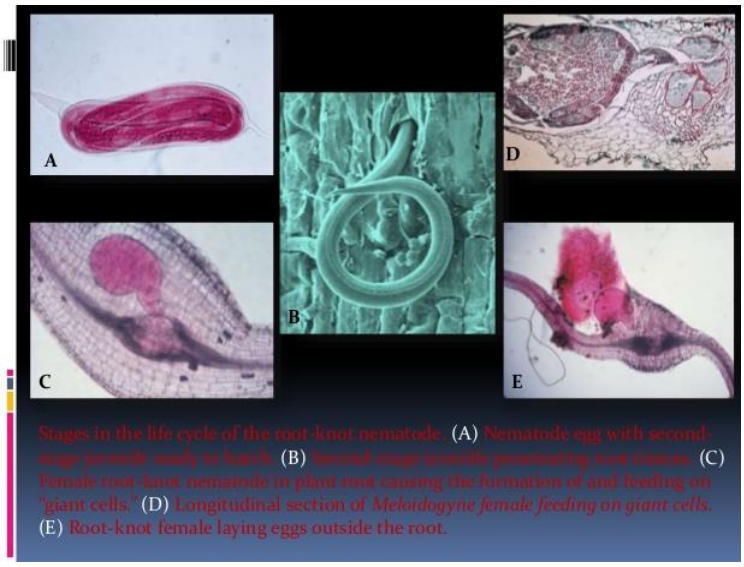
NATURE AND DEGREE OF PROBLEM IDENTIFIED

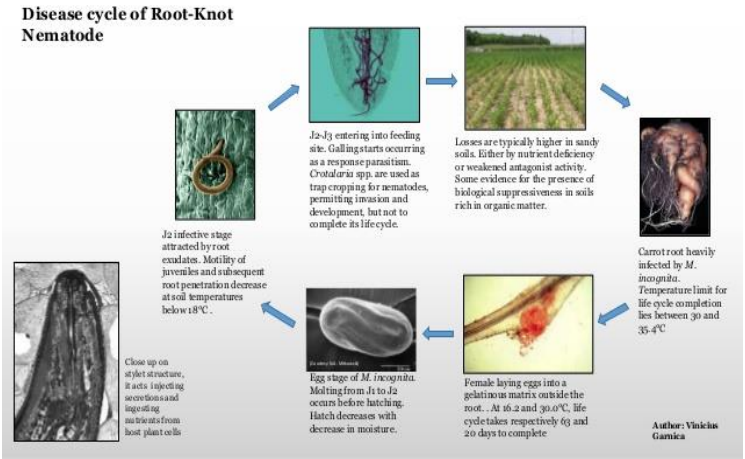
Tuberose is one the important flower crop in Salem district which has been cultivated around 400 acres (Crop stat 2011 - 12). In recent years the yield reduction up to 20 – 40 % was noticed in the tuberose growing areas due to root knot nematode, *Meloidogyne incognita.* The infestation occurred during rainy season especially after the sucker

Root knot nematode infested roots

Infested roots with nodules

formation. The nematode infested bulbs showing the symptoms of bulb rotting followed by leaf drying and finally results in complete death of plants.





Biology of root knot nematode

KVK INTERVENTION HIGHLIGHTING TECHNOLOGY

The FLDs conducted in Thirumanoor village of Panamarathupatty block of Salem Dt in an area of 4 Ha. Attempt was made to demonstrate the management of root knot nematode, Meloidogyne incognita in tuberose using liquid formulations of *Pseudomonas fluorescens* and *Paecilomyces lilacinus* in 10 farmers holdings of Thirumanoor and Kamalapatty villages of Panamarathupatty block of Salem district.

RESULTS

- The result shows that application of liquid *P.fluorescens* and *P lilacinus* reduced the root nodules due to root knot nematodes up to 16.2 nodules /plant in demo plot compared to 34.6 nodules/plant in control.
- Reduction in damage due to root knot nematode was 13.5 % in demo plot as compared to 38.9 % in control.
- Highest yield of 98.2 q/ha was attained in demonstration plot as compared to control 70.8 q/ha with Yield increase up to 38.7 % over check.

FEEDBACK FROM FARMERS

Farmers were responded positive over the technology and horizontal spread of this technology were noticed and root knot nematode management methods was accepted significantly because of increase in yield and reduced no. of root nodules/plant . Demand was raised for liquid based *P.fluorescens* and

Application of liquid bioagents through drip irrigation

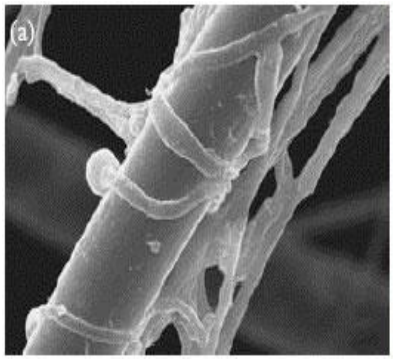
Field day at Thirumanoor

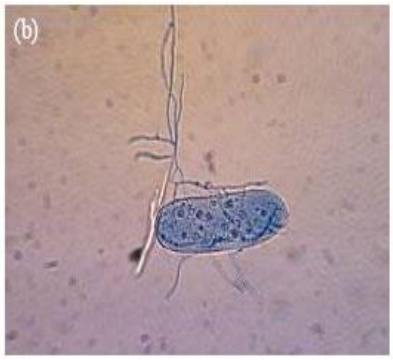
Post treatment observation

Paecilomyces lilacinus

Paecilomyces lilacinus infected nematode

Pseudomonas fluorescens





Pseudomonas fluorescens Infected nematode

Parameter with unit	Demo	Control
Root nodules /pt (Nos.)	16.2	34.6
Reduction in damage (%)	13.5	38.9
Yield (Q/Ha)	98.2	70.80
Net Return (Rs/Ha)	19610	101800
BCR	1.98	1.41

Paecilomyces lilacinus for treatments against root knot nematode and reduction of 2times application of carbofuran granules cost of Rs.4000 per ha.

CONCLUSION

The deleterious effect of root knot nematode on tuberose was completely arrested due to the application of liquid *P.fluorescens* and *P lilacinus*. The root nodules was lower in demo plot when compared to control plot. The highest yield in tuberose was recorded in demo plot with yield increase of 38.7 per cent over control with favourable B:C ration of 1.98. Due to the complete control of root knot nematode using biocontrol agents in tuberose, the demand for biocontrol agents increased among the tuberose cultivating farmers in Thirumanoor village of Panamarathupatty block and the technology horizontally spread to the nearby villages of the Panamarathupatty block.