CONTENTS

1. Introduction 1-4
2. Review of Literature 5-35
3. Materials and Methods 36-55
4. Results
   4.1. Survival 56-61
      4.1.1. Effect of soil moisture content on the survival of the root-knot nematode, _Meloidogyne triticioryzae_ without host
      4.1.2. Survival of root-knot nematode, _Meloidogyne triticioryzae_ J2 inoculated in sterilized soil at varying soil moisture level
      4.1.3. Relative desiccation survival potential of two root-knot nematode species, _Meloidogyne triticioryzae_ and _Meloidogyne incognita_
   4.2. Population dynamics 61-81
      4.2.1. Second stage juveniles in soil
      4.2.2. Bioassay
   4.3. Effect of tillage and water management on the population behaviour of root-knot nematode, _Meloidogyne triticioryzae_ in rice 81-86
      4.3.1. Field soil texture
      4.3.2. Bulk density of soil
      4.3.3. Hydraulic conductivity
      4.3.4. Population density
   4.4. Control 86-103
      4.4.1. Effect of nematicide application in nursery-beds and main field on the root-knot nematode, _Meloidogyne triticioryzae_ and performance of the rice crop
         4.4.1.1. Seedling growth
         4.4.1.2. Main crop
4.4.1.2.1. Straw and grain yield

4.4.1.2.2. Grain quality

4.4.2. Integrated management of root-knot nematode, *Meloidogyne triticoryzae* in wheat-rice cropping system by soil solarization and nematicides

4.4.2.1. Seedling growth

4.4.2.2. Main crop performance

4.5. To investigate the effect of the cyanobacteria, *Aulosira fertilissima* on hatching of the root-knot nematode, *Meloidogyne triticoryzae* and *M. incognita* 103-111

4.5.1. *Meloidogyne triticoryzae*

4.5.2. *Meloidogyne incognita*

4.6. Histopathology of wheat roots infected with *Meloidogyne triticoryzae* 111

5. Discussion 116-134

6. Summary 135-138

7. References 139-158

8. Additional Study Appendix - I