I. INTRODUCTION

Every plant on earth has its own compliment of parasitic nematodes. Some of these pests which inhabit soil, depend on growing root system of the plant for their nutrition. This relationship had paved the way for migratory ecto and endo-parasitism. Species of spiral nematodes are ubiquitous and are associated with several economic crop plants. In multicrop based agriculture these polyphagous forms are gaining special importance. The modern rice based agriculture and diversification of economic cropping in the rice fields and on field bunds even with horticultural plants like the banana have assumed significance on the role of the spiral nematodes in rice.

Rice is the staple food crop of the world and covers 41 million hectares in India. Rice is usually grown in wet season (kharif) followed by another rice crop or legumes or oil seed crops in dry season (rabi) as rotations. Rice yields are low, 1.57 t/ha (Fertilizer Statistics, 1986) and great demand is there to increase the yields to 3 t/ha to feed 935 million population by the turn of 21st century (NCA, 1976). Besides, maladies like drought, toxicity of aluminium, iron, deficiency of zinc, boron, diseases and insect pests, parasitic nematodes also play an important role in limiting rice production. Ditylenchus angustus and Aphelenchoides besseyi among foliar nematodes, Meloidogyne sp. and Heterodera sp. among sedentary endo-parasites, Hirschmanniella sp., Hoplolaimus sp. and Pratylenchus sp. among migratory endo-parasites and spiral nematodes among ecto-parasites are becoming serious pests of rice. Inspite of the important role of the polyphagous spiral nematodes in rice based cropping systems, this group has received little attention.
More recently, twenty species of the spiral nematode, Helicotylenchus, were found constantly associated with rice in uplands and well-drained soils (Sitaramaiah et al., 1971; Rao, 1975; Krishna Prasad and Rao, 1977; Raveendran and Nandakal, 1977; Padhi, 1979; Fernandez et al., 1980 and Ray et al., 1987) and are reported to cause yield losses to an extent of 90% (Anon., 1982). The nematode infestation caused reduction in the anchoring ability of roots in rice with the result the affected plants weakened and smothered (Anon., 1982). Besides, the general debilitation in plant growth caused concern and prompted further research on the biology and control of prominent species of the spiral nematode, Helicotylenchus multicinctus (Cobb, 1893) Golden, 1956 in rice based ecosystem. The prevalence of the nematode, its pathogenicity and damage, yield losses, its ecology in relation to edaphic factors, the potentiality of rice varieties and weeds as hosts and control of this nematode were investigated.

The methodologies for the survey of the spiral and other nematodes, biochemical studies on nematized plants, host-pathogen relationships and control measures derived from these investigations will go a long way to provide valuable information in the management of this polyphagous obnoxious nematode pest (H. multicinctus) in rice based agriculture.