

## Nematode problems in cotton crop and their management

Archana U. Singh<sup>1</sup> and S.D. Mishra<sup>2</sup>

Received February 16, 2016 and May 12, 2016

**ABSTRACT :** Cotton is an important fiber crop of immense use not only as commercial crop but every part of the plant is of importance to the farmers in particular and mankind in one way or the other. It is divided into four main products viz., cottonseed oil (24-25%), cake and meal (protein supplement 37%), crude protein 43% unshelled seeds and 24% shelled seeds, cotton seed hull and linters (2-3%). Cotton stalk is also enormously used as fuel and shedding leaves on soil enrich the soil fertility by way of increasing organic content. This is cultivated almost throughout the world and grown in about 11.6 million hectares with production around 33.4 million bales in India during 2012. China, USA and India are the major producers of cotton. In India, Punjab, Maharashtra, Gujarat, Haryana, Tamil Nadu, Andhra Pradesh, Karnataka, Rajasthan, Madhya Pradesh and Chattisgadh are the principal cotton growing states occupying about 90% under the country. In India, four species of cotton viz. *Gossypium hirsutum* L., *G. barbadense* L., *G. arboretum* L. and *G. herbaceum* L. are under cultivation. Cotton is attacked by several biotic and abiotic stresses including insect-pests and diseases. Among these fungal, bacterial and nemic diseases are important. Plant parasitic nematodes belonging to twenty two species are reported to be associated with cotton crop in India. Of these, root-knot (*Meloidogyne incognita* and *M. javanica*), reniform (*Rotylenchulus reniformis*), lance (*Hoplolaimus indicus*) and lesion (*Pratylenchus* spp.) nematode are commonly affecting cotton production and quality in different cotton growing areas of the country. Reniform nematode (*R. reniformis*) has been recorded to be the key nematode species on cotton in Central and Southern India, while in Northern cotton-growing areas, the root knot nematode (*M. incognita*) is important. Race A of reniform nematode was found to infect cotton, castor and cowpea. In India, crop losses due to reniform nematode (*R. reniformis*) on cotton has been around 15-30%. Among the four identified races, Race 3 and Race 4 of *M. incognita* and the *M. acronea* are known to parasitize cotton. *M. acronea* is known to occur on cotton only in South Africa and Malawi and has not been reported from India so far. But only Race 3 was reported from Karnataka and Tamil Nadu on cotton. In India, *M. incognita* is widespread in Punjab and Haryana on *G. hirsutum* (American) and *G. arboreum* (Desi) cottons, with galling being most extensive on *G. hirsutum*. A total number of six species of *Hoplolaimus* are known to parasitize cotton. Most commonly occurring species are *H. seinhorsti*, *H. columbus*, *H. galeatus* and *H. indicus*. The management strategies viz., Chemical, biological, cultural, physical and INM are used for controlling different nematodes in cotton.

**Key Words :** Phytonematodes, cotton, fiber crops, management, nematicides, resistance.