

## Lecture 02 - History of Nematology in India

Nematology as a separate branch of Agriculture Science in India has been recognized only about 37 years back. The history and development of Nematology in India have been listed below in chronological order.

1901 – Barber reported root – knot nematode on tea in Devala Estate, Tamil Nadu, South India.

1906 – Butler reported root – knot nematode on black pepper in Kerala.

1913, 1919 – Butler reported Ufra disease on rice in Bengal due to the infestation of *Ditylenchus angustus*.

1926, 1933 – Ayyar reported root – knot nematode infestation on vegetable and other crops in India.

1934, 1936 – Dastur reported white tip disease of rice caused by *Aphelenchoides besseyi* in Central India.

1959 – Prasad, Mathur and Sehgal – reported cereal cyst nematode for the first time from India.

1961 – Nematology laboratory established at Agricultural College and Research Institute, Coimbatore, with the assistance of Rockefeller Foundation and Indian Council of Agricultural Research.

1961 – Nematology unit established at the Central Potato Research Institute, Simla.

1963 – Laboratory for potato cyst nematode research established at Uthagamandalam with the assistance of Indian Council of Agriculture Research

1964 – First International Nematology course held at IARI., NEW Delhi.

1966 – Nair, Dass and Menon reported the burrowing nematode on banana for the first time from Kerala.

1966 – Division of Nematology established at IARI, New Delhi

1968 – First South – East Asian Post – Graduate Nematology course held in India.

1969 – Nematological Society of India founded and first All India Nematology Symposium held at IARI, New Delhi.

1969 – 1970 – Third South – East Asian Nematology course conducted at New Delhi.

1969 – 1970 – Third South – East Asian Nematology course conducted at New Delhi.

1971 – Indian Journal of Nematology published

1971 – Fourth South – East Asian Nematology course at New Delhi.

- 1972 – First All India Nematology Workshop held at IARI, New Delhi
- 1973 – Fifth South – East Asian Nematology Course at New Delhi.
- 1975 – Sixth South – East Asian Nematology Course at New Delhi.
- 1976 – Summer Institute in Phytonematology held at Allahabad.
- 1977 – Department of Nematology established at Haryana Agriculture University, Hisar.
- 1977 – All India Co-ordinated Research Project (AICRP) on nematode pests of crops and their control started functioning in 14 centres in India with its Project Co-ordinator at IARI, New Delhi.
- 1979 – M.Sc. (Ag.) Plant Nematology course started at Tamil Nadu Agricultural University, Coimbatore.
- 1979- All India Nematology Workshop and Symposium held at Orissa University of Agricultural University, Coimbatore
- 1979 – All India Nematology Workshop and Symposium held at Orissa University of Agriculture and Technology, Bhubaneswar
- 1979 – Seventh South – East Asian Nematology course at New Delhi.
- 1981 – Department of Nematology established at Tamil Nadu Agricultural University, Coimbatore.
- 1981 – All India Nematology Workshop and Symposium held at Tamil Nadu Agricultural University, Coimbatore.
- 1982 – Department of Nematology established at Rajendra Agriculture University, PUSA, Bihar
- 1983 – All India Nematology Workshop and Symposium held at Solan, Himachal Pradesh.
- 1985 – All India Nematology Workshop and Symposium held at Udaipur, Rajasthan.
- 1986 – National Conference on Nematology held at IARI, New Delhi
- 1987 – All India Nematology Workshop at Govt. Agriculture College, Pune.
- 1987 – Group Discussion on Nematological problems of Plantation crops held at Sugarcane Breeding Institute, Coimbatore.
- 1992 – Silver Jubilee Celebration of Division of Nematology, IARI, New Delhi.
- 1992 – Summer Institute on “Management of Plant Parasitic nematodes in different crops” organized by ICAR at Haryana Agricultural University, Hisar.
- 1995 – All India Nematology Workshop and National Symposium on Nematode problems of India held at IARI, New Delhi.

1997 – Summer School on “Problems and Progress in Nematology during the past one decade” was organized by ICAR at IARI, New Delhi.

1998 – Afro – Asian Nematology Conference held during April 1998 at Coimbatore.

1999 – National seminar on “Nematological Research in India: Challenges and preparedness for the new millennium” at C.S. Azad University of Agriculture and Technology, Kanpur.

2000 – National Nematology Symposium on “Integrated Nematode Management” held at OUAT, Bhubaneshwar, Orissa.

2001 – National Congress on “Centenary of Nematology in India: Appraisal and Future plans” at IARI, New Delhi.

### **Importance of Nematodes in Agriculture**

In the United States, the nematodes are known to cause six per cent loss in field crops, (\$ 100 million / year), 12 per cent loss in fruits and nuts (\$ 225 million / year), 11 per cent loss in vegetables (\$ 267 million / year) and 10 per cent loss in ornamental (\$ 60 million / year).

In India, the cereal cyst nematode, *Heterodera avenae* causes the ‘molya’ disease of wheat and barley in Rajasthan, Punjab, Haryana, Himachal Pradesh and Jammu and Kashmir. The loss due to this nematode is about 32 million rupees in wheat and 25 million rupees for barley in Rajasthan State alone.

### **Economic annual losses due to nematodes for selected world crops**

<b>Crops</b>	<b>Number of estimates per crop</b>	<b>Food and Agriculture Organization production estimates (1000 MT)</b>	<b>Estimated yield losses due to Nematodes (%)</b>
Banana	78	2 097	19.7
Barley	49	171 635	6.3
Cassava	25	129 020	8.4
Citrus	102	56 100	14.2
Cocoa	13	1 660	10.5

Coffee	36	5 210	15.0
Corn	125	449 255	10.2
Cotton (lint)	85	17 794	10.7
Field bean	70	19 508	10.9
Oat	37	43 355	4.2
Peanut	69	20 611	12.0
Potato	141	312 209	12.2
Rice	64	469 959	10.0
Sorghum	53	71 698	6.9
Soybean	91	89 893	10.6
Sugar beet	51	293 478	10.9
Sugarcane	65	935 769	15.3
Sweet potato	67	117 337	10.2
Tea	16	2 218	8.2
Tobacco	92	6 205	14.7
Wheat	89	521 682	7.0

The examples are only a small portion of nematode problem in India. Besides this direct damage, they also associate with bacteria, fungi and viruses to cause complex diseases.