

***Meloidogyne graminicola* an emerging threat to rice and wheat in Punjab province in Pakistan**

A. Jabbar, N. Javed[†], S.A. Khan and M.A. Ali

Department of Plant Pathology, University of Agriculture, Faisalabad

[†]Corresponding author email: nazirpp2003@yahoo.com.au

Root-knot nematodes are destructive pests of vegetables in Pakistan. Yield losses caused by root-knot nematodes were estimated 10-40% (Javed *et al.*, 2010). *Meloidogyne graminicola* a member of this group is becoming an emerging threat to rice. This nematode causes heavy yield losses in rice ranging from 30% under field condition to 97% under green house conditions (Sharma *et al.*, 2005) and first time reported from Pakistan (Munir & Bridge, 2003). However, no comprehensive approach was applied to estimate the infestation and yield losses caused by this nematode in the rice belt of Punjab.

We have observed its prevalence from last three years in rice-wheat cropping system in Faisalabad and Chiniot districts of Punjab. For this purpose, a survey was conducted in rice growing fields during September, 2014 from above mentioned districts. In this survey, 40 samples were collected from each district. Each

sample was collected at 5 km distance. These samples were processed in Plant Nematology Laboratory in Department of Plant Pathology, University of Agriculture, Faisalabad. Results showed 20% infestation rate in Faisalabad and 17% in Chiniot district. A comprehensive study on this emerging threat is going on to assess the prevalence, rate of infestation and yield losses caused by *M. graminicola* in the rice belt of Punjab, Pakistan.

The plants showing symptoms in the field are shown in the Fig. 1, while root galls caused by *M. graminicola* are shown in Fig 2. This nematode induces hook like galls at the root tips (Eisenback *et al.*, 1981) which is quite obvious from Figure 1 where galls are exposed on the infested rice plants. Moreover, it has been observed that *M. graminicola* also infects a variety of weeds belonging to family Gramineae.



Fig.1. Infested rice field with *Meloidogyne graminicola*.



Fig. 2. Infected rice roots variety PK 386 with *Meloidogyne graminicola*.

References

- Eisenback, J.D., Hirschmann, H., Sasser, J.N. & Triantaphyllou, A.C. 1981. *A guide to the four most common species of root-knot nematode (Meloidogyne spp.) with pictorial key*. A Cooperative publication of the Department of Plant Pathology and Genetics, North Carolina State University, Raleigh, N.C. USA, 48 pp.
- Javed, N., Shahid, M. & Kamran, M. 2010. *Biological management of root-knot nematodes on vegetables in Punjab*. 1st Annual Progress Report, Project No. 139 submitted to Punjab Agricultural Research Board (PARB), Lahore, Punjab, Pakistan.
- Munir, A. & Bridge, J. 2003. Rice root-knot nematode, *Meloidogyne graminicola* Golden and Birchfield, 1965 from rice in Pakistan. *Pakistan Journal of Nematology* 21, 133-136.
- Sharma-Poudyal, D., Pokharel, R.R., Shrestha, S.M. & Khatri-Chetri, G.B. 2005. Effect of inoculum density of rice root-knot nematode on growth of rice cv. Masuli and nematode development. *Australian Plant Pathology* 34, 181-185.

(Accepted: December 16, 2015)