Національний університет біоресурсів і природокористування України

Факультет ветеринарної медицини

НДІ Здоров'я тварин

«ЄДИНЕ ЗДОРОВ'Я – 2022»

Матеріали Міжнародної наукової конференції

22-24 вересня 2022 р.
НУБіП України, м. Київ

СЕКЦІЯ 5. «СТОЛІТТЯ НА ЗАХИСТІ ЕПІЗООТИЧНОГО БЛАГОПОЛУЧЧЯ»

UDC632.621:634.1/.2(478)

ANALYSIS OF PLANT PARASITIC NEMATODES ASSOCIATED WITH APPLE AND PLUM ORCHADS IN THE CENTRAL REGIONS OF THE REPUBLIC OF MOLDOVA

Bivol Al.; Ph.D., associate professor
Toderaș I., acad., university professor
Iurcu-Străistaru E., Ph.D., associate professor1
Rusu Șt. Ph.D.1
Bivol E., student
Institute of Zoology,1 Academiei Street, Chisinau, Republic of Moldova

Parasitic phyto-nematodes and virus diseases individually can cause serious losses to crop production; however, in combination, they can be very destructive in long-term crops such as berries. The responses of plants to virus infection are very diverse, ranging from symptomless infection to ring-spotting, chlorotic mottling, vein banding, vein yellowing, leaf distortion and the production of elations, discoloration and distortion of the leaves, stunting and death. Nematodes from the familys Longidoridae, Pratylenchidae and Tylenchidae, order Doiylaimida and Tylenchida, (phylum Nematoda) are endo-ectoparasites of roots on a very wide host range among cultivated and wild plants, especially the perennial horticulture plantations including most of apple and plum species.

Plant parasitic nematodes destroy the plant tissue during their feeding activity, open the gates for second damage caused by soil-bome fungal and bacterial pathogens and also the high density of their populations can cause the depression of plants, as well as lead to a qualitative-quantitative yield losses of fruit planations. Thes pecies of nematodes which have been found associated with apples and plums are: lesion, dagger, needle, pin, stunt, ring and spiral. The most commonly encountered nematode genera are Pratylenchus, Helicotylenchus and Tylenchorhynchus; however, numerous populations are created by the species Pratylenchus penetrans, Criconemoides xenoplax and Ditylenchus dipsaci. Forty six species of plant parasitic nematodes were found in soils and roots of apple (27 species) and plum (25 species) crops in the fields of the Central regions of Republic of Moldova. Among plant parasitic species, ectoparasites dominated by species diversity followed by semi-endoparasites and migratory endoparasites. Most damages to the root system were caused by root lesion endoparasite nematodes Pratylenchus penetrans, P. subpenetrans, P. pratensis and P. neglectus, stem migratory endoparasite Ditylenchus dipsaci, partly spiral nematode Rotyienchus agnetis, R robustus and ectoparasites vectors of nepo-viruses; Longidorus elongatus, Xiphinema brevicolle, X. diversicaudatum, X. rivesi, X. index, X. vuittenezi.

They are spread by the use of infected planting materials and once established in the long term apple and plum plantations there are any methods of control other than eradication. In new plantations, the most effective control method is to assay soils for plant parasitic nematodes including nepovirus vectors to prevent secondary infection

of fruit trees. The problem of plant virus diseases and their vectors occurs in Republic Moldova now, because of the intensive development of agriculture and the increasing number of new and replanted horticultural plantations. Presently, the private farms want to be engaged in fruit crop production and want to use ecological pure techniques. It is necessary to grow healthy plant material from virus-free mother plants and propagate it on soil free from viruses-vectors nematode. In Republica Moldova, the apple and plum orchads losses due to plant parasitic nematodes and virus diseases were studied by, also in neighbouring countries etc. In the last years, the changes in the farming practices, change of cultivar assortment and new varieties, and uncontrolled import of planting material enhanced the need for testing the phytosanitary state of fruit trees in the Republic of Moldova.

The research was carried out with the support of the institutional project - state program: DIVERSITY OF HEMATOPHAGOUS ARTHROPODS, ZOO- AND PHYTO-HELMINTHS, THEIR VULNERABILITY AND TOLERANCE STRATEGIES TO CLIMATIC FACTORS AND ELABORATION OF INNOVATIVE PROCEDURES FOR INTEGRATED CONTROL OF SPECIES WITH SOCIO-ECONOMIC VALUE: 20.80009.7007.12 F, 2020-2022. Project manager: Acad. Prof. Dr.hab. Ion Toderaş.