

DATA ON NEMATODE COMPLEXES OF APPLE TREES IN THE REPUBLIC OF MOLDOVA

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The Republic of Moldova has all the natural conditions for intensive development of horticulture. This branch was and likely to remain one the main pillars of national agriculture, because it is a source of wealth, leading to efficiency of the entire agricultural sector of the country. The horticultural sector-primary production and processing industry has a multiplier role in the agro-economy of the country generating and stimulating added value in other branches such as trade construction and financial services.

Presently seeded fruit growing represent one of the main strategic branches of the national economy, accounting for approximately 19 % of the total agricultural production value. The area of fructiferous tree plantations in 2014 totaled 94,5 thousand hectares, including fruit archers 88,3 thousand ha, or 94,1 % of total fruit production. Orchards are maintained using advanced agrotechnologies and high-quality seeding. A significant input is a great variety of apples which include now both local and popular international breeds. Favorable soil and climate conditions, traditions and accumulated experience allow cultivation of more than 50 varieties of apple trees, obtaining high yields.

Apple is one of the most commercially significant temperate fruit and is fourth among the most widely produced fruits in the world after banana, orange and grape. The main argument in creation and exploitation of apple agrocenoses is determined by their important energetic resources and source of nutrients. Despite favorable conditions particular attention require damages and losses of agricultural production caused by harmful organisms, especially populations of free living and plant parasitic nematodes, causing phytohelminthosis of horticultural plants, or diseases as vectors of infections with serious consequences on apple trees.

Monitoring of free living and plant parasitic nematodes, revealing of complexes and structures of plant parasitic nematodes and their impact, frequency of species depending on adaptation and trophic preferences, abiotic conditions, type of soil and agrotechnological maintenance has a major agrobiological significance.

Apple tree agrocenoses with areas larger than 500 hectares from 5 administrative districts, 2 from northern part of the country (Briceni and Soroca) and 3 from central part (Criuleni, Ialoveni and Calarasi) were investigated. The study was conducted during years 2015-2016, data on nematode complexes were recorded using standard methods including soil sampling in apple trees rhizosphere on 30 - 55 cm depth and segments

of tiny shallow roots. Overall more than 100 samples of soil and plants were examined using modified method of Baerman and fixation in 4 % formalin at 60°C. The taxonomy of the species, frequency and abundance and other biological peculiarities were established using specific literature. Collected material was processed under microscope, identified specimens were deposited in the collection of the Laboratory of Parasitology and Helminthology, Institute of Zoology, Academy of Science of Moldova.

As the result of conducted investigation was revealed that abundance of nematodes in the northern part of the Republic of Moldova ranged from 720 to 1170 specimens per 100 g of sampled soil. In the central part of the country the values varied more comparative to northern part, ranging from 460 to 1300 specimens per 100 g of soil, due to temperature variations and humidity. These values are specific for the environmental conditions of 2015 year, characterized by excess of high temperature and extensive soil drought (more than 45 days during June and August). The analysis of the soil samples from 2016 revealed an abundance of nematodes ranging from 870 to 1680 samples per 100 g of soil in northern part of the republic and 920 to 2200 exemplars per 100 g of soil in central orchards. The excessive abundance of nematodes with approximately 5-28 % in central part is due to extended periods of high temperatures and humidity.

Altogether 62 species of free living and plant parasitic nematodes from fruit trees crops were revealed. The most frequent proved to be species from genera *Pratylenchus*, *Rotylenchus*, *Ditylenchus* and *Criconemoides*. Also three species *Xiphinema index*, *X. brevicole*, *X. vuitennezi* and *Longidorus elongatus* were identified as vectors of NEPO viruses. Symptoms of premature branches drying, chlorosis virus and embossment with serious and irreversible pathological consequences to apple trees were highlighted almost for all investigated apple agrocenoses, the degree of viral disease ranged within 5-18%.

According to trophic specialization 5 groups of nematodes were established, the most abundant being the group of plant parasitic nematodes (29 species), which seriously affect absorbing bristles followed by specialized endo-, semiendo- and ecto-parasitic adaptations.

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