

THE ASSOCIATIVE AND INVASIVE IMPACT CAUSED BY COMPLEXES OF PARASITIC INSECTS AND NEMATODES WITH THE APPLICATION OF CHEMICAL MANAGEMENT IN MAIZE PLANTATIONS UNDER THE CONDITIONS OF THE REPUBLIC OF MOLDOVA

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The main reason why the area cultivated with corn has been expanded in recent years, in the Republic of Moldova, is the high profitability of this crop, taking into account the use of the most modern cultivation technologies in various cultivation systems, the implementation of modern hybrids and integrated protection management. The invasive insect species found on maize plants in their first, vulnerable stages of development, which can cause significant agro-economic impact, are the following: cutworms of the genus *Agrotis* spp., fam. *Elateridae*; Maize leaf weevil – *Tanymecus dilaticollis* Gyll., fam. *Curculionidae*, turnip moth – *Agrotis segetum*, Den. et Sch; cotton bollworm – *Heliothis armigera* Hbn., fam. *Noctuidae*; European corn borer – *Ostrinia nubilalis* Hbn., fam. *Pyraustidae*, ord. *Lepidoptera*. These species are studied annually in association with the parasitic nematode complexes detected on cereal crops, such as the representatives of the order *Tylenchida* consisting of species belonging to the genera: *Pratylenchus*, *Ditylenchus*, *Heterodera*, *Helicotylenchus*, *Paratylenchus*, *Rotylenchus*, *Tylenchorhynchus*, *Merlinius*, *Criconemella* etc., which are also the main pests noticed on maize plants, detected in all areas of phytotechnical cultivation. The attack of these pests is very dangerous when the plants are in the early stages of development (germination – the formation of 3-6 true leaves), when the crop can be completely destroyed, and the economic agents are forced to sow it again. Every year, in the most favorable areas for the established pests, the plants are attacked with varying degrees of frequency and intensity. The chemical treatment of seeds with systemic insecticides was the most effective method of protecting maize against the attack of these pests. Under the specific and unstable climatic conditions of our country, the management of chemical protection of maize provides for the use of all the available technological means to create unfavorable conditions for the development of parasitic agents, namely in the first vegetation period. The aim of this study has been to evaluate the efficacy of two new remedies with systemic insect-nematicidal action: *Curaj*, SC and *Shenzi* 200 SC, in doses of 0.15-0.20 L/ha., in comparison with the untreated control and the standard insecticide *Coragen* 20 SC, 0.20 L/ha., for combating the pest complexes that attack maize and protecting plants in the early stages of vegetation.

The results of the helminth-entomological investigations performed on maize, in the years 2021-2022, present the estimation of the phytosanitary condition of plants in the first stages of growth (germination – 3-6 true leaves), determining the parasitic impact, caused by nematodes and associated invasive insects from soil, compared by zones, sectors, periods, crop associations and cultivation technologies. The phytosanitary

surveys have shown the degree of parasitic impact, by estimating the comparative indices of numerical density (*N.d.*), the following average were obtained: insects – 3-5 individuals/m² and nematodes – 30 individuals/100 g soil, with the prevalence of higher numbers in the Center area (15-20%), in the same research period, conditions caused by climate factors, differentiated by zones. These results served as the basis for mounting research-testing experiments on the new preparations with insecticide-nematicide action: *Curaj SC* and *Shenzi 200 SC* (chlorantraniliprole 200g/kg), as a result of which a biological efficiency of 88-97% was established as compared with the untreated variant. As a result of 3 treatments applied on the complexes of Lepidoptera insects of the family *Noctuidae*, the species *Agrotis segetum*, *Heliothis armigera*, the family *Pyralidae*, the species *Ostrinia nubilalis* associated with the complexes of endoparasitic nematodes of the order *Tylenchida*, the genera *Pratylenchus* and *Ditylenchus*, semi-endoparasitic nematodes of the genera *Heterodera*, *Heterodera* and ectoparasitic nematodes of the genera *Helicotylenchus*, *Paratylenchus*, *Rotylenchus*, *Tylenchorhynchus* and *Merlinius* in the experimental sectors planted with maize, at the Institute of Phytotechny “*Porumbeni*”, Pașcani village, Criuleni district, Central Zone, Republic of Moldova, and the comparative phytosanitary investigations on maize plantations in the growing season in 2021-2022, it was found that, under the agro-climatic conditions of the Republic of Moldova, there were detected 34 harmful organisms and 15 parasitic agents that cause specific diseases, with severe parasitic impact characterized by malformations of roots, stems, leaves and cobs and differ from each other in the degree of frequency and extent, the level of damage to corn crop depending on the area, environmental factors and resistance of the planted hybrids.

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