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EVALUATION OF PHEROMONE LURES IN WESTERN CORN ROOTWORM TRAPS

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Purpose. The western corn rootworm, *Diabrotica virgifera virgifera* LeConte, is an invasive quarantine pest that threatens maize production in the Republic of Moldova. This study aimed to determine its distribution and population density, assess the phytosanitary status of maize, and improve pheromone-based monitoring using naturally identical co-attractants.

Materials and methods. Field investigations were conducted from 3 July to 6 September 2025 in maize-growing areas of northern, central, and southern Moldova. Eleven sites covering 1,231 ha were examined by visual plant inspection and pheromone trapping. At Zaim, Causeni district, six traps baited with the standard synthetic sex pheromone (FSS) were installed in irrigated sweet and fodder maize. Lure attractiveness was evaluated at Dubasarii Vechi, Criuleni district, in a 680-ha maize field using four formulations in three replicates: FSS 1.5 mg (V1); FSS plus cinnamaldehyde 1 mg (V2); FSS plus cinnamaldehyde 5 mg (V3); and FSS plus indole 1 mg (V4), each containing an antioxidant. Traps were placed 20-30 m apart and checked every 7-10 days. Crop injury was assessed by soil and root inspection and by visual scoring of plant mortality and leaf damage.

Results. *D. virgifera virgifera* was detected in all surveyed regions. Population density ranged from 2.3 to 10.0 adults per plant, and seven of the eleven sites reached or exceeded the economic threshold of 5 adults per plant. The highest densities were recorded at Dubasarii Vechi (10.0 adults/plant) and Briceva, Donduseni district (7.2 adults/plant). At Zaim, sweet maize averaged 25.73 beetles per trap per assessment, corresponding to 5.15 adults per plant, whereas fodder maize remained below the threshold at 3.75 adults per plant. Flight activity peaked in mid-to-late August. Total male captures were 1,580, 2,060, 2,280, and 1,845 for V1-V4, respectively. Compared with the standard lure, V3 increased captures by 44.3%, while V2 and V4 increased captures by 30.4% and 16.8%, respectively. More severe crop damage was

observed in Dubasarii Vechi, with 540 affected plants/ha, moderate stand thinning, and severe leaf damage, compared with 80 affected plants/ha and lower injury at Zaim.

Conclusions. Western corn rootworm is widely established in Moldovan maize-growing areas and frequently reaches economically important densities. The FSS lure supplemented with 5 mg cinnamaldehyde provided the best monitoring performance and may improve early detection and the timing of integrated pest management. Continued surveillance, crop rotation, and targeted interventions during the August flight peak are recommended.

Keywords: western corn rootworm; maize; pheromone monitoring; cinnamaldehyde; integrated pest management.

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