ROOT SYSTEM OF MAIZE HYBRIDS AT THE EARLY STAGES OF DEVELOPMENT DEPENDING ON FERTILIZING RATES AND PLANT DENSITY IN CONDITIONS OF RIGHT-BANK FOREST STEPPE OF UKRAINE

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Results of researches about establishment of root system formation peculiarities of eight maize hybrids (Dniprovsky 257 CB, Sigma, Ragt Alecsandra, Garant, Cubus, Moskito, Sensor, KWS 381) on typical black soil with plant density 60 and 90 thousand pieces per hectare and on background different fertilizing rates (N_{60} P_{45} K_{45}; N_{90} P_{60} K_{60}; N_{120} P_{105} K_{105}; N_{150} P_{135} K_{135}) are presented.

Determination of the architectonics of the plant roots of hybrids of maize was carried out twice by digging trenches with a length and width of the wall of 70x200 to a depth of 70 in the phase of 8 leaves; 140 x 200 at a depth of 200 cm in the phase of throwing the vole with subsequent flushing of the root system using a water jet

It is proved that the calculation of the need of plants in the elements of nutrition to form a certain level of productivity should take into account not the "horizontal plane" and "volume of soil", where the formation of the root system occurs, and due to this volume is feeding and providing moisture to plants.

According to the density of plants, 60 thousand per hectare, there is a tendency to form a more powerful root system in all hybrids with increasing fertilizer standards, and only with increasing fertilizer rates up to N150 P135 K135 the total length of the root system decreases to the level of N90 P60 K60.

For the formation of sowing with a density of plants standing at 90 thousand hectares, the development of the root system was more intense, compared with the density of 60 thousand plant / ha, only for the introduction of a minimum fertilizer rate - N_{60} P_{45} K_{45} - the length of roots in all hybrids was 9 - 167 cm larger. For further increase of fertilizer rates up to N_{90} P_{60} K_{60}, a decrease in length compared to $N_{60}P_{60}K_{60}$ was observed for this plant density. The linear dimensions of the root

system for introducing N90 P60 K60 and the plant density of 90 thousand ha were greater only in the hybrids of the Dniprovsky 257 and Sigma compared to 60,000 plants per hectare, and all other hybrids were already inferior to the size of the root system for plants, which grown for 60,000 plants / hectare, and, according to the norms N_{120} P_{105} K_{105} and N_{150} P_{135} K_{135}, the length of the root system was reduced and considerably inferior to the length at 60,000 plant/hectares. Thus, for plants standing at a density of 90 thousand hectares, plants in the phase of 8 leaves competing for nutrients that come from fertilizers.

Keywords: *maize, hybrid, roots length, fertilizing rate, plant density*