The root system of M9, M26 and MM106 rootstocks in pseudogley

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Summary

The characteristics of the root system in M9, M26 and MM106 apple vegetative rootstocks are presented in this paper for an orchard at the time of full productivity in the plain pseudogley conditions. The previous research conducted in this orchard determined the alternating existence of two microsites, namely typical conditions of plain pseudogley and micro-depressions. Increased and prolonged moisture was identified in micro-depression conditions throughout the year in comparison to typical conditions of the plain pseudogley. The root system of the rootstocks under study was analysed in both microsites. The analysis of fine roots was conducted by using monolith method. The structure and penetrability depth of the root system were determined by a wall profile method. Histological analyses were done on fine roots using the paraffin technique and staining with Delafield’s hematoxylin as well as differential staining according to Gerlach. A microsite has significant impact on all growth indicators of the root system in the rootstocks analysed. M9 and MM106 rootstocks showed the best root activity in typical pseudogley conditions, whilst in micro-depression conditions MM106 and M9 were the most active. M26 rootstock had the least active root system in both microsites.

Key words: monolith, profile, main roots, absorbing roots, histological sections.