

MODIFICATION OF THE MAIN PHYSICAL PROPERTIES UNDER THE INFLUENCE OF THE CROP SYSTEM OF THE EROSIONED SOIL IN THE NORTH WESTERN ROMANIA CONDITIONS

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Abstract. *The influence of the crop system on the main physical properties of the eroded soil was studied in the year 2000 in the plots for the erosion measurement placed on the hill with 10% slope in Agricultural Research and Development Station Oradea. The metal panels at the base and soil dams there were between the plots. The variants studied: clean fallow, pasture, wheat, maize on the level curves, and maize from hill to valley. The biggest soil losses were determined in the variant with clean fallow and in variants with maize seeded from hill to valley. The erosion determined the important differences between the physical parameters (hydrostability of the macrostructure – aggregates bigger than 0.25 mm, bulk density, total porosity, hydraulic conductivity, penetration resistance) of the soil in the top of the hill in comparison with the base of the hill. In the top of the hill, the values of the physical parameters were less favorable for plants in comparison with the hill base. The most unfavorable values of the physical properties of the soil were registered in the variant with clean fallow following the variants cropped with maize from hill to valley, the variants cropped with maize on the level curves, wheat and pasture.*

Keywords: soil erosion, structure, bulk density, total porosity, penetration resistance, hydraulic conductivity

1. Introduction

In Romania and in the North Western part of the country, too, soil erosion affects large area. [1, 2]. The negative influence of the soil erosion on chemical, physical and biological properties of the soil was emphasized by numerous researches from Romania and from the other country [12, 9, 4, 5, 6, 7, 11, 3, 12, 8, 10].

In the Bihor County, an area of 200,000 hectares (38% from the agricultural land) has lands with slopes bigger than 5%, where erosion is possible. The researches

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