Abstract

The conservation and the sustainable use of the soil's resources also includes the capacity to differently implement hydro ameliorative works depending of how the limitative factors of the soil's fertility manifest themselves. The formation of water excess in the soil represents a complex process that is determined be a series of natural factors like alimentation, withholding, circulation and elimination of water in the soil – underlying rock complex. In the pedoclimatic conditions of the Suceava Plateau, the excessive humidity of the soil manifested itself periodically and/or permanently depending of the volume, the duration and the intensity of the rain fall. For optimizing the water regime from the soils affected by excessive humidity, more precisely, the agricultural soils from Suceava County, a series of measures have been taken over the years like draining systems and underground pipe drainage systems. The hydro ameliorative drainage systems based on opened channels and underground pipe drainage to which locally, was also added the embankment of the water courses covered a surface of almost **55 thousand ha.** From the total area prepared for drainage – underground drainage, on almost 27 thousand ha systematic networks of underground pipe drainage have also been created. The experimental research performed for more than 30 years (1978 – 2010) in the conditions of the *albic stagnic glossic luvosoil* from Baia depression, were meant to contribute at the familiarization with the water balance from the soil prepared for drainage. The hydro technical scheme for organizing the underground drainage system based on ceramic pipes and plastic materials consisted in **six experimental solutions** that were executed in 1978 on an area of **3.50 ha**. After arranging the underground pipe drainage system the drained soil was moulded into wide ridged sections (*variant A*). All the variants for organizing the underground drainage (*A, B, C, D, E, F*), were deeply broken up for improving the permeability of the drained soil. The long term efficiency of the underground pipe draining system was analyzed under the hypothesis of a non permanent functioning rate. The accumulation and the elimination of the water excess from when the underground pipe drainage system was working was assessed relying on the average multiannual volume, caused by rain, its value being of 325 mm or 3250 $m^3 \cdot ha^{-1}$.

Key words: water balance, underground pipe drainage, soils with excessive humidity.