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Perspective

Reserves of Productive Moisture in Soils of Republic of Moldova

Cojocaru Olesea*

Associate Professor, Department of Agronomy and Environment, State Agrarian University of Moldova, Moldova

***Corresponding Author:** Cojocaru Olesea, Associate Professor, Department of Agronomy and Environment, State Agrarian University of Moldova, Moldova.

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The main sources of water entering the soil are precipitation, condensation of vaporous water from the atmosphere and groundwater. It is known that not all the amount of atmospheric precipitation gets into the soil. Liquid precipitation can drain off as a result of surface runoff. The amount of their losses depends on many factors, the most important of which are: the angle of inclination of the surface, the intensity and amount of incoming precipitation, the physical properties of the soil, as well as the degree of projective soil coverage by plants. The redistribution of solid precipitation over the territory is also rather uneven due to wind transport, the snow-holding capacity of plants and various kinds of barriers. Condensation of vaporous moisture from the atmosphere occurs as a result of a sharp cooling of the soil surface, the amount of this moisture is insignificant and can be neglected. In the studied areas, they do not play a significant role, since chernozems belong to soils located in an automorphic position in the relief (the groundwater depth is more than 10 m). According to A.A. Rode, water, having got into the soil, moves to the lower horizons and with an intra soil lateral runoff, is consumed by plants for transpiration as a result of distillation, and also evaporates into the atmosphere. The water regime of chernozems in the study area, located in a well-drained territory and in a zone of moderately humid and moderately warm climates, is characterized as satisfactory and corresponds to the periodically washed out type. The most important SMRs serving as the main source for plants are the stocks of the spring/autumn period. The significance of precipitation at this time of the year for this territory is high due to winters with little snow and frequent summer droughts.

On the control plot, which is not subject to anthropogenic impact, the typical conditions of the water regime for the chernozem soils of this study area are formed. The amount of moisture in the lower horizons is regulated by late autumn precipitation, as well as melt water, and is then used by plants as a reserve during the summer period. Summer precipitation is involved in moistening only the upper horizons. Accordingly, in the dynamics of moisture, two main periods can be distinguished: 1) general desiccation of the soil profile from the end springs to early autumn as a result of intensive consumption of moisture by plants and evaporation with the predominance of upward currents over the downward ones; 2) an increase in moisture reserves in the soil profile in the second half of autumn as a result of soaking, interrupted by frosts and further replenishment of reserves in spring with thawed waters.

It was found that the most intense regime in terms of moisture supply is developing for the territories of the Republic of Moldova located in the zone of ecological impact of the "Southern". In the zone of maximum impact, located near the "Central" territory, a non-flush water regime develops, thus, in the lower part of the soil profile of leached chernozem, a horizon with constant moisture is formed, as a rule, does not exceed the value of wilting moisture. A similar situation is typical for arid and semi-arid territories with the spread of ordinary and southern chernozems. In the zone of maximum ecogenic impact "North" of the territory of the Republic of Moldova, there is a sharp waterlogging. This is due to the overlap of natural streams, which contributes to the accumulation of moisture in atmospheric precipitation in depressive areas, and to the formation of a temperature regime. Thus, in this territory, a water regime of an alternating periodic flushing type is formed, a characteristic feature of which is the soaking of the entire soil layer to groundwater. It should also be noted that in summer, the consumption of moisture sharply increases due to physical evaporation

caused by a thinned grass stand that weakly shades the soil surface. This leads to a decrease in moisture at the top of the profile. Based on the foregoing, we can conclude that in the studied territories confined to the same landforms - by areas, two opposite processes occur: desiccation and waterlogging, which are characterized by their Soil Moisture Reserve.