

## ASSESSMENT OF WATER QUALITY IN THE ASPECT OF IRRIGATION OF AGRICULTURAL CROPS IN THE REPUBLIC OF MOLDOVA

**Andriucă Valentina, Lozan Raisa, Cazmalı Nicolai, Melnic Rodica,  
Donici Maxim, Untilă Nicolae**

*Technical University of Moldova, Chisinau, Republic of Moldova*

E-mail: valentina.andriuca@am.utm.md

In the pedoclimatic conditions of the Republic of Moldova (RM), irrigation is one of the most efficient methods of optimizing the water regime of the soil. During 2020-2023, within projects on the establishment of sustainable agroecosystems of fruit crops in the RM, along with the research of soil cover and soil properties, some water sources, used or expected for irrigation, researched and qualitatively evaluated the water of the Prut and Dniester rivers, at the distribution intake, applied respectively in the Grozești irrigation system, were collected and analyzed. Nisporeni district and Slobozia Dusca locality, Criuleni district. A lot of samples of water from local sources were investigated to highlight the quality, avoid the risk of negative effects on soil and plants. Research carried out within the artificial lake, Malaiesti, Rascani district, the first decade of March, 2023 and after the deposition of 60 mm of precipitation (end of April) showed a significant level of increase in natural and anthropogenic water pollution. It has been pointed out that natural water is polluted with magnesium and sodium. The use of this water for irrigation will lead to salinization and solonetization of arable chernozems.

The research of irrigation water in Valea Mare village, Ungheni district, 2022 (artesian well), used in drip irrigation of the sea buckthorn plantation with clay carbonate chernozems („Toma Iurie” LLC) revealed a level of sodium content (% Na) of abt. 38%, good irrigation quality, evaluated according to the SAR coefficient = 2.7, which indicates that irrigation will show poor solonetization. The Stebler coefficient  $K = 7.6$  corresponds to the rating - tolerance for irrigation. In general, this water can be used for irrigation in small norms during periods of increased risk of drought. During 2020-2022, the water quality for the irrigation of sea buckthorn of the chernozems plantation, LLC „Big Cuker”, Clisova, Orhei district, (30 ha) was researched and evaluated. The representative soil cover, consisting of typical low-humiferous chernozems and carbonate chernozems, presents a sector suitable for irrigation, but the quality of irrigation water is problematic. In May 2022, 6 sources of water for irrigation use were investigated, including Raut river water. Irrigation will negatively influence the state of the root system of sea buckthorn planted on brown soils. The root system of the plantation in conditions of excessive humidity was affected by fusariosis (Fusarium).

**Acknowledgments:** This paper has been founded by Research Project (RM) 20.80009.5107.13.

**Keywords:** *irrigation, irrigation indices, sea buckthorn, soils, water quality.*