

THE ELEMENTS OF POTENTIAL SOIL FERTILITY RELATING TO WINTER WHEAT PRODUCTION IN THE NORTHERN AGRICULTURAL AREA OF THE REPUBLIC OF MOLDOVA

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Abstract

The Northern Development Region of the Republic of Moldova (NDR) includes 11 administrative districts (Briceni, Edineț, Dondușeni, Drochia, Fălești, Florești, Glodeni, Ocnița, Rîșcani, Sângerei, Soroca), including the municipality of Bălți. The NDR corresponds to the Northern Agricultural Zone, representing 32.9% of the total area of the Republic of Moldova. The area has significant potential in the cultivation of the main strategic and export crops of the region - wheat, corn, sunflower and others, an area characterized by highly fertile soils - chernozems, with favorable grades of soil creditworthiness. In food security, the soil represents an important link regarding the fertility and productivity of cultivated crops. Currently, these are vulnerable to climate change and the risks that accompany them, including high temperatures during critical phases of plant development, lack of moisture in the soil due to insufficient atmospheric precipitation, lack of nutritional elements for plants and others. The elements of potential fertility with a determining role in food security are climatic conditions and soil characteristics: texture, organic matter content (humus), nutrients - NPK, which as a whole will determine the physical, hydro-physical characteristics and the conditions for plant growth and development. These characteristics have a major role in the accumulation, mobility and storage of moisture reserves, providing the plant with water and nutrients. In 2025, along with production, the quality of winter wheat on loamy-clay and clay-loamy leached chernozems was also researched. The comparative evaluation on several polygons highlighted varieties with high protein content (10.5%), gluten (26%), Zeleny index (56 ml), compared to agrocenoses characterized by low protein indices – 8.1%, gluten – 16%, Zeleny index – 38ml.

Keywords: winter wheat, leached chernozems, harvest quality, gluten, climatic conditions.