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LATEST NEWS

Climate change threatens agriculture in the Republic of Moldova

Climate variability and declining yields

Despite progress in plant breeding, new varieties, advanced cultivation techniques, and better plant protection systems, harvest levels in Moldova remain relatively low and highly variable. In recent decades, these fluctuations have become more pronounced, clearly reflecting the growing impact of climate change on plant productivity.

Increasing drought and soil moisture deficit

Progressive warming and lack of precipitation in late summer and autumn force many farmers to sow winter grains into dry soil. Soil moisture often drops below 70% of optimal levels. The absence of snow and rain in autumn–winter further depletes water reserves to depths over 1 m, resulting in a severe moisture deficit at the start of the growing season (Photos 1-6).



Photos 1 and 2: Deep soil drying in wheat fields affected by drought (photos: V. Botnari)



Photos 3 and 4: Corn crops affected by drought (photos V. Botnari)



Photos 5 and 6: Sunflower crops affected by drought (photos V. Botnari)

According to the UN Convention, areas with a humidity coefficient below 0.65 are prone to desertification. In Moldova, the Central and Southern regions already fall below this threshold, highlighting the urgent need to adapt agricultural technologies to changing climate conditions.

Frequent and intensifying drought events

Although 70% of annual precipitation falls during the warm season, summers are increasingly dry. Over the last 10 years, drought has occurred once in the North, 3–4 times in the Center, and 3–5 times in the South. These droughts accelerate land degradation and reduce the ability to maintain crop productivity (Photos 7-8).

Extreme weather and crop losses

Precipitation during the growing season is often irregular, appearing as torrential rains with hail. Instead of replenishing soil moisture, these events can cause floods, erosion (Photos 7-8), and significant crop damage. In drought years, yields of autumn cereals and rapeseed are often severely reduced, forcing farmers to re-sow with crops such as maize, sunflower, soybean, or sugar beet. However, these secondary crops also fail under high temperatures and a lack of moisture.

Broader impacts: water scarcity and rural vulnerability

Rising temperatures increase the number of hot days, intensify droughts, and prolong their duration. These conditions threaten food security, rural economies, and social stability. Hydrological drought is also

becoming common: rivers, ponds, lakes, and wells are drying up, signalling severe water deficits in both soil and atmosphere. Recovery from such deficits requires several years of favourable conditions.



Photos 7 and 8: Soil erosion caused by torrential rains (photo. V. Botnari)

Need for better planning and scientific support

Low accuracy and limited availability of meteorological data make it difficult to predict and manage risks. The closure of the agricultural university and research institutions has further reduced scientific support for agriculture.

Adaptation through innovation

To cope with increasing climatic stress, crop production technologies must be adapted to meet the needs of plant varieties under drought conditions. The adoption of smart and precision agriculture will change how agronomic decisions are made. Combined with information technologies, such approaches can help stabilize yields and improve the overall level of agricultural practice in Moldova.

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