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2. Agriculture and climate-adapted land use systems

Ukrainian black soils are among the most productive soils on the planet and are distinguished by their uniquely wide distribution. They make a significant contribution to global food production and are one of the main components of Ukraine's export potential and foreign trade balance.

The chernozems of Kharkiv, Sumy, and a number of other regions have suffered particularly significant damage as a result of the hostilities in recent years. Among the most acute consequences are large-scale fires in the fields during the harvest caused by military strikes, leading to significant crop losses. The deliberate destruction of agricultural infrastructure, in particular transport links and grain storage facilities, significantly limits the possibilities for logistics and the export of agricultural products.

The direct environmental consequences of military operations also include soil contamination with explosive residues and fuel and lubricants, as well as soil compaction due to the movement of heavy tracked vehicles, which complicates the restoration of agricultural production.

Within this area of research, attention is focused on the development of climate-adapted farming systems aimed at restoring and rationally using degraded agricultural landscapes. Innovative agrotechnological solutions are being considered to preserve the fertility of black soils, introduce crops that are resistant to climatic stresses, prevent erosion processes, optimize the water regime of soils, and apply remote sensing techniques. All these components form the basis of modern educational and research approaches in the field of sustainable land use