# Chapter 15
# Restoration of Drainage Systems as the Foundation for Agricultural Production Stability and Ecological Balance of Ukrainian Polissia

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## ABSTRACT

*The changing conditions of crop cultivation and the shift in the use of drained lands necessitate the restoration of drainage systems, expanding their functional tasks, and ensuring water regulation on drained lands. The research focuses on agricultural lands in the farms of LLC "Vasiuty and LLC Bilinsket" in the Kovel district of the Volyn region of Ukraine. Studies conducted on reclaimed lands of the drainage systems "Melnitska" and "Bobrovka" have shown that the implementation of a complex of works to restore open and collector-drainage canals to design specifications, the operation of hydraulic structures, allowed for timely drainage of excess water in the spring period and regulation of soil water regime in the early vegetation period. Maintaining moisture in the active soil layer within close to optimal limits at the end of the vegetation period is possible through the accumulation of additional water reserves in the open channel network. Yield indicators of the studied crops (winter wheat, maize, sunflower) on drained lands have been determined*

## BACKGROUND

Climate change manifests differently in regions around the globe, and its impact on the environment and socio-economic development of regions is becoming increasingly apparent, emerging as one of the key issues in the global economy and politics. Today, it poses a potentially serious threat to the global economy and international security due to increased risks at various levels related to food security, access to clean water, and the stable existence of ecosystems (Balabukh, 2017; Degodyuk et al, 2008; Guidance on meteorological forecasting, 2019; Ivanyuta et al, 2020; Ivashchenko, 2008; Kuzmych et al, 2021, 2022a, 2022b, 2022c,2023a, 2023b,2023c; Parry et al, 1990; Prykhodko et al, 2023; Rokochinskiy et al, 2019, 2020, 2023a; Romaschenko, 2019; Saiko, 2008; Yakymchuk et al, 2022).

Among the main consequences of climate change, such as rising air temperatures and changes in annual patterns of atmospheric precipitation, is the alteration of water resources and their availability to various sectors of the economy. Climate change significantly impacts agricultural production, one of the most climate-dependent sectors of the economy, leading to water scarcity, which is a major limiting factor for sustainable agriculture (Degodyuk et al, 2008; Gladiy, 2020; Korobiichuk et al, 2017,2020; Kuzmych et al, 2022d, 2022e, 2023d, 2023e, 2023f, 2023g; Parry Romashchenko, 2019; Ivashchenko, 2008; Land Reclamation, 2015; Saiko, 2008; Slyusar, 2008, Turcheniuk et al, 2022a).

# Electric Robotized Organic Technology for Livestock Production on a Pasture Field

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