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ASSESSMENT OF AGRO-CLIMATIC CONDITIONS FOR THE CREATION OF BIOENERGY PLANTATIONS OF WILLOW IN THE POLISSYA REGIONS OF UKRAINE IN THE CONTEXT OF CLIMATE CHANGE

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Abstract

Since the beginning of the Industrial Revolution, in less than three centuries, mankind has used more than half of the fossil fuels that have accumulated in the bowels of the earth for hundreds of millions of years. Understanding the limitations of this resource has led to rapid changes in approaches to its use and the search for an alternative. Global climate change and its negative impact on the biosphere have given additional impetus to new solutions in the field of energy use. Therefore, most developed countries give priority to the search for and use of new renewable energy sources, among which a significant place is occupied by biofuels for the production of which the biomass of a number of bioenergy crops is used.

Bioenergy is based on the use of biomass energy, the consumption of which does not increase the global greenhouse effect. In this regard, it is necessary to develop all possible areas of bioenergy, taking into account the available natural resources in different regions.

The relevance of the chosen topic is due to the fact that the development of bioenergy will contribute to the strengthening of Ukraine's energy independence in today's difficult economic conditions. Ukraine has exceptional agro-climatic and soil resources for sustainable and high yields of bioenergy crops, in particular, willow (*Salix viminalis* L.). Therefore, it is necessary to study in detail the agro-climatic conditions of its cultivation in the study area for the purpose of rational use of these conditions and the

most optimal placement of crops. Addressing this issue in relation to climate change is of particular importance.

The aim of this study is to assess the impact of climate change on agro-climatic resources relative to the conditions of formation of productivity of willow on the example of one of the Polissya regions of Ukraine – Zhytomyrska.

To achieve this goal, it is necessary to calculate the main agro-climatic indicators of the growing season of willow of the third year of life in the Zhytomyr region for the basic (long-term average) conditions and taking into consideration climate change scenario RCP6.0.

The results obtained can be used in the implementation of a comprehensive assessment of agro-climatic resources in relation to the cultivation of willow and optimization of acreage in the conditions of implementation of scenario RCP6.0 climate change in the Polissya.

Keywords: willow, climate change, agroclimatic conditions.