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IMPACT OF CLIMATE CHANGE ON THE AGRICULTURAL SECTOR

У роботі розглянуто вплив змін клімату на розвиток аграрного сектору, проаналізовано основні тенденції зміни температури, опадів та екстремальних погодних явищ, а також їхній вплив на врожайність, стан ґрунтів і економічну ефективність сільського господарства. Визначено як негативні, так і позитивні наслідки кліматичних змін, а також обґрунтовано необхідність адаптації аграрного виробництва до нових умов.

Ключові слова: *зміни клімату, аграрний сектор, врожайність, посуха, ґрунти, адаптація.*

This paper examines the impact of climate change on the development of the agricultural sector, analyzes the main trends in changes in temperature, precipitation, and extreme weather events, as well as their impact on crop yields, soil condition, and the economic efficiency of agriculture. Both the negative and positive consequences of climate change are identified, and the need to adapt agricultural production to new conditions is substantiated.

Keywords: *climate change, agricultural sector, crop yields, drought, soil, adaptation.*

Climate change is one of the key global challenges of our time, directly affecting the functioning of the agricultural sector. Agriculture is highly dependent on natural and climatic conditions; therefore, any changes in temperature patterns, precipitation levels, or the frequency of extreme weather events have significant consequences for crop production. In Ukraine, these processes manifest as an increase in the average annual temperature, changes in seasonality, and a rise in the frequency of droughts and abnormal precipitation.

One of the most noticeable trends is the gradual warming of the climate. Rising temperatures contribute to a longer growing season, which, on the one hand, creates favorable conditions for growing new crops and increasing the yield of certain plants. On the other hand, excessive temperature increases lead to lower yields, especially when optimal temperature limits for plant growth are exceeded. This is particularly true for grain crops, which form the basis of Ukraine's agricultural production.

A significant factor in the impact of climate change is the disruption of the water balance. In recent decades, Ukraine has seen an increase in the frequency of droughts, especially in the southern regions, leading to reduced soil moisture and water shortages. At the same time, the intensity of downpours is increasing, causing soil erosion and the loss of the topsoil. Such phenomena negatively affect both crop and livestock production, complicating the production process and increasing the risks for agribusiness.

Climate change also contributes to soil degradation. Rising temperatures and decreasing humidity accelerate the mineralization of humus, which reduces soil fertility. In addition, the increasing frequency of extreme weather events contributes to the development of erosion processes. This poses long-term risks to the agricultural sector, as restoring soil cover requires significant resources and time.

A separate issue is the spread of pests and plant diseases. Climate warming creates favorable conditions for their reproduction and survival, leading to increased crop losses. The lack of stable snow cover in winter also negatively affects winter crops, increasing the risk of them freezing.

Along with the negative consequences, climate change also creates certain opportunities for the agricultural sector. In particular, opportunities for growing heat-loving crops in northern regions are expanding, conditions for introducing new varieties and technologies are improving, and fertilizer use efficiency is increasing under favorable conditions. However, realizing these opportunities requires adapting agricultural production to new climatic conditions.

Adaptation of the agricultural sector is a prerequisite for its sustainable development. It

involves the adoption of modern irrigation technologies, the use of drought-tolerant crop varieties, changes in crop rotation, and the improvement of agricultural practices. In addition, the development of climate change monitoring and weather forecasting systems plays a crucial role, helping to mitigate risks and enhance production efficiency.

In addition, an important aspect of the impact of climate change is the economic instability of the agricultural sector. Fluctuations in temperature and precipitation directly affect crop yields, which, in turn, determine the revenues of agricultural enterprises and their investment attractiveness. Research shows that climate instability, water scarcity, and soil degradation can reduce agricultural productivity and create additional risks for businesses. As a result, this complicates long-term planning and hinders the development of the agricultural sector.

It is also important to note that climate change affects the structure of agricultural production. In particular, there is a gradual shift in agroclimatic zones, leading to changes in the geography of major crop cultivation. In the southern regions of Ukraine, the risk of crop loss due to drought is increasing, while in the northern regions, opportunities are emerging for growing more heat-loving crops. Such transformations require a reevaluation of traditional approaches to agriculture and the adoption of new technologies and crops.

Equally important is the impact of climate change on food security. Declining crop yields, production instability, and increased risks could lead to a reduction in agricultural output. According to researchers' forecasts, further deterioration of climatic conditions could negatively affect food supply and increase dependence on imports. In this regard, the issue of adapting the agricultural sector to climate change is of strategic importance for the country's economic and food security.

Overall, climate change has a complex impact on the agricultural sector, bringing both negative and positive consequences. It is altering traditional farming conditions, requiring agricultural producers to adopt new approaches and strategies. Effective adaptation to climate change is a key factor in ensuring food security and the sustainable development of the agricultural sector in the future.

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PLANT-INDUCED TOXICITY IN FARM AND DOMESTIC ANIMALS: (РОСЛИННО-ІНДУКОВАНА ТОКСИЧНІСТЬ У СВІЙСЬКИХ ТА ДОМАШНІХ ТВАРИН)

У публікації розглянуто проблему отруєнь рослинами у свійських та домашніх тварин. Проаналізовано основні ризик-фактори, зокрема вид тварини, її раціон, та наявність токсичних рослин на пасовищах або у кормі. Паралельно розглянуто методи лікування та клінічні прояви отруєнь; особливу увагу приділено запобіжним заходам.

Ключові слова: *отруєння, рослини, тварини.*

The article addresses plant poisoning in both farm and companion animals, examining key risk