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Climate Services: Science and Education

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Conference Proceedings



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**INTERNATIONAL RESEARCH-TO-
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RELEVANCE OF THE USE OF CLIMATE SERVICES IN THE DEVELOPMENT OF HORSEMANRY OF SOUTHERN UKRAINE

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World experience shows that climate change has never been as rapid as in the past 30 years. For example, 2016-2019 was the hottest year in the history of meteorological observations in the world. In addition to increasing temperatures, there is the problem of changing rainfall. During the period 2014-2018 in 10 regions of Ukraine, the average annual rainfall was 7-12% less than normal, there is a tendency to increase the area with insufficient rainfall (less than 400 mm) in the warm period [1].

According to the meteorological service of Ukraine, for the previous ten years an average of 170 per year was recorded. Every 10 years, the number of natural disasters in Ukraine increases by about 4% [2]. Southern regions of Ukraine are becoming more vulnerable to climate change, due to increasing aridity, climate is projected to reduce the yield of almost all crops in the range from 10 to 20%, in the case of a more severe scenario - from 25% to 50% by 2050 [3]. In the South of Ukraine, deviations of climatic conditions from optimal in recent years cause disturbances of homeostatic balance in the body, resulting in changes in the level of consumption and use of feed, energy metabolism and the level of productivity of animals [4]. One of the options for adjusting the management of pasture and fodder crop rotations in horse breeding is their adaptation to changes - the involvement of drought-resistant grasses and fodder crops for use in pasture and raw material conveyors, the use of optimal structure of sown areas, focused on reducing fodder production [5]. To reduce climate risks in animal husbandry, it is necessary to understand how potential environmental stressors can directly affect the functioning of animals and their health, the realization of genetic potential. In addition, in the conditions of the South of Ukraine the problem of thermal stress is extremely relevant [6].

Due to the effects of climate stressors, staff in weather-dependent sectors of the economy must have sufficient knowledge of the local environment and its impact on their activities. Due to suboptimal management decisions, ignoring them, significant damage and loss of profit can be inevitable [7]. An example of such a meteorological industry is horse breeding, which directly depends on the state of the pasture economy. It is the grazing of horses that best meets their physiological needs, it is green fodder in its chemical composition and nutrients are the most valuable for feeding horses. Thus, the best conditions for horse breeding are created in those countries that have the most favorable climatic conditions for the functioning of pasture biocenoses.

For example, in the conditions of Kherson region during 2000-2014 the average annual temperature increased by 1.3 °C, during the growing season - by 1.7 °C. The opposite processes were characteristic of the dynamics of precipitation: the amount of which fell by 73.53 mm on average per year and by 79.8 mm on average during the growing season. Such climate change can lead to a shift in vegetation zones; increase in the area of desert and semi-desert pastures (up to 30%); loss of spring-autumn pastures (up to 70%); reduction of pasture productivity; reducing the stability of the pasture system as a whole [8]. Based on the above, in the current realities of climate change in southern Ukraine, there are dangers to the functioning of pasture farming, which requires adjustment of technologies for keeping, using and breeding horses. In turn, the high degree of meteorological dependence of the horse breeding industry requires taking into account changes in weather conditions and the use of modern climatic services.

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