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THE OPPORTUNITY OF DEVELOPING SMART AGRICULTURE IN CONDITIONS OF VARIABILITY OF CLIMATE FACTORS

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He consequences of global warming are becoming more evident from year to year, however, currently there is no well-thought-out strategy with effective measures to adapt agriculture to the variability of climate factors. Technological operations in plant cultivation are often carried out on the basis of declarative recommendations obtained in arrangements that are far too different from the current climatic and production conditions. Analysis of applied agricultural practices confirms numerous examples when, in conditions of concentration and intensification of agricultural production, deviations of technological parameters from optimal values lead either to a sharp decrease in yield or to a decrease in production quality, environmental pollution with chemical compounds associated with a decrease in soil fertility and labor productivity.

The instability of climate factors, with large deviations from the multi-annual norm, represents a risk for agriculture. With reference to the Republic of Moldova, climate change confirms that most of the years between 2015 and 2025 were among the warmest documented since the beginning of instrumental observations (1871), with annual average values of over 12.0°C, which is 2°C higher than the multiannual average. Greater amplitudes of this warming are observed in the southern districts of the country. In the northern part, the tendency for growth includes values in the range of 1.5-1.6 °C, in the southern area temperatures increase more rapidly, reaching the value of 2.3 °C. The tendency for temperature increase intensifies the phenomenon of heat, the latter being more pronounced in summer (June-August).

In this situation, it is necessary to review some common agricultural practices along with the adaptation of plant cultivation technologies capable of ensuring the maintenance, and in some cases, an increase in the productivity of agricultural crops. Meteorological observations show that in recent decades, in the center and north of the republic, the phenomenon of “dryness and heat” manifests itself with a duration

of 3 - 7 days. Under such conditions, agricultural crops are less affected by the thermal stress generated by temperatures above 25 °C and relative air humidity below 30%. In some places, in the southern districts, the phenomenon of "heat" exhibits a higher intensity with a duration of over 10 days. For the maintenance and development of the agricultural sector, it is important to systematically assess the impact of climate scenarios. Separate alternations of temperatures and precipitation need to be analyzed with the imposition of more comprehensive indices for describing the realities caused by climate factors.

In the context of climate variability, the development of smart agriculture is gaining wider popularity due to the performance of information technologies, high-speed Internet and the possibility of obtaining digital information about the state of agricultural land and crops from a distance. Thus, smart agriculture presents a comprehensive system of high-performance agricultural management, which includes methods of rotation and positioning of agricultural crops, complete information matrices, information evaluation systems and development of technological decisions

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