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THE RISK OF LATE SPRING FROSTS FOR AGRICULTURE OF THE REPUBLIC OF MOLDOVA

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In the group of weather-climatic phenomena unfavorable to agriculture, frost occupies an important place. They cause not only the slowdown of plant development and the premature end of the vegetation cycle, but even their partial or total death. On the territory of the Republic of Moldova, according to the data of the State Hydrometeorological Service analyzed in this study for a period of over 60 years, late spring frosts are generated in anticyclones and their ridges formed in the Arctic air masses, as well as in high pressure areas with insignificant barricade gradients, oriented from west to east. They can also occur as a result of the advection of cold air behind cyclones. Most often these frosts are advective-radiative. The mentioned frosts usually affect the layer in the immediate vicinity of the soil during the vegetation period of the plants, when the average daily air temperature remains positive.

In spring, frosts pose a great danger to agricultural crops, which are signaled after the stable passage of the average daily air temperature through 10°C in the direction of its increase (April 16-23). Spring frosts on average remain on the territory of Moldova until April 5-21, at the ground surface until April 22 - May 6. But the average dates of frost disappearance depend, to a large extent, on local conditions (fragmentation and height of landforms), sometimes reaching variations of 20-30 days. The latest date of frosts in the air in the north and center of the republic was reported on May 21-24 (1980), and in the south of the republic during the period 1-10 May (1990). Frosts are possible at the surface until June 1 (1955). In 1977 such a phenomenon took place between May 22-28.

Late spring frosts cause considerable damage to fruit crops during flowering. The probability of frost damage to apricot flowers and fruits is on average 15-40%, for other fruit crops - up to 15%. A special danger for the vine is the late spring frosts after the buds open. The most sensitive to frost are vegetable crops - such as tomatoes, peppers, eggplant and others are the most demanding to heat. Frosts with an intensity of 0-1°C cold lead to their extinction. The probability of frost damage to sprouted corn and sunflower plants is relatively low.

In practical interest, the risk interval for frost has been established, when the respective phenomena are the most dangerous, in order to avoid some of their serious consequences. The risk interval represents the interval between the average and extreme date of frost production. The risk range varies depending on the intensity of the genetic factors of the frost, as well as the local conditions, both as production time and as a place of manifestation. All methods used to reduce the consequences and control frost (fumigation, shelter, plant protection curtains, sprinkler and micro-sprinkler irrigation, air ventilation, hot air heating) must contribute to the reduction of radiative cooling, destruction of the thermal inversion layer from soil, homogenization of the air temperature in the microclimatic layer and consequently, maintenance of the air temperature and on the soil surface higher than 0°C.

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