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FEATURES OF FORMATION OF HIGHLY PRODUCTIVE AGROPHYTOCENOSES OF SUNFLOWER HYBRIDS IN THE RIGHT BANK FOREST-STEPPE

V. BORYSENKO, candidate of agricultural sciences, associate professor
Uman National University of Horticulture

The formation of highly productive agrophytocenoses of sunflower hybrids largely depends on the level of provision with agroecological factors of life in the ontogenesis of plants. Obtaining high and sustainable yields of sunflower is possible only when developing and mastering the zonal technology of its cultivation, taking into account the biological requirements of hybrids [1].

However, for full realization of the genetic potential of sunflower hybrids must necessarily take into account the action of environmental factors, especially their requirements for abiotic factors.

In the process of growth, development and formation of the harvest, sunflower plants, like other crops, require a certain amount of heat, light, water, nutrients, which determine the direction and intensity of all vital processes in plants. They are not interchangeable, but interdependent.

Changing one of them causes a change in the magnitude of the influence of the others. Fluctuations in temperature, moisture reserves in the soil and other environmental factors are the root cause of changes in the internal state of the plant organism and the intensity of the processes that take place in it [2].

Studies conducted in various scientific institutions of Ukraine found that among many abiotic factors, the temperature regime is one of the main environmental factors, since biochemical processes in the plant are largely associated with it.

Low temperatures, cool plant tissues, reduce the rate of metabolism of nutrients. At the same time, the biological activity, growth and productivity of plants decreases even when other agrometeorological factors are at an optimum.

The optimum temperature for the germination of sunflower seeds is 20°C. At this temperature, shoots appear on the 7-8th day. The optimal temperature for the

growth and development of sunflower is 25–27°C. Increasing the temperature to 30°C and above, adversely affects photosynthesis, and at 40°C – it stops.

Lowering the temperature during vegetation to 14°C stops the growth and development of plants, and stable temperatures of 13–15°C negatively affect the processes of flowering, formation and ripening of inflorescences. Spring frosts to minus 5-6°C do not cause significant damage to plants, but they delay and weaken their growth, and autumn frosts to minus 3°C cause the death of plants [3].

The dominance of low temperatures in the early stages of organogenesis can lead to a decrease in seed yield by 25% or more. The lower threshold of the active average daily temperature or biological minimum for sunflower is considered to be + 10°C, but in some segments of the growing season it has certain deviations. Sunflower is most sensitive to heat during germination of seeds and seedlings, flowering and formation of inflorescences.

A number of researchers prove that for the normal growth and development of sunflower, depending on the hybrid, the sum of active temperatures (above 10°C) is 1600-2300°C.

According to scientists, the most favorable conditions for the growth and development of sunflower plants are at a hydrothermal coefficient of 1 to 1.7. At MTC 0.8-0.9 – the water regime is tense, 0.6-0.7 – the moisture supply is insufficient and at 0.4-0.5 the death of plants from drought is noted.

It is known that climatic conditions are currently changing, as evidenced by sharp fluctuations in the availability and amount of precipitation and a significant increase in temperatures in most regions of our country. The Forest-steppe zone of Ukraine is characterized by an unstable regime of moisture supply: short periods of waterlogged air and soil are replaced by long-term droughts. This affects the condition of agrocenoses, in particular the condition of plants.

In our conditions, where the limiting factor for sunflower is heat, and in some years and moisture, to obtain a high yield it is quite important to establish the optimal period of sowing. The terms of sowing differ depending on the zone of growing

sunflower hybrids, the requirements of varieties for temperature during the germination period, the length of the day, soil and weather conditions of the region.

The analysis of the obtained research results shows that taking into account significant deviations of weather conditions from the average long-term norm in recent years, as well as the introduction into production of new, high-performance hybrids of sunflower of intensive type, there is a need to clarify existing and develop scientifically sound approaches for choosing the optimal terms of sowing this crop with the obligatory consideration of the bioclimatic potential of the region in order to obtain a high yield of the best quality.

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