Breeding maize for heat and drought tolerance-a necessity nowadays in Romania

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Maize is one of the most important crops both worldwide and in Romania. One of the main problems faced by this crop is drought and heat, phenomena encountered more frequently in recent years in some European countries. In the area of the city of Turda, in recent years an increase in average temperatures has been observed, sometimes associated with a lack of precipitation. In some years, although the precipitation had normal values or above the multi-year average, their distribution was chaotic, often with unfavorable effects on the maize crop. The increased temperatures in June and July, increasingly frequent in recent years, have determined the appearance of phenomena such as the drying of leaves and panicles, the worsening of protandry, the incomplete development of husks, and of course the significant decrease in yield. In order to observe the effects of climatic conditions on the maize hybrids created at ARDS Turda, 35 own creations were studied for 7 experimental years (2017-2023). The genotypes analyzed are both older creations and the newest registered hybrids, these being characterized by superior tolerance to unfavorable environmental conditions. The hybrids Turda332, Turda344, Turda335, Turda2020, Turda380, HST148 and SUR18/399 achieved superior yield in all experimental years, this being due to both their superior production capacity and adaptive heterosis. These genotypes are also characterized by a well-developed leaf system, erect or semi-erect leaves, good flowering consistency, lack of sterile plants.

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