

PHYSIOLOGICAL ASPECTS REGARDING THE SWEET CHERRY WATER REGIME IN THE CLIMATIC CONDITIONS OF 2023

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Abstract

The lack of water in the fruit trees ecosystem can cause atmospheric and pedological drought, under the action of which the plants suffer from cell dehydration through various biochemical and physiological changes. The purpose of this study is to evaluate the water regime by assessing the state of hydration of some sweet cherry cultivars ('Van', 'Andreiaș' and 'Margonia') cultivated at Research Station for Fruit Growing (RSFG) Iași (N-E Romania) in the climatic conditions of the year 2023. The physiological indices analyzed were the determination of the water potential and the evaluation of the rate of dehydration at leaf level in three different phenological stages according to the BBCH scales: 65 (full flowering); 78 (fruits approximately 80% of final size) and 89 (fruit ripening) in two different areas of the crown: internal and external. Regarding the rate of dehydration, the results recorded statistical differences between cultivars but also at the level of crown areas within the same phenophase. The results oscillated between the minimum value of 45.62 at the 'Andreiaș' in the flowering phenophase in the internal area of the crown and the maximum of 72.28 in the outside of the crown at 'Margonia'. The water content of the leaves recorded maximum average values in the flowering phenophase of 69.90%. The climatic conditions in the growing season (March-August) were characterized by an average temperature of 17°C, with an increase of 1.9°C compared to the multiannual average and a rainfall deficit of 88 mm. The physiological response of fruit trees to drought conditions caused by high temperatures associated with a lack of precipitation was to increase the content of reserve substances and total dry matter.

Key words: *Prunus avium* L., water content, leaves, drought stress