PROCEEDINGS OF THE SYMPOSIUM ON DRIP IRRIGATION IN HORTICULTURE WITH FOREIGN EXPERTS PARTICIPATING

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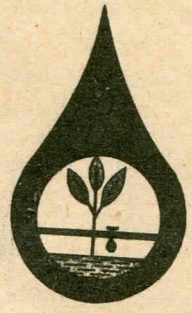

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THE INFLUENCE OF DRIP IRRIGATION ON THE PHYSIOLOGICAL STATE OF APPLE TREES

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Moldavia is a republic of highly developed horticulture. Its natural condition, climate and soil are favourable for the cultivation of various stocks and varieties of fruit crops. However, this region belongs to a zone of insufficient humidity and is characterized by a long period of high summer temperatures. Therefore, irrigation is an important factor for receiving high stable yields.

Together with the other methods of irrigation used in our republic /sprinkling, including synchronous, pulsed sprinkling and furrow irrigation/ drip irrigation /DI/ is being widely spread. The irrigation time of orchards is controlled by the measurement of leaf electric resistance. The physiological state and yields of various apple varieties in the intensive orchards under DI have been investigated. Leaf water contents and turgor have been higher in the plants watered by DI comparing with sprinkling during the vegetative periods of 1976-1979. It is caused by the fact that sprinkler irrigation is conducted periodically whereas under automatized DI the humidity of the root zone in orchards is maintained at the constantly optimal level – 80-85 % of marginal field water capacity. Apple trees under DI have an intensive transpiration, however, during the midday hours transpiration somewhat reduces, as this method doesn't allow us to optimize orchard microclimate. Therefore, during the hot days refreshing aerosol irrigation should be used. Leaf water activity, transpiration and photosynthesis productivity, as well as yields increase under DI. The optimal discharge of water per tree bearing fruit is 8 l/hour with two drippers situated under the crown at a distance of 0.5 m from the tree stalk.

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